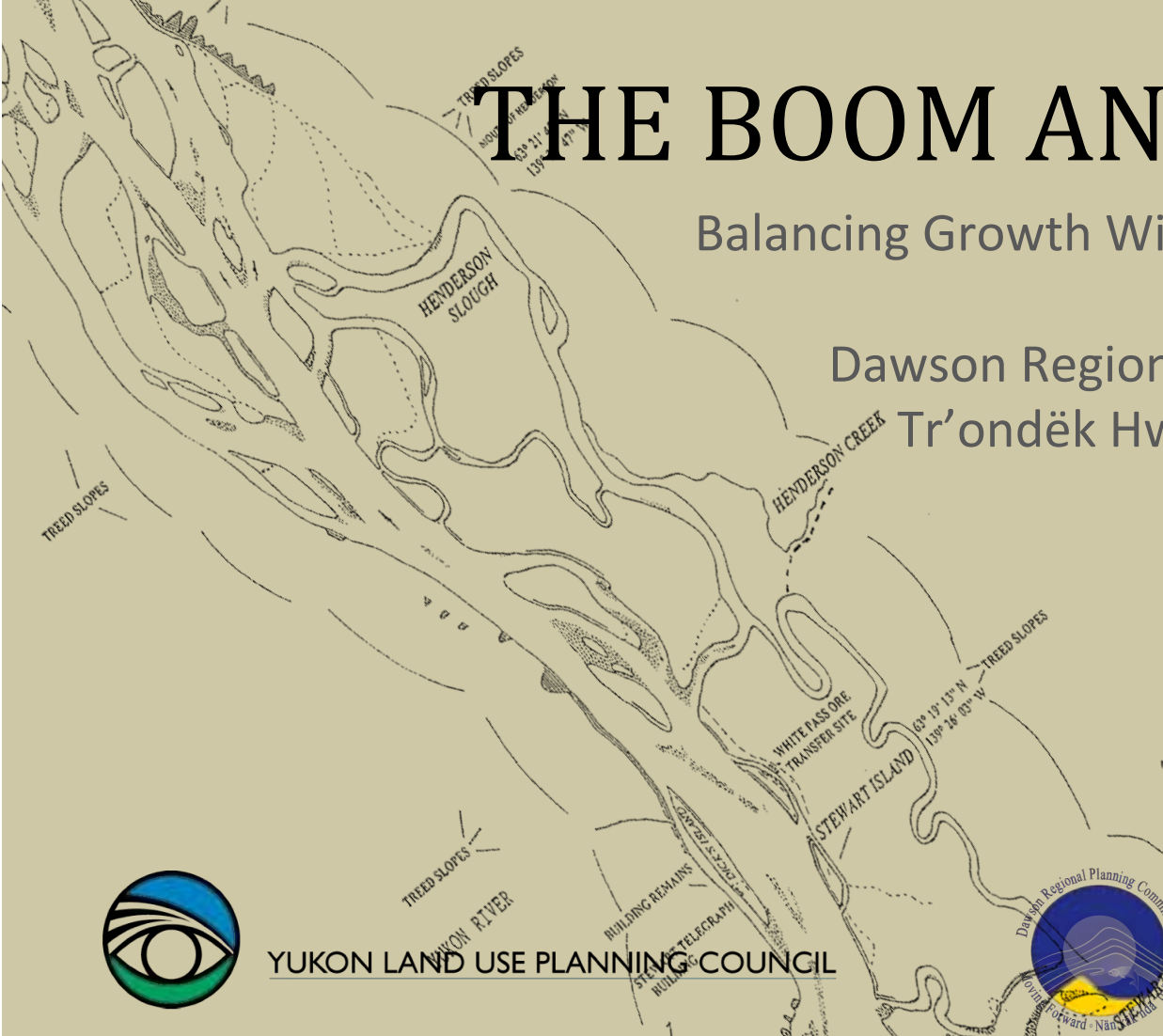




THE BOOM AND BEYOND

Balancing Growth With A Sustainable Future

Dawson Regional Planning Conference
Tr'ondëk Hwëch'in Community Hall
January 18 & 19, 2012



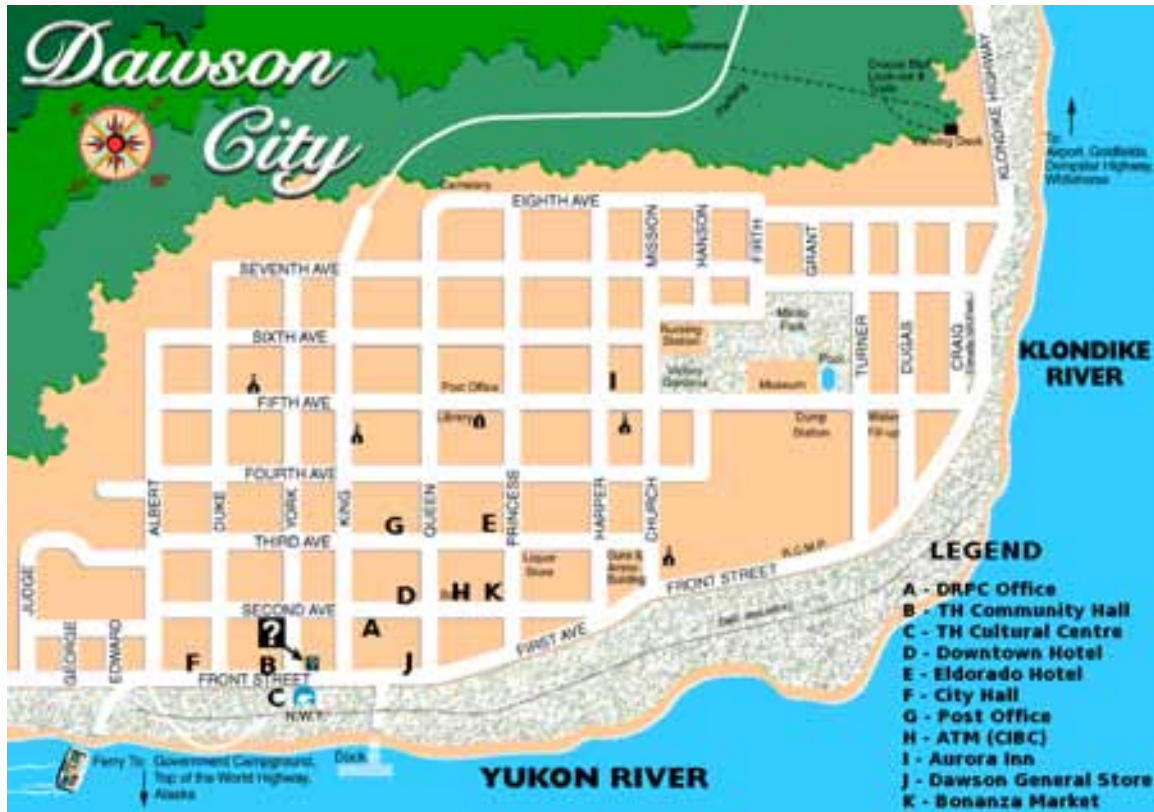
YUKON LAND USE PLANNING COUNCIL



**Dawson Regional
Planning Commission**

Moving Forward • Nän käk ndä tr'ädäl

LOCATION MAP



Important Phone Numbers

DRPC Office	993-4400
TH Community Hall	993-6224
Danoja Zho Cultural Center	993-6768
Eldorado Hotel	993-5451
Downtown Hotel	993-5346
Aurora Inn	993-6860
Air North	993-5110
RCMP	993 -5555
Ambulance	993-4444

The Community Hall and Cultural Center are a short walk from the hotels. Aside from transportation from the Airport (check with your Hotel for a shuttle), it's easy enough to get around on foot.

Although most restaurants are closed, both hotels as well as the Drunken Goat Tavern are open for food service. Several shops along Front Street and Second Avenue are also open on a reduced winter hour schedule.

Pedestrian trails along the river are in reasonable winter walking condition, there's lots of snow for anyone wanting to ski! Dress warm though, temperatures are expected to be in the -30C range.

THE BOOM AND BEYOND

Balancing Growth With A Sustainable Future

Dawson Regional Planning Conference

Dawson City, Yukon

Wednesday Morning, January 18

8:30 AM	<u>Opening Prayer</u>
8:35 AM	Welcome – Chief Eddie Taylor Tr’ondëk Hwëch’in
8:45 AM	<u>Opening Remarks</u> – Ian D. Robertson, Chair Yukon Land Use Planning Council
	<u>Morning Presentations</u>
	Moving Forward – Footprints on the Pathway Moderator: Jeff Hamm Planning can engage communities in a process of defining alternative futures in terms of acceptable limits of environmental and social change. Minimizing land use conflict and identifying acceptable “trade-offs” between values are important outcomes for a regional plan.
8:50 AM	Evaluating Trade-offs – Thinking Outside the Black Box Steven Kennett – Independent Policy Consultant
9:30 AM	Social License for Energy Development in the North Yukon Land Use Plan Shawn Francis – S. Francis Consulting, Inc.
10:00 AM	Cumulative Effects in the White Gold District Graeme Pelchat – EDI Environmental Dynamics Inc.
10:30 AM	Morning Refreshment Break
11:00 AM	<u>Workshop</u> – How Much Is Too Much? A discussion of approaches to evaluating economic, ecological and social trade-offs for balanced growth.
12:00 PM	Lunch (Provided at the TH Community Hall)



YUKON LAND USE PLANNING COUNCIL



**Dawson Regional
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THE BOOM AND BEYOND

Balancing Growth With A Sustainable Future

Dawson Regional Planning Conference

Dawson City, Yukon

Wednesday Afternoon, January 18

<p>1:00 PM</p>	<p><u>Afternoon Presentations</u> Moving Forward – Finding the Sweet Spot Moderator:</p> <p>Regional land-use planning provides a framework for the protection of areas of significant ecological and cultural value. Candidate areas for protection in Yukon regional land use plans must consider traditional First Nation values, be representative of northern ecosystems and achieve broad conservation objectives. Planning proactively for conservation requires a precautionary approach, recognizing the need to balance natural and cultural values with enhanced economic opportunity.</p>
<p>1:15 PM</p>	<p>Conservation Assessment for Regional Planning Fiona Schmiegelow – University of Alberta (Yukon College)</p>
<p>2:00 PM</p>	<p>Dawson Region Ecological Landscape Model Nadele Flynn – Environmental Planning, Yukon Environment</p>
<p>2:30 PM</p>	<p>Ecological Benchmarks of the Boreal Cordillera: Priority Areas for Conserving Yukon’s Ecological Values Hilary Cooke – Wildlife Conservation Society of Canada</p>
<p>3:00 PM</p>	<p>Afternoon Refreshment Break</p>
<p>3:30 PM</p>	<p><u>Workshop</u> How Much Is Enough?</p> <p>Participants will discuss priorities for identification of conservation areas within the Dawson Planning Region</p>
<p>4:30 PM</p>	<p>Adjournment</p>



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Dawson Regional Planning Commission

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THE BOOM AND BEYOND

Balancing Growth With A Sustainable Future

Dawson Regional Planning Conference Dawson City, Yukon

Thursday Morning, January 19

9:00 AM	Welcome Scott Casselman - Chair, Dawson Regional Planning Commission
9:05 AM	Morning Presentations Moving Forward - Corridors and Crossroads Moderator: Regional plans attempt to balance objectives for economic growth, ecological conservation and cultural promotion.
9:15 AM	Dawson Regional Economic Development Plan Michael Earl – Tr’ondëk Hwëch’in
9:45 AM	Mapping Habitat Suitability in the Dawson Region Heather Clarke – Habitat Programs, Yukon Environment
10:15 AM	Morning Refreshment Break
10:45 AM	Tourism Values along the Yukon River Corridor Neil Hartling – Tourism Industry Association of Yukon
11:15 AM	Panel Discussion – “A River Runs Through It” The Yukon River is well used by a variety of people and industries. A Panel will discuss the impact of human activity along this special corridor, and the significance of the river to economic, cultural and ecological values. Panel Members – Gerry Couture, Peggy Kormendy, Ben Warnsby, Wally Hidingier
12:30 PM	Closing Prayer



YUKON LAND USE PLANNING COUNCIL



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PRESENTATION ABSTRACTS

Wednesday Morning, January 18

Tr'ondëk Hwëch'in Community Hall

Evaluating Trade-offs – Thinking Outside the Black Box

Steven Kennett

Trade-off decisions involving compromises between different values and interests are at the heart of regional planning when increasing levels of activity result in land-use conflicts and cumulative environmental effects. It is unfortunate, therefore, that making trade-offs is often viewed as a 'black box' process. This presentation argues that trade-off decision making can and should be structured, rigorous and transparent. It reviews the risks of black box processes, offers some suggestions for making better trade-off decisions in planning, and provides a brief introduction to a structured decision-making process that combines analysis and deliberation.

Social License for Energy Development in the North Yukon Land Use Plan

Shawn Francis

In areas with poorly defined landscape objectives, obtaining social license, or broad societal support, for natural resource development activities can be challenging. The Yukon regulatory system, particularly the free entry mineral staking system, is built on the premise that resource development activities are desirable, acceptable and provide benefits to residents of the territory. However, project proponents often discover during the project review phase that some residents do have significant concerns about activities occurring in certain locations. Project proponents, particularly in the case of larger projects, are then asked how they will mitigate public concerns—many of which deal with cumulative effects or landscape-level conservation planning—issues which are very challenging, if not impossible to deal with, at the project scale. Regional planning provides an opportunity to address these landscape-level issues.

In northern Yukon, potential oil and gas development in Eagle Plain and its potential impact on the Porcupine Caribou Herd was the central issue for residents of Old Crow, governments and stakeholders. There was a strong desire for the Commission to 'solve' the Eagle Plain oil and gas issue. This talk will examine how the classic trade-off of 'development versus conservation' was addressed in the North Yukon Regional Land Use Plan. Cumulative effects modeling, human disturbance mapping and zoning that identified acceptable levels of human-caused disturbance, was used to gain broad support for establishing landscape-level development and conservation objectives. The landscape management framework established through the Plan was also designed to provide specific guidance to project proponents and regulatory agencies.

Cumulative Effects in the White Gold Area	
Graeme Pelchat	
	A relatively high number of project proposals for quartz exploration activities within and adjacent to the Dawson Planning Region were submitted to YESAB beginning in early 2010. Many of the projects are proposed to occur at the same time. Assessments under the Yukon Environmental Socio-economic Assessment Act (YESAA) require the consideration of cumulative environmental and socio-economic effects. To assist with the compilation, synthesis and analysis of information in support of their cumulative effects assessment related to wildlife in this area, YESAB commissioned a cumulative effects report focussed on potential impacts to wildlife. The report summarizes selected cumulative anthropogenic disturbance metrics related to wildlife within the assessment area and provides a tool for assessors to determine potential projects effects in a regional context.
Conservation Assessment for Regional Planning	
Fiona Schmiegelow	
Dawson Regional Ecological Landscape Model	
Nadele Flynn	
	Nadele will describe principle components of Yukon's bioclimatic ecosystem classification schema and present the mapping techniques used to delineate broad ecosystem units in the Dawson Regional Planning Region. Nadele will also review practical ways the bioclimatic ecosystem classification and resultant map products could be used for addressing resource management and planning questions in the areas of: cumulative effects assessment, habitat and land capability, climate change scenarios, infrastructure planning, identifying special elements in the landscape etc.
Knowledge-Based Habitat Suitability Mapping in the Dawson Regional Plan	
Heather Clarke	
	Local knowledge is highly valuable in assessing the suitability of habitat for a particular species. This presentation will provide an overview of the process involved in collecting, assessing, and applying this knowledge to land-use planning. Particular topics covered will include an explanation of methods used to gather this information, details on how information from multiple sources can be combined to provide an overall description of the importance of different habitat types, and the methods used to present this information in a map format that can then be used in land-use planning. Previous examples of habitat suitability maps generated using local knowledge will be presented.

Dawson Regional Economic Development Plan	
Michael Earl	
Ecological Benchmarks of the Boreal Cordillera: Priority Areas for Conserving Yukon's Ecological Values	
Hilary Cooke and Don Reid	
	<p>Ecological benchmarks are intact areas (i.e. with little or no human footprint), representative of natural environmental variation, and sufficiently large to maintain natural ecosystem dynamics, ecologically functional wildlife populations, and terrestrial and hydrologic connectivity. Benchmark areas can serve as reference sites for understanding the natural dynamics of ecosystems, and their response to human activities, through comparison with areas managed for resource development. Using the BEACONs (Boreal Ecosystems Analysis for Conservation Networks) conservation planning approach and software, we identified networks of ecological benchmarks for the Boreal Cordillera of Yukon and British Columbia under various land use planning scenarios. We will highlight benchmark areas and watersheds across central and southern Yukon, and within the Dawson Land Use Planning Region, that could be considered priorities for special management in land use plans.</p>
Tourism Values along the Yukon River Corridor	
Neil Hartling	

WORKSHOP #1

How Much Is Too Much?

This workshop will examine challenges Commissions face at the options/scenario stage, where they must choose between potential future states for the region and develop the draft plan. The potential use of modeling, cumulative effects assessment and land designation ratios are tools for creating and expressing “the workable” balance that appears in the draft plan.



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WORKSHOP #1

How Much Is Too Much?

- Q 1: What are some of the key points from the presentations you just heard that would help a Commission define “a workable balance”?
- Q 2: How might a Commission determine: “What is an acceptable trade-off?”
- Q 3: What approaches or tools do you feel have the most potential to express the “balance” the Commission desires for the region? How might you measure “workable balance” once the plan is implemented?
- Q 4: What are four messages about “defining a workable balance” and “trade-offs” would you like to leave with the facilitator? (wrap up question)



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WORKSHOP #2

How Much Is Enough?

This workshop session will examine challenges commission's face as it develops a framework for the protection of areas of significant ecological and cultural values. The questions in the break-out session are intended to have the participants consider the consequences of the conservation assessment work a commission does and the its relationship with the cumulative effects management strategies of the morning session.



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WORKSHOP #2

How Much Is Enough?

- Q 1: What are some of the key points from the presentations you just heard that would help a Commission inform conservation assessment work?
- Q 2: How might a Commission consider the economic or development potential of areas that are identified as having high conservation value?
- Q 3: How might a Commission use a combination of concepts from Cumulative Effects Management (from the morning presentations) and with those associated with Conservation Assessment? (afternoon sessions presentation). If you manage your cumulative effects, do you need protected areas?
- Q 4: What are four messages about “conservation assessment” would you like to leave with the facilitator”? (wrap up question)



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A River Runs Through It

- Panel Discussion on land use within the Yukon River corridor (Gerry Couture, Ben Warnsby, Peggy Kormendy, Wally Hidinger)
 - How has the Yukon River corridor changed over your lifetime/career? What affects have you observed from Climate Change? Human Activity?
 - What do you hope to see along the Yukon River corridor in the next 20-50 years? Hope not to see?
 - How should we make choices to achieve a balance of industry, recreation, traditional use and ecology along the Yukon River?
 - What should be our next steps to promote and enhance the quality of the Yukon River corridor?



MENUS

Wednesday, January 18

TH Community Hall

LUNCH

Caterer – Nora Van Bibber

Soup and Sandwich (meat / veg / tuna)

Chicken Rice soup / Tomato Veg soup

Coffee and Tea

Thursday, January 19

TH Cultural Centre

MORNING SNACK

Caterer – Maneephen Stange

Thai Sandwich – BBQ pork, tangy sauce

Spring Rolls

Muffins – selection, Cashews and fruit compote

Crepes – Banana

Coffee, Tea, Assorted Juices and Bottled

Water will be available.



YUKON LAND USE PLANNING COUNCIL



**Dawson Regional
Planning Commission**

Moving Forward • Nän kääk ndä tr'ädäl

ABOUT OUR SPEAKERS

ABOUT OUR SPEAKERS

Scott Casselman

Professional Geologist,
Casselman Geological Services Ltd.
Whitehorse, Yukon

Scott Casselman is Chair of Dawson Regional Planning Commission. Mr. Casselman is a registered professional geologist with 25 years of experience, having worked mostly in northern and western Canada, but including work in Turkey, Alaska, Indonesia and Argentina. Scott was a director of Yukon Chamber of Mines for a number of years and acted as President of the association in 2005-06 and 2006-07. Scott was also on the Mineral Advisory Board, reporting to the Minister of Energy Mines and Resources, in 2005-06 and 2006-07.

Heather Clarke

Habitat Biologist
Yukon Environment
Whitehorse, Yukon

Heather completed a BSc degree in Ecology at the University of Calgary, where her honours research involved assessing the influence of habitat conditions on the echolocation call structure of bats. Following this, Heather completed an MSc degree in Ecology at the University of Alberta. Her thesis research involved investigating the effect of timber harvesting in riparian areas on the abundance and community structure of cavity-nesting birds. This work occurred throughout the boreal-plains eco-region in Saskatchewan and Manitoba. Heather's other professional work has included assessing the environmental impact of oil and gas activity in northern Alberta, working as a Natural Resource and Public Safety Officer for Parks Canada, and conducting various wildlife inventories across western Canada.

Hilary Cooke

Wildlife Conservation Society Canada
Whitehorse, Yukon

Hilary Cooke is a Research Associate with Wildlife Conservation Society Canada, based in Whitehorse. WCS Canada is a science-based conservation organization that conducts field studies on wildlife and brings scientific expertise to partners and stakeholders to support conservation of wildlife and wild-lands. Hilary has 15 years experience studying wildlife and resource management across western US and Canada, including a PhD on cavity users and forest management in boreal Alberta and Saskatchewan. Her current work with WCS includes field research on best management practices for lowland boreal forest and riparian areas in southern Yukon.



ABOUT OUR SPEAKERS

Michael Earl

Executive Director
Tr'ondëk Hwëch'in
Dawson City, Yukon

Michael Earl is Executive Director, Tr'ondëk Hwëch'in in Dawson City, Yukon. Michael has worked with TH since 2006, ensuring Council, Senior Management and TH citizens are informed and engaged. Prior to moving to Dawson, Michael worked with the Ontario Ministry of Natural Resources developing and promoting Land Information products and services to internal and external clients.

Shawn Francis, M.Sc., P.Biol

Landscape Ecologist, Land-Use Planner
S. Francis Consulting Inc.
Drumheller, Alberta

Shawn Francis is a landscape ecologist and land-use planner with fifteen years of professional experience. In Yukon, Shawn was the Senior Planner for the North Yukon Regional Land Use Plan, provided technical support to the later stages of the Peel Watershed planning process, and performed conservation assessments in support of the former Yukon Protected Areas Strategy. He has also been a contributor to the Yukon Ecosystem Landscape and Classification (ELC) Framework. In Alberta, as part of the Alberta Land-Use Framework, he is an advisor/project manager for the North Saskatchewan Regional Plan cumulative effects modeling team, and also provided modeling support to the Lower Athabasca Regional Plan. In Saskatchewan, he was the project manager for a regional cumulative effects assessment in the northwest planning area. In his early years in Yukon, he was the manager of an environmental and GIS consulting firm providing services to governments, First Nations and industry in northern and western Canada. Shawn and his family currently reside in Drumheller, AB, and in his community he serves as a member of the Drumheller Municipal Planning Commission.



ABOUT OUR SPEAKERS

Neil Hartling

President,
Tourism Industry Association of Yukon
Whitehorse, Yukon

Neil Hartling is the owner of Canadian River Expeditions, offering multi day expeditions on 20 different rivers across the north from Alaska to Nunavut. Almost 30 years ago he established Nahanni River Adventures and has also owned an operation in Jasper, Alberta. In the summer he employs up to 50 staff. His companies are the go-to source for high-profile travellers from around the world, including Heads of State, Nobel Laureates, artists and celebrities but Neil's favourite group are the high percentage of "average Canadians" who select his trips for their "trip of a lifetime".

Neil is the author of 3 books of Northern Rivers and has played a leadership role in significant northern conservation efforts. He is President of the Tourism Association of the Yukon, Past President of the Wilderness Tourism Association of the Yukon, former Chair of the Senior Marketing Committee of Yukon Tourism, and sits on Committees of the Canadian Tourism Commission. In 2008 Neil was recognized as a Distinguished Alumni of the University of Alberta, Augustana Campus.

Nahanni River Adventures has won the Yahoo! Big Ideas Award for the "Best Tourism Website in Canada", and has been designated by National Geographic as one of the Best Adventure Travel Companies on Earth, and in 2010: one of the National Geographic 50 Tours of a Lifetime Neil was awarded the Tourism Industry of Association of Canada, Parks Canada, Sustainable Tourism Award in 2011.

Neil's home (and "world headquarters") is Whitehorse Yukon where he lives with his family.

Graeme Pelchat

Wildlife Biologist
EDI Environmental Dynamics, Inc.
Whitehorse, Yukon

Graeme Pelchat, MSc, is a wildlife biologist with EDI Environmental Dynamics Inc. He has five years of experience working as a wildlife biologist for private consulting firms, academics institutions and governments in Yukon. His recent work has been primarily within the resource extraction industries in Yukon, Nunavut and northern BC. He has participated in preparing baseline and impact assessments for major projects in northern Canada, including project submissions to YESAB and the Nunavut Impact Review Board (NIRB). Graeme has written or updated caribou habitat protection guidelines, thimhorn sheep population management guidelines, and moose survey and status reports for the Yukon Government. Graeme was raised and currently lives in Whitehorse.



ABOUT OUR SPEAKERS

Steven A. Kennett

Independent Policy Consultant
Calgary, Alberta

Steve Kennett is an independent policy consultant based in Calgary. His contract work and publications have examined topics in natural resources and environmental law and policy, including land-use planning, cumulative effects assessment and management, integrated resource management, environmental governance, regulatory processes in Alberta, the Northwest Territories and Yukon, renewable energy and climate change. Policy and legislative aspects of the Government of Alberta's Land-use Framework have been a primary focus of his recent work. In 2010 he was a Scholar in Residence at the Conference Board of Canada and co-author of the publication Canada's North: What's the Plan? Steve was a Senior Policy Analyst with the Pembina Institute from 2007-2009. From 1992-2007 he was a Research Associate with the Canadian Institute of Resources Law at the University of Calgary. Steve holds a BA (Hons) in Politics and Economics from Queen's University, an M.Phil. in Politics from Oxford University, an LL.B. from the University of Toronto and an LL.M. from Queen's University.

Ian D. Robertson, MCIP

Principal & Senior Planner
Inukshuk Planning and Development Ltd
Whitehorse, Yukon

Ian D. Robertson is the Chair of the Yukon Land Use Planning Council. Ian has over 30 years of diverse planning and management experience in both the public and private sector. A planner by profession, he has worked in five provinces and three territories and has volunteered for many organizations, ranging from resource management and conservation to economic development. Ian was nominated to the Council by the Government of Canada.

Fiona Schmiegelow

Landscape Ecology, Modeling and large-scale conservation planning of boreal avifauna
University of Alberta and Yukon College
Whitehorse, Yukon

Dr. Fiona Schmiegelow is currently a professor at the University of Alberta, where she directs the Northern Environmental and Conservation Science Program. Based in the Yukon Territory, Canada, where the program is being delivered, Fiona has unique opportunities to experience some of the most pristine environments remaining in the northern hemisphere. For the past 20 years, Fiona has been fascinated by boreal systems, with her initial passion sparked by boreal bird communities and their response to landscape change in more southern regions of Canada. Her research into these questions is characterized by large-scale experimental field studies and complementary, collaborative modeling initiatives involving extensive datasets. Increasingly, Dr. Schmiegelow's interests lie at the interface of science and policy, and she welcomes opportunities to engage in related processes to identify tractable solutions to pressing conservation challenges facing boreal systems and the species that depend on them. In 2010, Dr. Schmiegelow co-authored a book with Malcolm I. Hunter Jr. Entitled 'Wildlife, Forests And Forestry: Principles Of Managing Forests For Biological Diversity'.



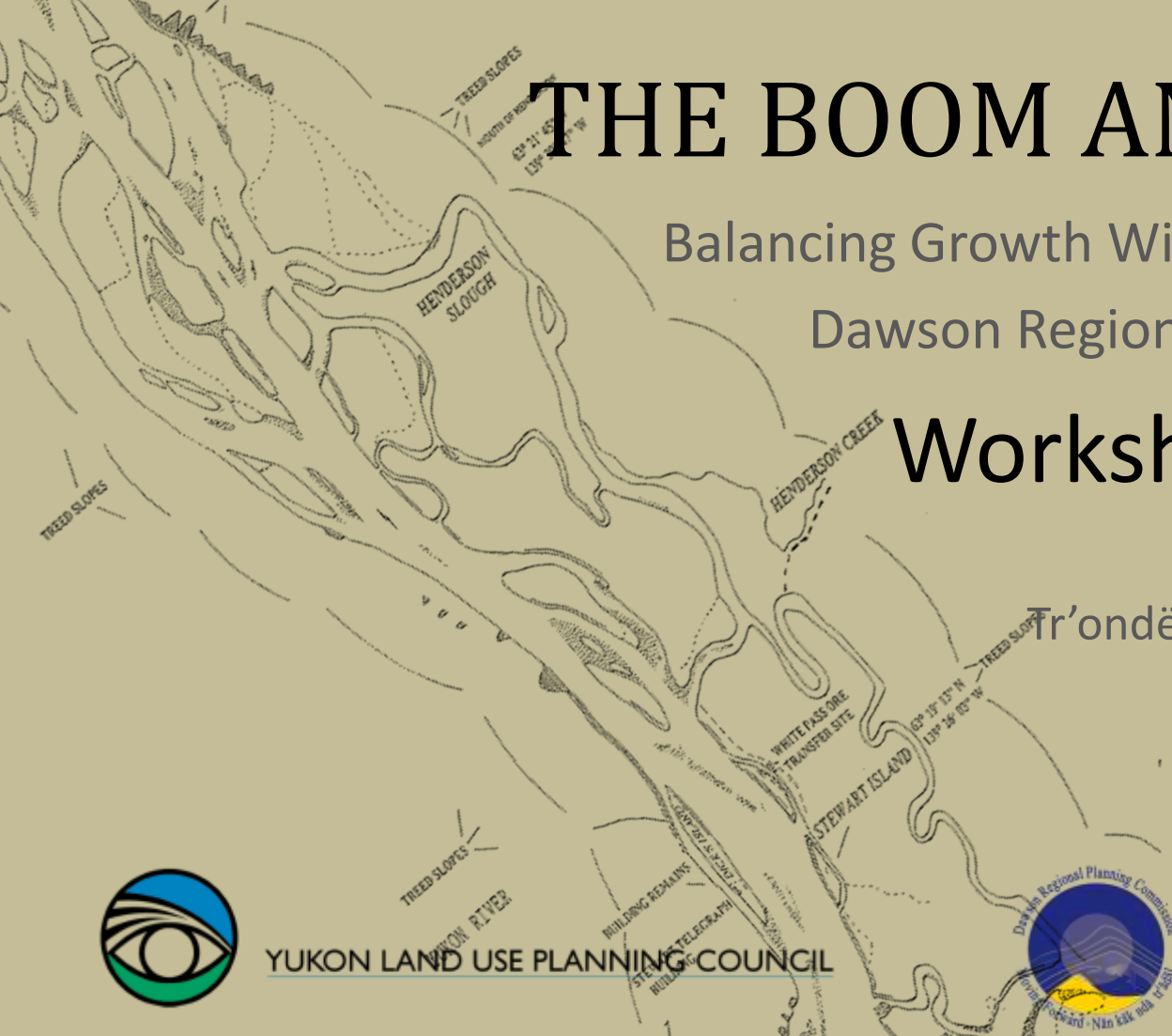


THE BOOM AND BEYOND

Balancing Growth With A Sustainable Future
Dawson Regional Planning Conference

Workshop Outcomes

Tr'ondëk Hwëch'in Community Hall
January 18, 2012



YUKON LAND USE PLANNING COUNCIL



**Dawson Regional
Planning Commission**

Moving Forward • Nän kää ndä tr'ädäl

Workshop #1

How Much is Too Much?

This workshop examined the challenges commissions face at the options scenario stage, where they must choose between potential future states for the region and develop a draft plan.

Modeling, cumulative effects assessment and land designation ratios are potential tools for creating and expressing the “workable” balance that appears in the draft plan.



YUKON LAND USE PLANNING COUNCIL



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Planning Commission**

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Workshop #1

Group 1 Key Messages

Engagement with the Approval Bodies

Use several indicators and planning tools during planning process that fit the Yukon landscape/context

Collect foundational resource assessment info and issues and interests at the start of the planning process

Allow for evolution and iterative development of a plan that is proactive



Workshop #1

Group 2 Key Messages

Ask the right people for info/input, ask the right questions

Be explicit and transparent about values, tools, and implications of decisions

Clearly define spatial and temporal parameters for scenarios

Accept that trade-offs will be required – find compromise and common interests



Workshop #1

Group 3 Key Messages

Flexibility if new minerals found

Need guidance but must be simple

Measurable indicators needed



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Workshop #1

Group 4 Key Messages

Iterative decision making needed

Recognize uncertainty about the future

Live within limits

Recognize when you are making irrevocable changes (think hard about the consequences)



Workshop #1

Group 5 Key Messages

Transparent process

Flexibility in time and space

Incorporate thresholds

Sustainability rather than trade-offs



Workshop #1

General Outcomes

Iterative process with key groups

Transparency of process

Recognize that there will be trade-offs



YUKON LAND USE PLANNING COUNCIL



**Dawson Regional
Planning Commission**

Moving Forward • Nän kääk ndä tr'ädäl

Workshop #2

How Much is Enough?

This workshop examined the challenges commissions face as they develop a framework for the protection of areas of significant ecological and cultural values.

Participants considered the consequences of the conservation assessment work of a commission, and its relationship with the cumulative effects management strategies of the workshop #1.



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Workshop #2

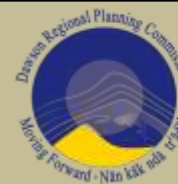
Group 1 Key Messages

Need a tool or model that integrates and synthesizes but must be understandable to the public

Consensus Model – find areas of agreement

CE approaches can address some conflicts but not all

Broad but relevant information gathering is key: local/traditional knowledge



Workshop #2

Group 2 Key Messages

Recognize all resource potential: mineral, forest, heritage

Need to incorporate local/traditional knowledge

Practical, efficient, implementable
understandable management regime



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Workshop #2

Group 3 Key Messages

Recognize selectiveness in data interpretation

Better communication between current land users

Cost benefit analysis and risk assessment for full cost accounting

Full cost accounting required



Workshop #2

Group 4 Key Messages

Lack of "pan-regional" integration in regional planning processes

Need baseline and historic data to monitor so "the truth" is known

Economic self-sufficiency is desirable and not be traded off

Cumulative effects needs to be more comprehensive



Workshop #2

Group 5 Key Messages

Ground truthing Ecoregions important

Economic and cultural assessment needs same level of research/attention as conservation

Plans need to identify "core" values and build them into plan

Plan should use Adaptive Management Strategy



Workshop #2

General Outcomes

Conservation assessment needs matching economic potential assessment

Use local/traditional knowledge when doing assessment work

Information sources should to be comprehensive



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Most thought provoking message*:

Recognize when you are making
irrevocable changes (think hard
about the consequences)

*as selected by one conference organizer



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Evaluating Trade-offs: Thinking Outside the Black Box

Steve Kennett
Independent Consultant

Dawson City, Yukon
January 18, 2012

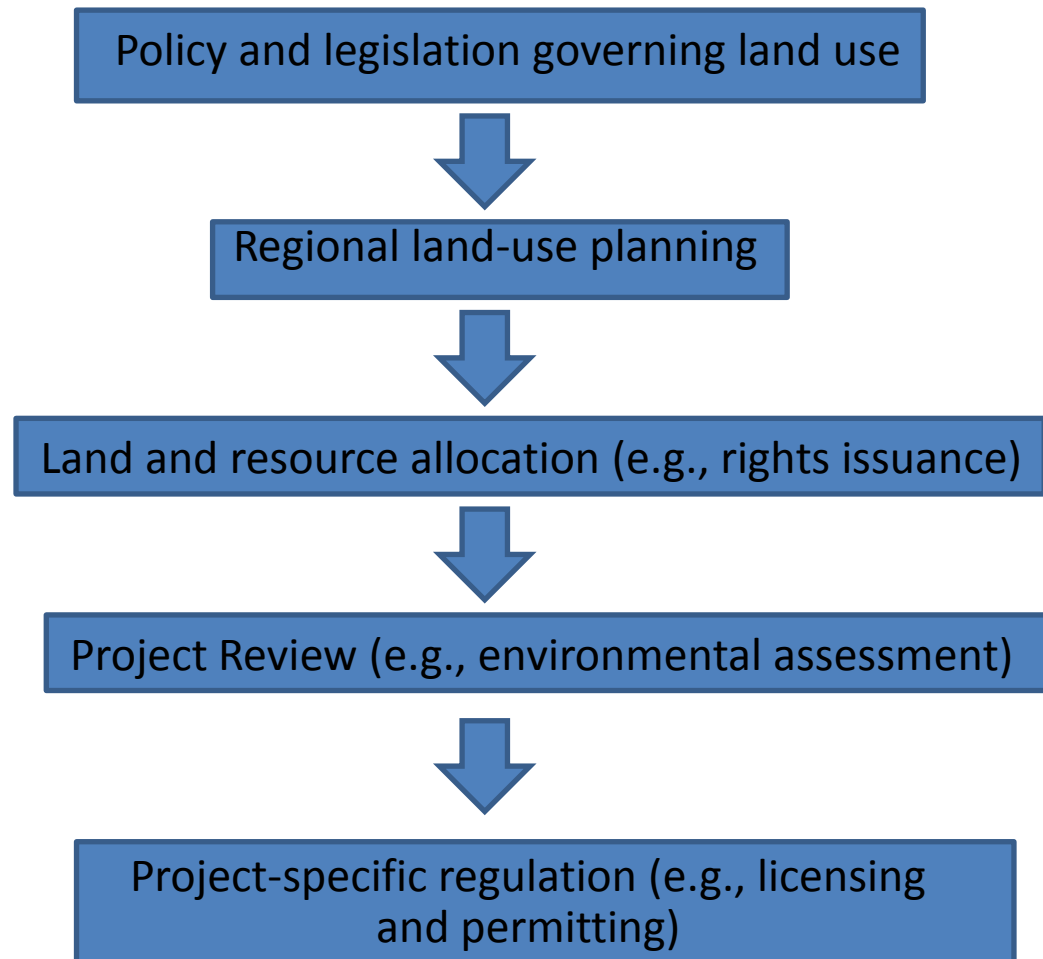
Presentation Outline

- Trade-off Decisions in Planning
- Black Box Decision Making
 - “Name the Game”
- Thinking Outside the Black Box
 - Ideas for trade-off decisions
 - Structured Decision Making

Evolution of Environmental Management



Planning and the Decision-Making Hierarchy



Key Roles for Planning

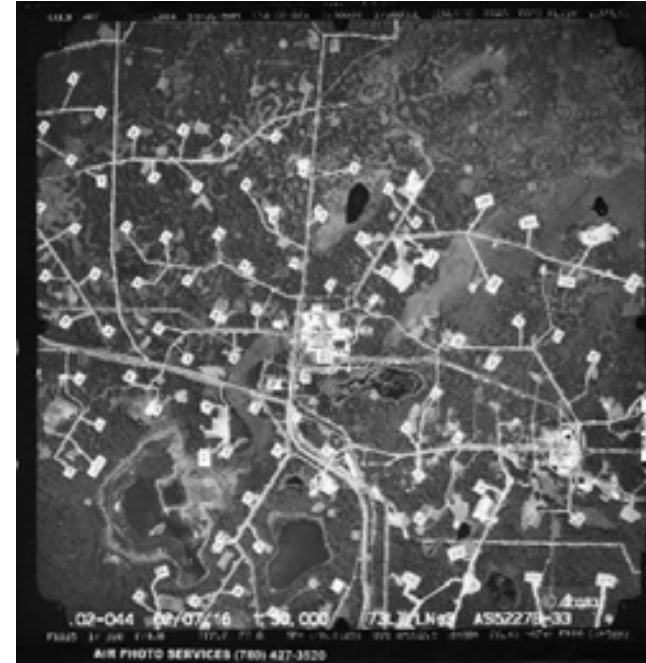
- Self-determination
 - Means to identify desired future states for different parts of the landscape
 - Focus on objectives and how to achieve them
- Regulatory effectiveness, efficiency and predictability
 - Sets context for decision making at lower levels in the hierarchy

Land-use Conflicts



Selected photos courtesy of Brad Stelfox

Cumulative Effects



Planning and Sustainability: Living within Limits



The Planning and Cumulative Effects Mantra



Everything

Everywhere

All the time

Universe of Trade-off Decisions



Activity – type, intensity, impacts

Space

Time

Trade-off Decisions: A Black Box?

Figure 1. Planning - Developing Initial Biodiversity Targets for Trade-off Analysis

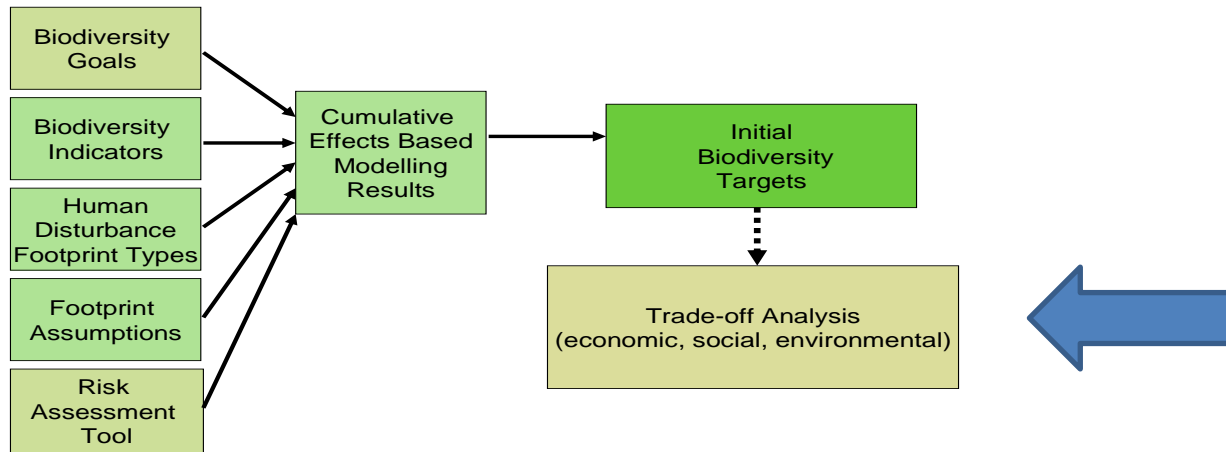
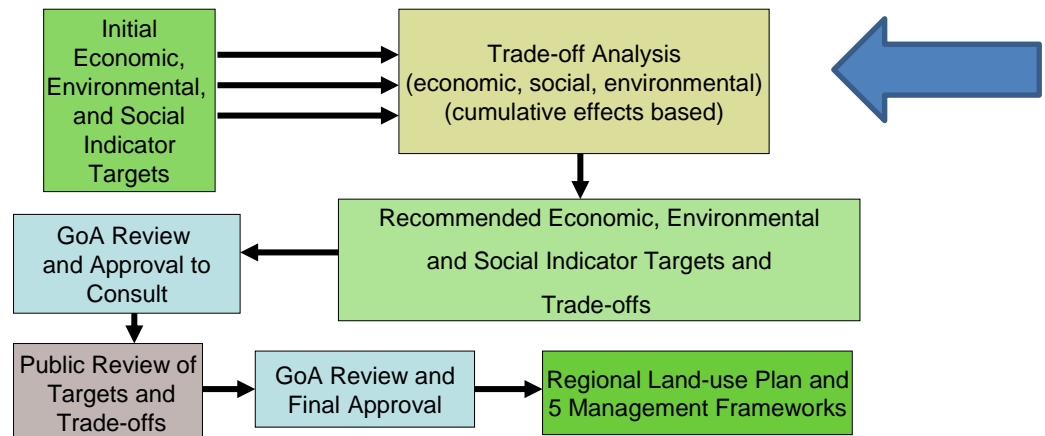


Figure 2. Planning - Building Land-use Plans and Management Frameworks



Diagrams from a draft discussion paper are for illustrative purposes only

NAME THE (BLACK BOX DECISION-MAKING) GAME*

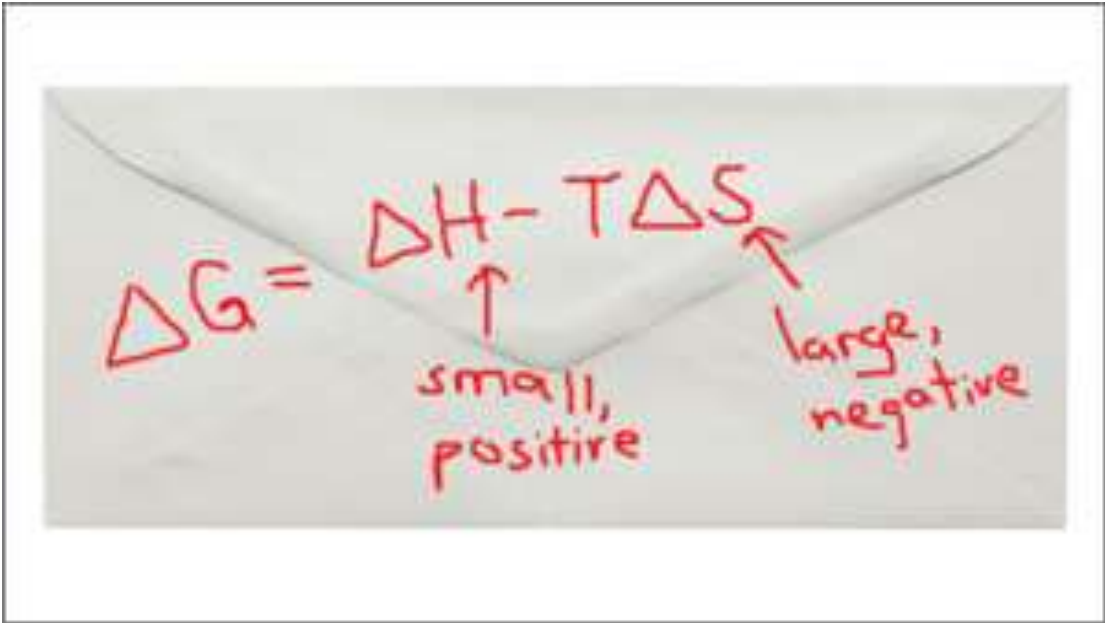
***Any similarity with actual decision making in Yukon is unintended and purely coincidental**



PHOTO: BRYAN ALLEN/CORBIS

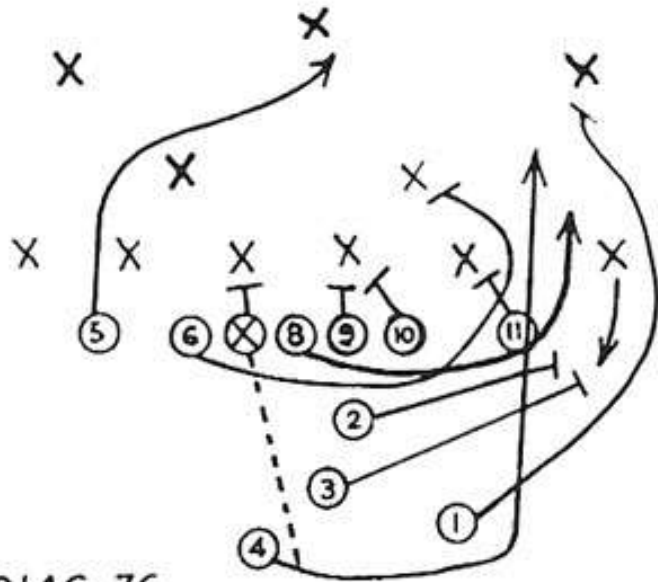








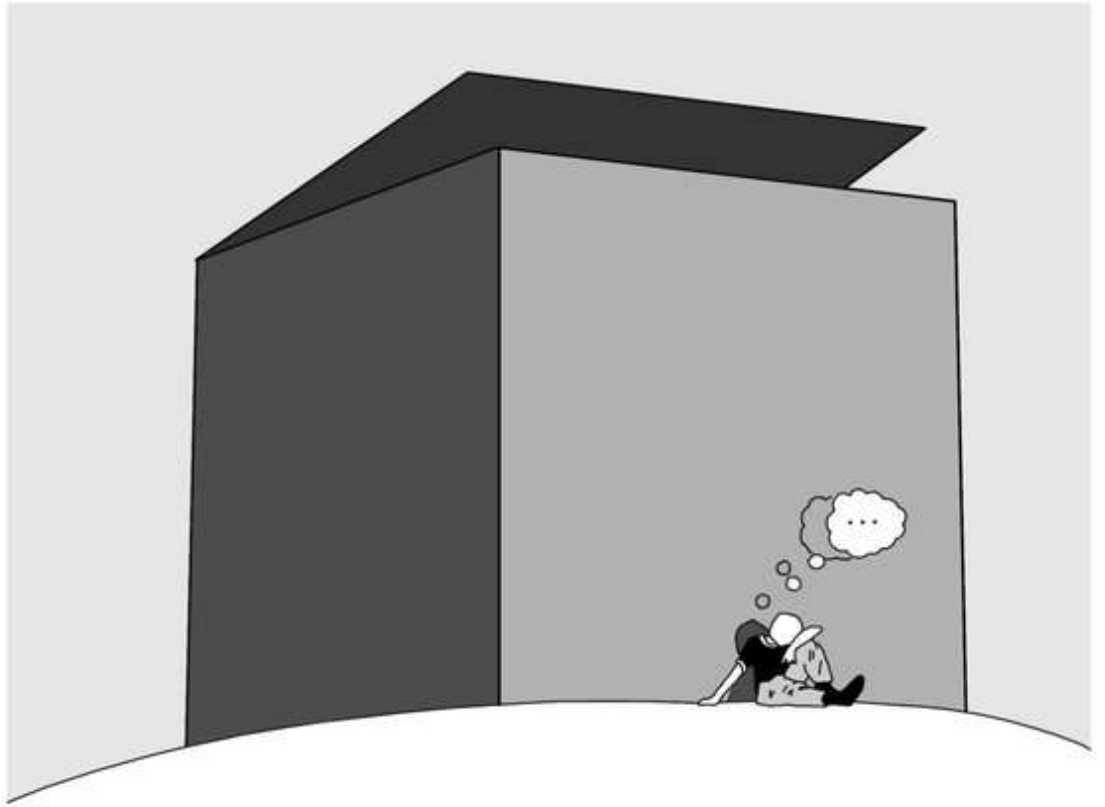
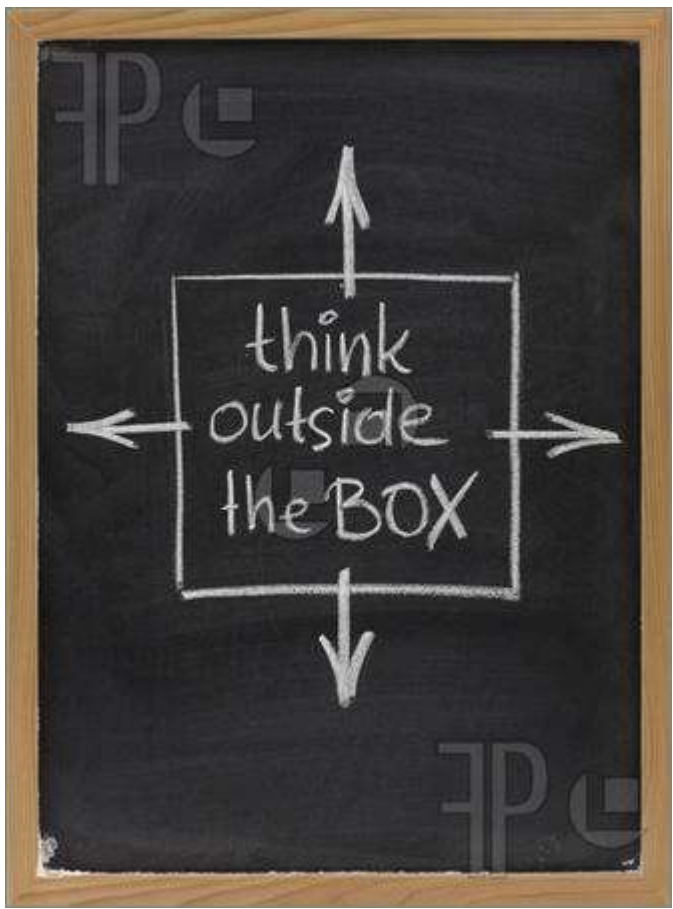




DIAG. 76



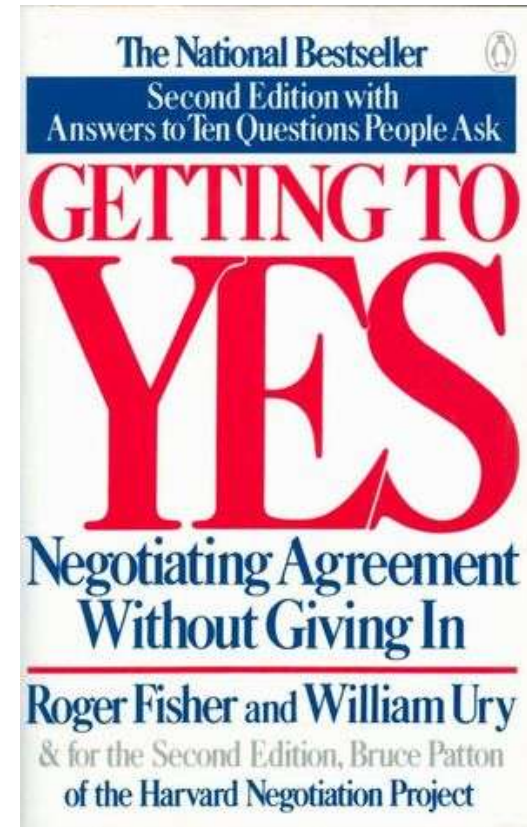
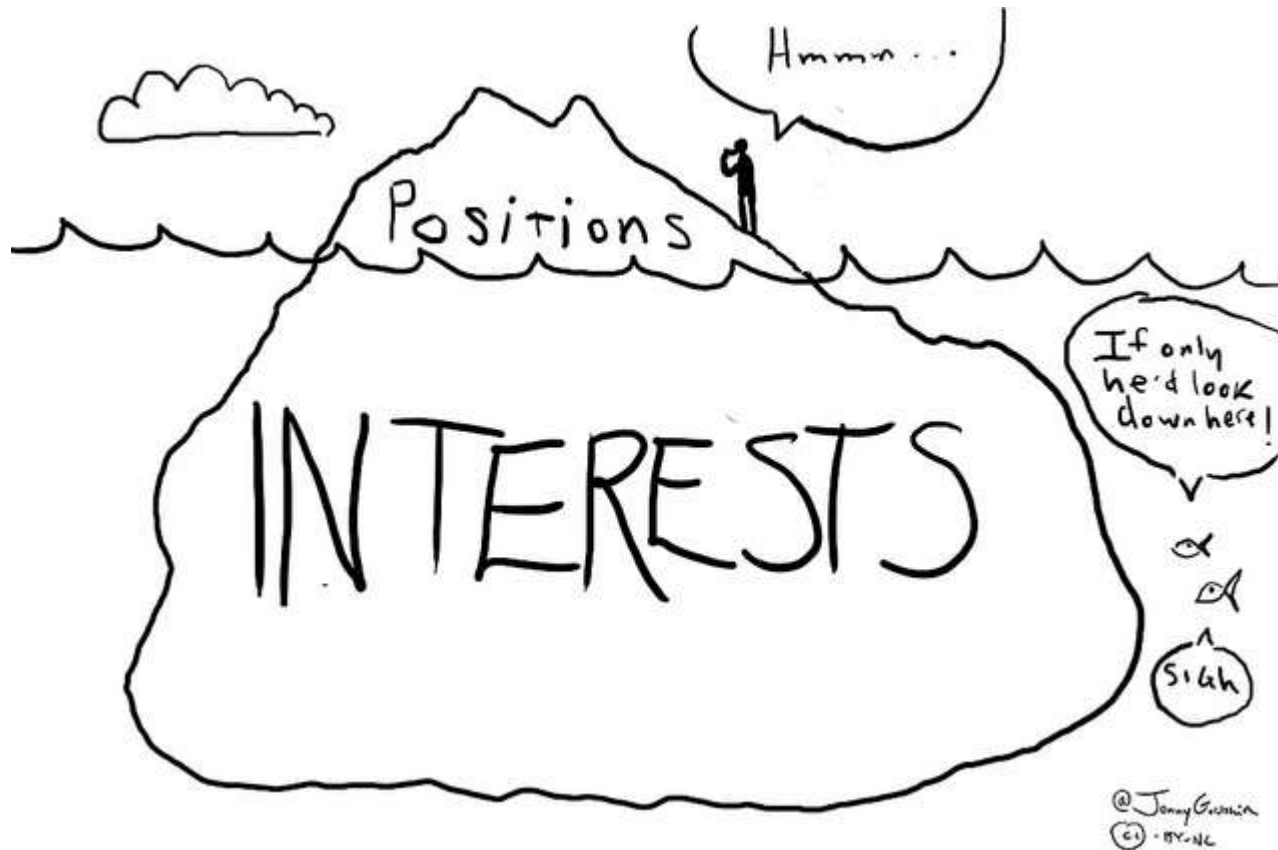




Attributes of Good Trade-off Decision Making

- **Systematic**
 - structured approach to dealing with complex issues that ensures both analysis and deliberation
- **Rigorous**
 - based on the best available information and analysis, including explicit treatment of risk and uncertainty
- **Transparent**
 - reasons for decisions should be clear to all interested parties

Focus on interests, not positions



Set Direction for Planning

LARP Terms of Reference

What issues will Cabinet provide guidance on?

The Balance Between Development and Environment

Economic development is important for creating jobs and prosperity for Albertans. But development must be balanced with protection of the environment, to ensure current and future generations have clean airsheds, watersheds and landscapes and healthy ecosystems. The RAC will be given guidance about how to strike this balance in the region.

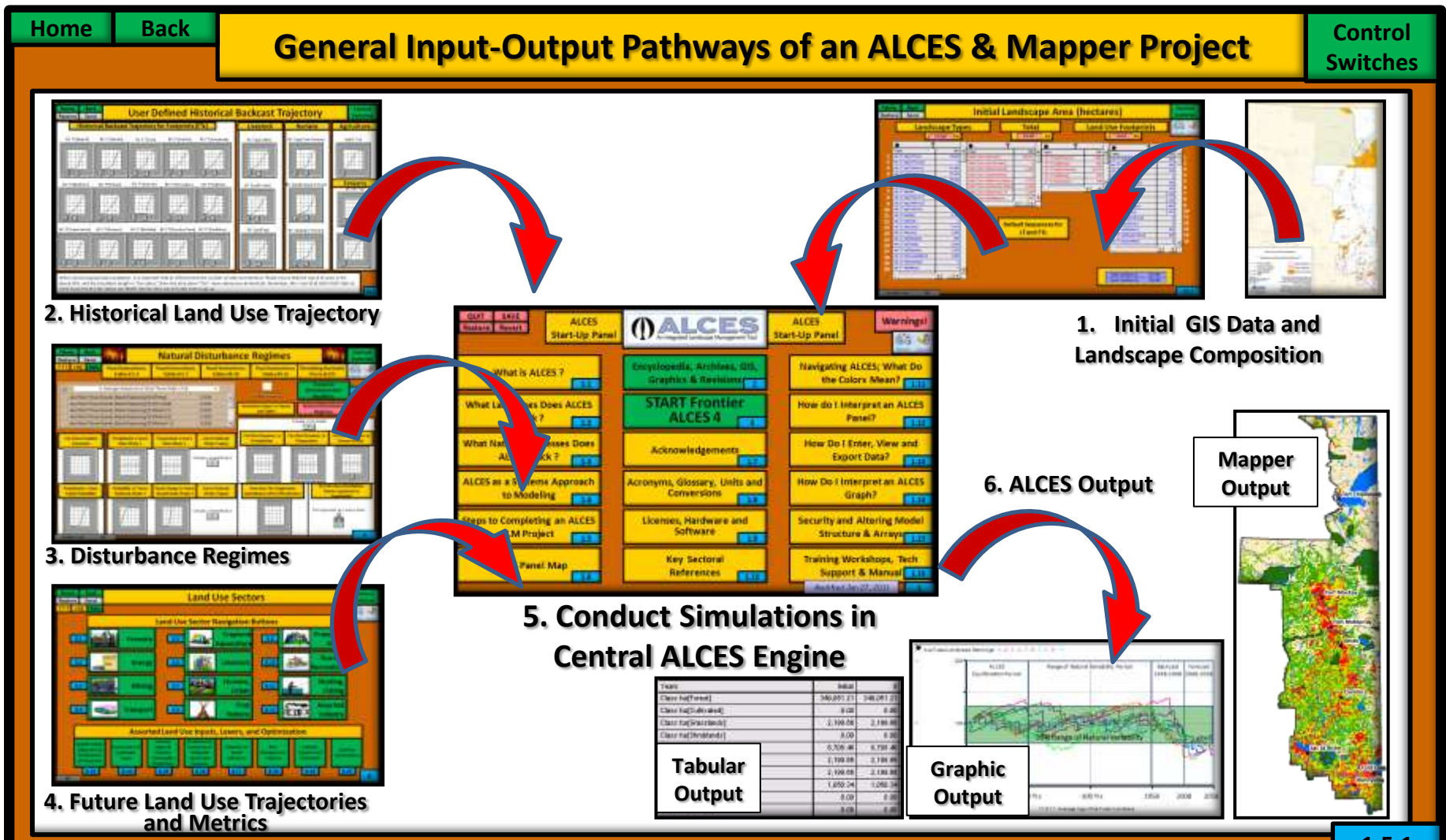


“He’s right. We screwed up.”

Explore Options Across Space and Time



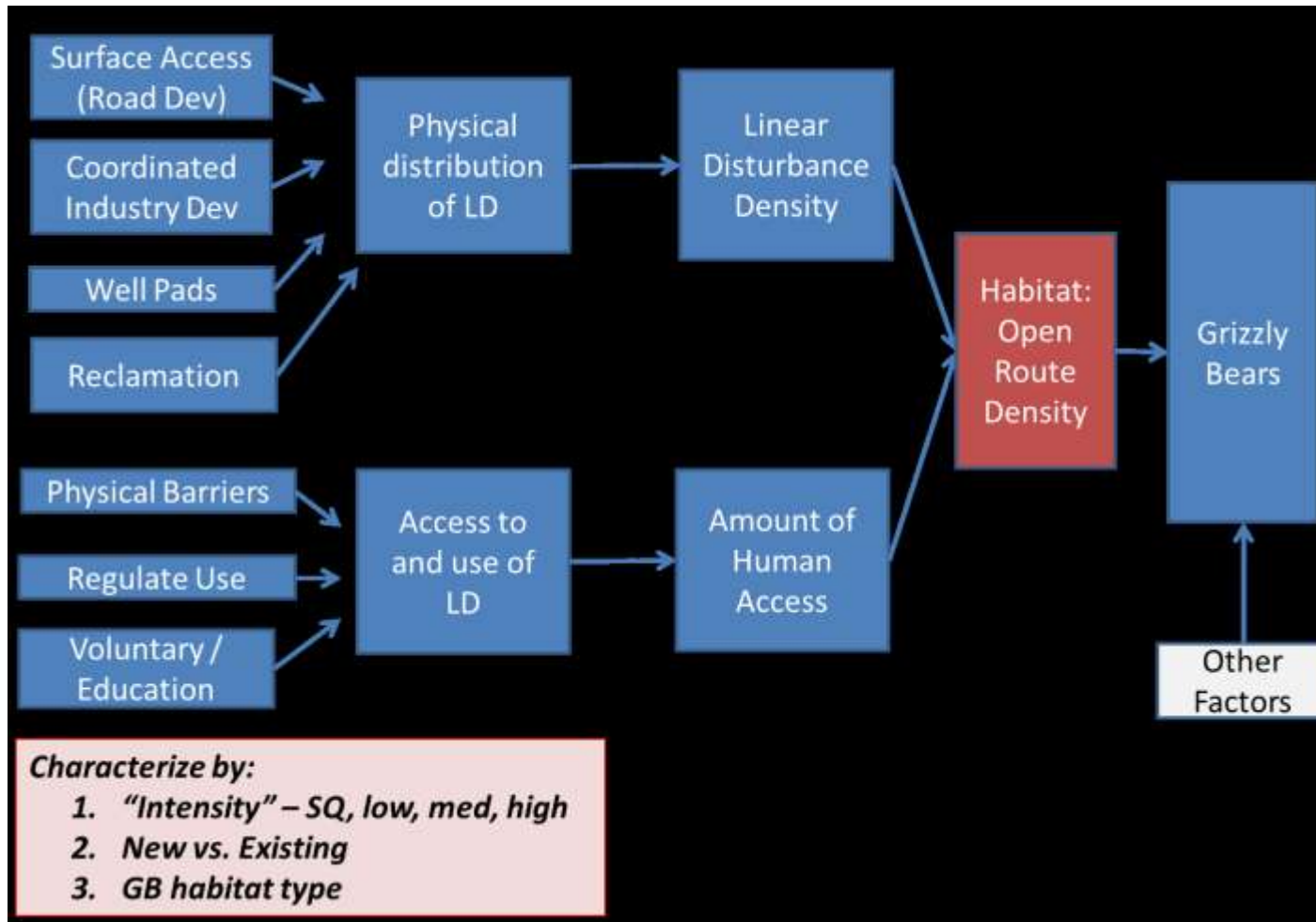
Use Scenario Modeling to Explore Trade-offs – e.g., ALCES®



Use other Decision Support Tools for Trade-off Analysis – e.g., Marxan

Design Element	Marxan Objective	Marxan Target
Coarse filter		
Ecosystem representation	a) Represent all Natural Subregions b) Represent all forest patch types ²	14.3%; 20%; 25%; 30%; 35%; 40%
Low industrial footprint	Minimize linear feature density	On/off
Large size	Maximize CA clumping	On/off
Connectivity	Maximize CA clumping	On/off
Fine filter		
Species at risk	Include caribou and grizzly range	20%; 40%; 60%; 90%
Riparian headwaters	Include Foothills headwaters	20%; 40%; 60%; 90%
Environmentally Significant Areas	Include ESAs on public lands	20%; 40%; 60%; 90%
General		
Low opportunity cost	Minimize NPV of petroleum and forestry resources ³	On/off
Regional distribution	Represent all LUF zones	Equal to ecosystem representation target

Expand the Policy and Management Toolkit



Means-Ends diagram showing the linkages between policy and management options for linear disturbance and access management and Grizzly Bear habitat: Open Route Density – Alberta Environment and Water & Compass Resource Management Ltd.

Incorporate Monitoring and Adaptive Management

Check

Monitor, evaluate, report and adjust performance of actions and plans against economic, environmental, and social objectives

Provincial Vision, Desired Outcomes and Guiding Principles

- Healthy economy supported by our land and natural resources
- Healthy ecosystems and environment
- People-friendly communities with ample recreational and cultural opportunities

Continuous Improvement System supported by Building Information, Knowledge and Tools

- Science, traditional knowledge and experience
- Improved connections
- Strategic research
- Knowledge transfer
- Technology and tools
- Stewardship initiatives
- Collaboration and partnerships

Do (consistent with regional plans)

- Transitional strategy
- Immediate priorities
- Addressing policy gaps
- Timeframe for implementing the Land-use Framework

Plans: Provincial, Regional and Local

- Provincial leadership
- Land-use planning system
- Regional planning
- Local planning
- Appeal mechanisms



SDM 101



Presentation excerpts included with permission of Dan Ohlson, Compass Resource Management Ltd.

<http://www.compassrm.com/>
<http://structureddecisionmaking.org>

Dan Ohlson
Compass Resource Management Ltd.

Structured Decision Making (SDM)



The formal use of common sense for decision problems that are too complex for the informal use of common sense.”

Ralph Keeney

SDM



- A Process = a set of core steps
 - Flexible, scalable and iterative
 - Facilitation - informed by the behavioural sciences
- A set of structuring tools from the decision sciences
 - Objectives hierarchies
 - Influence diagrams
 - Decision trees
 - Strategy / option portfolios
 - Consequence tables
 - Structured expert judgments
 - Multi-attribute trade-off analysis
- The integration of analysis and deliberation

Graham's Truck

- Graham is thinking of buying a truck.
- He needs it primarily for hauling building materials around over the next five years, but also has kids...



Graham's Truck

- He makes a long list of all the things he should consider...
 - Cost, payload, colour, mileage, cupholders, cd player, sunroof, tire condition, # passengers etc



Graham's Truck

- He trims them to the ones that *really matter* to him:

Objective	Evaluation Criteria	Direction
Price	\$	less
Fuel Economy	L / 100 km	less
Mileage	kilometres	less
Bed Size	feet	more
Payload	pounds	more
Passengers	#	more



Graham's Truck

- Then he's off shopping...



Graham's Truck

- He decides start by doing his homework on six of them:

Objective	Attribute	Direction	Truck 1	Truck 2	Truck 3	Truck 4	Truck 5	Truck 6
Price	\$	L	\$ 14,000	\$ 18,500	\$ 18,000	\$ 24,000	\$ 25,000	\$ 25,000
Fuel Economy	L / 100 km	L	9	9	9	13	13	13
Mileage	kilometres	L	160,000	60,000	80,000	60,000	60,000	80,000
Bed Size	feet	H	6.50	6.50	6.50	7.00	5.00	5.00
Payload	pounds	H	1,200	1,200	1,200	1,800	1,400	1,400
Passengers	#	H	4	4	4	4	5	5

Graham's Truck

- But how can he decide which one is best?
 - Go to excel.....



Simple Example: Key Points

- 1 Decided first on decision scope, structure
- 2 Narrowed in on key objectives and developed criteria
- 3 Collected information (consequence table) = a technical task
- 4 Selected a preferred alternative = a value judgement
(.... reasonable people may disagree)

Conclusion – Beyond the Black Box

- Where we are:
 - Integrated regional planning and a recognition of the need to make trade-off decisions
- Where we want to be:
 - Trade-off decision making in planning that is:
 - Systematic
 - Rigorous
 - Transparent

Social License for Energy Development in the North Yukon Regional Land Use Plan

By Shawn Francis

**Presentation to Dawson Planning Workshop
Dawson City, Yukon
January 18, 2012**



OVERVIEW

- Social license for resource development
- A long time ago in a planning region far, far away....North Yukon plan

SOCIAL LICENSE

- Social license: broad agreement from residents and neighbouring communities that an activity is acceptable in a specific location
- What needs to be done to gain social license?
- Why do proponents sometimes have difficulty obtaining social license for a project?
- What role can regional planning play?

SOCIAL LICENSE

- Acceptance of a project may not have much to do with the project itself
- Acceptability is gauged against a vision for a landscape and how that land use fits within it
- For much of Yukon, that vision is not defined
- Regional planning can define that vision

NORTH YUKON RLUP

- Central issue was oil and gas development in Eagle Plain and impacts on caribou and wetlands
- Strong desire from VG and YG Govt for the Commission to 'solve' the Eagle Plain question...provide social license
- What approach did the Commission take to achieving this task?

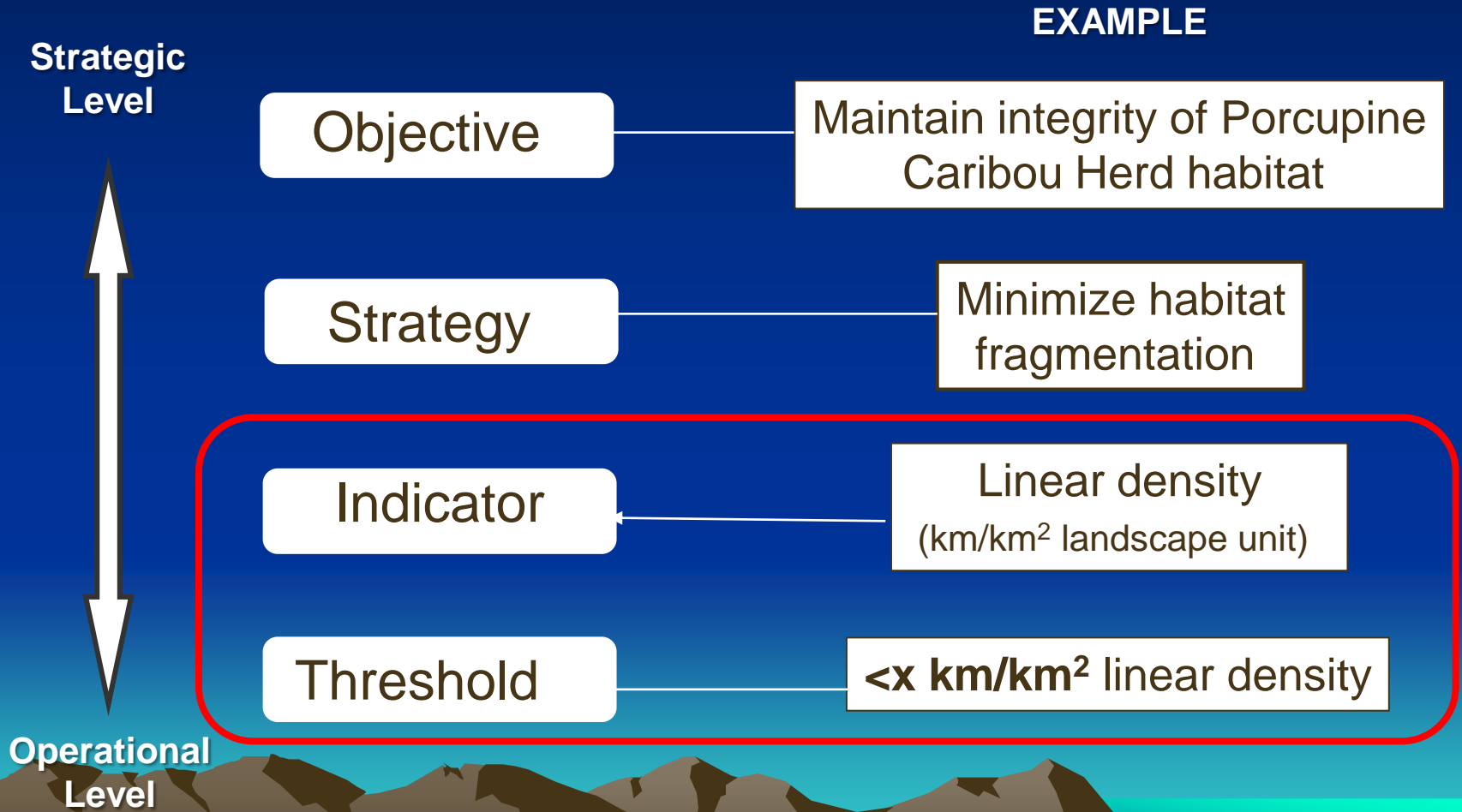


APPROACHES

- NYRLUP focused on zoning and landscape-level trade-offs
- Used limits of acceptable change concepts
- Embraced cumulative effects management tools that could be tied to project-level decision-making – manage footprint

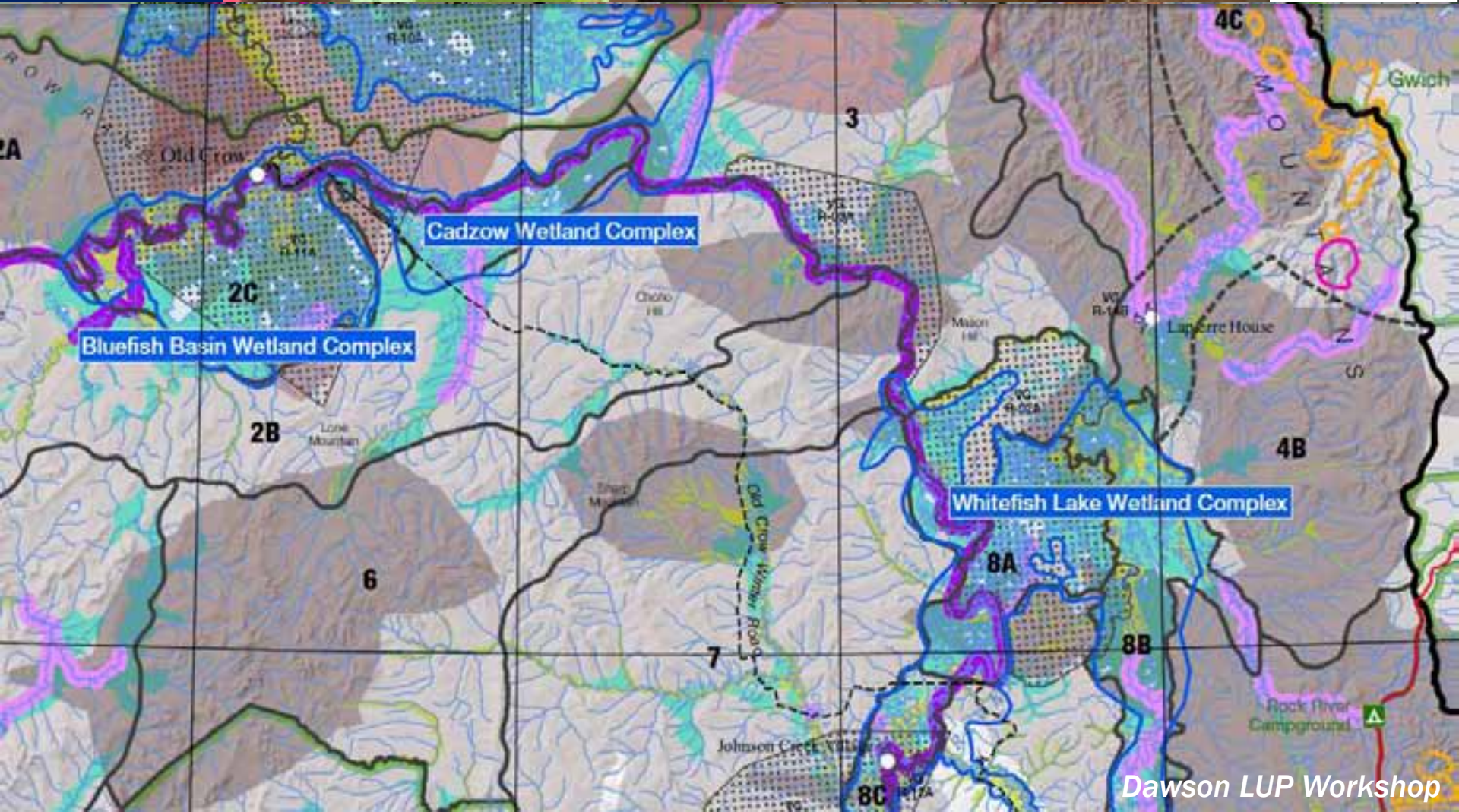
APPROACHES

Results-based management framework



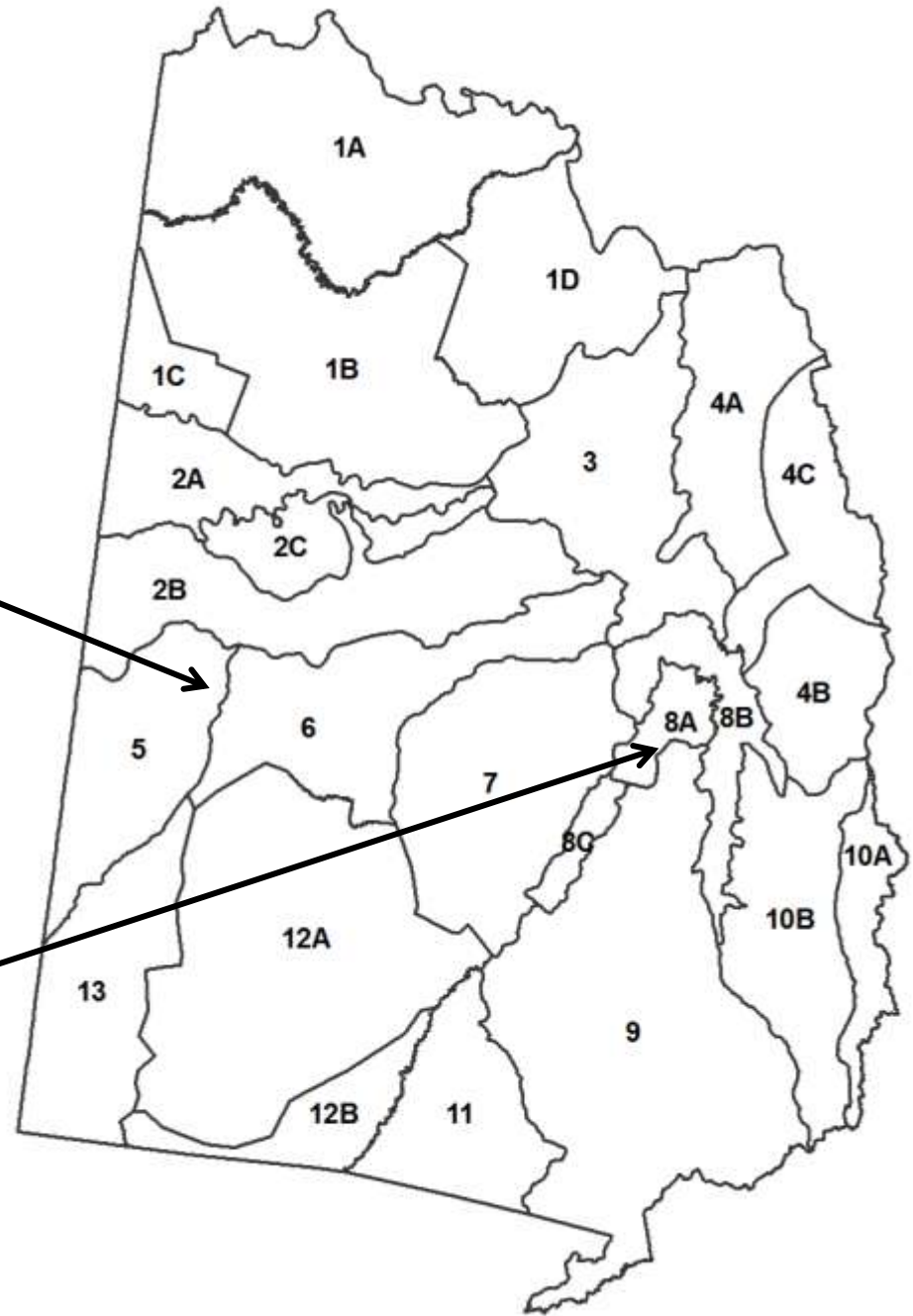
APPROACHES

Identify Values



APPROACHES

Identify Planning Units



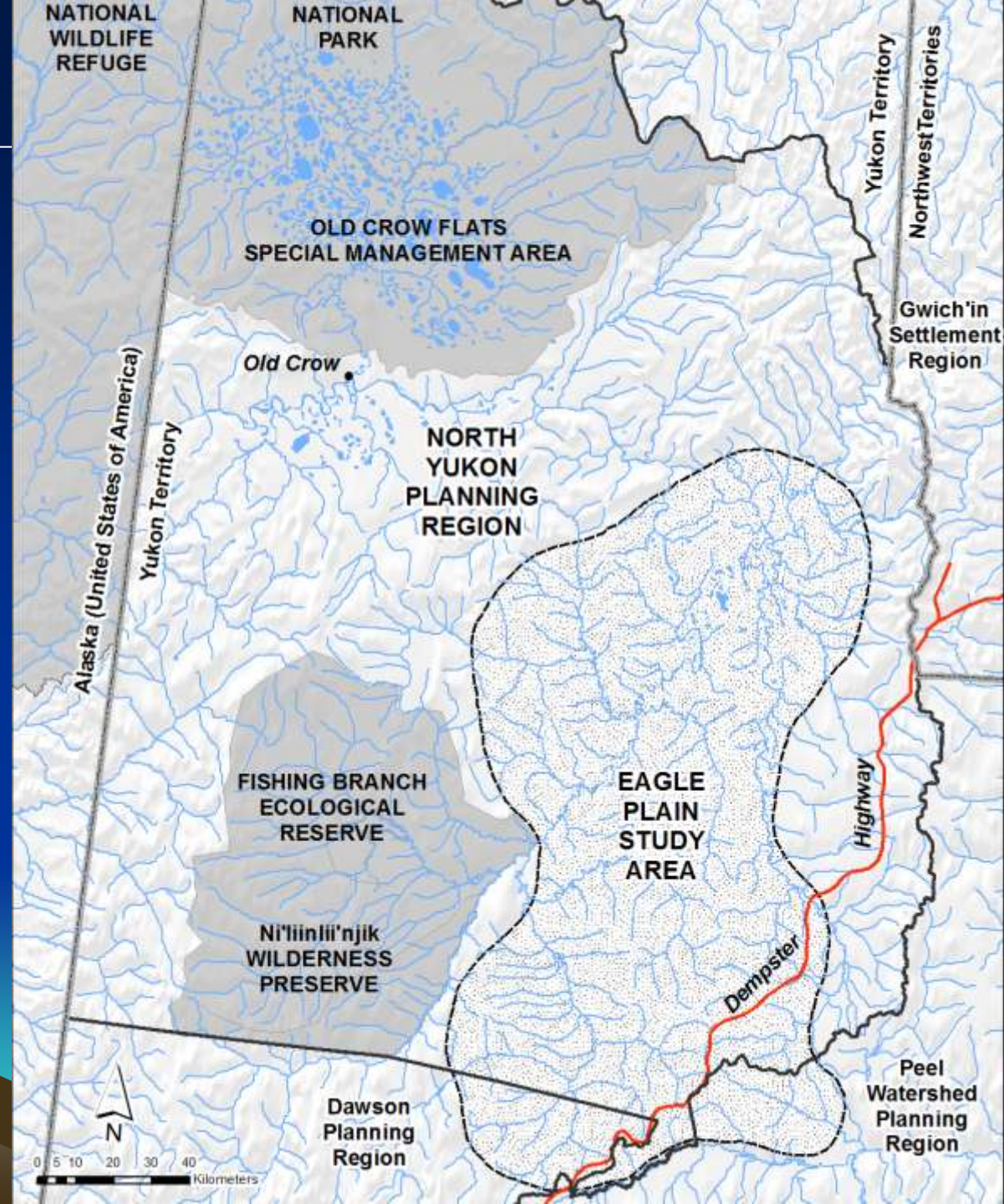
APPROACHES

Cumulative Effects Simulation Modeling



A Landscape Cumulative Effects Simulator

A screenshot of the ALCES software interface. The interface is organized into several columns of buttons and text boxes. The top left has "Quit" and "Save" buttons. The top center features the ALCES logo and the text "An Integrated Landscape Management Tool". The top right has a "Home" button. The main area contains several sections: "What ALCES is / What ALCES is set", "What Landuse Data ALCES Tracks?", "What Natural Processes Does ALCES Track?", "Licenses, Updates, & Hardware/Software Required", "Setting, Opening, Optimizing and Closing ALCES", "ALCES Panel Map", "ALCES Start-Up Page", "Click Here to enter the ALCES User's Guide", "Click Here to Start Using ALCES", "Acknowledgments", "Acronyms, Glossary, Units & Conversions", "ALCES II Super National Park, April 2005", "Navigating & Running ALCES", "What do the Colors mean?", "How do I Interpret an ALCES Panel?", "How do I Enter Data into ALCES?", "How do I View ALCES Output?", "Security and Altering Model Structure and Maps", and "Technical Help, Training Workshops & Exercises". A small "ALCES II User's Guide" button is at the bottom right.



APPROACHES

Example Modeling Results: BMPs

Parameter	BMP Scenario #1	BMP Scenario #2	BMP Scenario #3
Avg. Seismic Line Width	5m	3m or less	3m or less
Seismic Line Lifespan	30 years	10 years	10 years
# Wells per Pad	1	1	4
Maximum Surface Disturbance	1.4% (20,000 ha)	1.0% (15,000 ha)	0.5% (7,500 ha)
Maximum Linear Feature Density	1.3 km/km ²	0.9 km/km ²	0.7 km/km ²

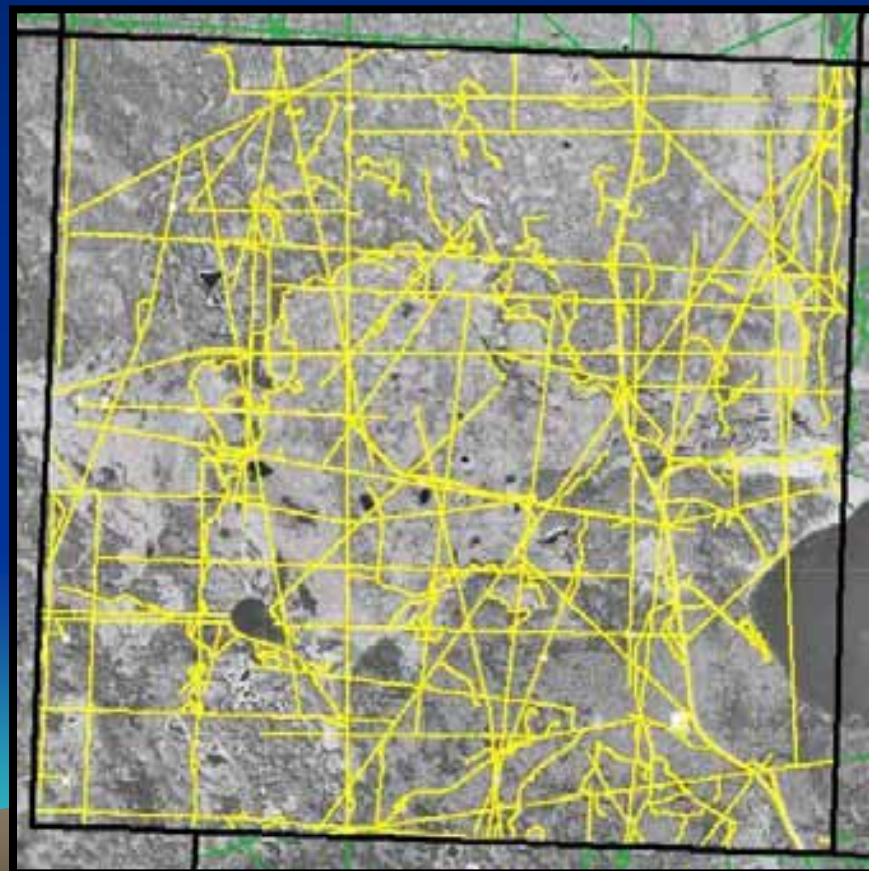
APPROACHES

Example Linear Density

1.5 km/km²

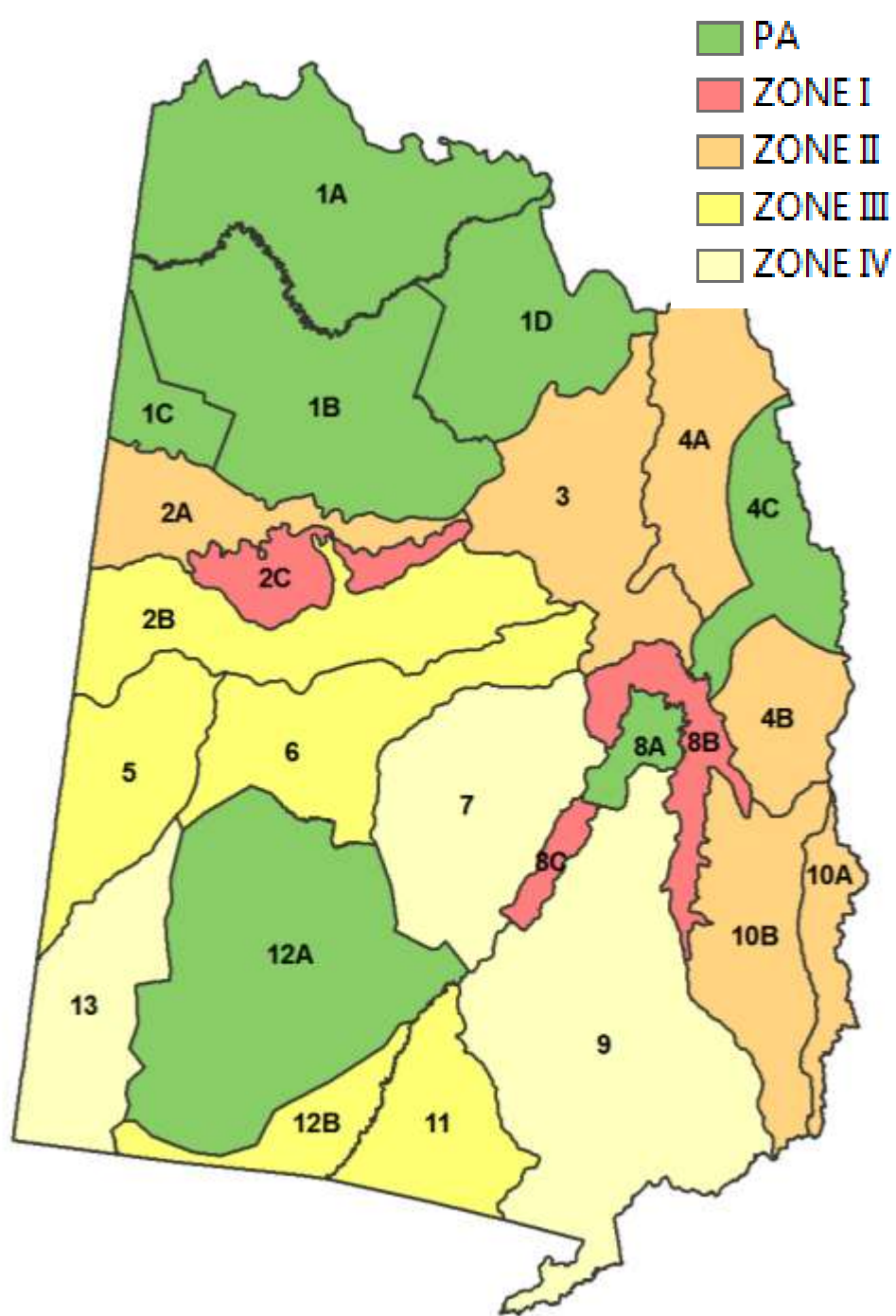
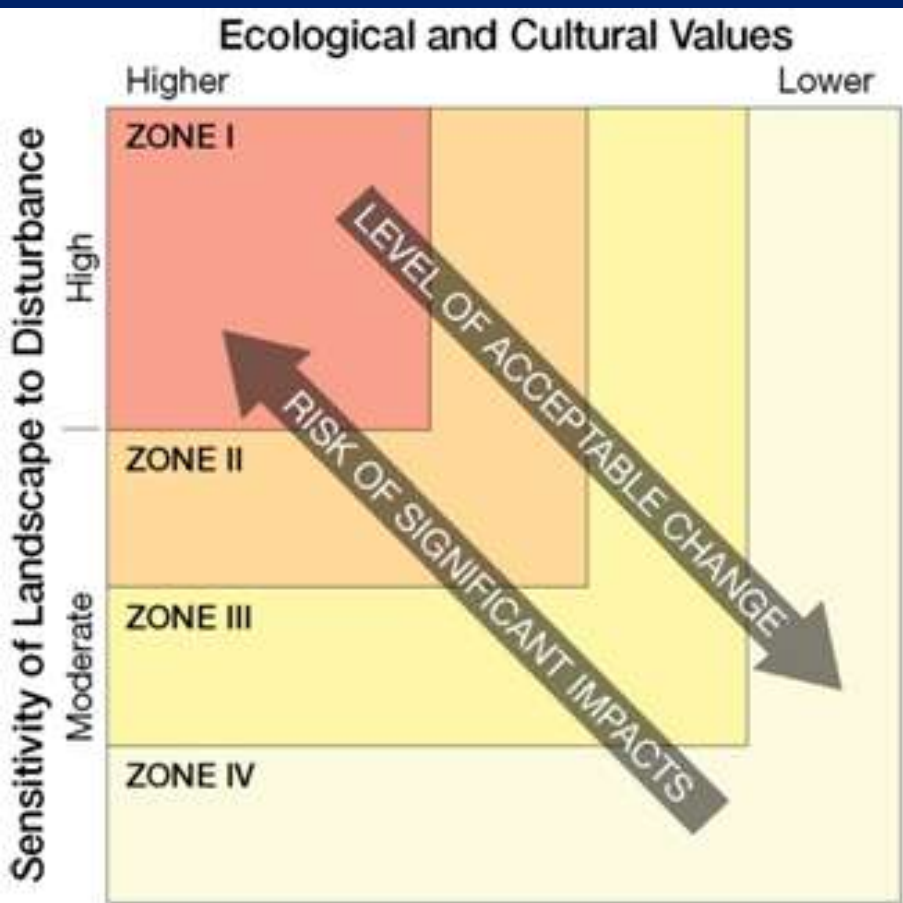


4.0 km/km²



APPROACHES

Zoning



APPROACHES

Zoning

IMA Zone	Management Intent	Cumulative Effects Indicators	Cautionary Level¹	Critical Level
Zone I²	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

RISK

Very Low

Low

Moderate

High

Very High

LIKELIHOOD

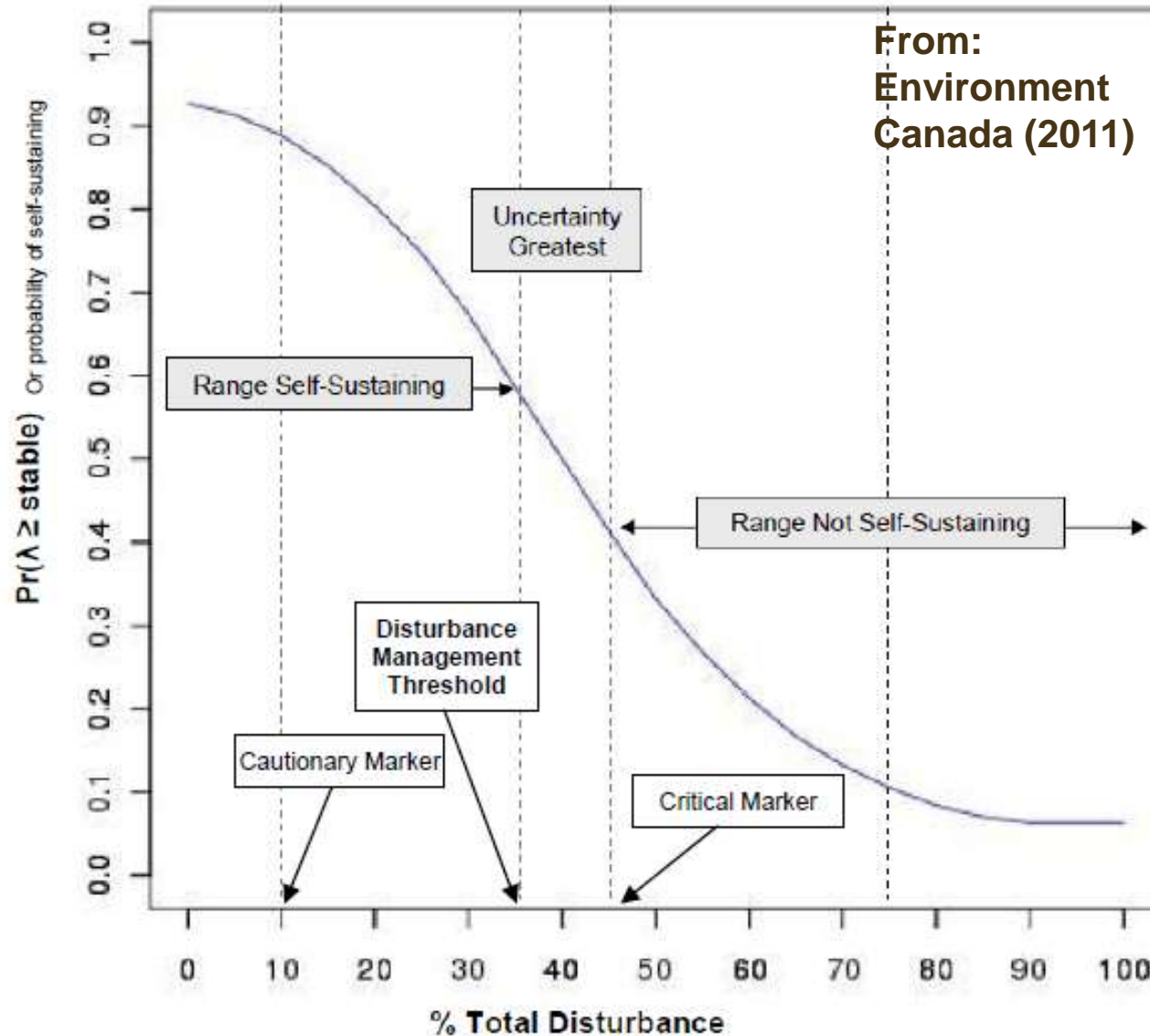
Very Likely

Likely

As Likely as Not

Unlikely

Very Unlikely



MANAGEMENT
SCENARIO

Conservation

Restoration

SUMMARY

- **Achieving social license for resource development cannot be the sole responsibility of a proponent**
- **Regional planning can play an important role**
- **Landscape-level trade-offs will likely be required to achieve social license to operate**

Thank you for the opportunity to
share some thoughts

Good luck to the
Dawson Planning Commission

Ecology and Society 16(4): 18

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Francis, S. R., and J. Hamm. 2011. Looking forward: using scenario modeling to support regional land use planning in Northern Yukon, Canada. *Ecology and Society* 16(4): 18.

<http://dx.doi.org/10.5751/ES-04532-160418>



Research, part of a Special Feature on [Balancing Ecology and Community using Cumulative Effects Models](#)

Looking Forward: Using Scenario Modeling to Support Regional Land Use Planning in Northern Yukon, Canada

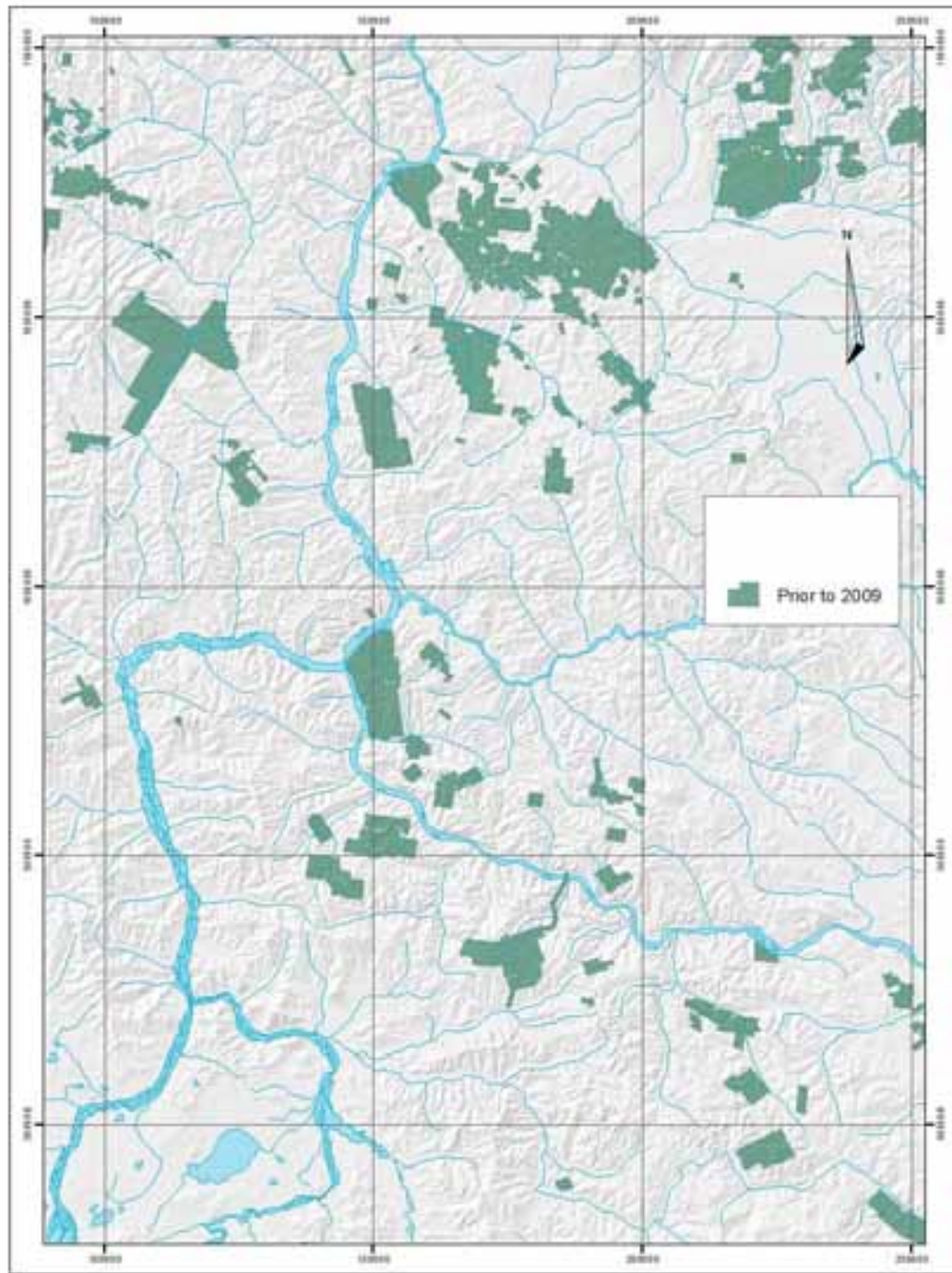
*Shawn R. Francis*¹ and *Jeff Hamm*²

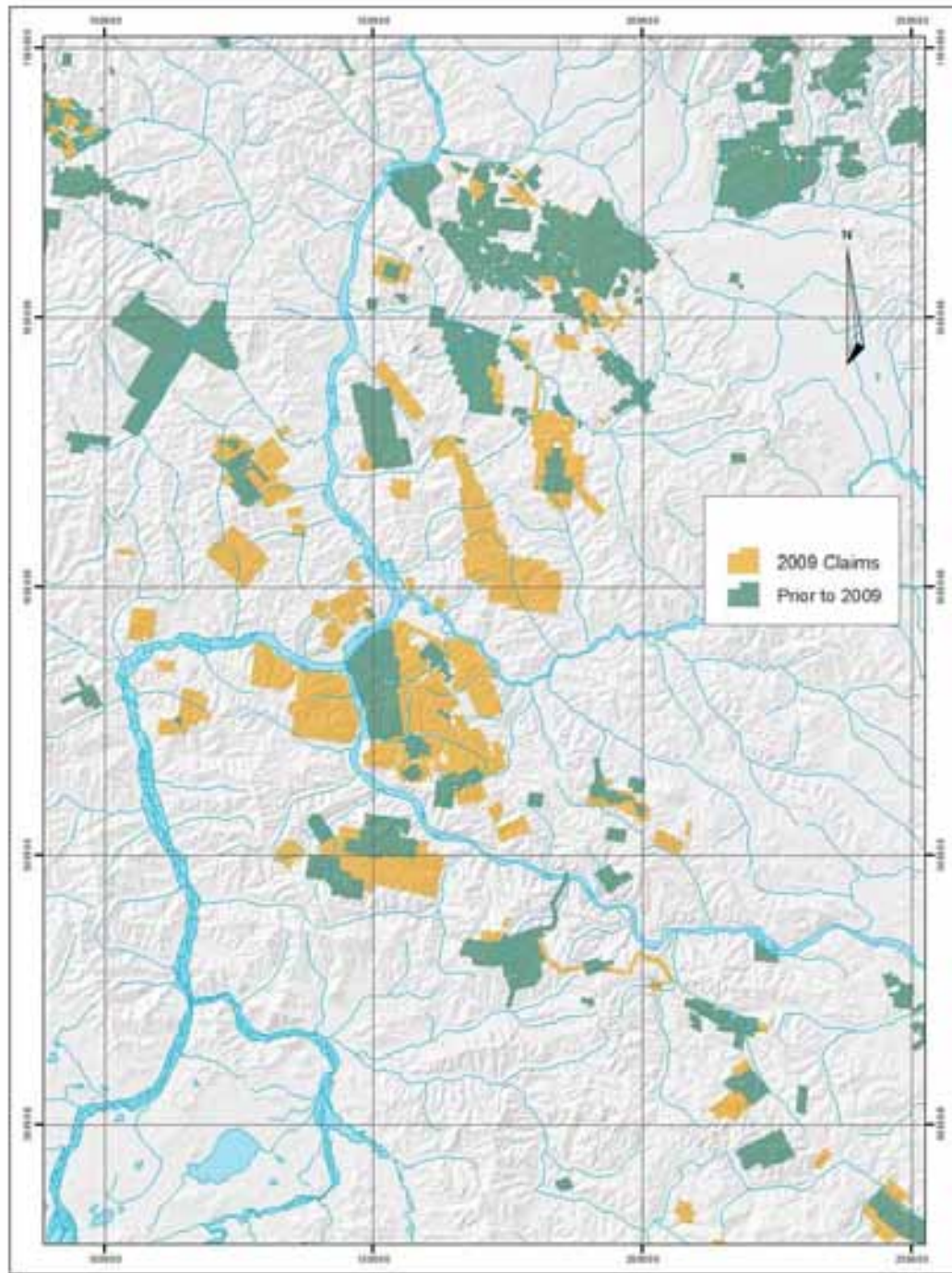
White Gold Area Cumulative Effects

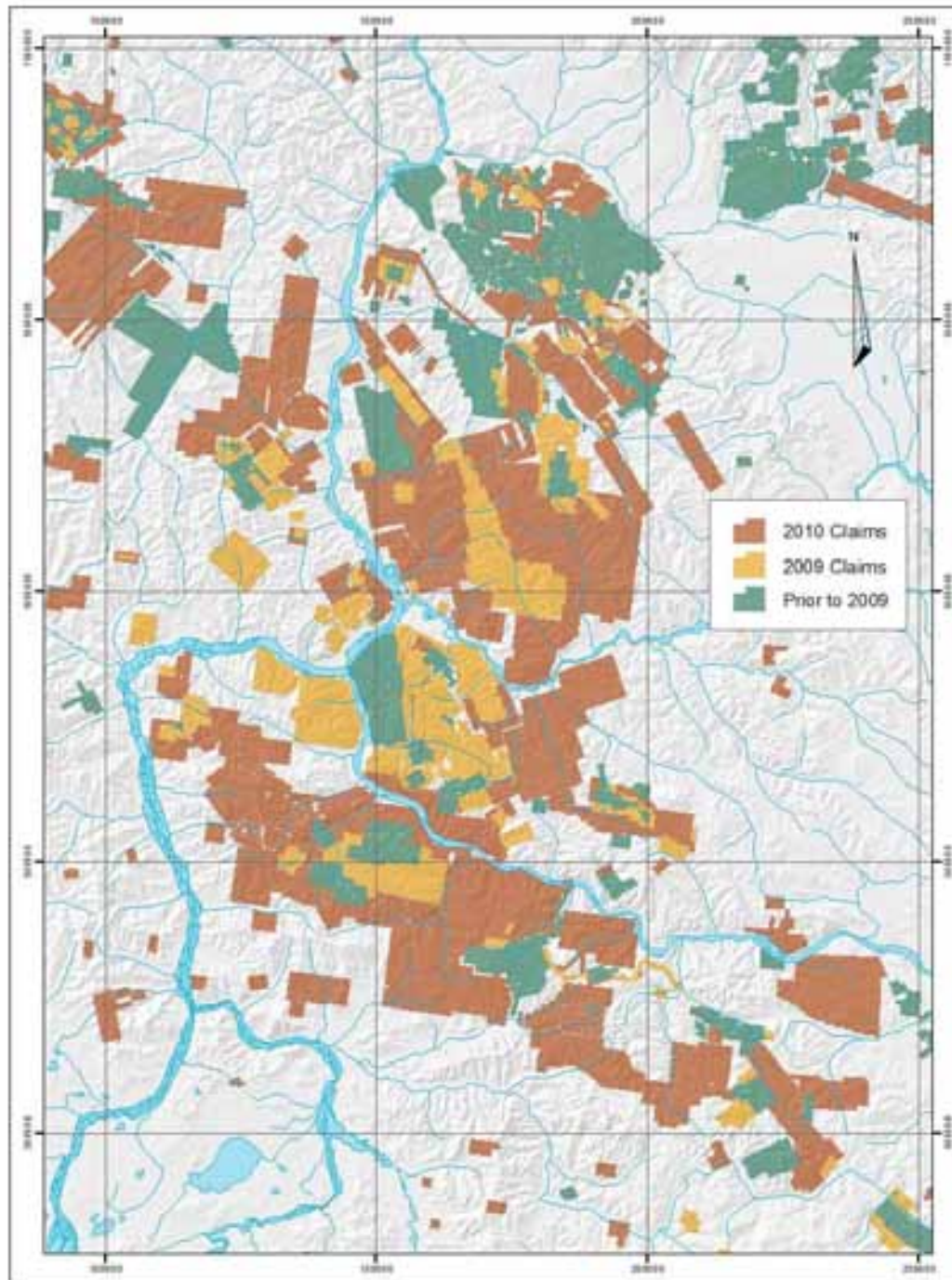
YESAB
Yukon Environmental and Socio-economic
Assessment Board



Natural Resource Consultants









Background

- White Gold area: the focus of hard rock exploration in Yukon
- Exploration companies are required to submit project proposals to YESAB District Office for evaluation
- YESAB is required to consider cumulative effects



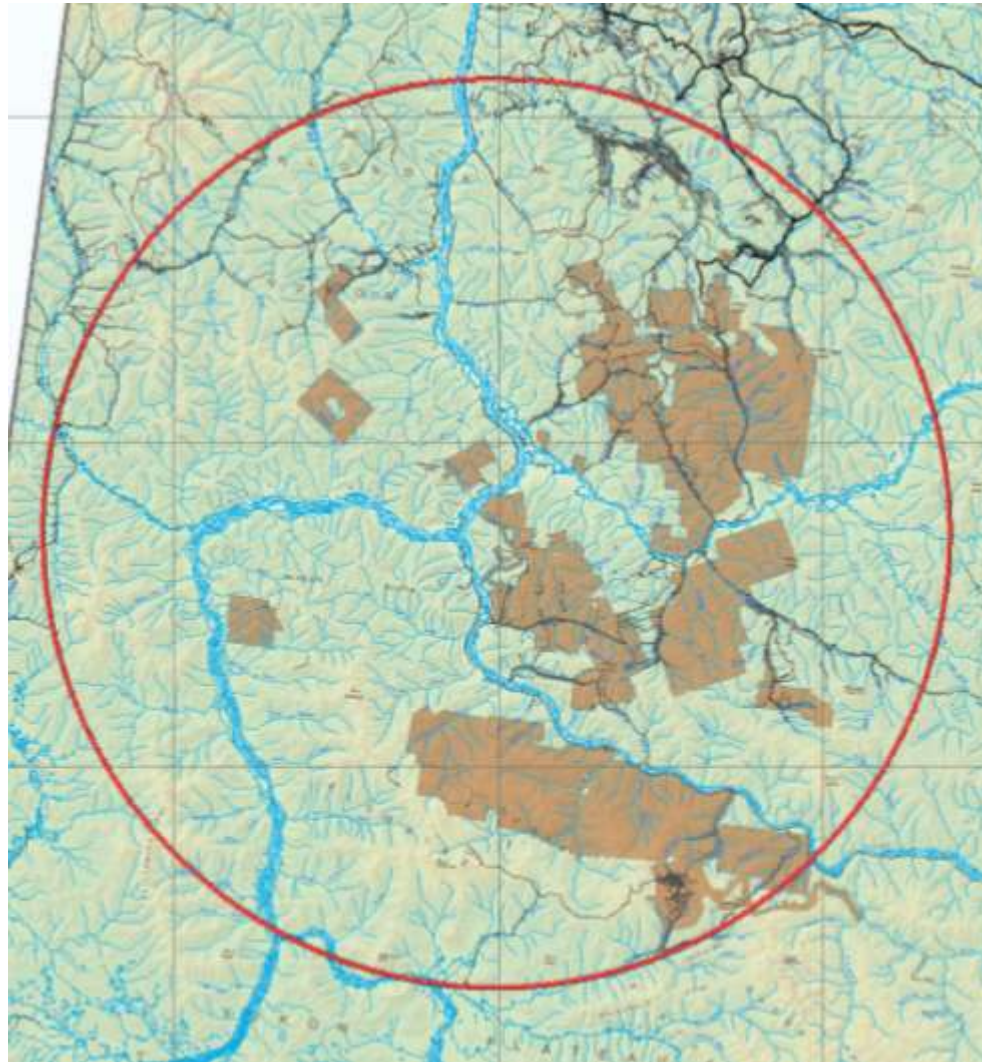
Background

- **Cumulative Effects:** Changes to environment components caused by an activity in combination with other past, present, and future projects.
- Wildlife are a valued component (VC) that could negatively interact with exploration projects



Study Area

Centred on White
Gold property



Key Wildlife Species

- Moose
 - Primary harvest species
 - Important subsistence harvest species for local First Nations
- Thinhorn Sheep
 - Valued trophy animal
 - Abundance is low in area, but distribution is unknown
- Fortymile Caribou
 - Recovering herd
 - Management goal: Re-establish herd in Yukon through reducing mortality and maintaining habitat



Information from DO application

YESAB Form 1

Class 3/4 Quartz
Mining Land Use
Approval application

Project Number	Project Name	Sector	DO	Length of new access	Game Management Area
2010-0056	Frisco Creek Placer	Placer	Dawson	4.31 km	313
2010-0073a	JP Ross and Maisey Claims	Quartz	Dawson	55 km	310 (30%) 312 (70%)
2010-0073b	Yellow and RP Claims	Quartz	Dawson	0 km	306
2010-0075	Touleary Property	Quartz	Dawson	1.68 km	313 (95%) 314 (5%)
2010-0076	Green Gulch	Quartz	Dawson	6.41 km	313
2010-0077	Dan Man	Quartz	Haines Junction	11.56 km	503
2010-0087	Coffee, Cream and Kirkman Claims	Quartz	Haines Junction	0 km	318 (55%) 502 (5%) 509 (40%)



Moose

- Ubiquitous throughout White Gold area
- Density in the area is average for Yukon



- **Issue: New access could cause harvest rates to exceed the 4% AAH threshold.**



Moose Harvest

For each Game Management Area:

- Current licensed harvest
- Moose density
- Road/trail access density
- River access points
- Length of river access

For each Project:

- Summarize potential new access by GMA



Moose Analysis

- Moose harvest range: <1–9 moose/year/GMA
- Harvest already exceeds 4% AAH threshold in GMA 313
- Confirmed that access drives moose harvest
 - Harvest was correlated with linear access and river length, but independent of the moose population density
- Harvest increased at a rate of ~5 moose/km access/km²
- Additional linear access is a key project interaction



Thinhorn Sheep

- Sheep are commonly observed in the area
- Unknown distribution
- **Issue: Disturbance, particularly during lambing**



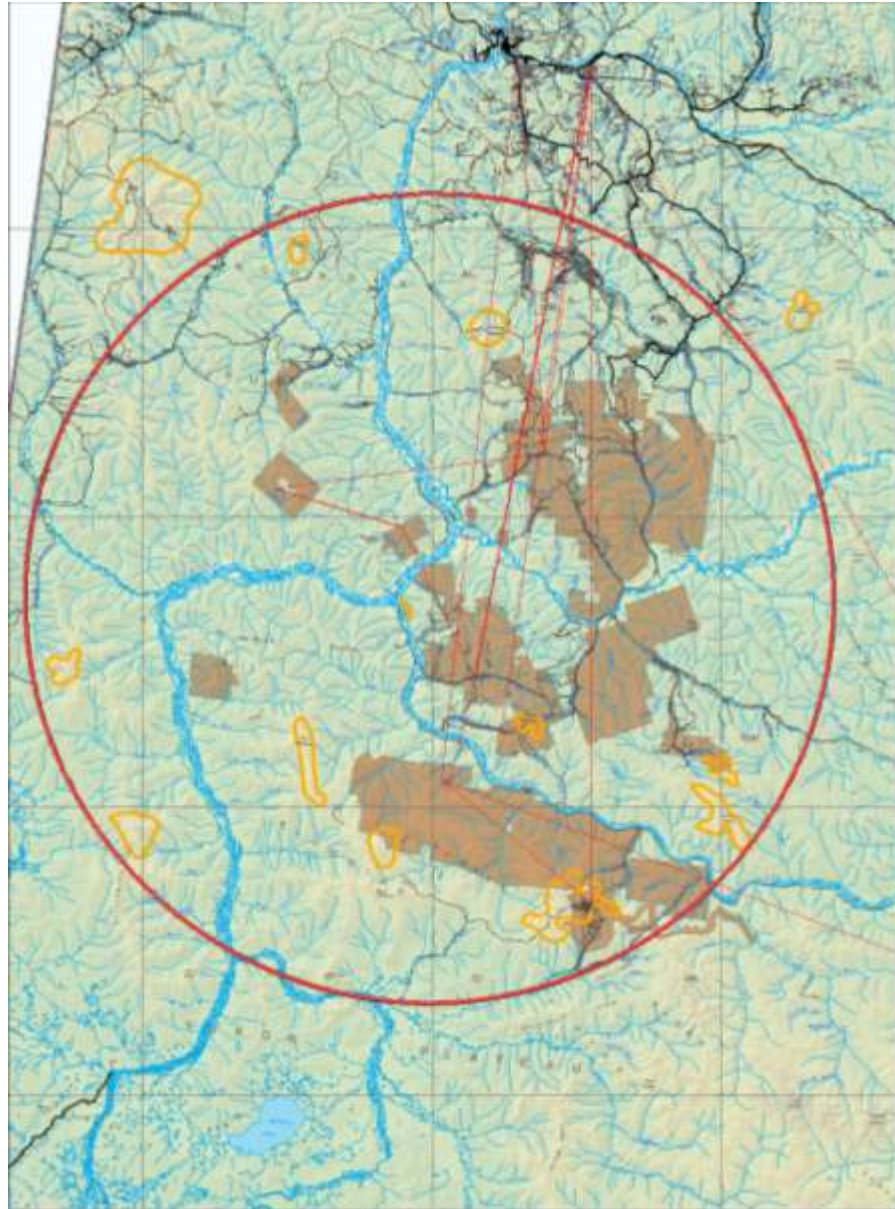
Spatial Data Development and Analysis

Identification of potential sheep habitat

- Aspect
- Steepness
- Patch size
- Elevation

Project-specific

- Potential flight paths



Fortymile Caribou

- Currently, few caribou occur in the area
- **Issue: Maintaining functional winter range to support the herd's expansion**



Spatial Data Development and Analysis

Identification of high
(green) and low
probability winter
habitat

EOSD land cover

Remove burned
areas



YESAB Assessments

- Assessors are able to assess potential project effects in CE context for key wildlife species
- 4% AAH threshold allowed assessors to make stronger recommendations about access
- Site-specific mitigations for sheep lambing areas
- Caribou winter habitat loss is estimated to be minor

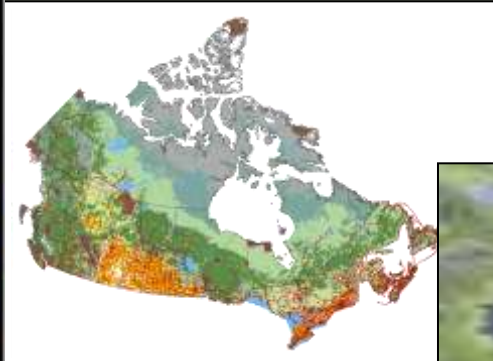


Implications for Land Use Planning

- Development quantifiable thresholds are important for successfully assessing project cumulative effects
 - Project proponents have more certainty in environmental requirements, decreasing risk
 - Environmental assessments can more effectively address project effects at a landscape level
 - Decrease assessment timelines

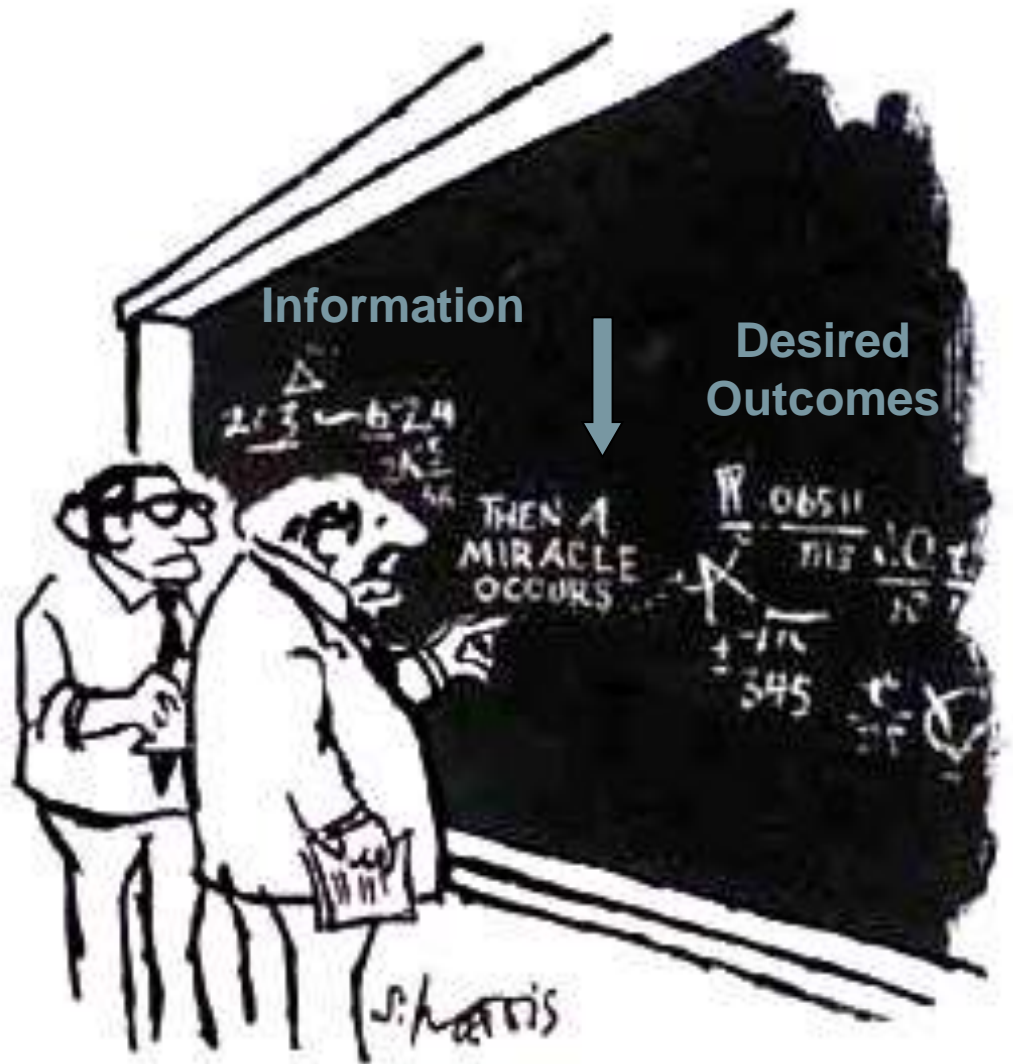


Approaches to Conservation Assessment for Regional Planning

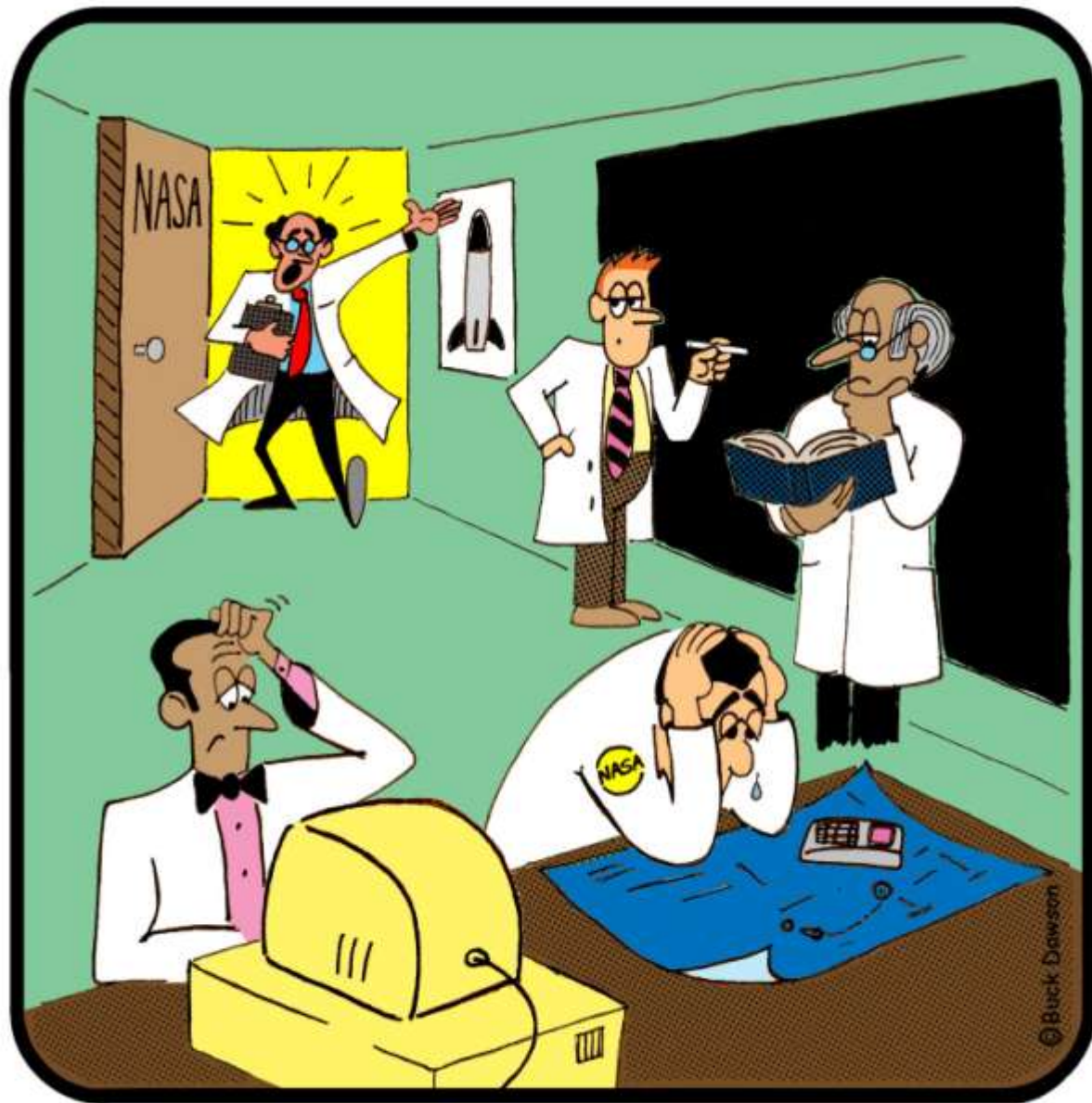


Fiona Schmiegelow
University of Alberta
Dawson, Jan.18, 2012

... intelligent tinkering



"I THINK YOU SHOULD BE MORE EXPLICIT
HERE IN STEP TWO."



*"So what's the problem here fellas?
C'mon now -- it's only rocket science!"*

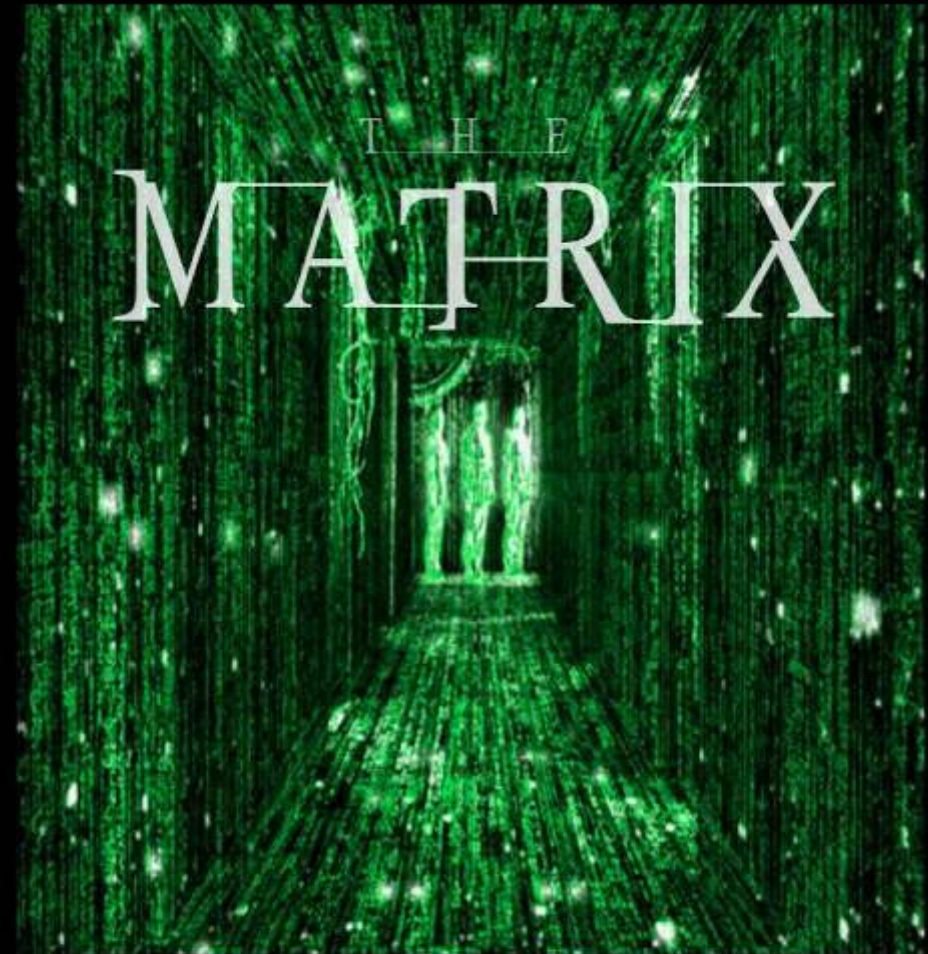
Two ships in the night...



Conservation

Resource
Management

Paradigms in Conservation

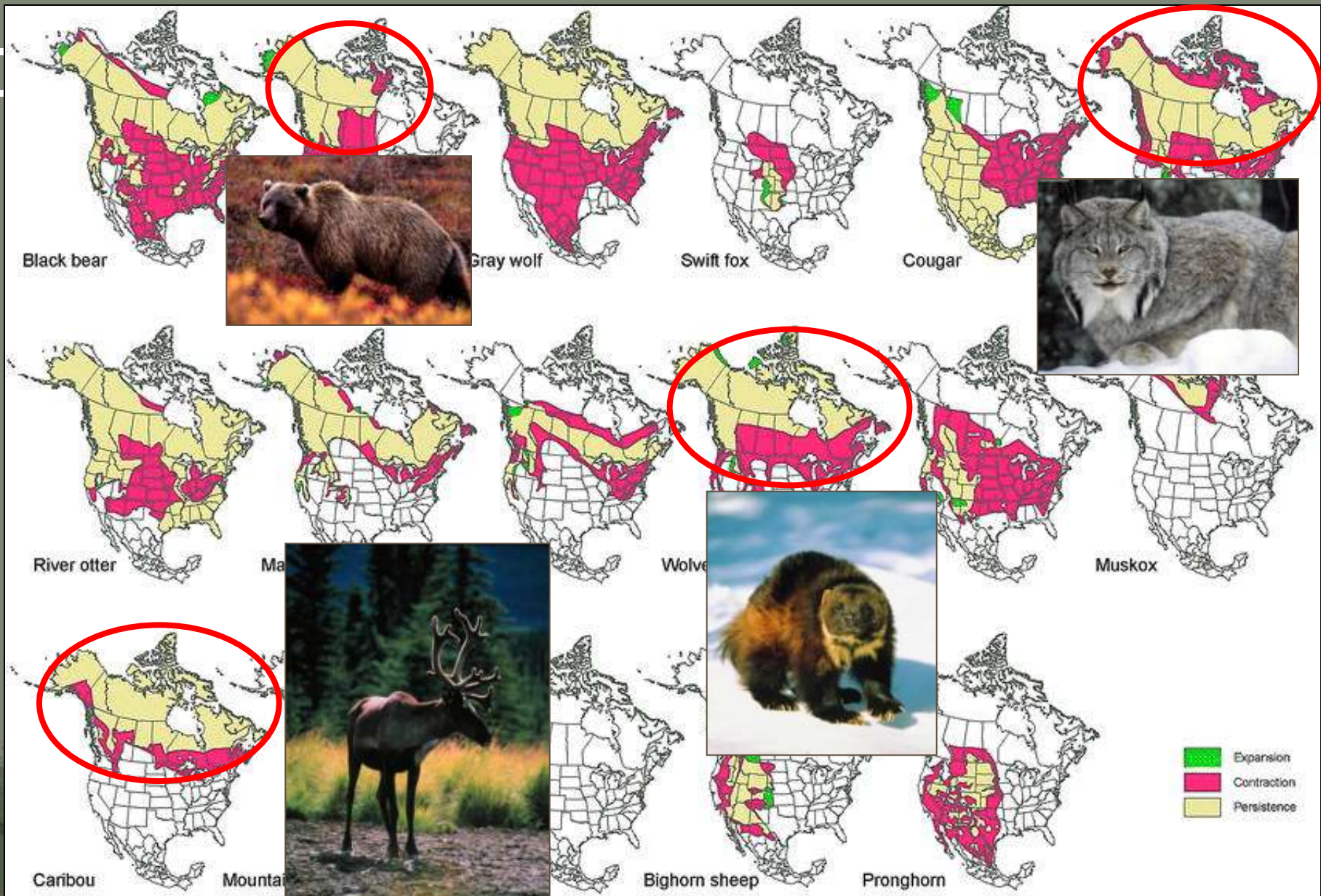


The context... a global biodiversity “crisis”



Numbers of endangered and threatened species are increasing, ecological integrity has been compromised, and ecosystem services are being lost.

Closer to home... range contractions of large mammals throughout North America





Functioning predator/prey communities – a global rarity



Key ecological processes still shape landscapes at large scales



What is the “matrix”?

“A situation or surrounding substance within which something else originates, develops, or is contained.”

“That which gives form or origin to anything.”

“An enclosure within which something originates or develops (from the Latin for womb)”

\Ma"trix\, n.; pl. Matrices. [L., fr. mater mother. See Mother.] 1. (Anat.) The womb.

Reactive vs. Pro-active Planning



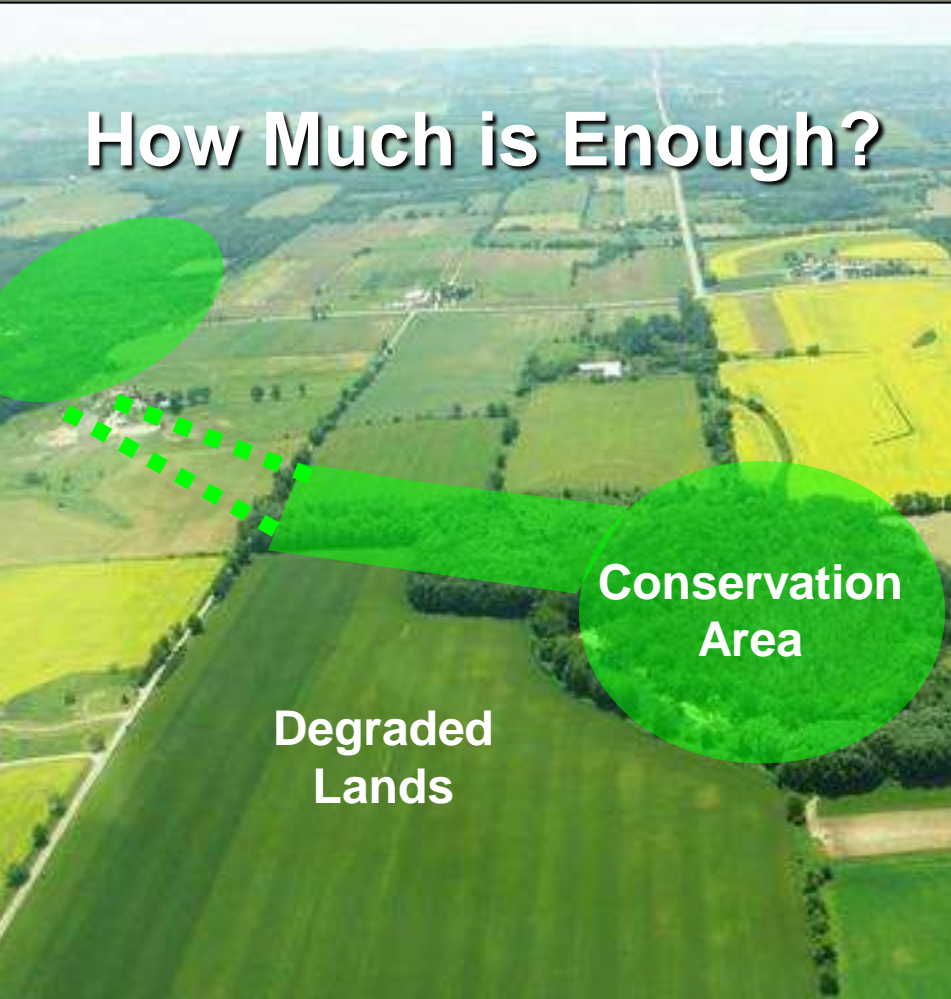
Managing for Scarcity



Managing for Abundance

Paradigms in Conservation

How Much is Enough?



Classic Conservation Model

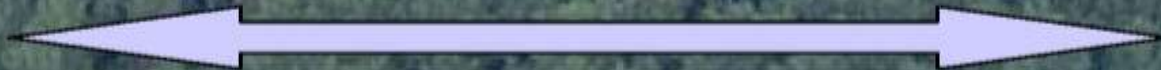
How Much is Too Much?



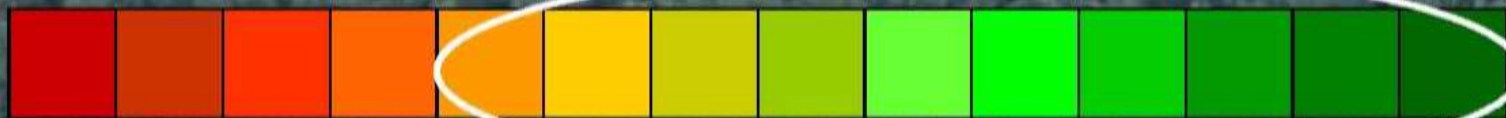
Conservation Matrix Model



Altered



Intact



Domain of Sustainability ?

“Landscapes of
Regret”

“Landscapes of
Opportunity”

Sustainability... the final frontier



Sustainability as a Grand Experiment



Many Uncertainties

- knowledge of systems is incomplete
- natural environmental variability is high
- responses to resource development are often unknown
- climate change
- socially acceptable levels of risk vary



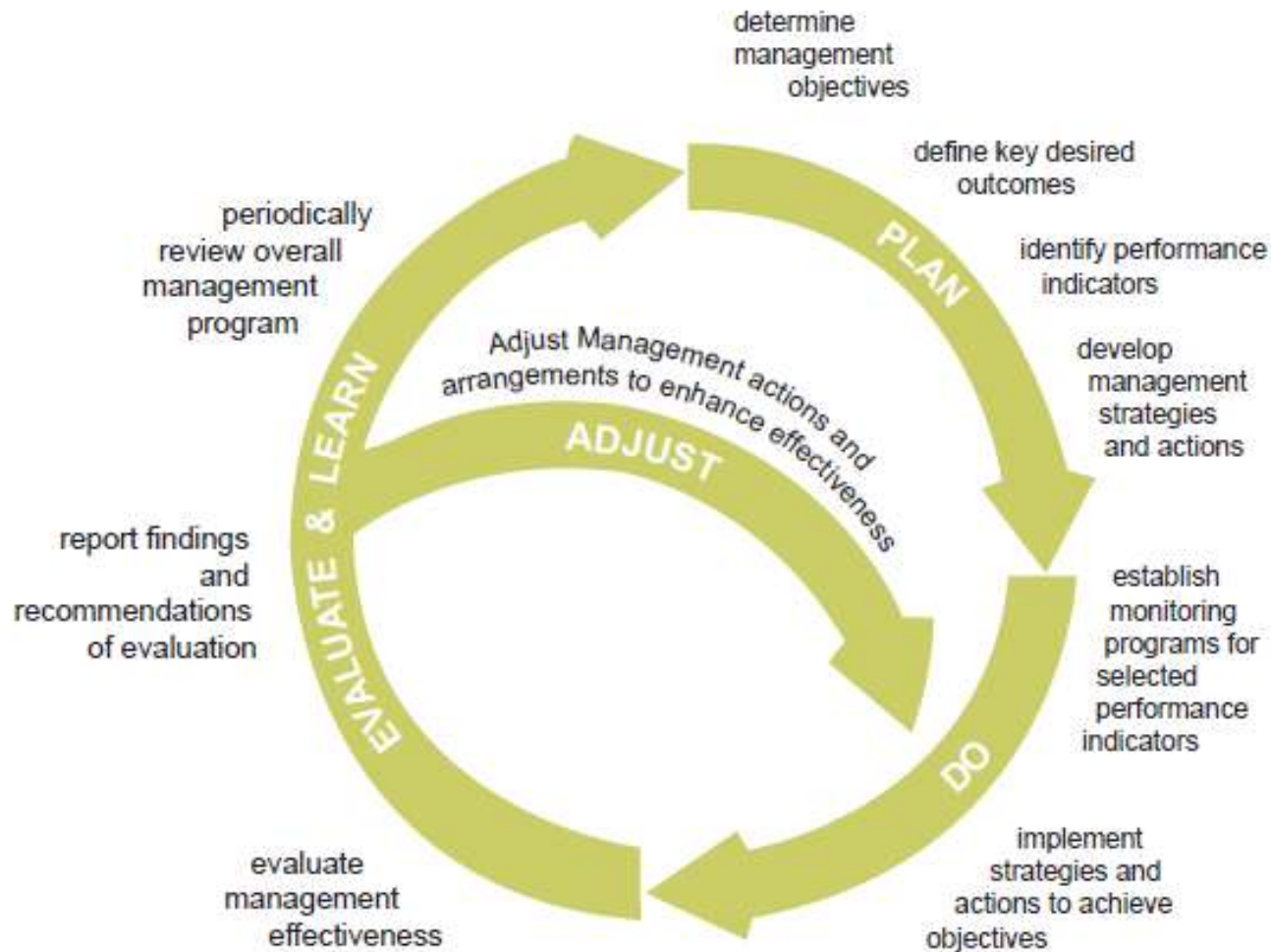
Adaptive Management

What is Adaptive Management?

A structured process of learning that recognizes that unknowns and uncertainties exist in the course of achieving management goals, and that these increase risk, but should not be crippling.

- Support local economies and communities
- Avoid unintended outcomes
- Do not foreclose future opportunities (precautionary)
- Enhance learning by reducing uncertainties and identifying truly sustainable practices
- A foundation for land-use planning
- Conservation by design

The Adaptive Management Cycle



Treat management as experiments to increase knowledge, reduce uncertainty, and minimize risk

Management as Experiment / Conservation by Design – the Foundation

How Much is Too Much?



Management
experiments
require controls



Ecological
Benchmarks

How Much is Enough?

Roles and Properties of Benchmarks



**Ecological
Benchmark**

The role of benchmarks:

- ecological baselines to understand natural system dynamics
- anchors of a comprehensive conservation network
- controls or references for adaptive management

Benchmarks should be:

- intact
- representative
- sufficiently large to maintain key ecological processes

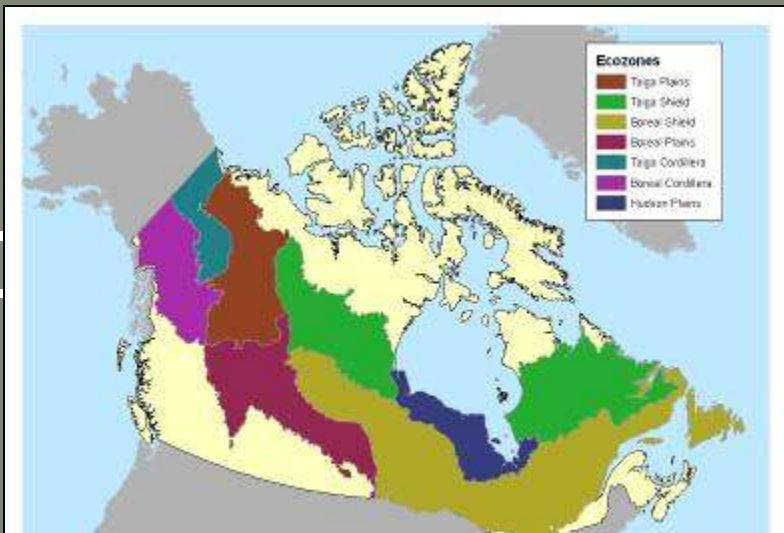
Science-based Planning for Broad-scale Conservation of Boreal Systems



Boreal Ecosystems Analysis
for Conservation Networks

Benchmarks Across the Boreal

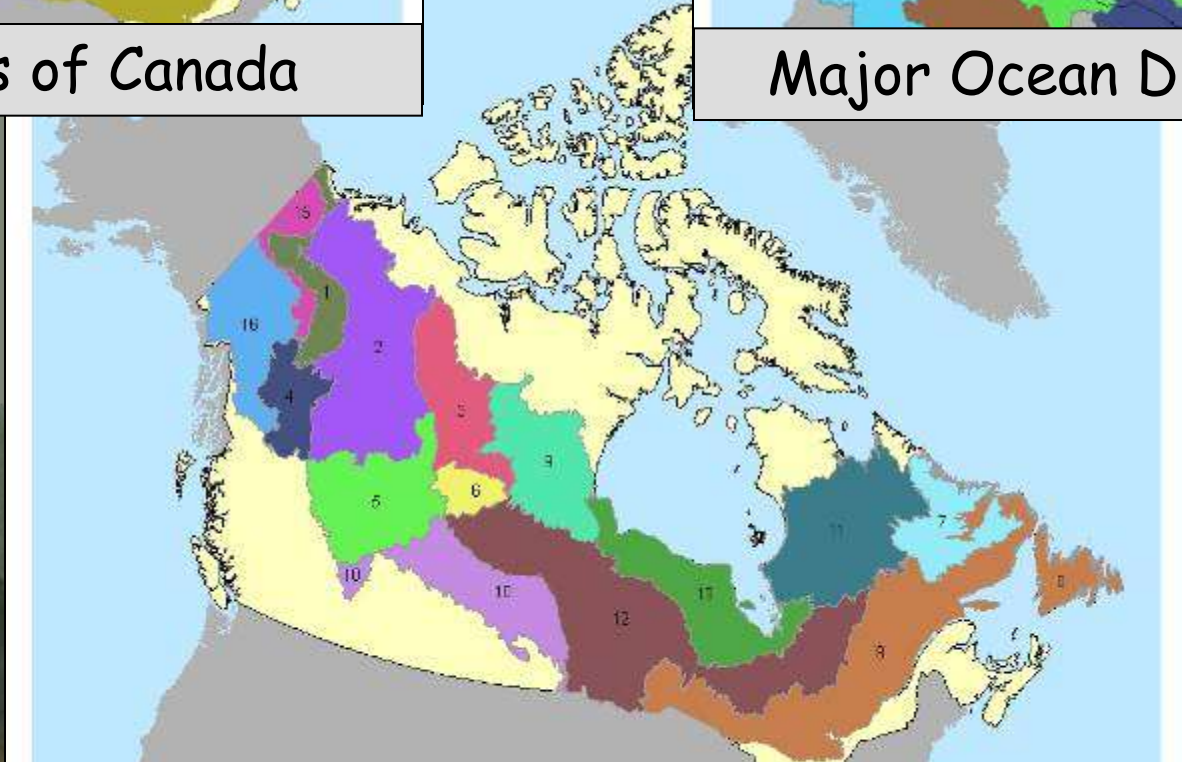




Ecozones of Canada



Major Ocean Drainages



Integrated Regional Planning Units

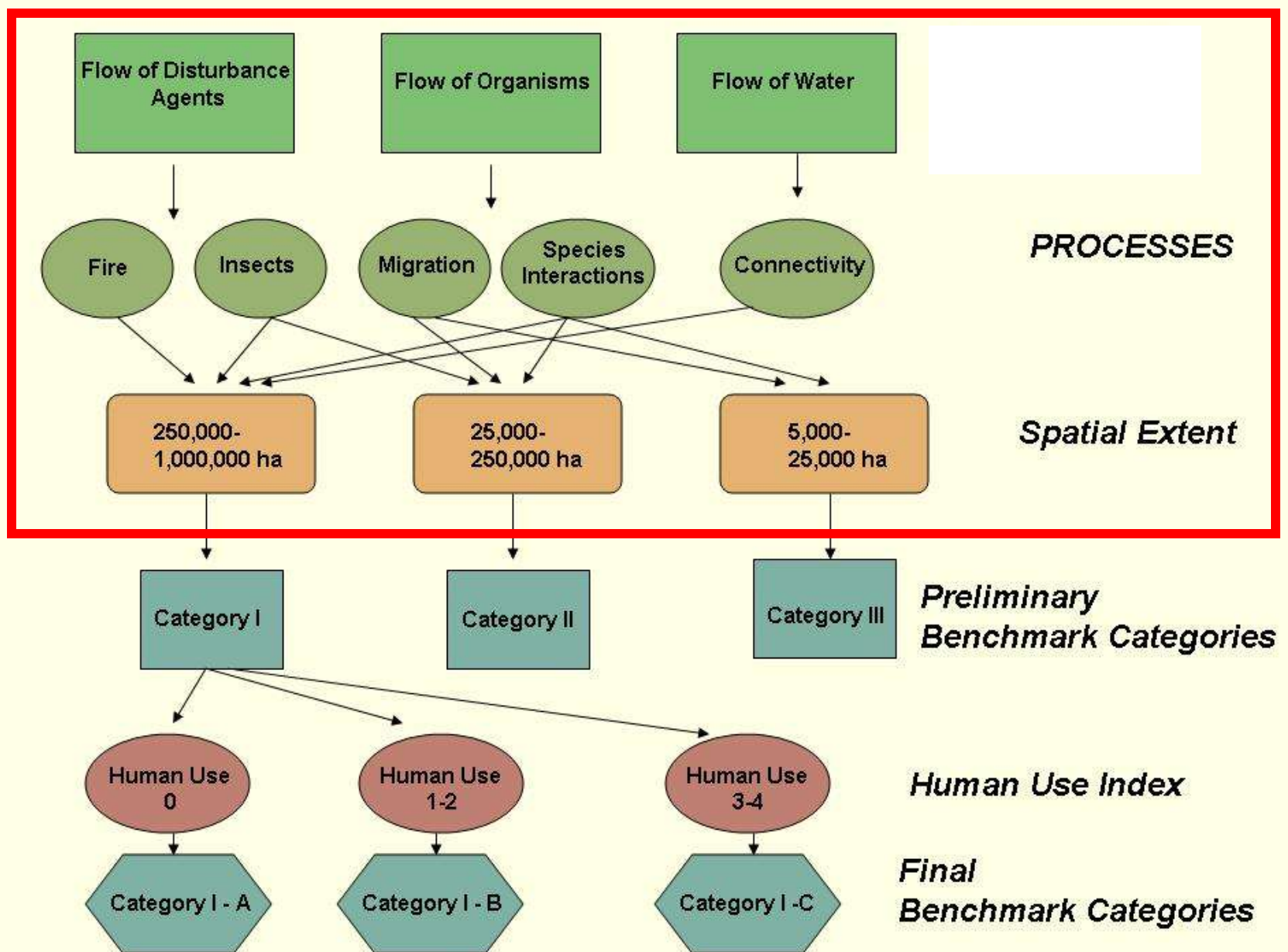
Water – flows that define landscapes



Natural Disturbance – processes that drive natural landscape change

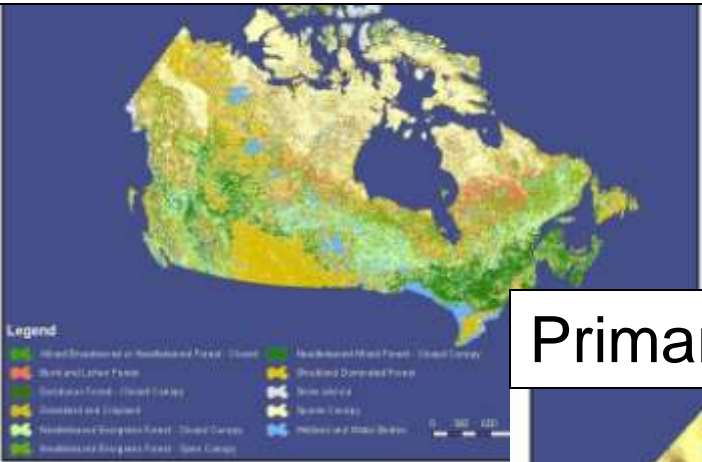


Benchmarks – The Approach

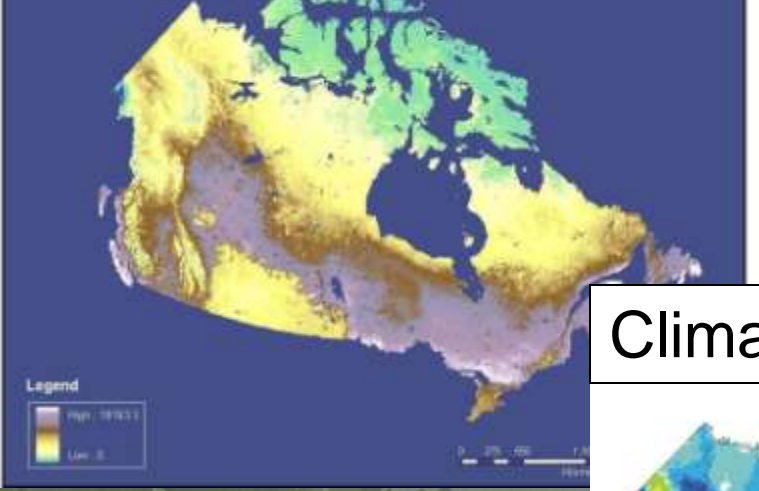


Addressing Representation

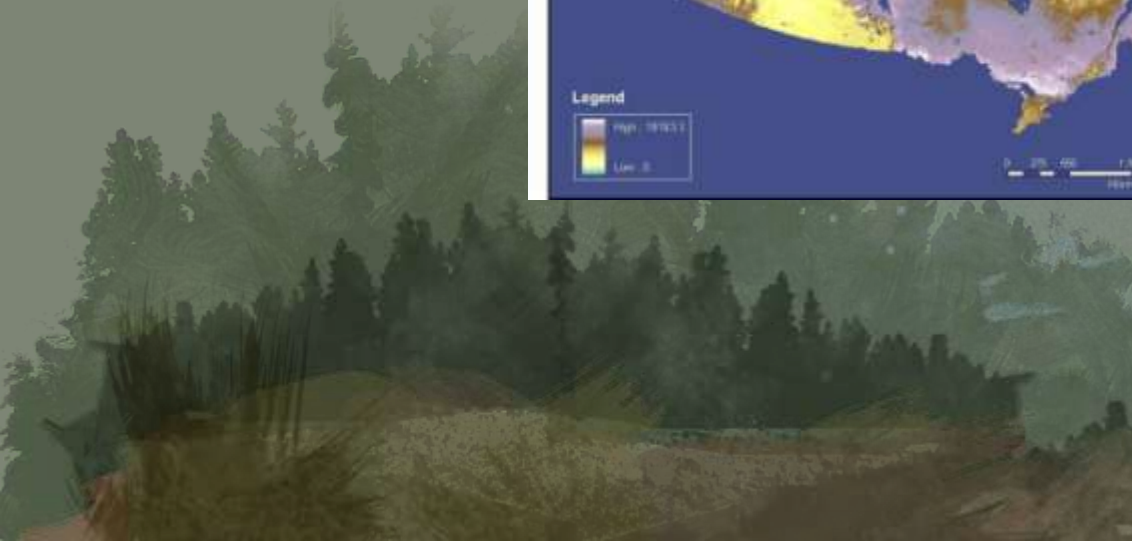
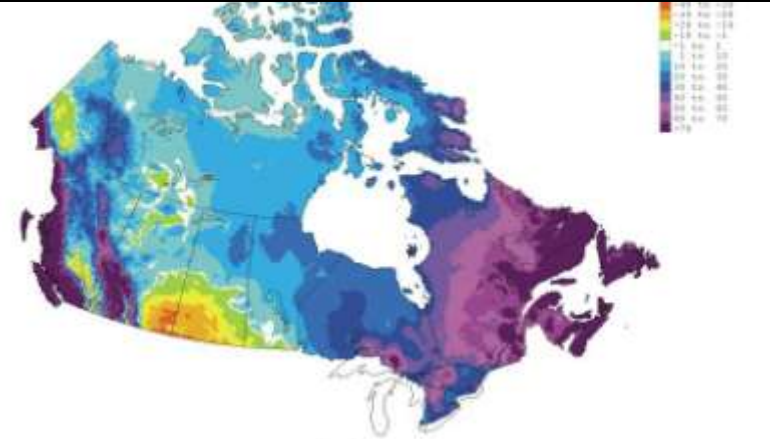
Land Cover



Primary Productivity



Climate Moisture Index





Jared Hobbs



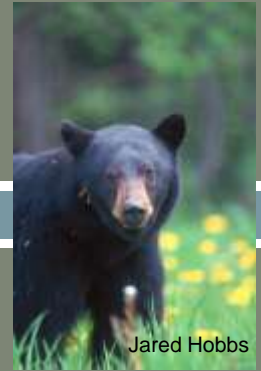
Jared Hobbs



Jared Hobbs



Gerry Kuzyk



Jared Hobbs

Addressing Species Needs

A focal species is simply the species that one focuses on after choosing from the suite of species of potential interest.

(Armstrong 2002)



Jared Hobbs



Jared Hobbs

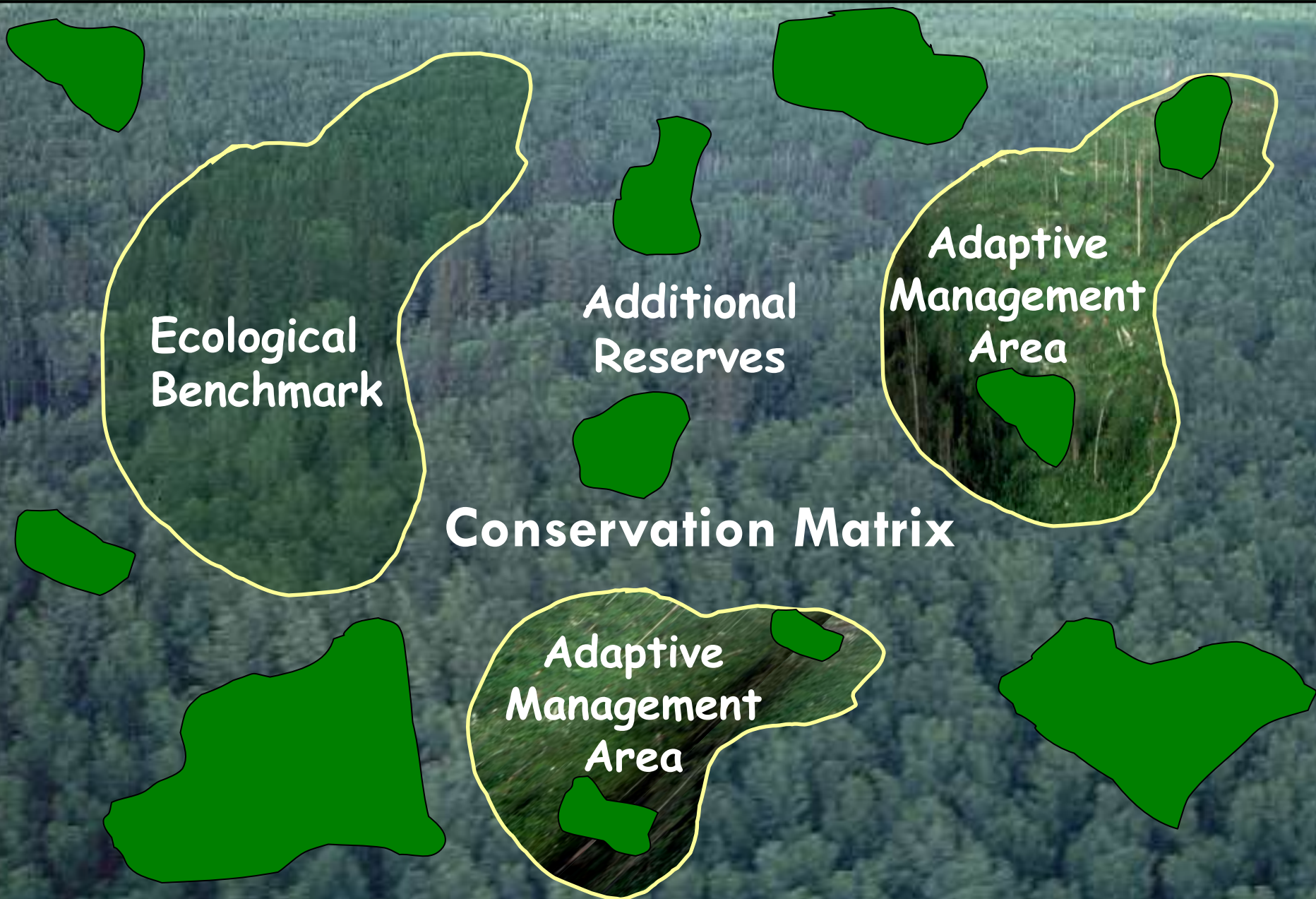


Jared Hobbs

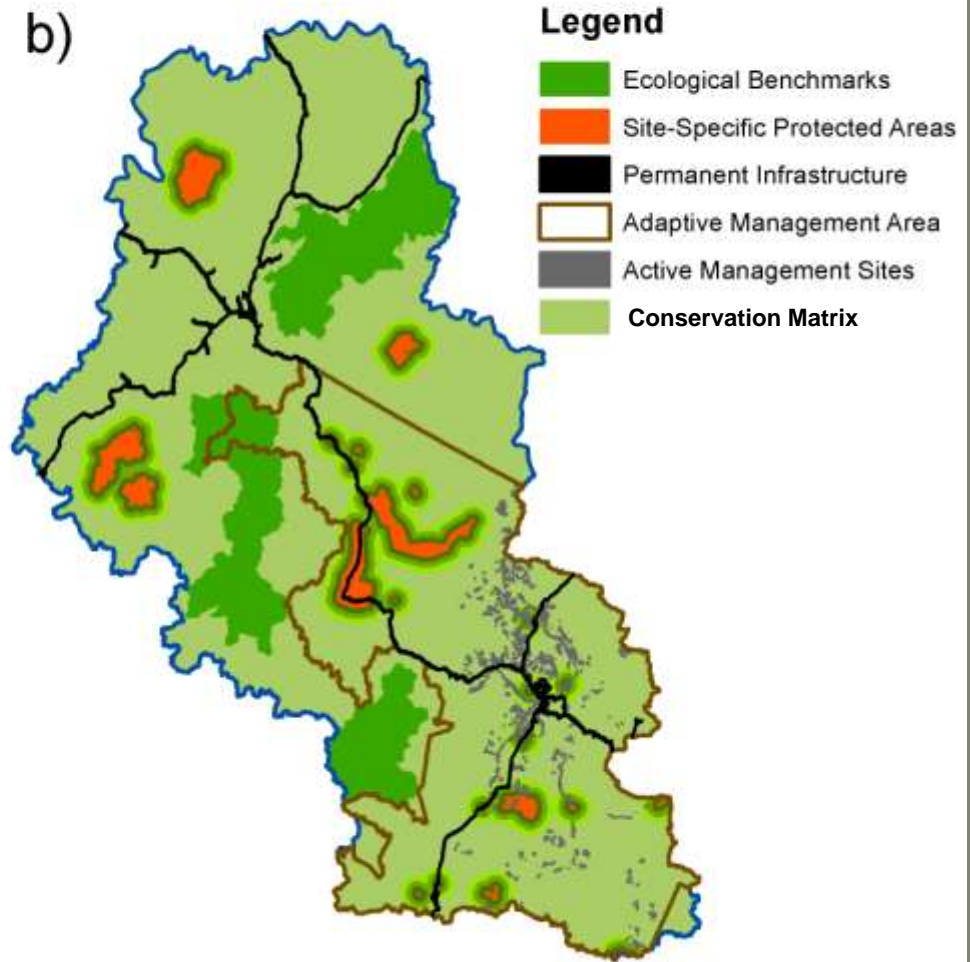
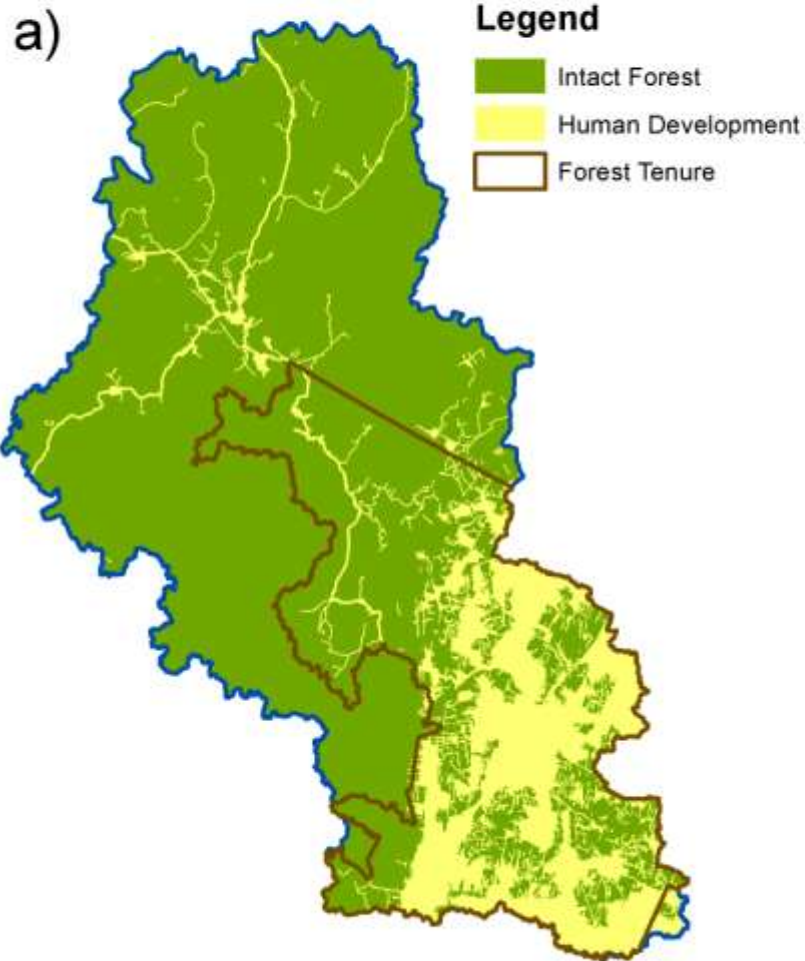


C. Rohner

The Conservation Matrix Model



Conservation Matrix Model) – An example from Northern BC



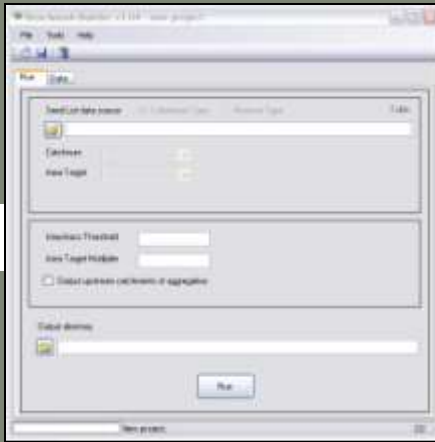
Critical Roles of the Matrix ...

- Supporting populations of species
- Facilitating the movement of organisms
- Buffering sensitive areas and reserves
- Maintaining the integrity of aquatic systems



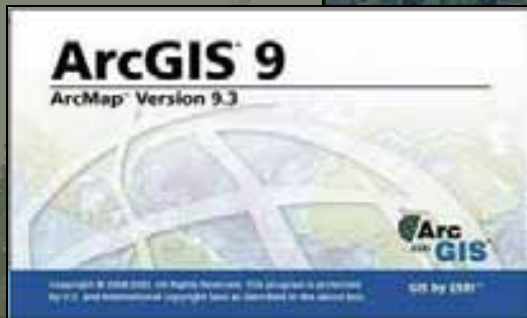
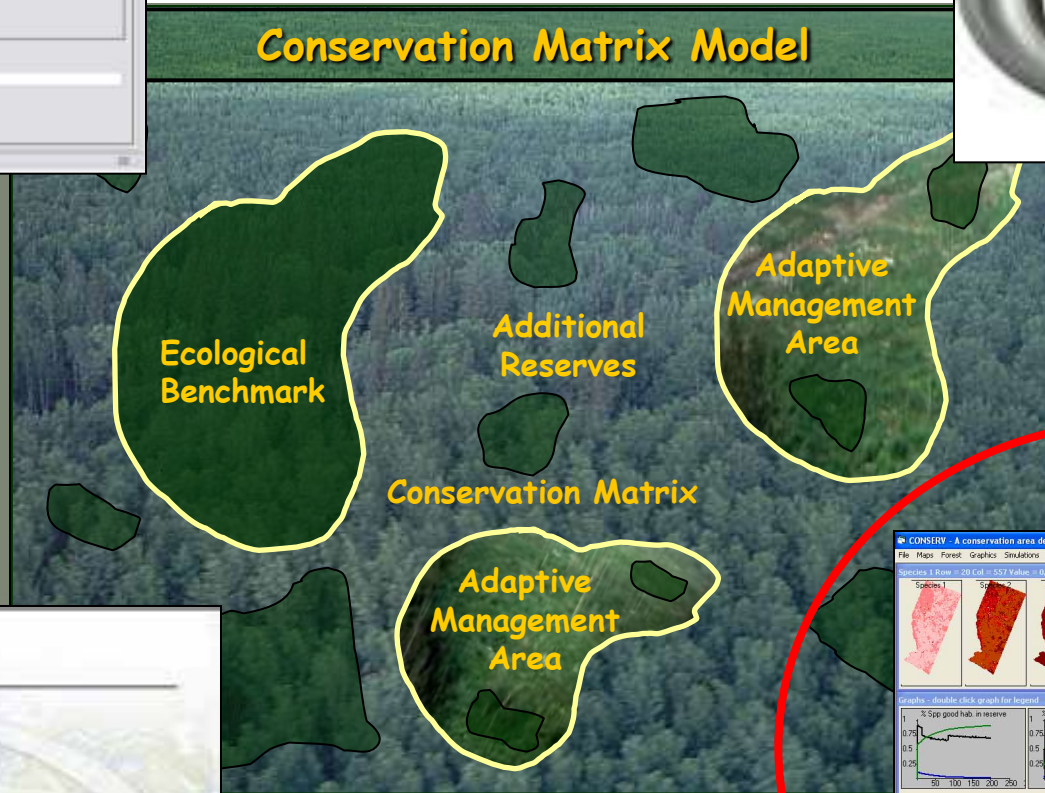
Suite of BEACONs Tools

Benchmark Builder

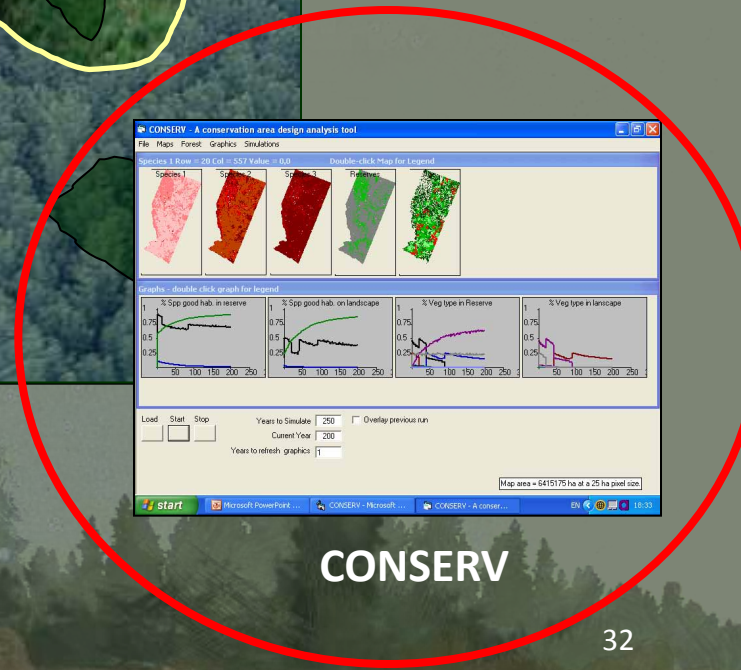


Ranker

Conservation Matrix Model



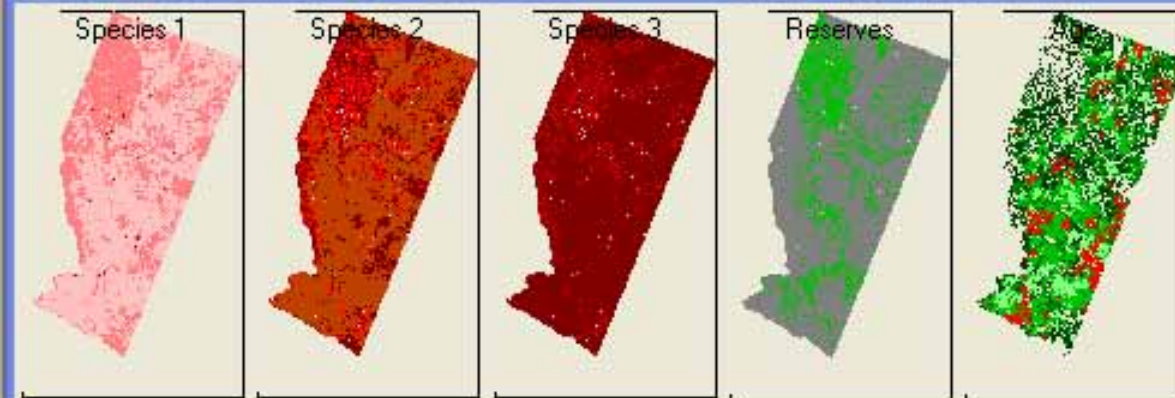
BEACONs Toolbox



CONSERV

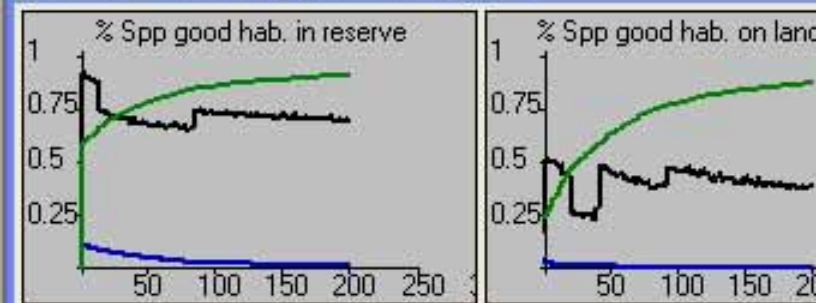
Species 1 Row = 20 Col = 557 Value = 0,0

Double-click Map for Legend



Dynamic Conservation Planning

Graphs - double click graph for legend



How well does an individual protected area, or the network, maintain conservation features given natural disturbances and climate change?

How do different management strategies in the matrix affect conservation values?

Which conservation networks optimize socio-economic considerations?

Load Start Stop

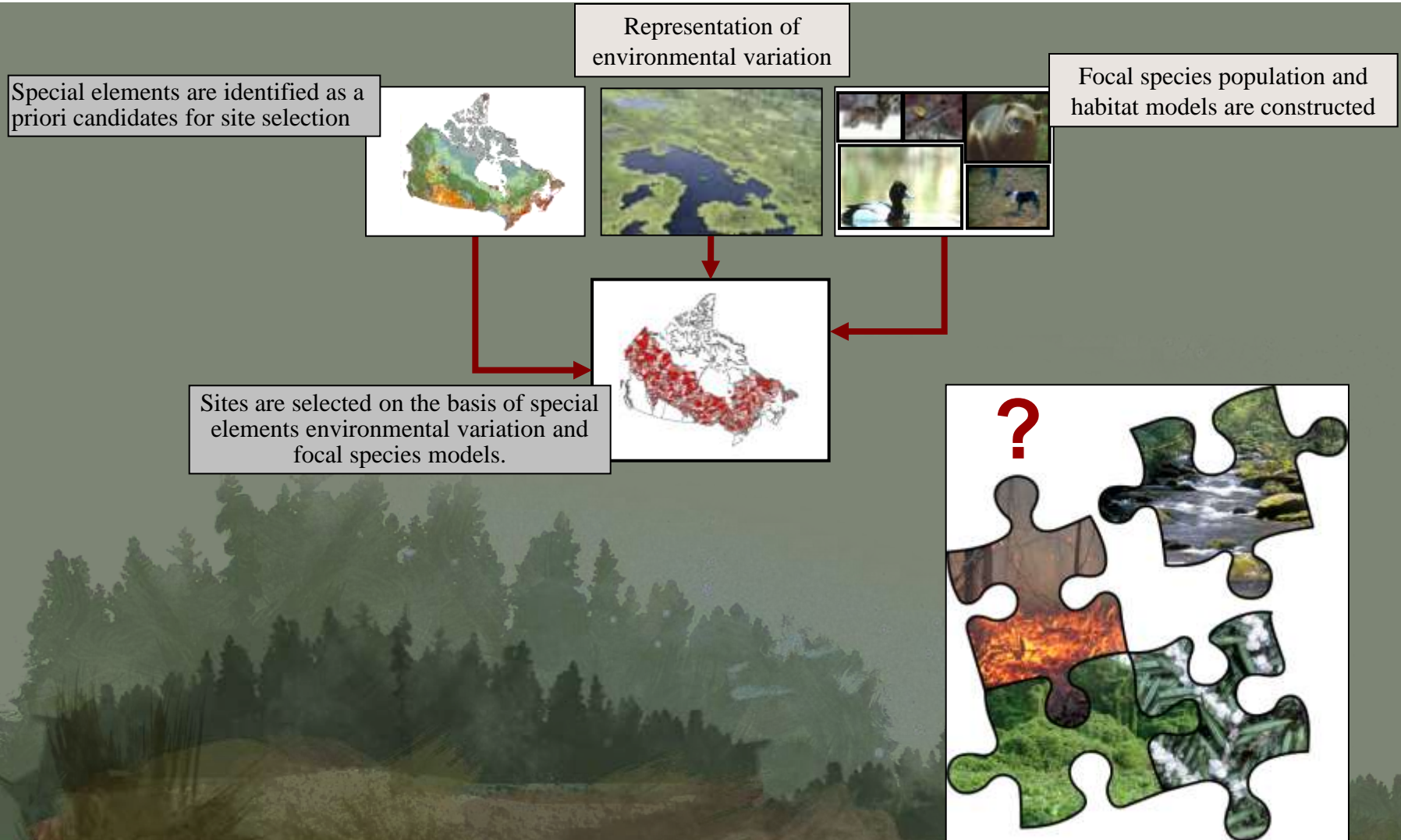
Years to Simulate

Current Year

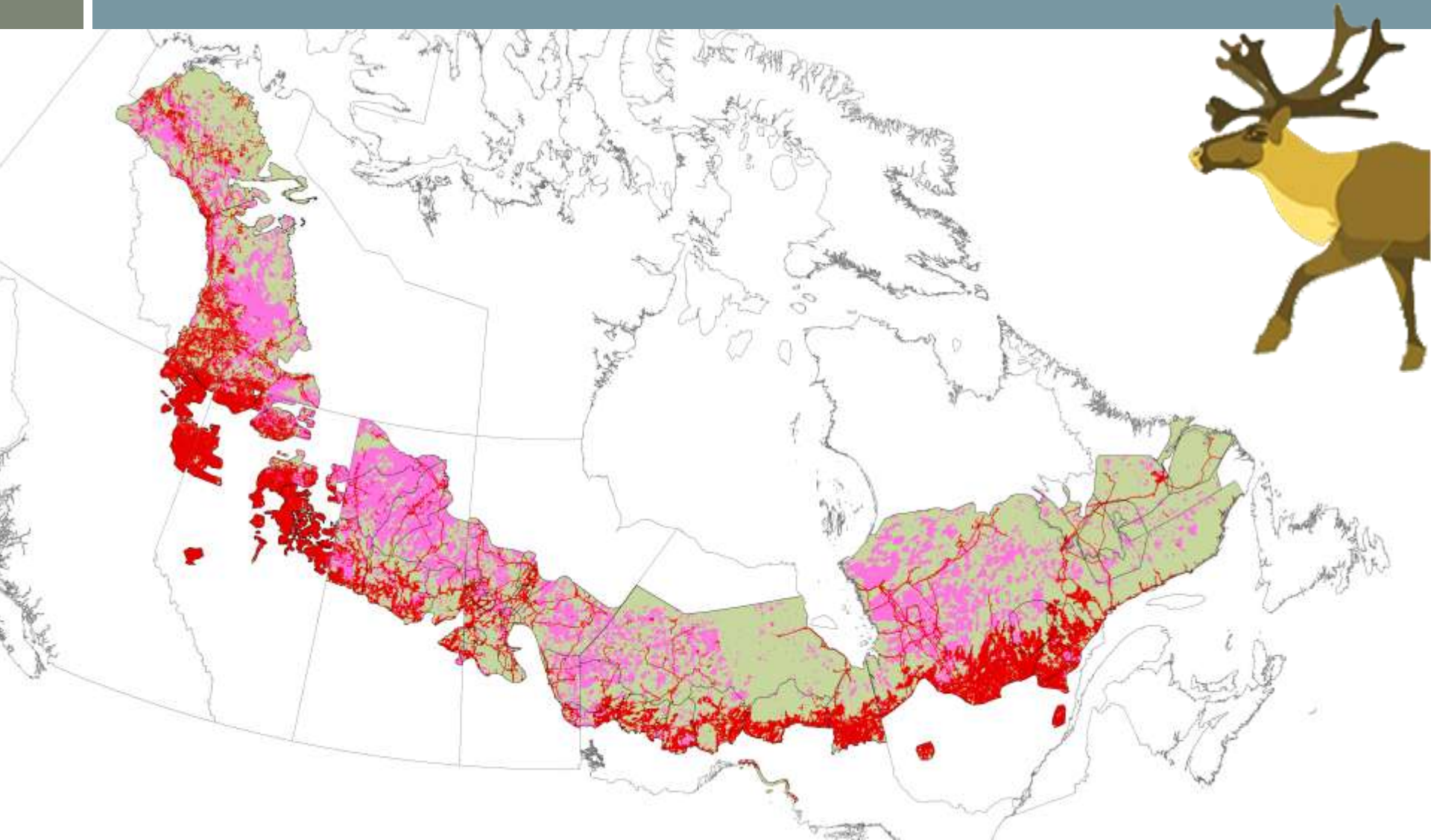
Years to refresh graphics

Map area = 6415175 ha at a 25 ha pixel size.

Valued components vs. Functioning Systems



Thresholds – A Cautionary Note





■ AREA OF SUSPENDED TIMBER HARVEST IN BOREAL CARIBOU RANGE

FPAC Members commit to no timber harvesting or road building in these approximately 29 million hectares of Boreal Forest from April 1, 2009 – March 31 2012 for woodland caribou conservation planning.

- Boreal Forest (*Brandt 2009*)
- ▨ FPAC Tenures - 72 million hectares
- Boreal Caribou Range (*Environment Canada 2008*)



Community Meetings – Dawson LUP

Consistent issues emerging from the meetings were:

water quality, quantity and rates of flow;

conservation of habitat (notably salmon, caribou, sheep, moose, grizzly bear, lynx and raptors);

access management;

balance between environmental conservation and economic development;

consideration for the long term, cumulative effects of development; and

adaptive strategies responsive to climate change.

Several unique characteristics of the region were noted, including the unglaciated terrain, high levels of endemism (rare and unique species), considerable mineral potential and historical development and the watershed itself, which supports one of the longest salmon runs in the world.



Broad Ecosystem Classification & Mapping

Applications in Regional Planning

Dawson Regional Planning Conference

January 18, 2012

Dawson City, Yukon

Presenter: Nadele Flynn, ELC Coordinator
Department of Environment, Yukon government

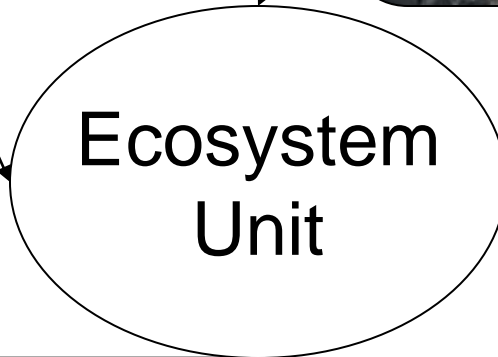
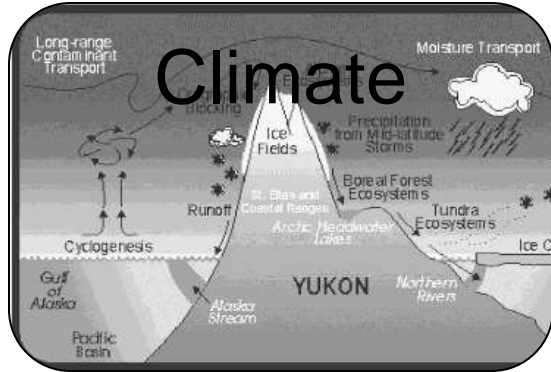


Broad Ecosystem Classification and Mapping



- What
- Why
- How
- Dawson study
 - Predictive Ecosystem Mapping
 - Methods
- Applications

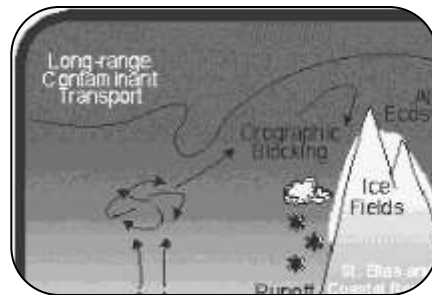
What is ecosystem classification?



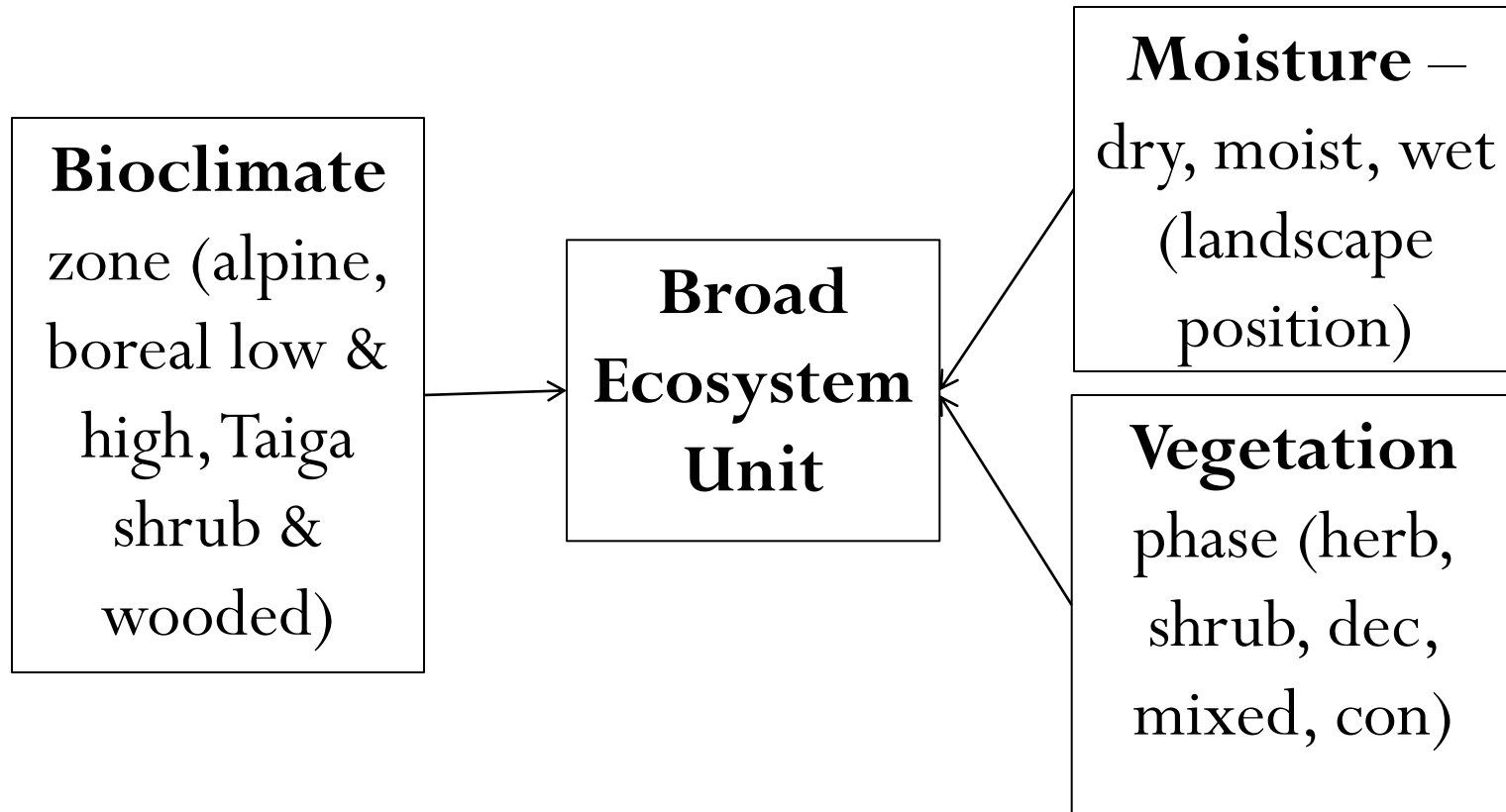
Why?



- A common language
- A tool for management decisions



How Broad Ecosystems are classified



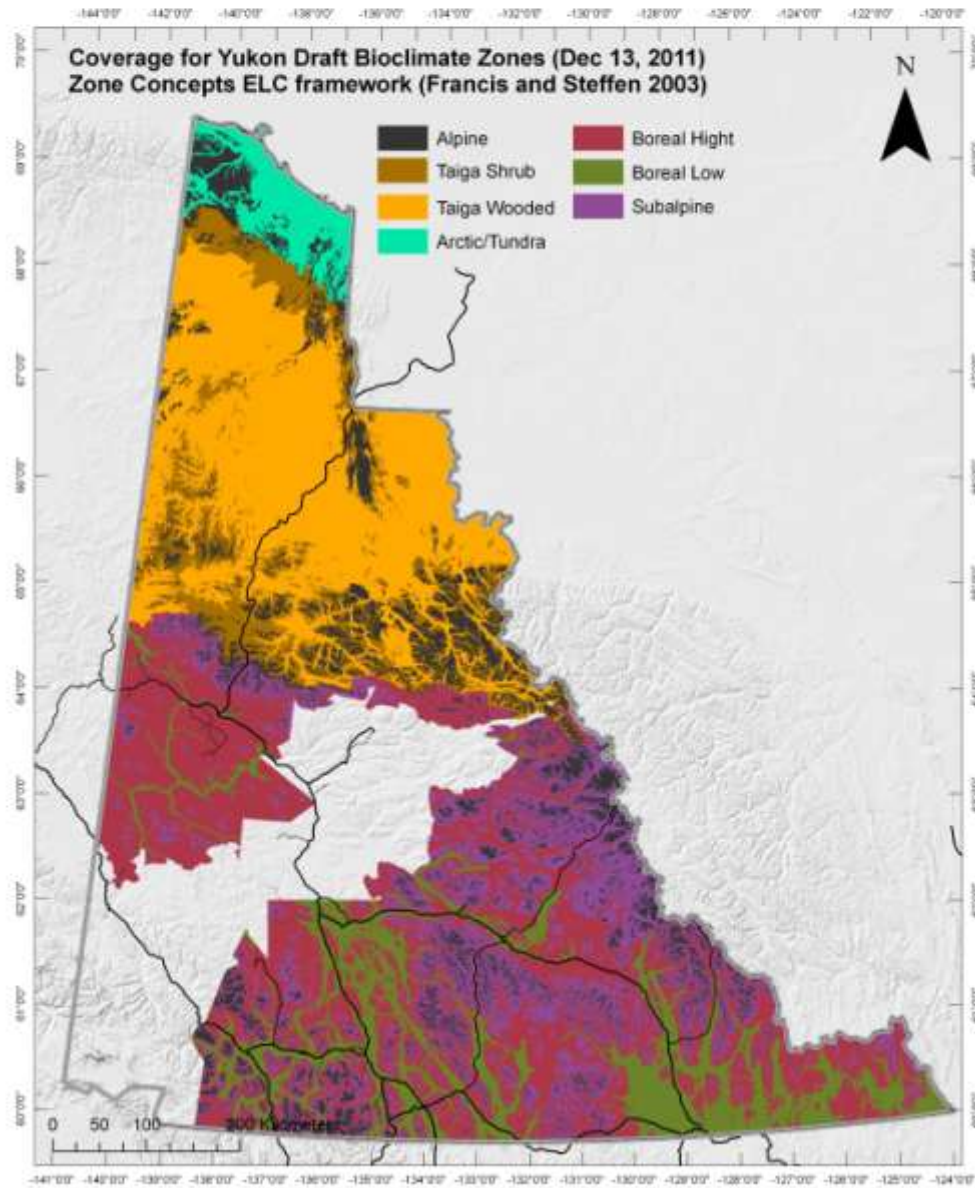
Bioclimatic Ecosystem Classification



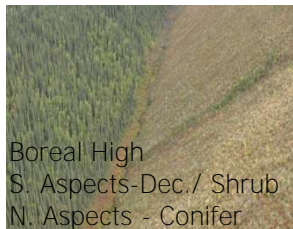
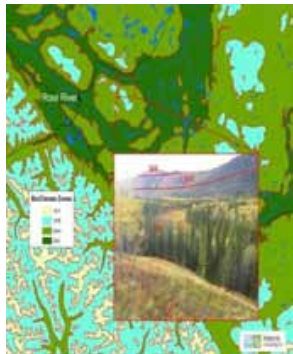
Reference sites

- reflects regional climate
- characterizes bioclimatic zones and subzones
- climate envelop
- Vegetation defined broadly for broad ecosystems

Bioclimatic Zones



Bioclimate Ecosystem Classification



Yukon ELC Level		Description				
Bioclimate Zone		Boreal High				
Bioclimate Subzone		Boreal High, Klondike Plateau				
Broad Ecosystem Unit (BEU)	Steep Slope - Dry	Ridge - Dry		Gentle slopes - Mesic		
Phase	Shrub	Treed, Deciduous/ Mixedwood	Shrub	Treed, Deciduous- Mixedwood	Treed, Coniferous	
Ecosite	Willow/ Sage	Aspen/ Fescue	Willow- Shrub Birch/ Feathermoss	Paper Birch- White Spruce/ Feathermoss	White Spruce/ Lichen	White Spruce-Black Spruce/ Feathermoss
Phase	3b (tall shrub)	5-7 (young to old forest)	3b (tall shrub)/ES – early seral	4-5 (pole to young forest)/ MS – mid seral	5-7 (young to old forest)	5-7 (young to old forest)

Broad Ecosystem Classification



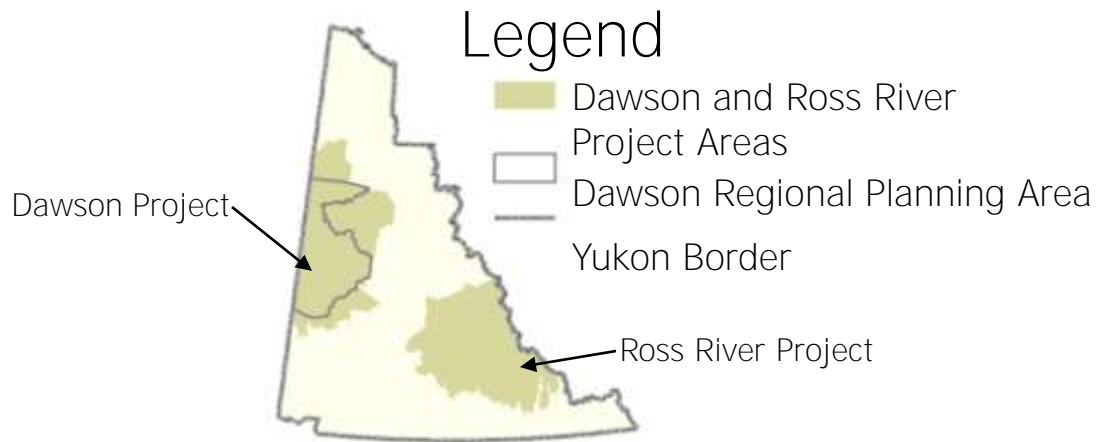
Group	Type	Phase
DRY	Rock (700)	High Elevation Rock (700) Low-Middle Elevation Rock (700)
	Ridge (110)	Herb-Bryoid (111) Herb (111) and Shrub (112) Deciduous (113) and Mixedwood (114) Coniferous (115)
	Steep South Slope (120)	Herb-Bryoid (121) Shrub (122) Deciduous (123) Mixedwood (124) Coniferous (125)
	Upper Slope (130)	Herb-Bryoid (131) and Shrub (132) Deciduous (133) and Mixed-wood (134) Coniferous (135)
	MOIST	Gentle Slope and Plain (140)
Steep North Slope (150)		Herb-Bryoid (151) and Shrub (152) Deciduous (153) and Mixedwood (154) Coniferous (155)
WET	Drainage/Depression (160)	Herb-Bryoid (161) and Shrub (162) Deciduous (163) and Mixedwood (164) Coniferous (165)
	Wetlands (310)	Herb (311) Shrub (312) Treed (315)
	Floodplains (370/380/390)	Gravel Bar-Herb (371) Shrub (372) Deciduous (383) Mixedwood (384) Coniferous (395)
AQUATIC**	Open Water (400)	Water (401) Ice (Glacier) (403)
DISTURBANCE **		Natural (501) Anthropogenic (502) Mines (503)

Broad Ecosystem Mapping – Predictive Ecosystem Mapping (PEM)



Broad Ecosystem Mapping - Dawson & Ross River

- Base layer for integrated resource planning



Predictive Ecosystem Mapping (PEM) – Dawson Planning Region



Goals

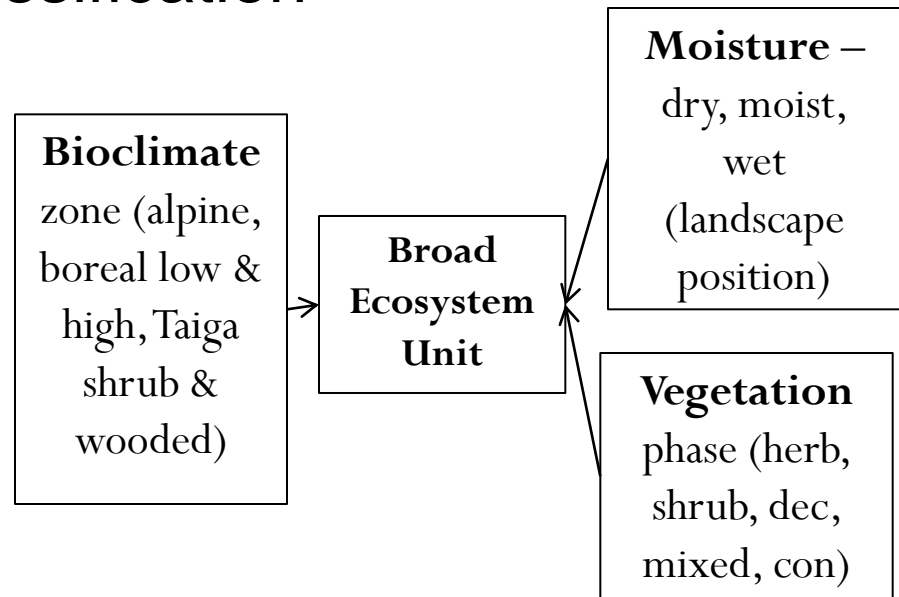
- Develop maps and unit descriptions
- Map special features
- Assess ELC framework concepts

Predictive Ecosystem Mapping (PEM) – Dawson Planning Region



Methods

- Broad ecosystem classification
- Landscape position
- Integrate information
- Ecological context

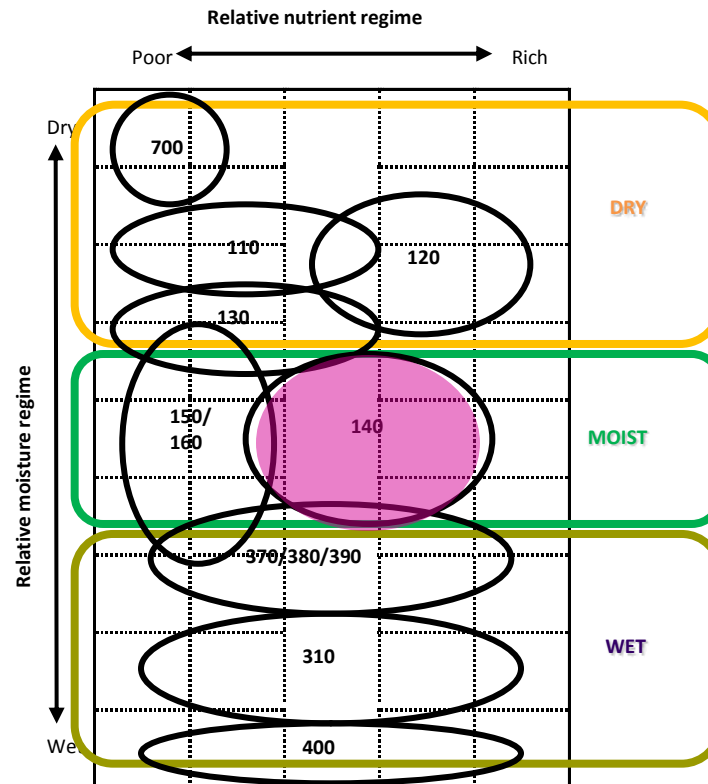


Edaphic grid used to organize broad ecosystems



Landscape Position

- 700 – Rock
- 110 – Ridge
- 120 – Steep South Slope
- 130 – Upper Slope
- 140 – Gentle Slope and Plain
- 150 – Steep North Slope
- 160 – Drainage or Depression
- 310 – Wetland
- 370 – Low Floodplain
- 380 – Middle Bench Floodplain
- 390 – High Bench Floodplain
- 400 – Open Water



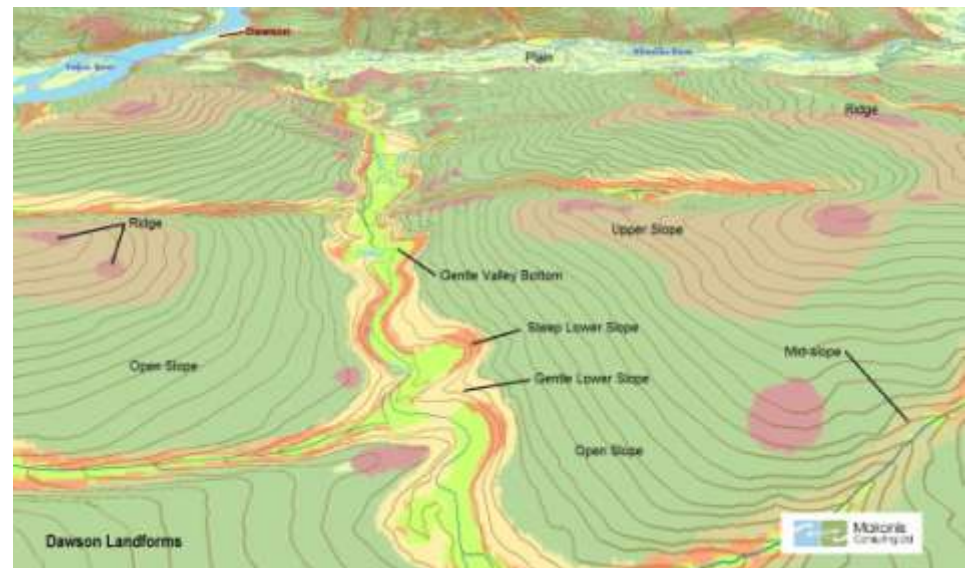
Broad Ecosystem units (BEU)

Landscape position
+
vegetation type

e.g. Ridge (dry) - herb

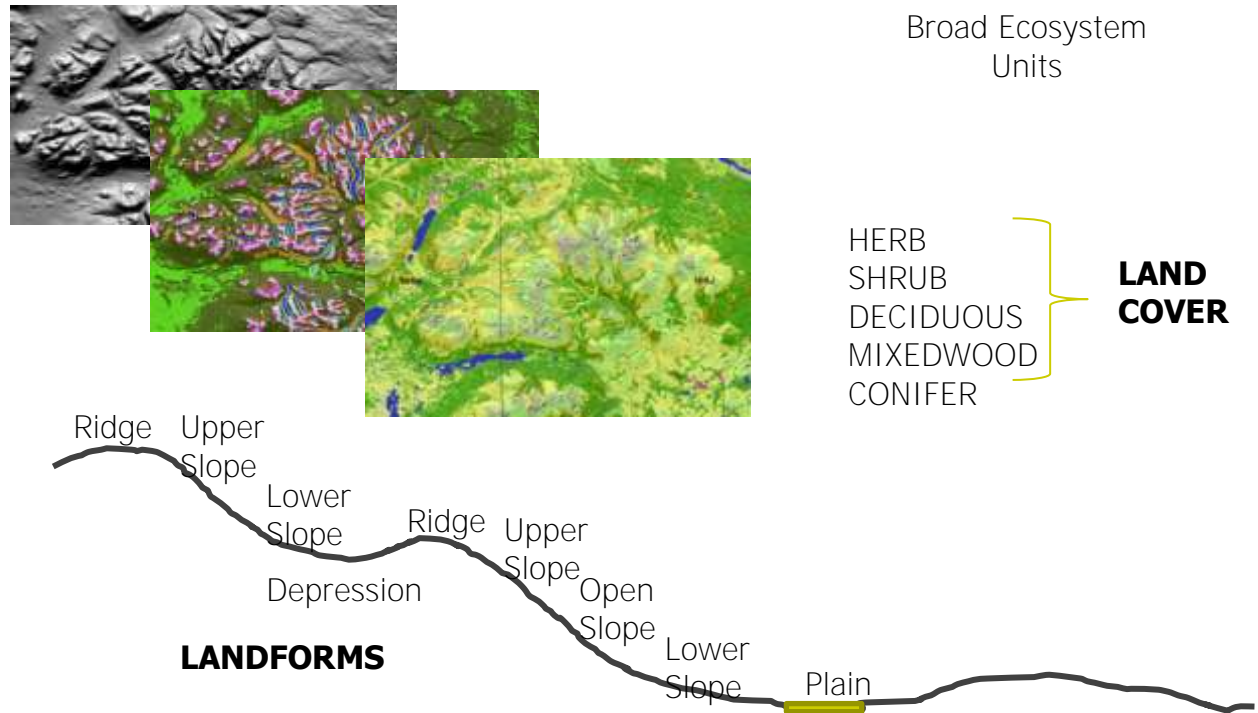
Methods

- Broad ecosystem classification
- Landscape position
- Integrate information
- Ecological context

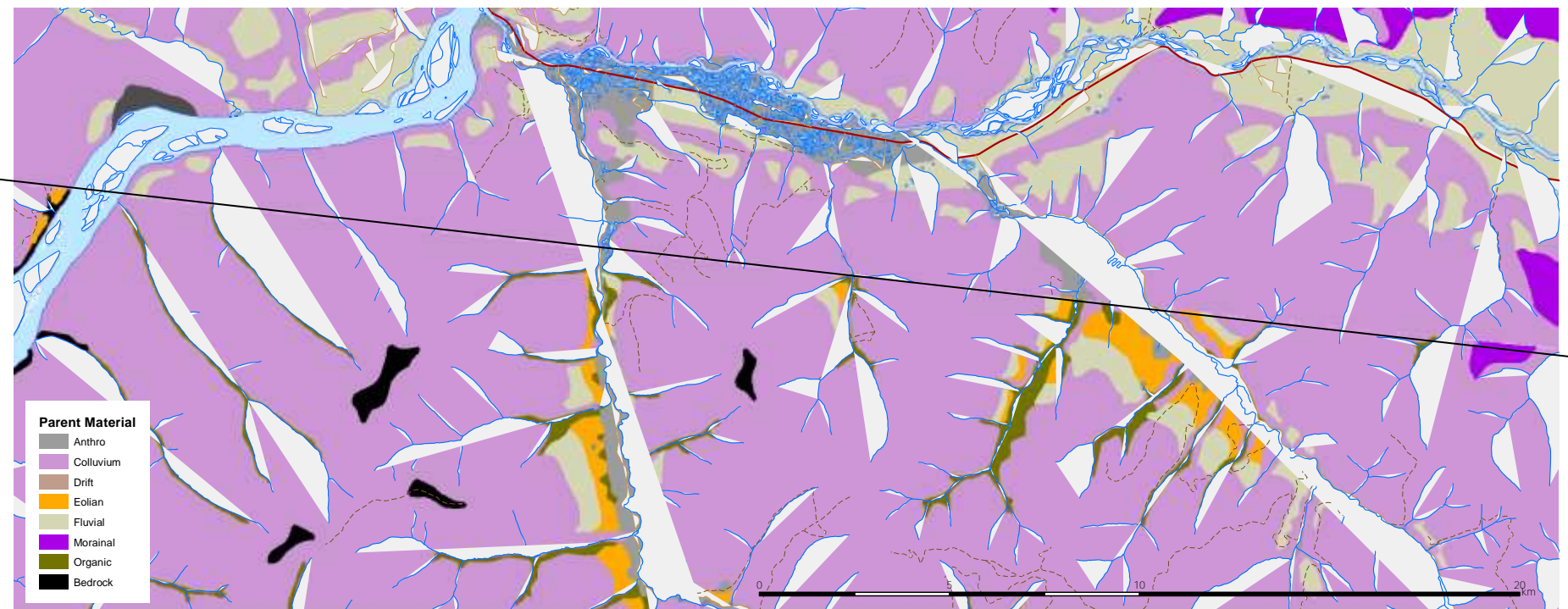


Methods

- Broad ecosystem classification
- Landscape position
- Integrate information
- Ecological context



Challenges integrating spatial data



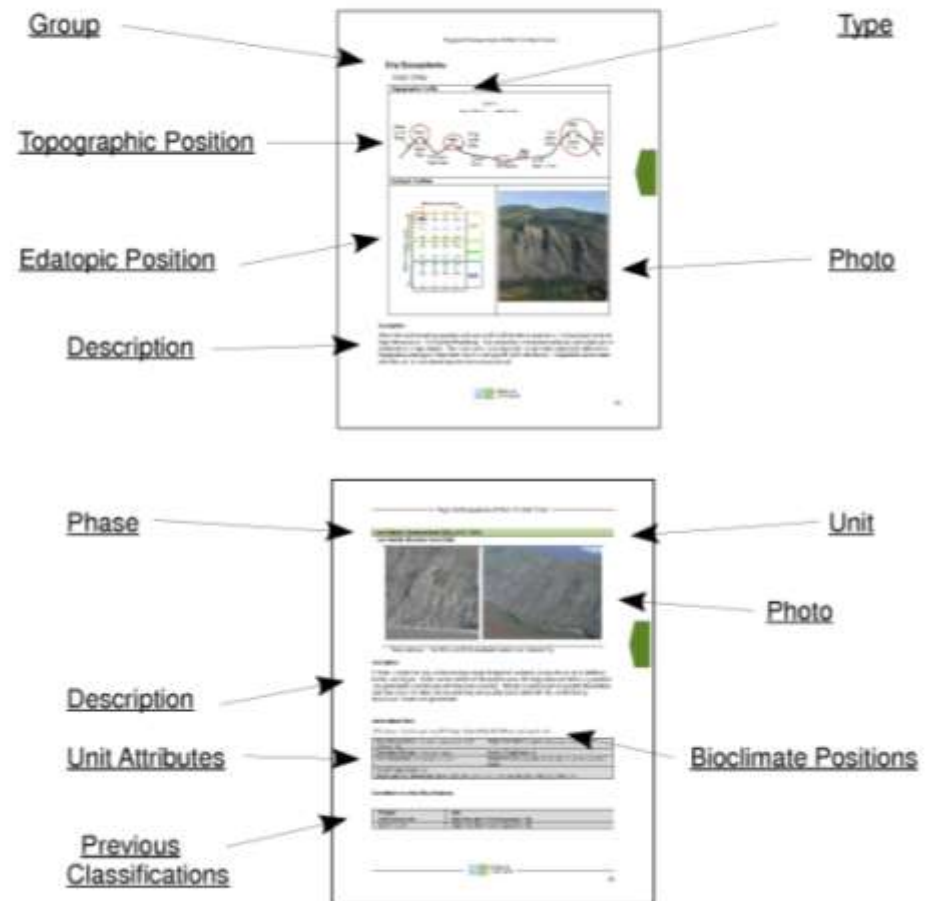
Methods



- Broad ecosystem classification
- Landscape position
- Integrate information
- Ecological context



Boreal High
S. Aspects-Dec./ Shrub
N. Aspects - Conifer



Group

Type

Topographic Position

Edatopic Position

Description

Photo

High Altitude Ecosystems of the Cordillera Real

Dry Ecosystems

1000-1500m

Topographic Profile

Ecological Table

Description

High altitude ecosystems are characterized by specific conditions: a reduced number of high altitude species, a high degree of specialization, a high degree of endemism and a high degree of biodiversity. The soil is cold, stony and generally high altitude with a high degree of erosion. The vegetation is sparse and the vegetation is characterized by the use of woody shrubs and grasses.

UNESCO



Phase

Unit

Description

Unit Attributes

Previous Classifications

Photo

Bioclimate Positions

High Altitude Ecosystems of the Cordillera Real

High Altitude Ecosystems of the Cordillera Real

1000-1500m

Description

High altitude ecosystems are characterized by specific conditions: a reduced number of high altitude species, a high degree of specialization, a high degree of endemism and a high degree of biodiversity. The soil is cold, stony and generally high altitude with a high degree of erosion. The vegetation is sparse and the vegetation is characterized by the use of woody shrubs and grasses.

Unit Attributes

Phase	1000-1500m
Bioclimate Positions	High Altitude Ecosystems of the Cordillera Real

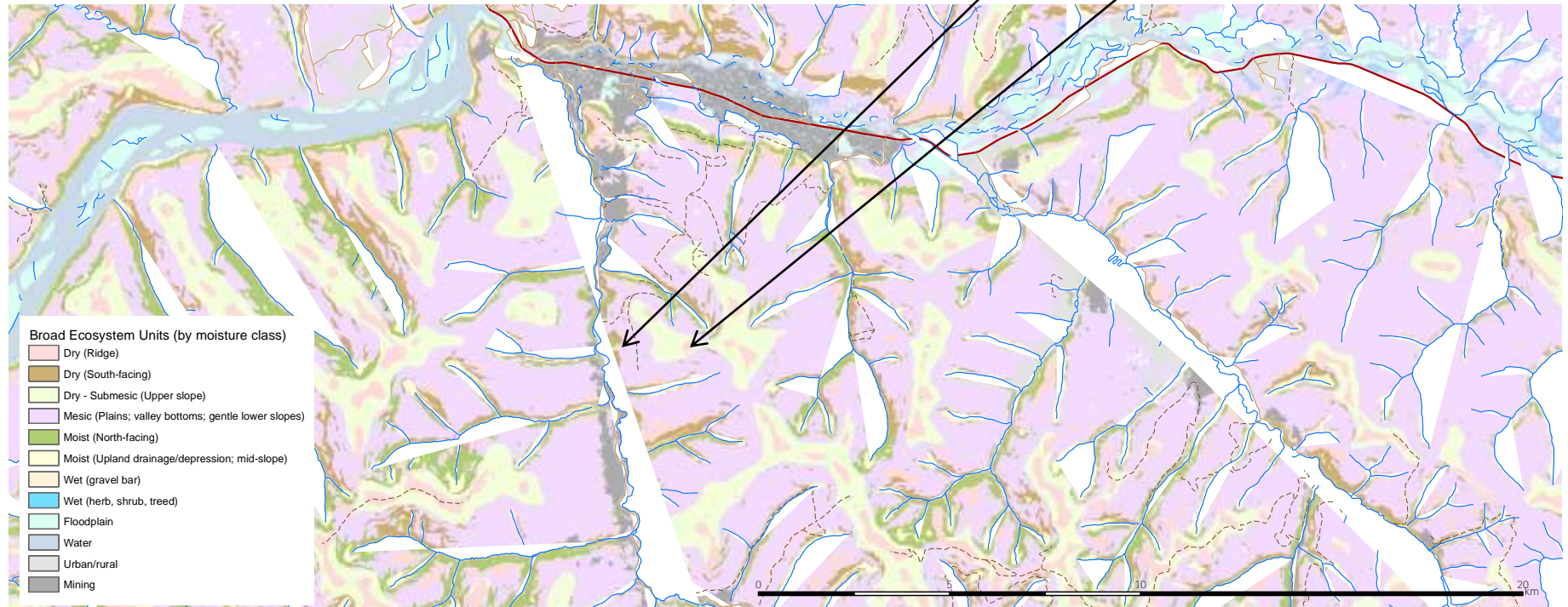
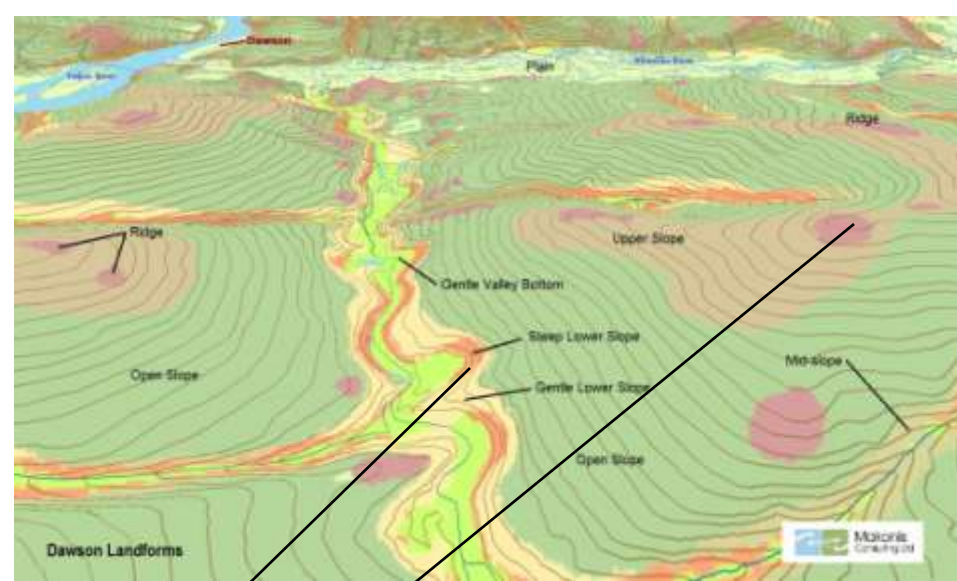
Previous Classifications

Phase	1000-1500m
Bioclimate Positions	High Altitude Ecosystems of the Cordillera Real

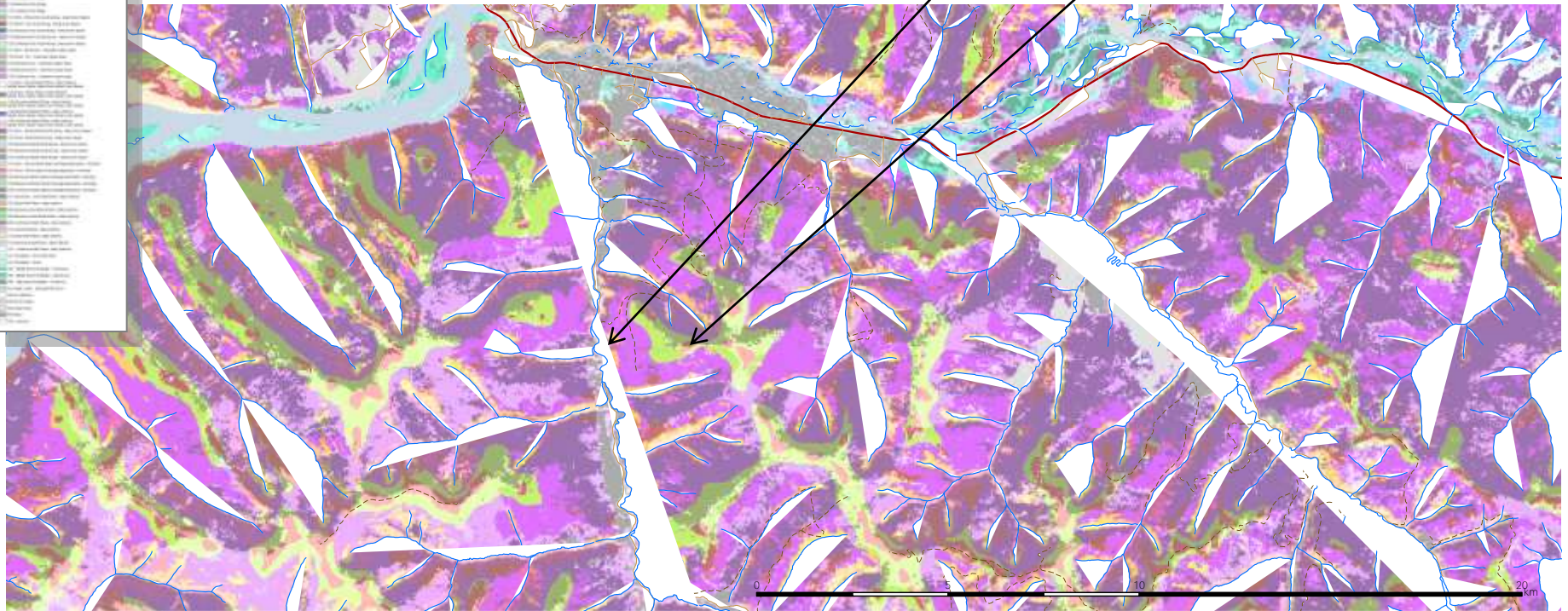
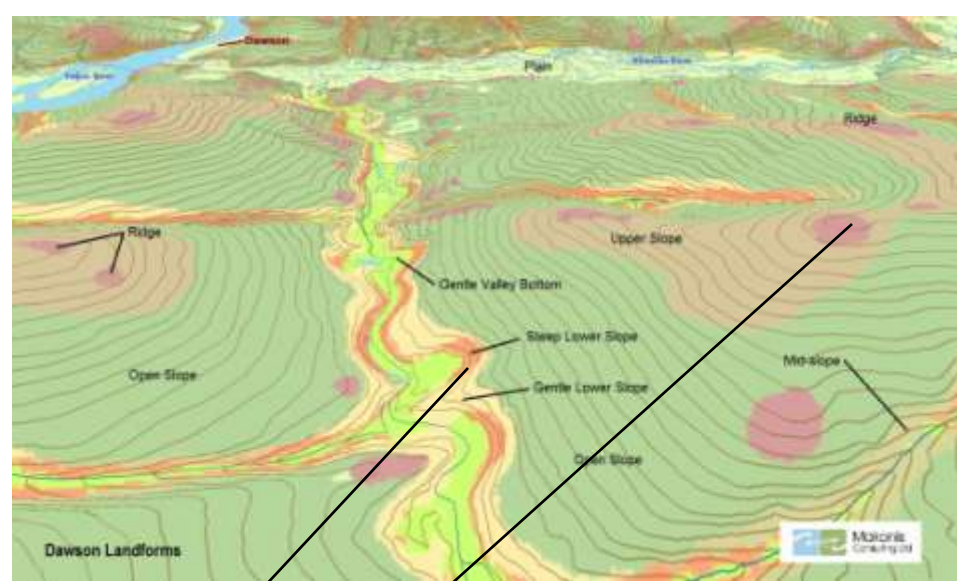
UNESCO

Preliminary Results

Broad Ecosystem Units by Relative Moisture Regime

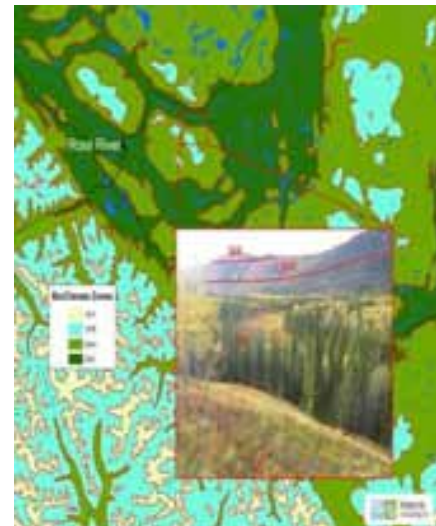


Broad Ecosystem Units



Methods

- Broad ecosystem classification
- Landscape position
- Integrate information
- Ecological context
- Interpretation for resource management



Regional land use planning



- Cumulative effects assessment
- Wildlife habitat suitability/capability
- Map sensitive or rare ecosystems
- Map land capability
- Identify ecological patterns and processes



Regional land use planning



Transportation / Access

- Identify access routes and potential effects
 - Habitat
 - Wetlands
 - Floodplains
 - Other interpretations



An Example: Mapping land capability



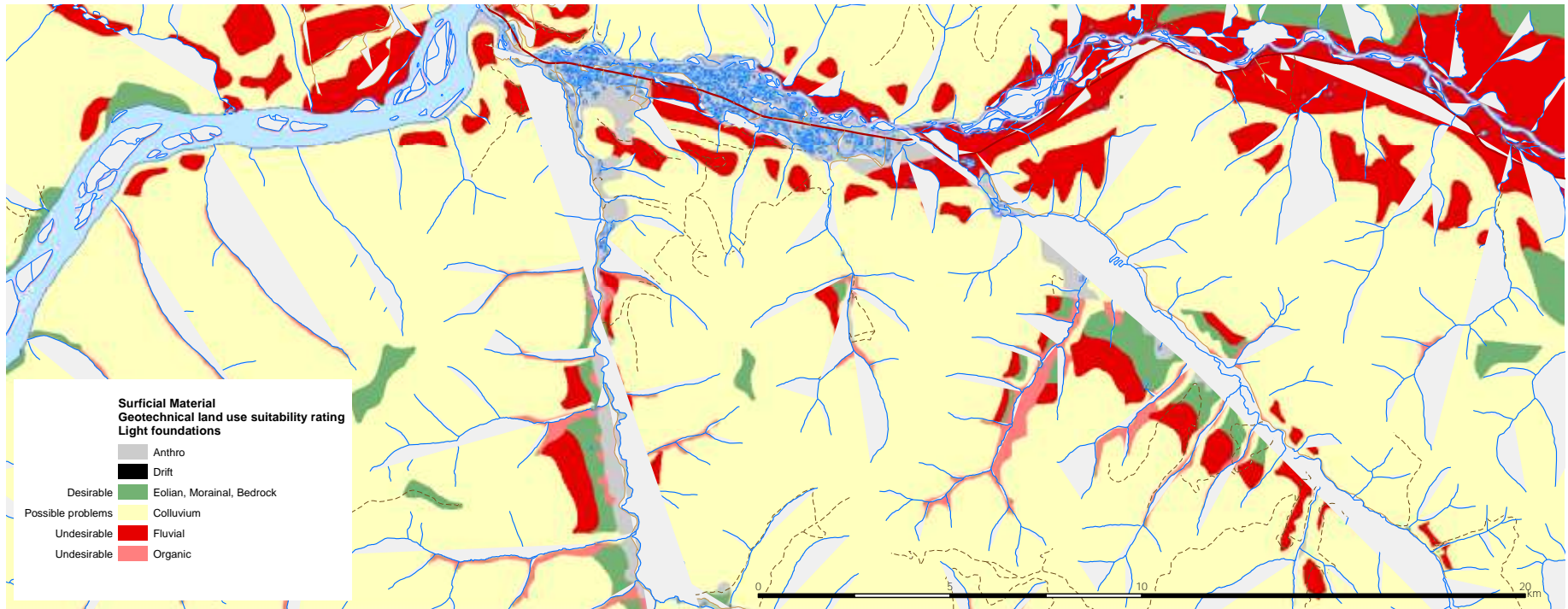
Table 1. Geotechnical land use suitability ratings and potential hazards of various surficial materials. (based on Ryder and Howes, 1986)

Surficial Material	Map Unit	Constraints	Potential Hazards	Light Foundations	Heavy Foundations	Excavations	Liquid Waste Disposal	Solid Waste Disposal	Highways Railroads Airfields	Unpaved Roads	Above Ground Water storage
Colluvial	C	slope drainage topography	landslides	2	3	2	3	3	3	2	3
Eolian	E			1	3	1	2	3	1	1	3
Fluvial - active	F ^A	drainage	floods, shifting channels	3	3	1	3	3	1	1	2
Fluvial - inactive	F ^I			1	1	1	2	3	1	1	3
Glaciofluvial	F ^G	topography		1	1	1	2	3	1	1	3
Glaciolacustrine	L ^G	drainage	erosion, slumping	1	3	1	2	1	2	1	2
Lacustrine	L	topography	permafrost, thermokarst	1	3	1	2	1	2	1	2
Organic	O	drainage		3	3	3					
Till - basal	M	drainage		1	1	2	2	1	1	1	1
Till - ablation	M	topography		1	1	1	2	3	1	1	3
Bedrock	R			1	1	3	3	3	3	3	3

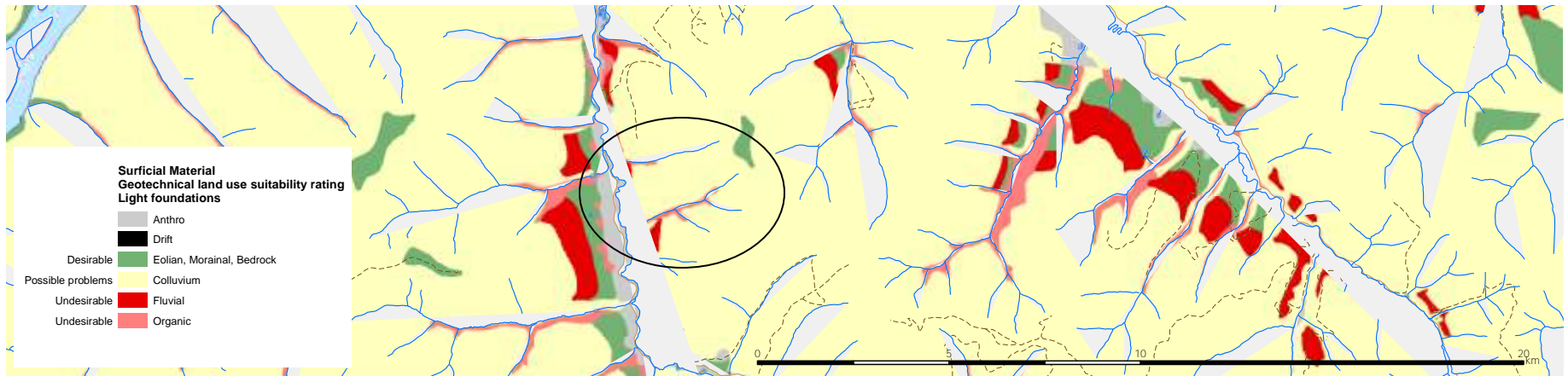
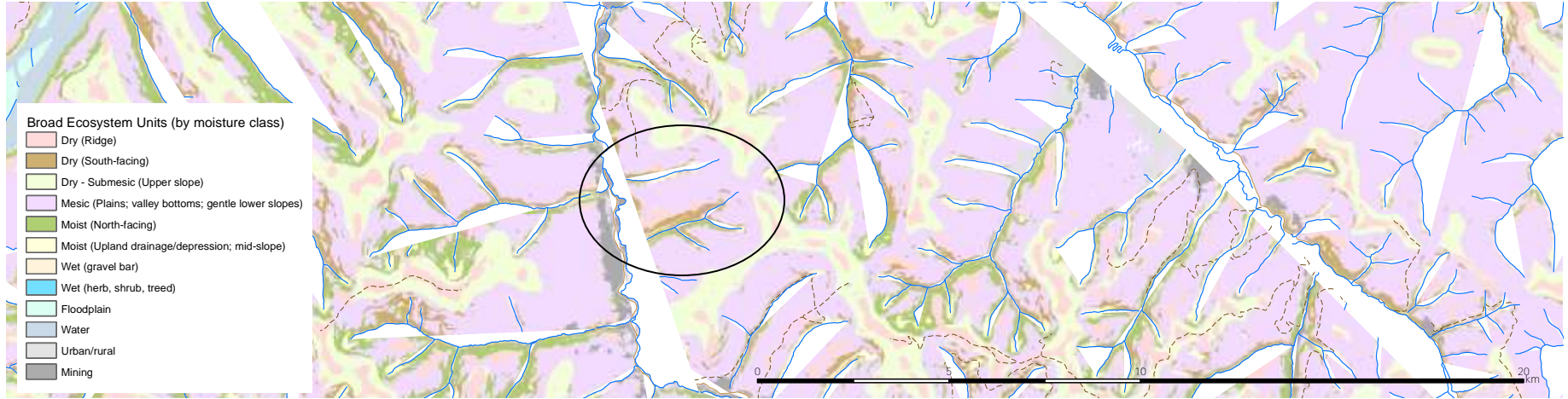
- 1 = **Desirable**: terrain is generally capable of supporting the indicated land use.
- 2 = **Possible problems**: terrain may be suitable for the indicated land use, but potential problems exist.
- 3 = **Undesirable**: terrain is generally unsuitable for the indicated land use, although substantial modification of existing conditions (e.g., drainage, landfill) may overcome natural constraints.

Land capability – surficial interpretation

“Light foundation”



Land capability – broad ecosystem interpretation



Key Questions



- Will ELC play a prominent role in policy, planning, environmental assessment, and decision-making?
- Will we form ELC policy (or best practices) around mitigation measures, restoration methods, cumulative effects assessment?

Thank you!

Questions?



What is ecosystem classification?



Ecological equivalence: different ecological processes



Shrub Taiga – Willow

- adjacent to streams and seepage area
- gentle sloping
- moderately drained
- moist to wet soils in sheltered valleys



Wooded Taiga – Willow

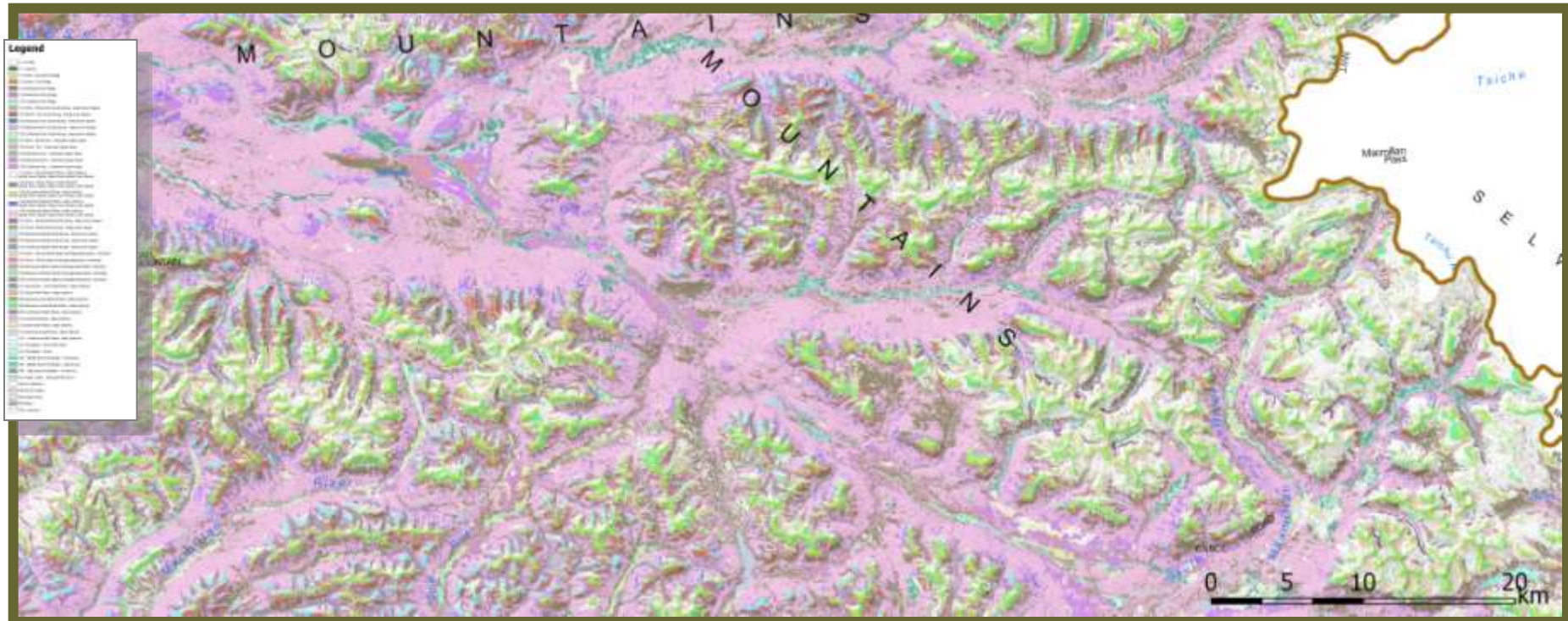
- steep slopes such as avalanche chutes
- well drained submesic to xeric soils.



Current projects



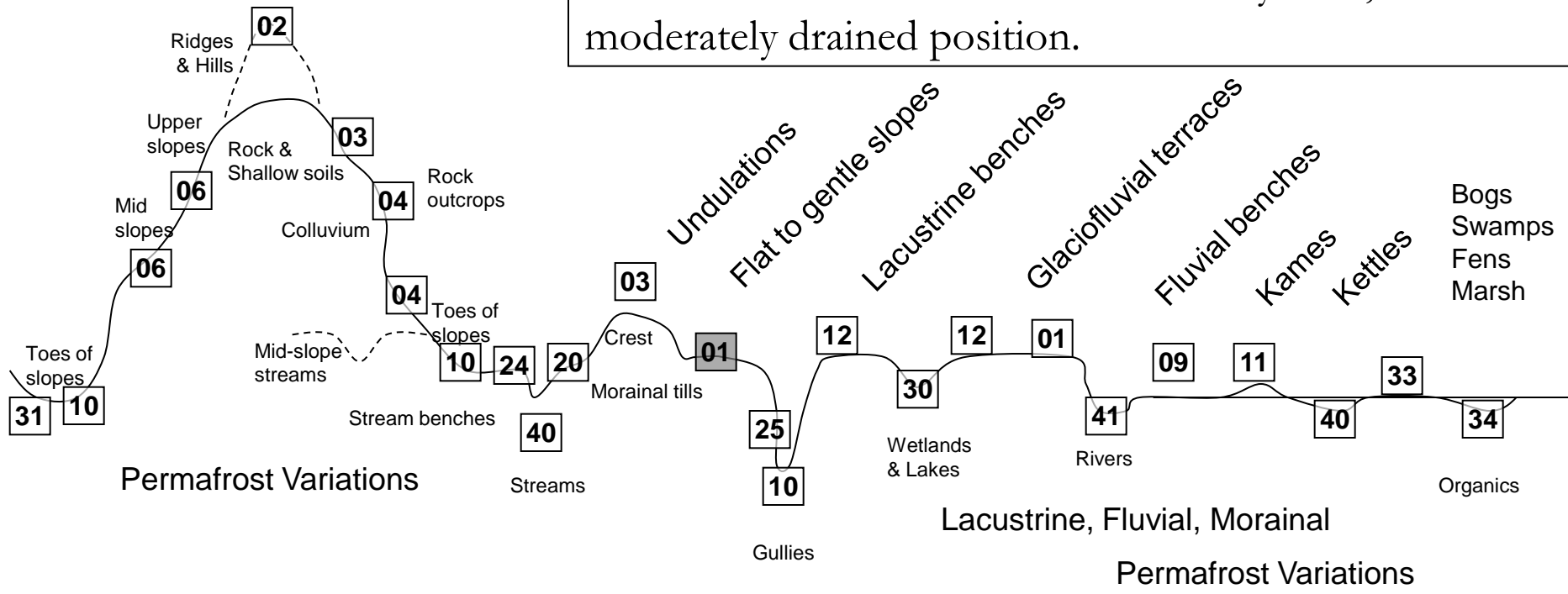
Preliminary results – Ross River





Local Ecosystems – Ecosystem Patterns

Within a bioclimate subzone, ecosites are organized based on landscape position, or along a toposequence. Along this toposequence, characteristic ecosites occur in predictable locations, based on slope, aspect, parent material, and soil moisture and nutrient conditions. The reference ecosite occurs in the relatively level, moderately drained position.





Ecological Benchmark Networks in the Boreal Cordillera: Priority Areas for Conserving Ecological Values



Hilary A. Cooke and Don Reid, *Wildlife Conservation Society Canada*

Ecological Benchmark Areas... Foundation of the Conservation Matrix Model

Characteristics

- intact ecological processes
- natural variability of ecosystems
- biodiversity at all levels
- ecologically functional wildlife populations
- terrestrial & hydrologic connectivity
- act as reference landscapes



Criteria for an Ecological Benchmark Area

Catchment-based: To protect terrestrial & hydrologic connectivity

Large Area: To support natural spatial & temporal dynamics of fire

Relatively Intact Landscape: Little or no footprint from human activity



Criteria for an Ecological Benchmark Network

Benchmark Network: A group of Benchmark Areas that together fulfill conservation objectives for the region.

Network Construction

Target Area: covers percentage of region (e.g. 50%)

Target Number: includes discrete number of benchmarks (e.g. 5)

Network Assessment & Ranking

Ecological indicators within network are representative of ecological indicators across the region



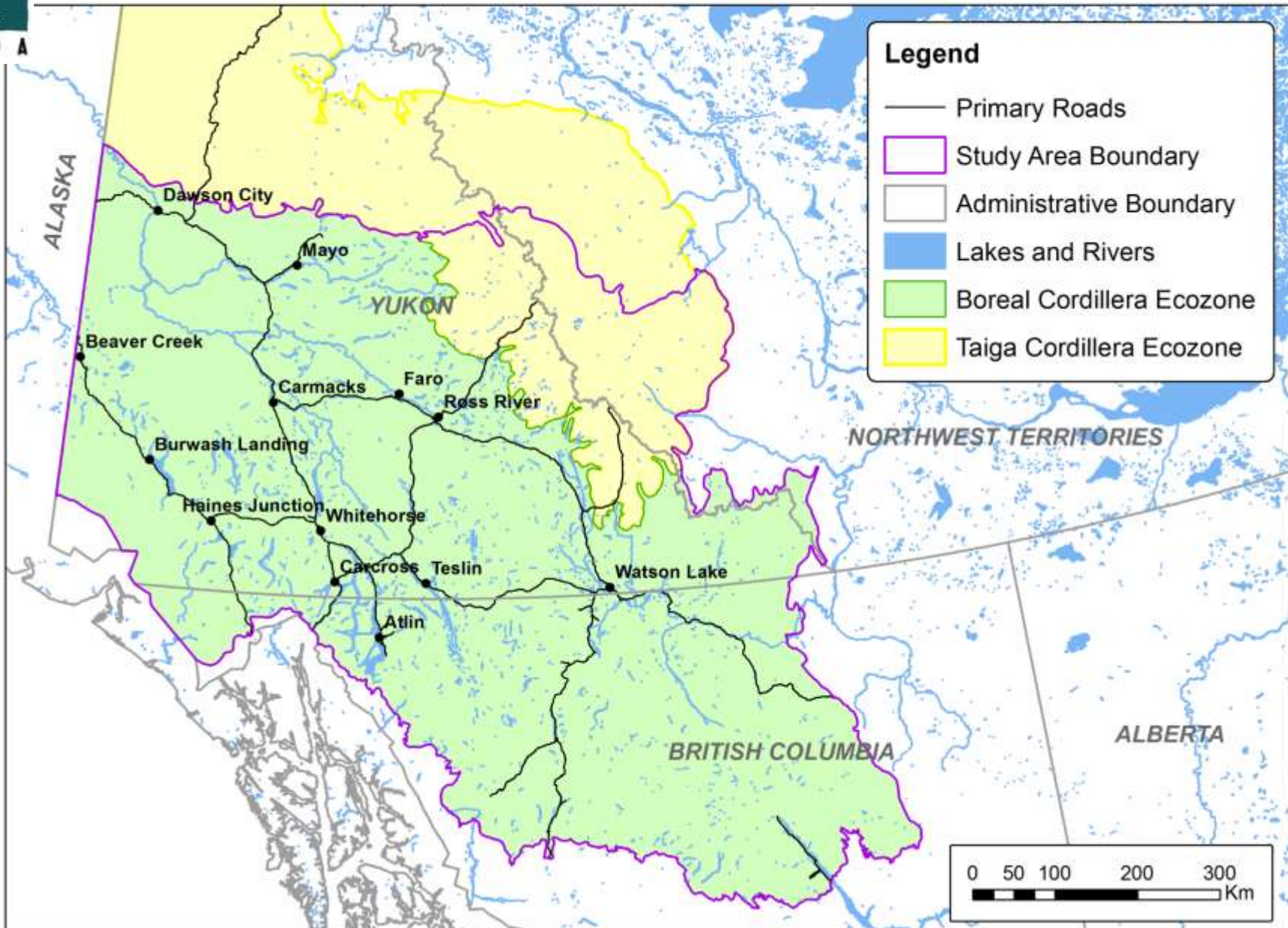
Project Goals

1. To identify ecological benchmark network for the boreal cordillera of Yukon & northern British Columbia
2. To refine benchmark network using regional maps & ecological values



Study Area: Boreal Cordillera of Yukon & British Columbia

C A N A D A



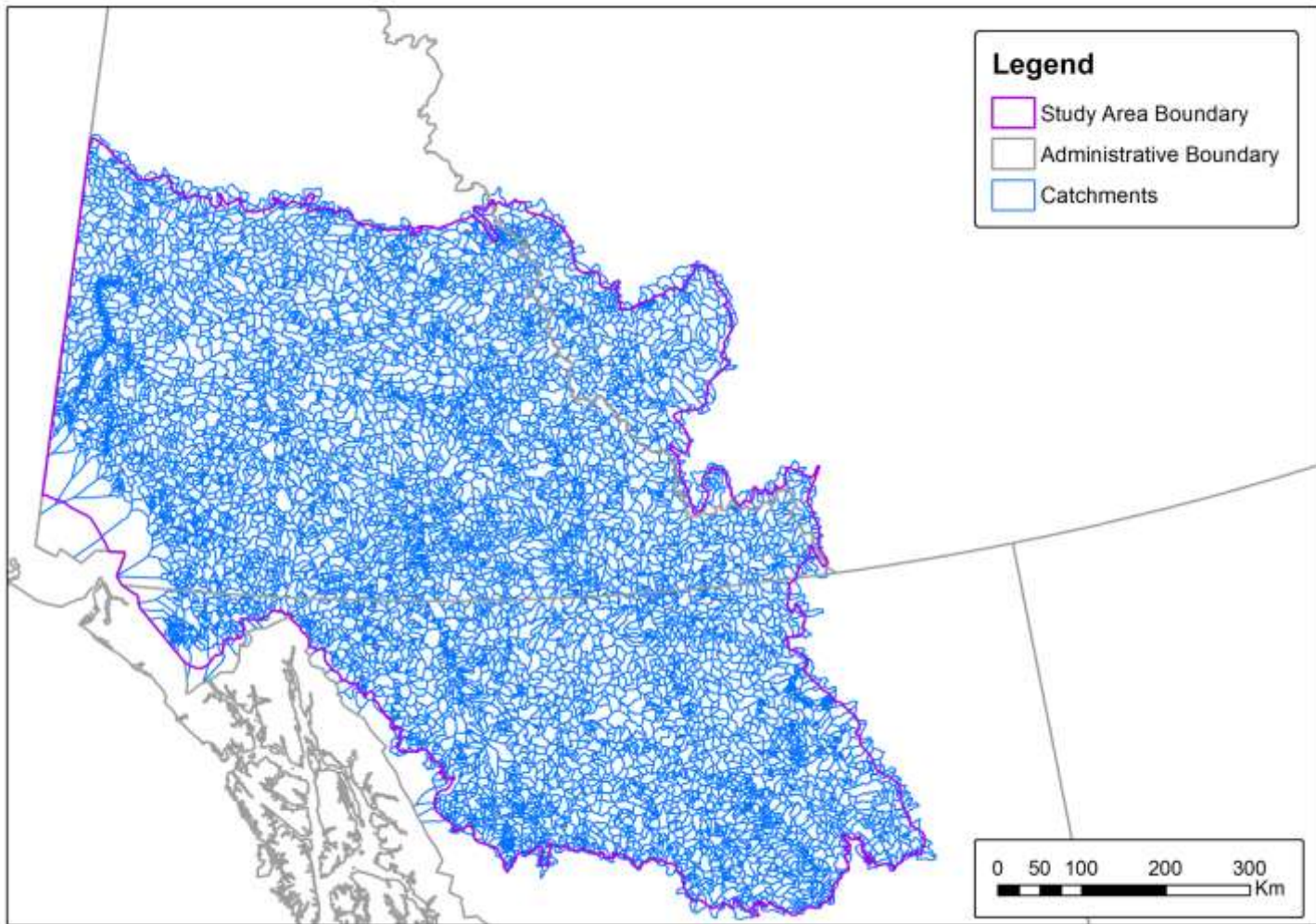
Study Area: Existing Parks & Protected Areas

C A N A D A



Identifying Ecological Benchmark Areas

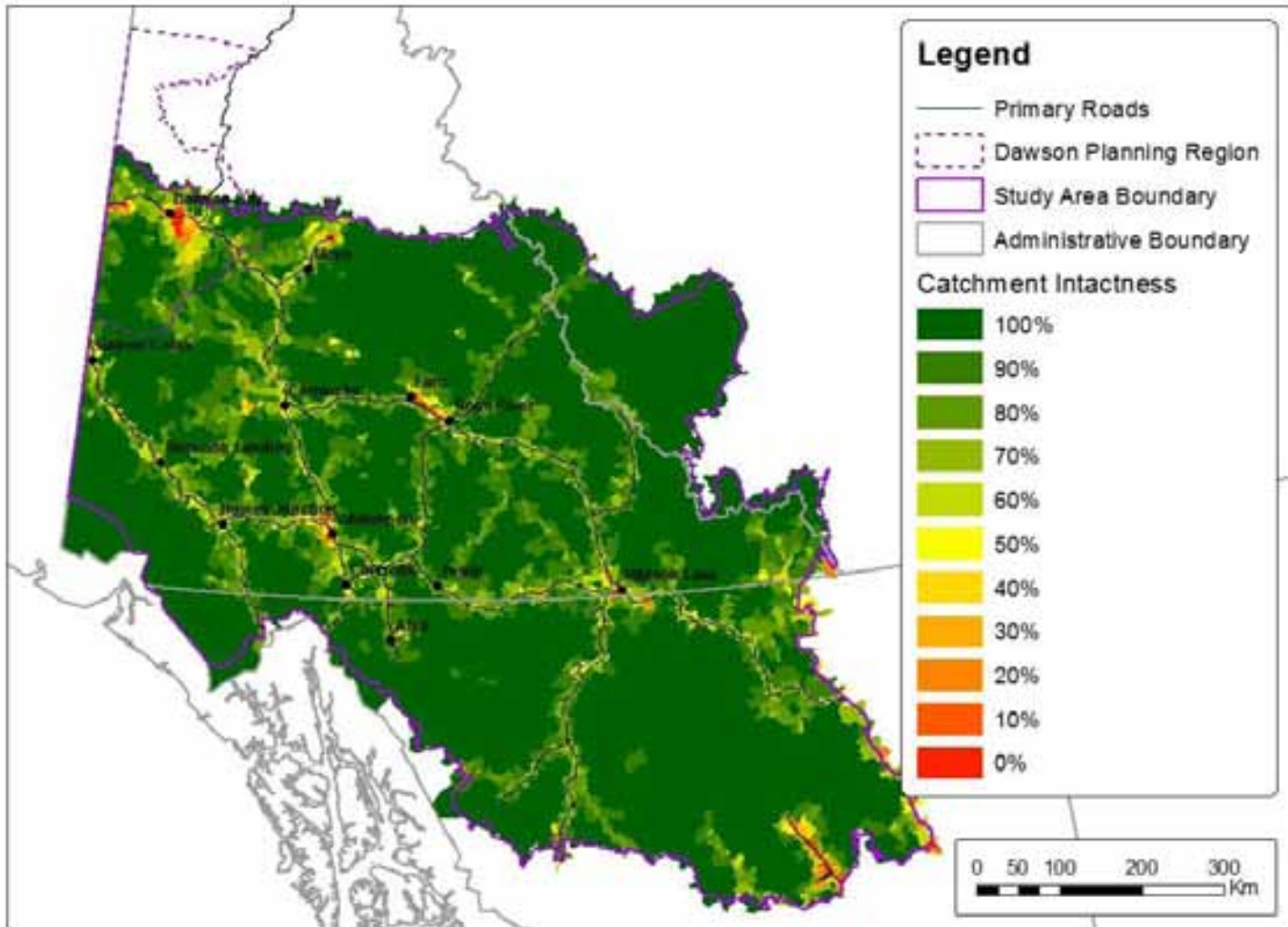
Catchment: an area of land that drains surface water and precipitation to a common low point or outlet such as a river or lake.



Identifying Ecological Benchmark Areas

Intactness: from Global Forest Watch Canada's Intact Forest Landscapes

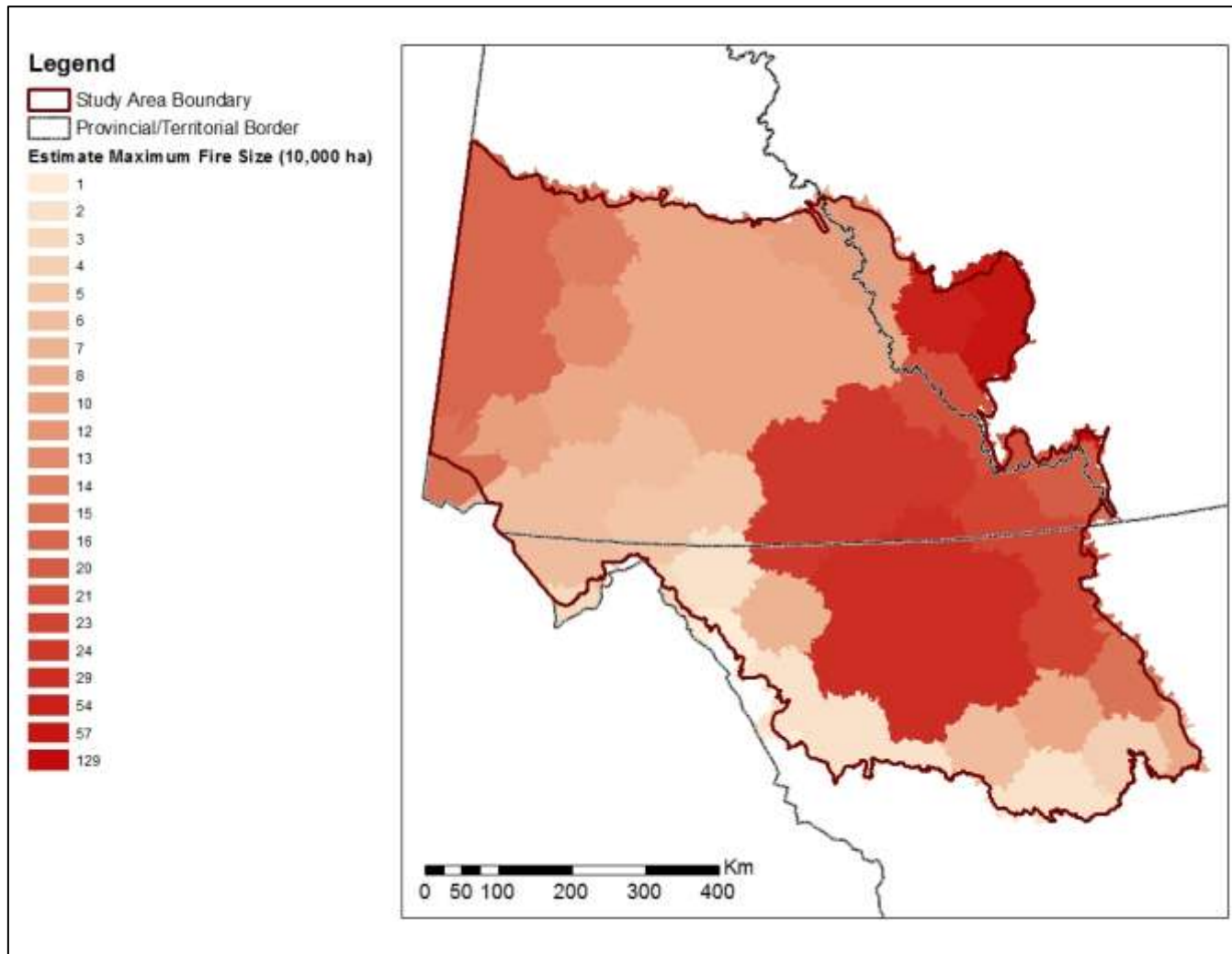
Intactness thresholds: Catchment-level & Benchmark-level



Identifying Ecological Benchmark Areas

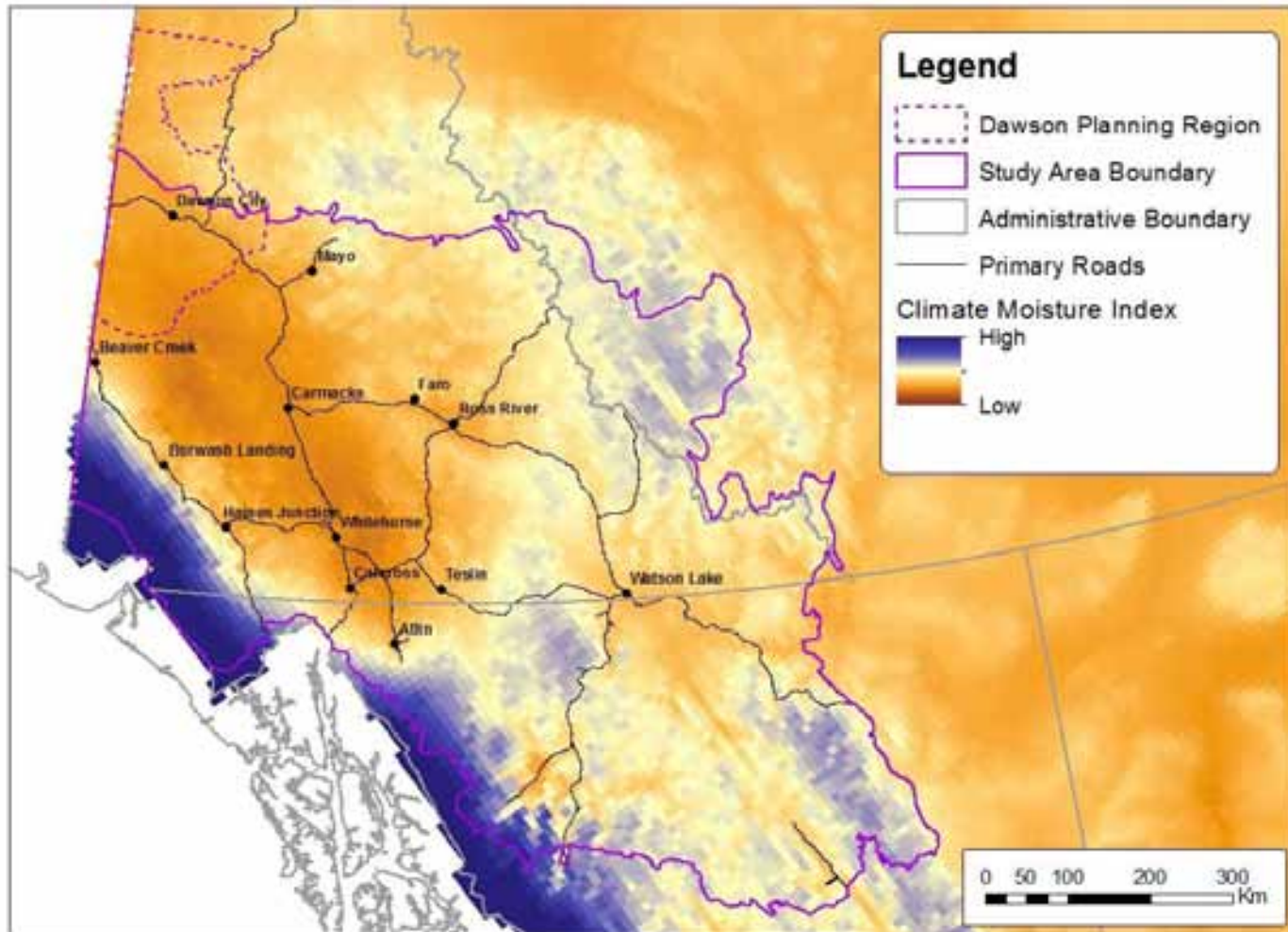
Estimated Maximum Fire Size: estimated from fire data within the region.

Benchmark Area: derived from the maximum fire size.



Assessing & Ranking Benchmark Networks

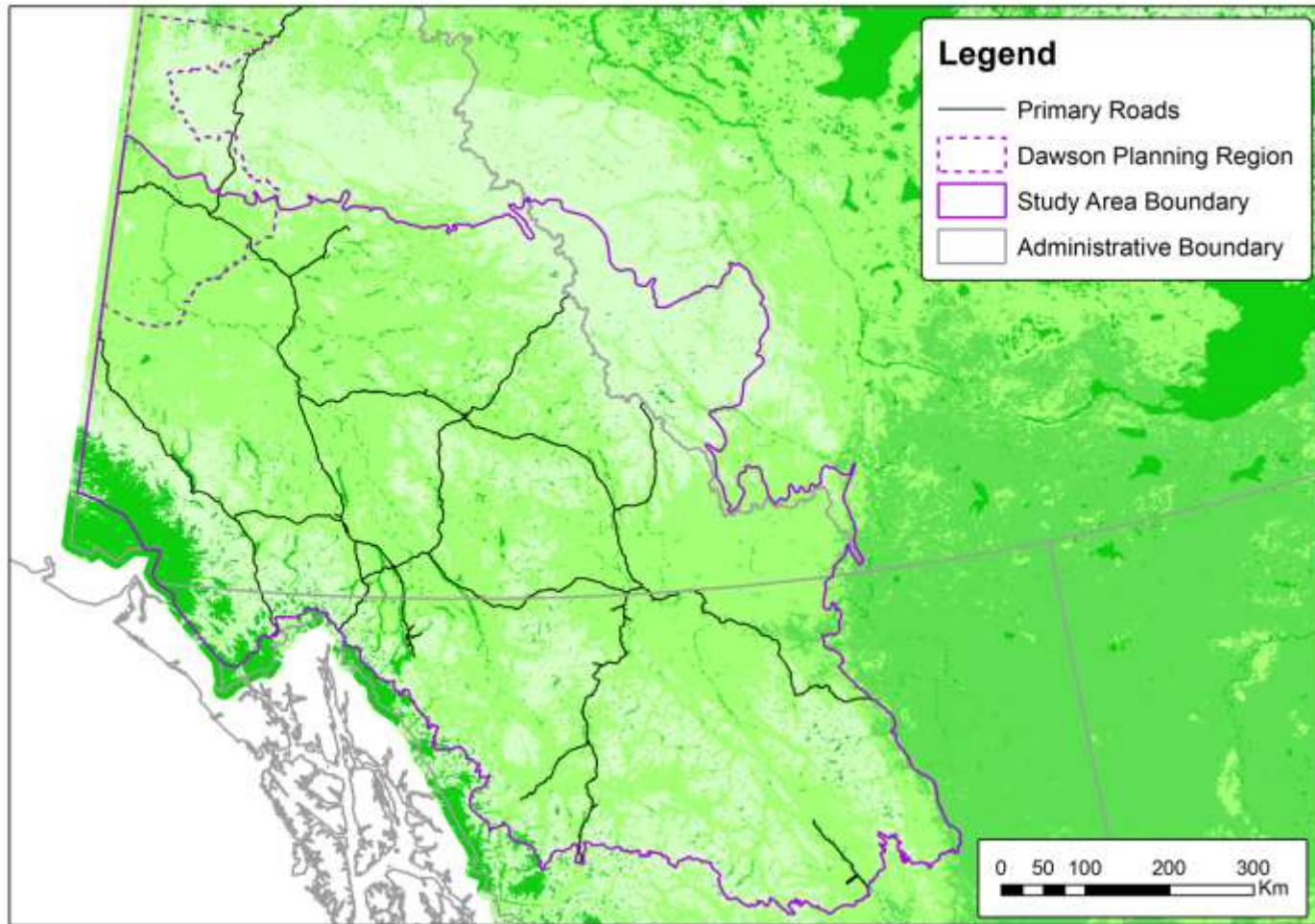
Ecological Indicator: Climate Moisture Index



A measure of water deficit (or surplus) in soil based on yearly average precipitation minus yearly potential evapotranspiration.

Assessing & Ranking Benchmark Networks

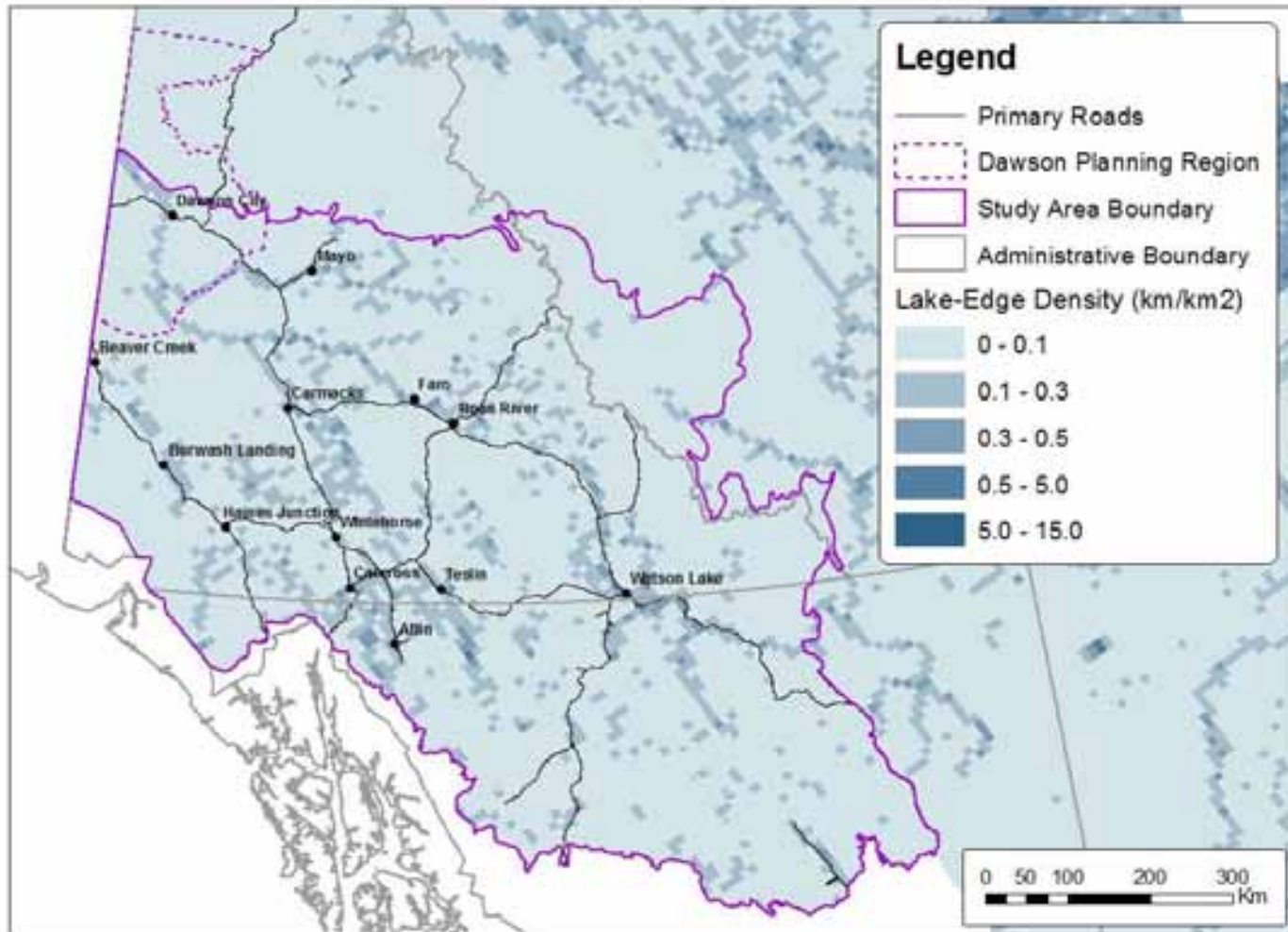
Ecological Indicator: Gross Primary Productivity



A measure of the carbon being absorbed by living plants or the amount of carbon absorbed during photosynthesis (Kg C/day).

Assessing & Ranking Benchmark Networks

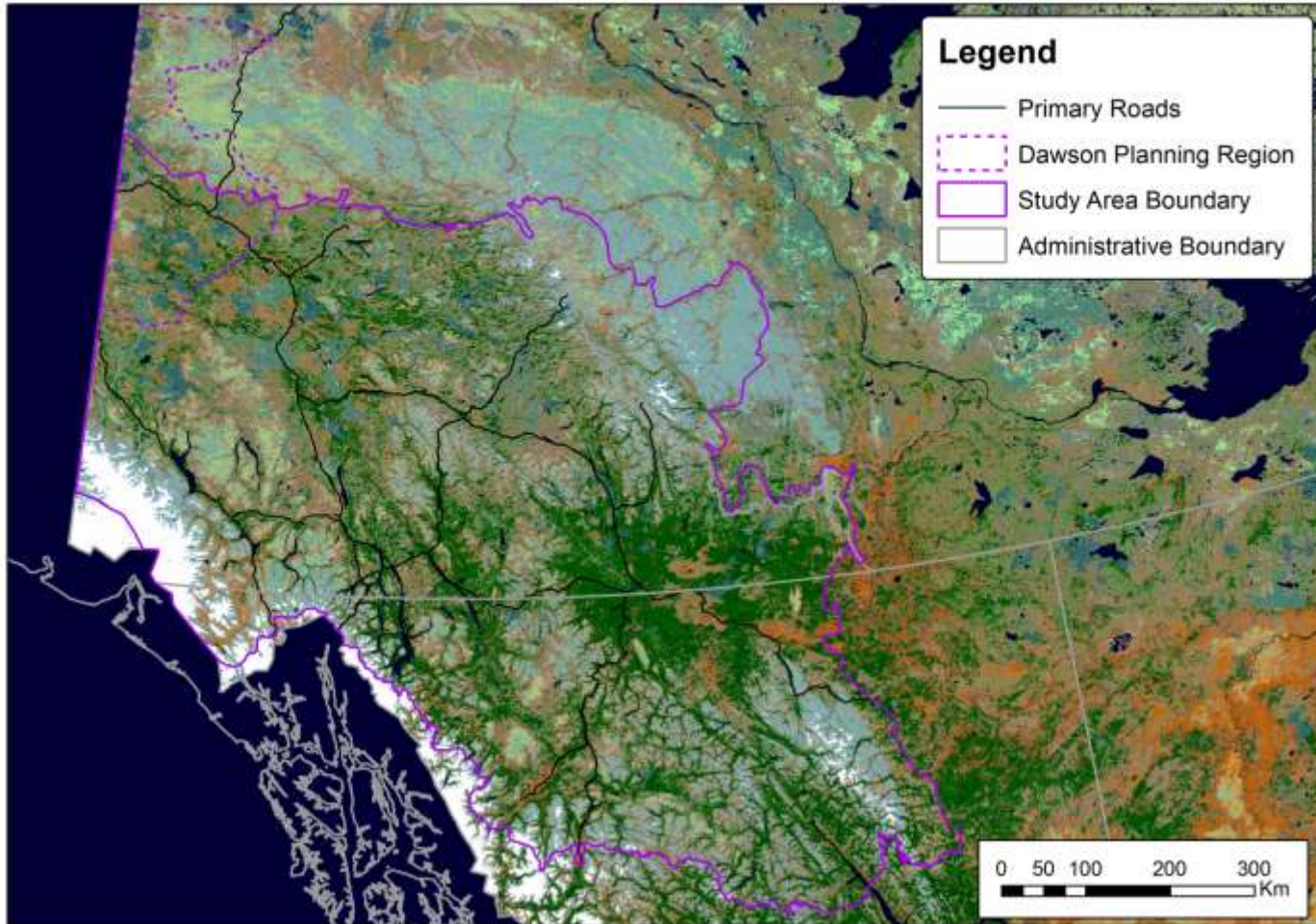
Ecological Indicator: Lake-Edge Density (km/km²)



Lake-edge density characterizes the density of riparian habitat in km/km² within 100 km² units.

Assessing & Ranking Benchmark Networks

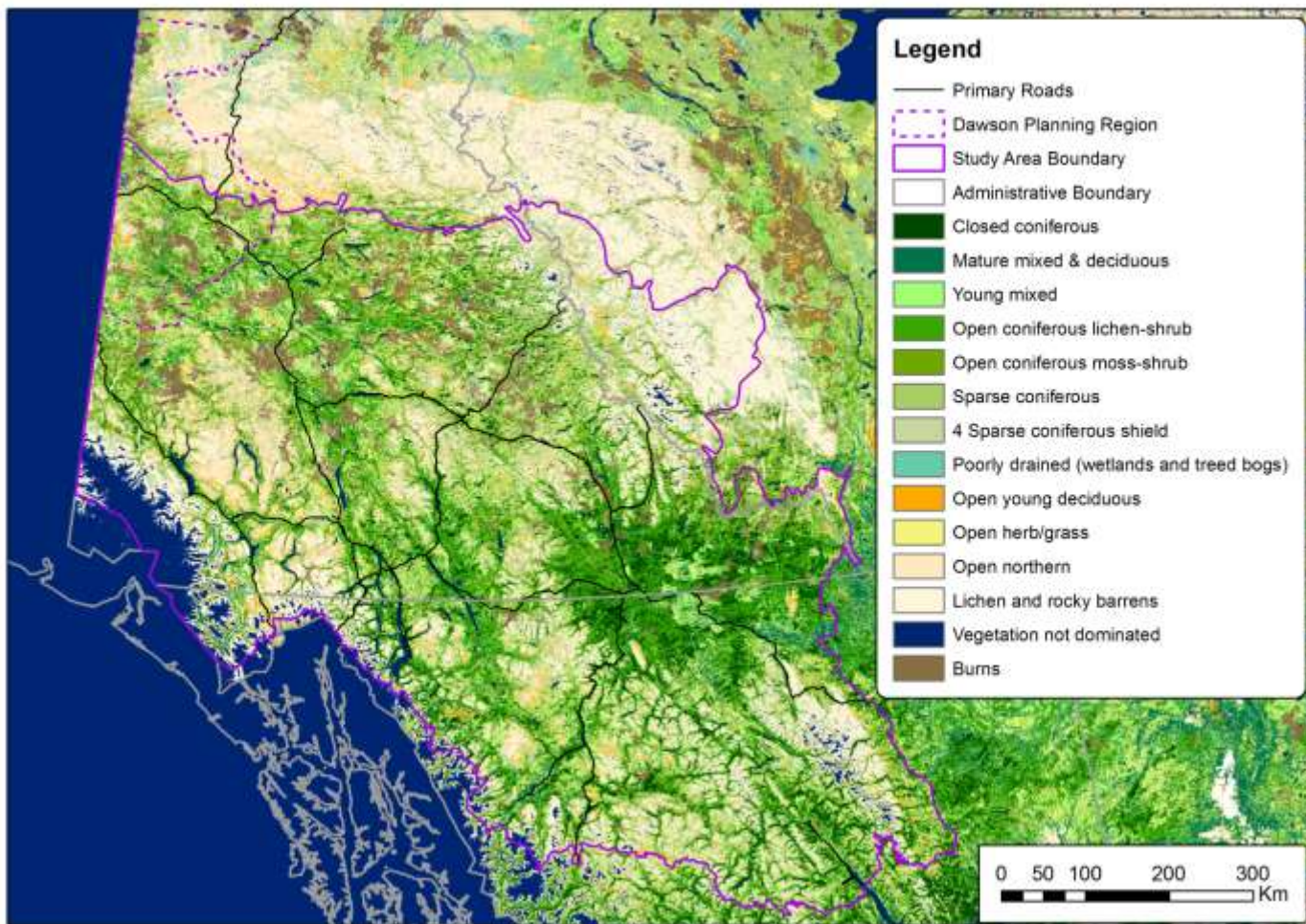
Ecological Indicator: National Land Cover Classification



Derived from 250-m resolution MODIS satellite imagery (Natural Resources Canada) that comprises 39 different cover classes.

Assessing & Ranking Benchmark Networks

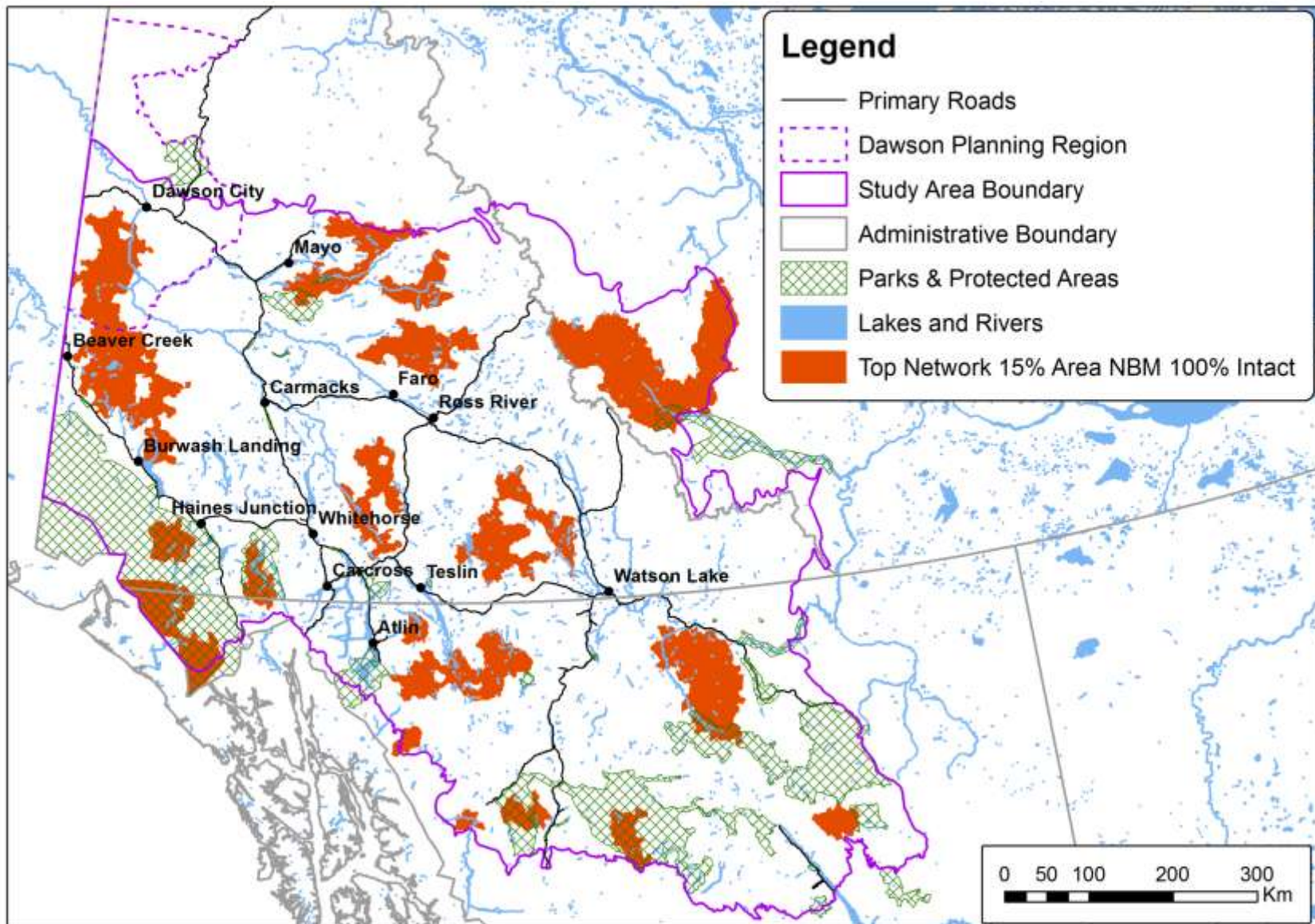
Ecological Indicator: Regional Land Cover Classification (NBM)



Reclassification of the National Land Cover into 13 regional classes

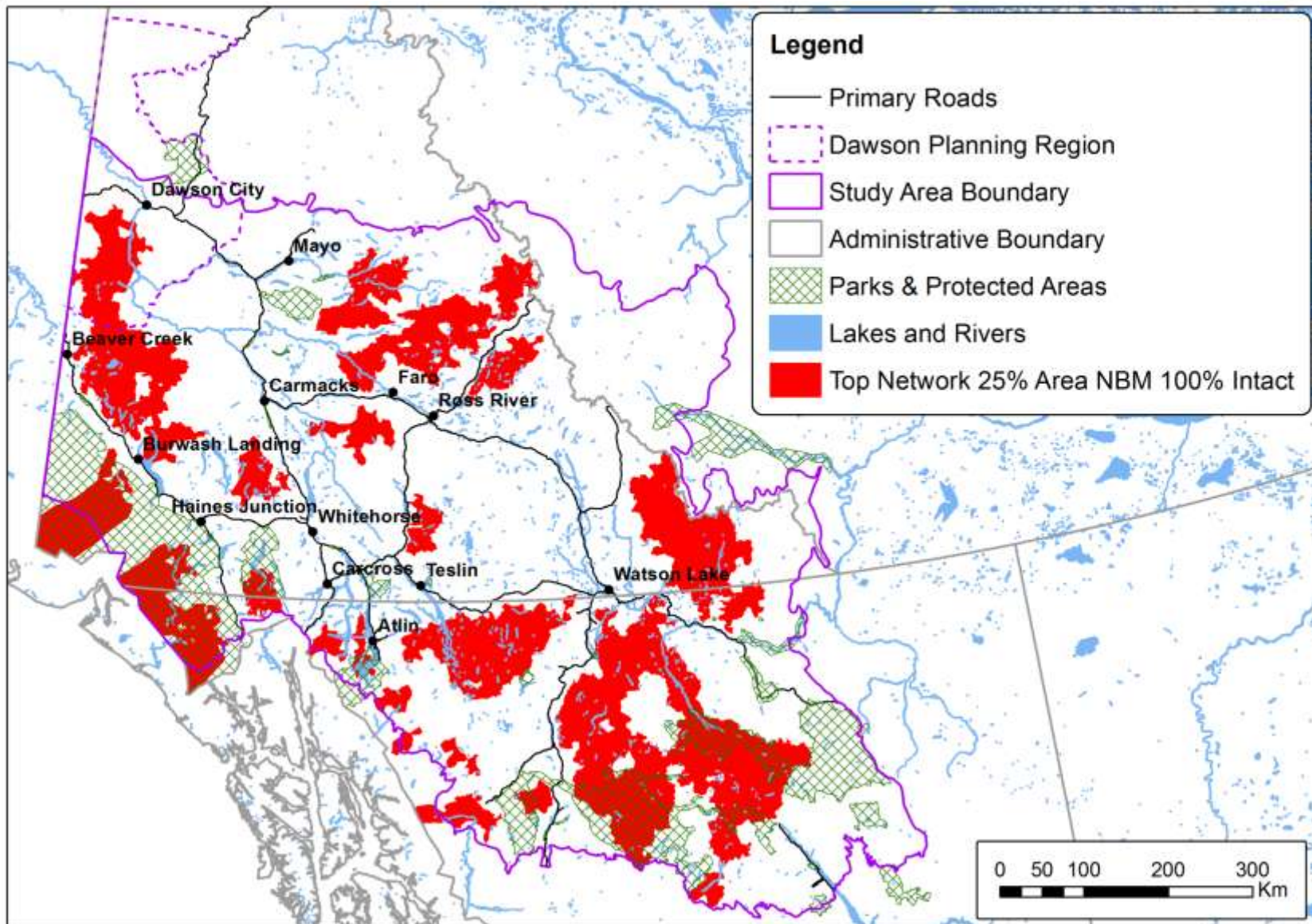
Results: Top Ecological Benchmark Network

100% Intact Catchments & Benchmarks Areas, 15% Area Target for Network



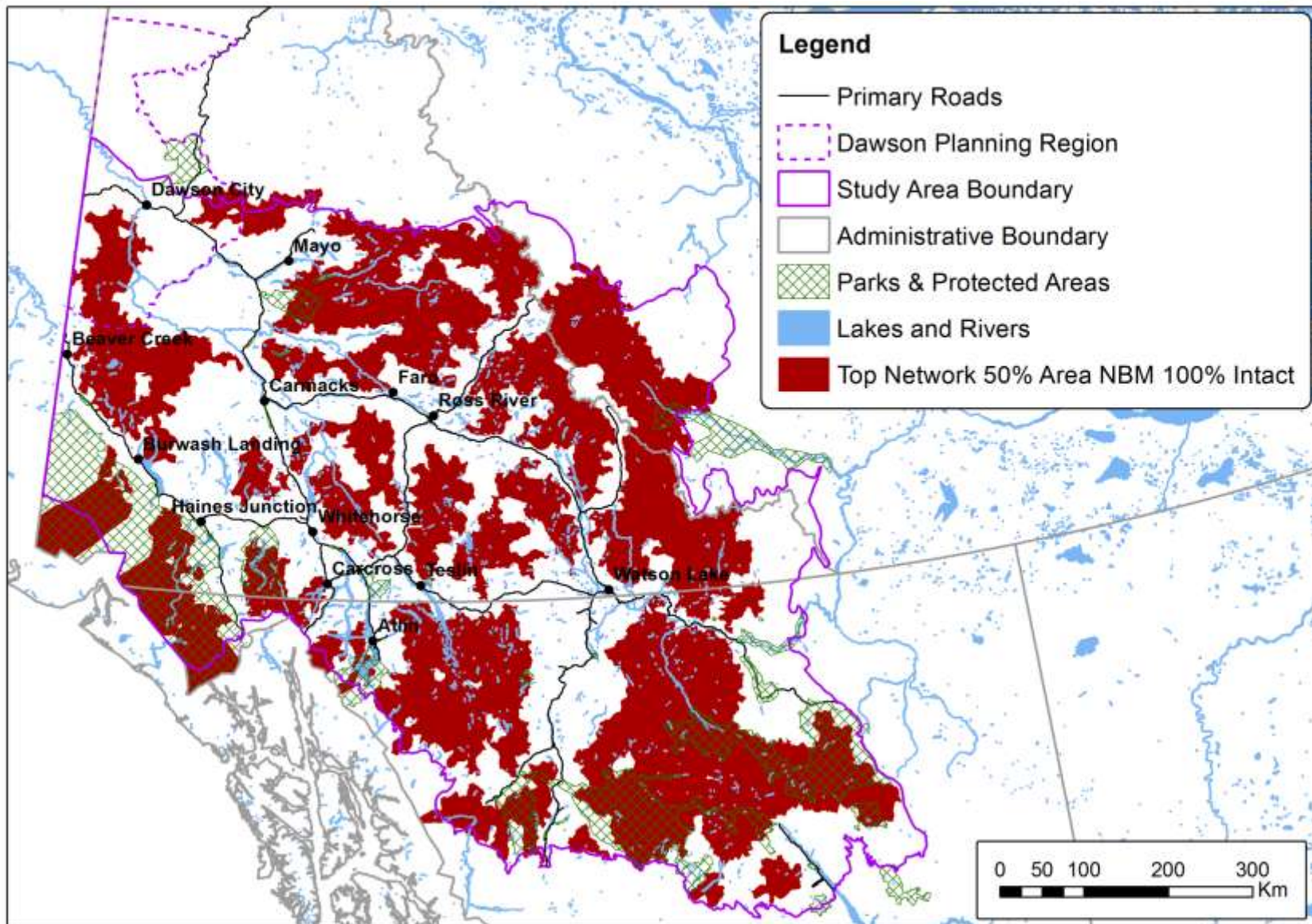
Results: Top Ecological Benchmark Network

100% Intact Catchments & Benchmarks Areas, 25% Area Target for Network



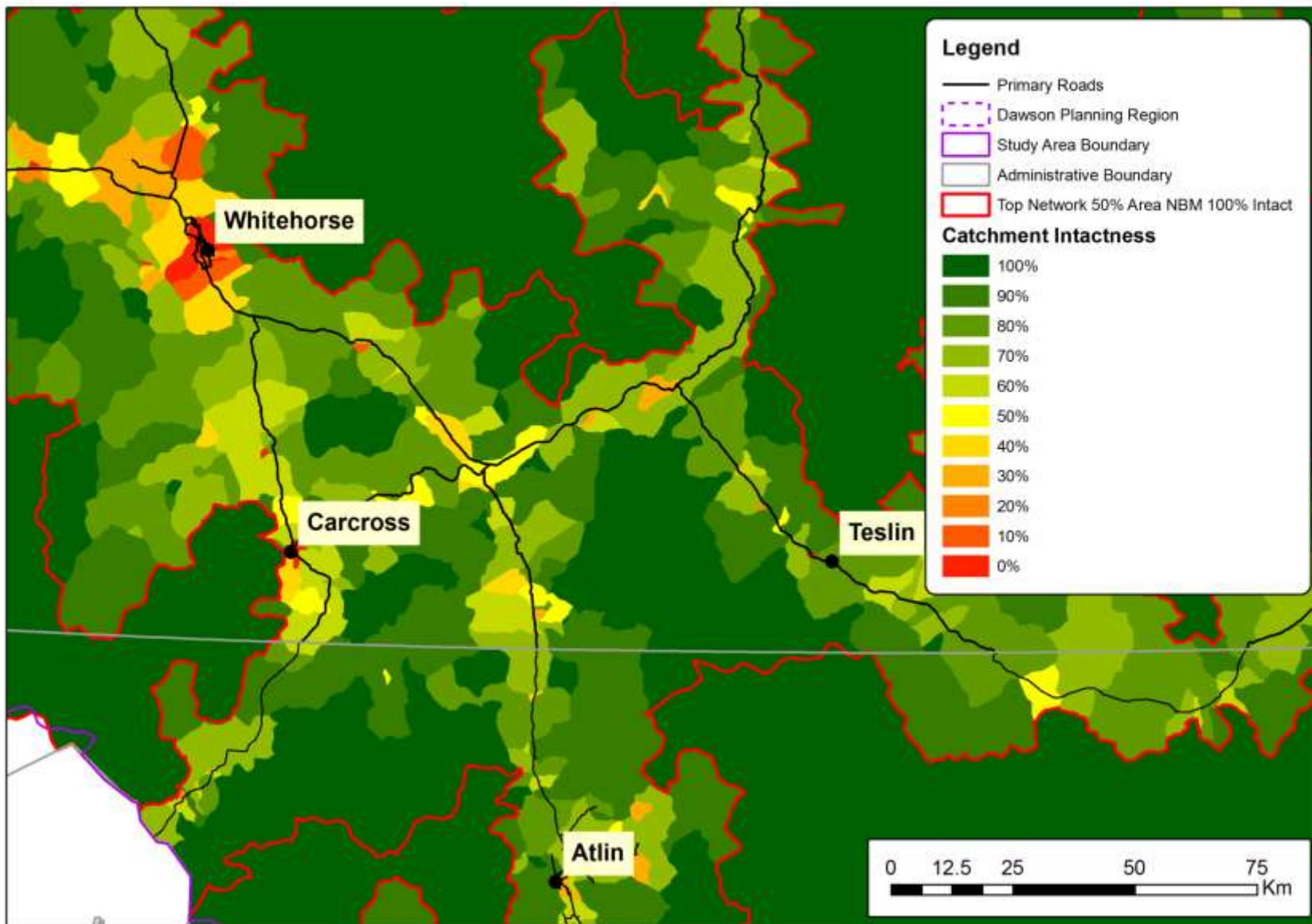
Results: Top Ecological Benchmark Network

100% Intact Catchments & Benchmarks Areas, 50% Area Target for Network



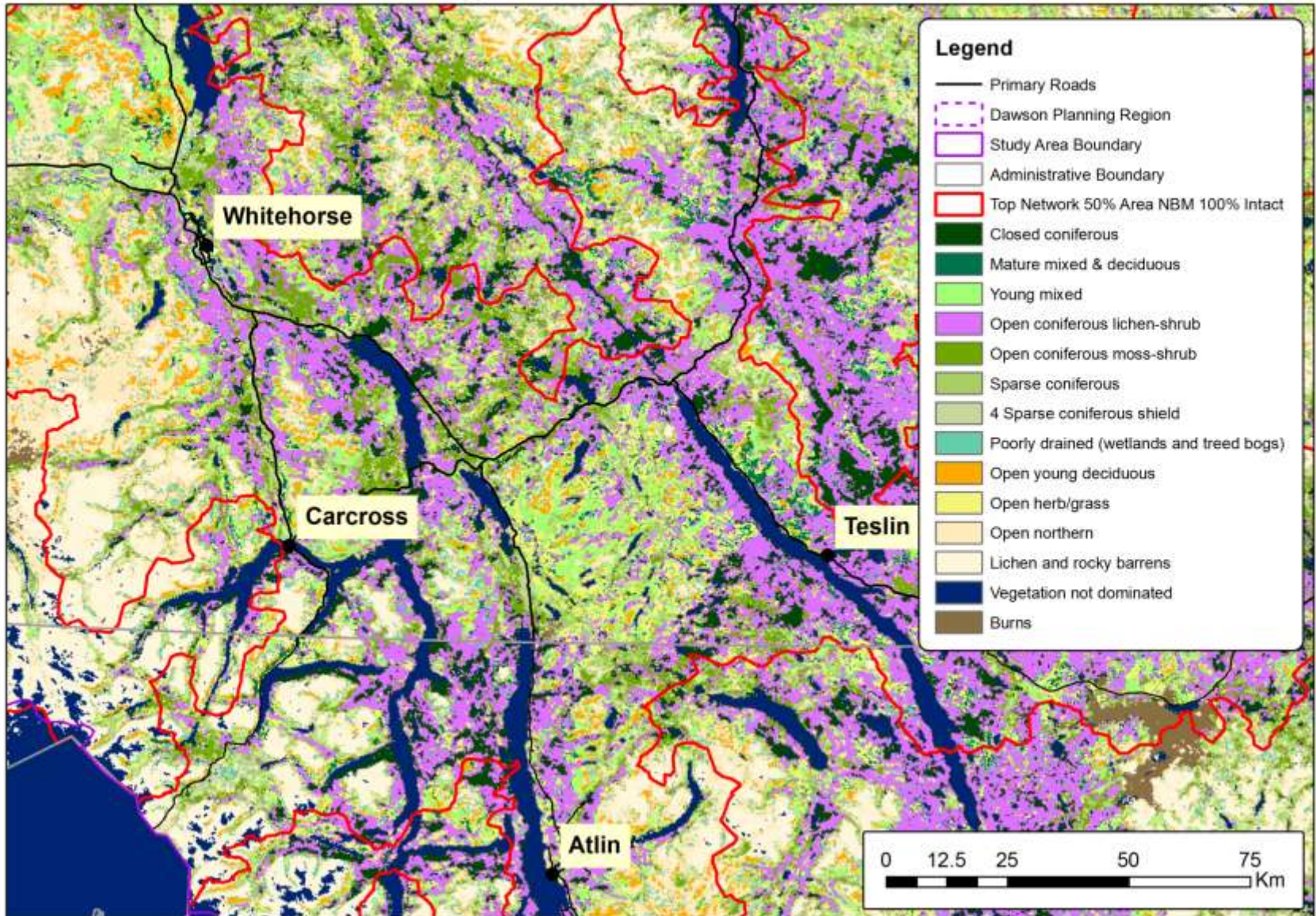
Intactness & Land Cover in Valley Bottoms

100% Intact Catchments & Benchmarks Areas, 50% Area Target for Network



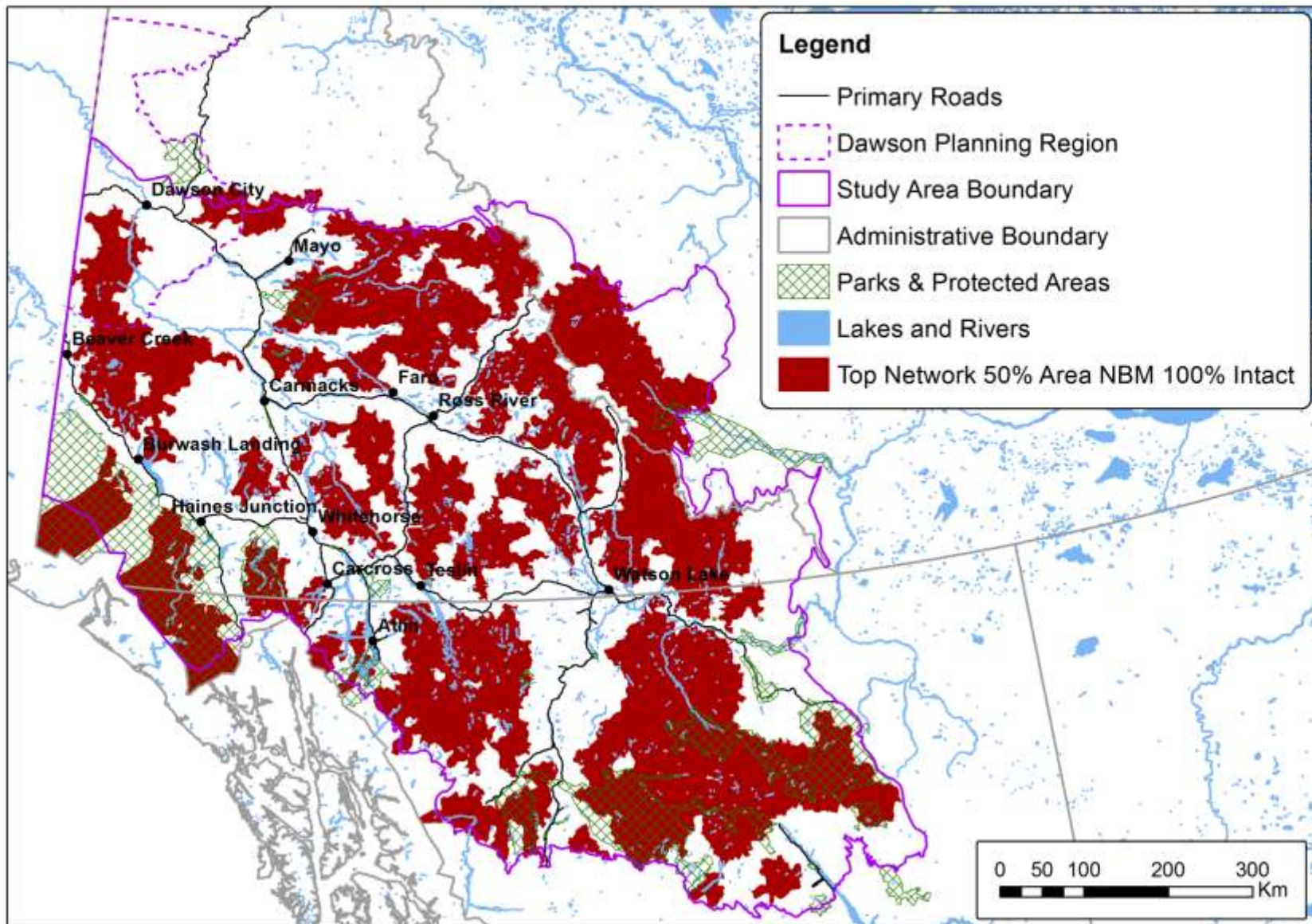
Intactness & Land Cover in Valley Bottoms

100% Intact Catchments & Benchmarks Areas, 50% Area Target for Network



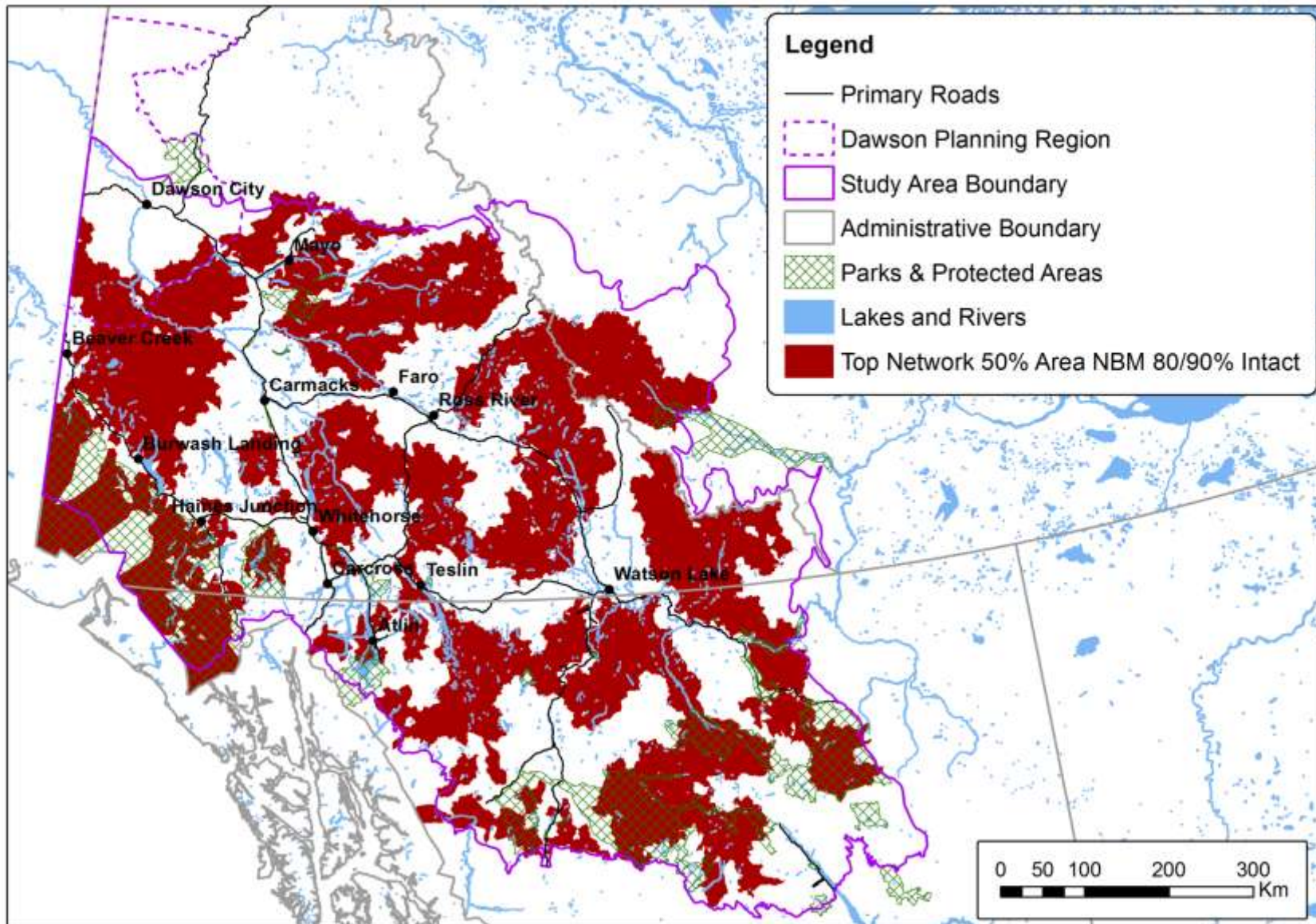
100% vs 90% Intact Benchmark Areas

100% Intact Catchments & Benchmarks Areas, 50% Area Target for Network



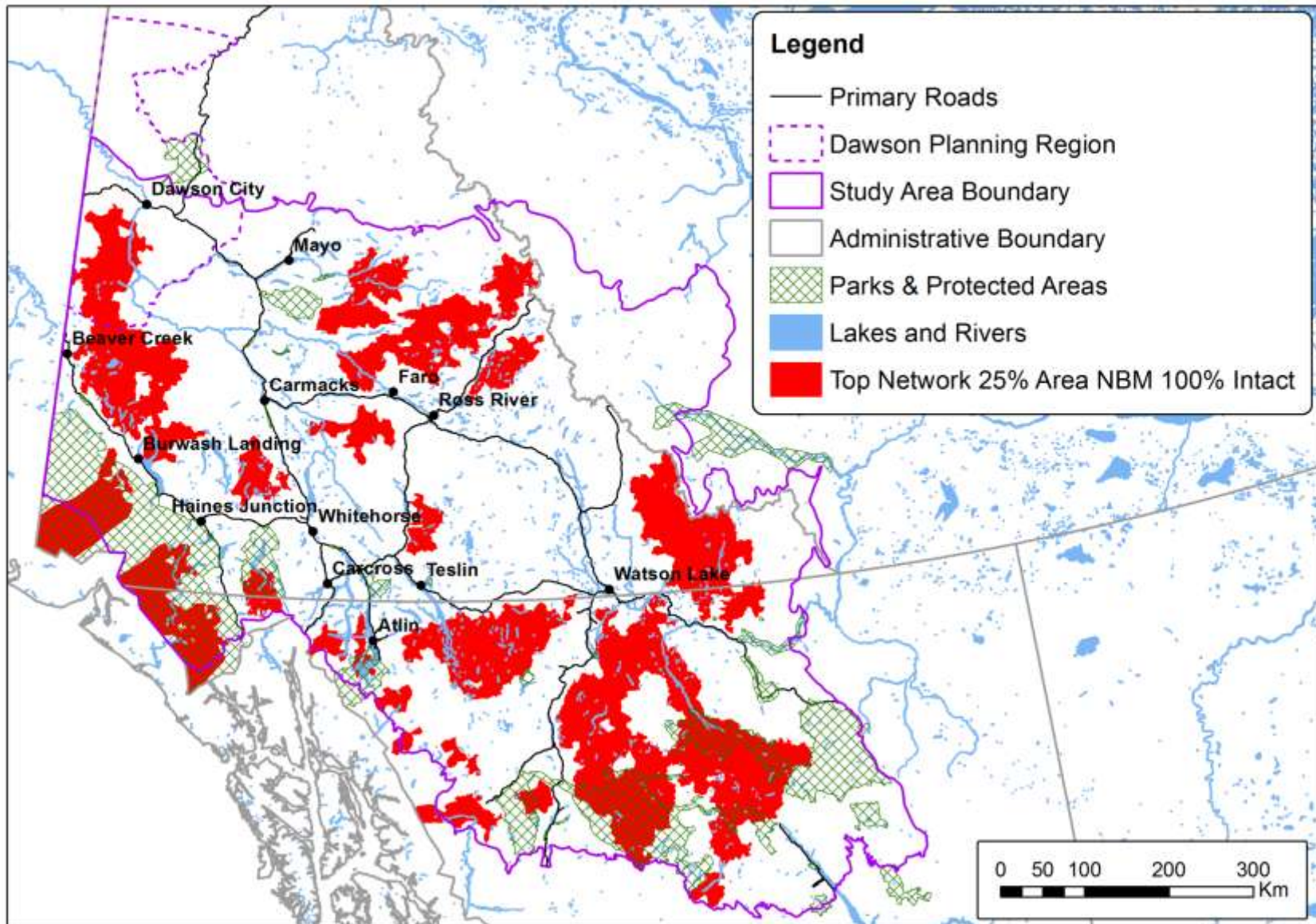
100% vs 90% Intact Benchmark Areas

80% Intact Catchments, 90% Intact Benchmark Areas, 50% Area Target



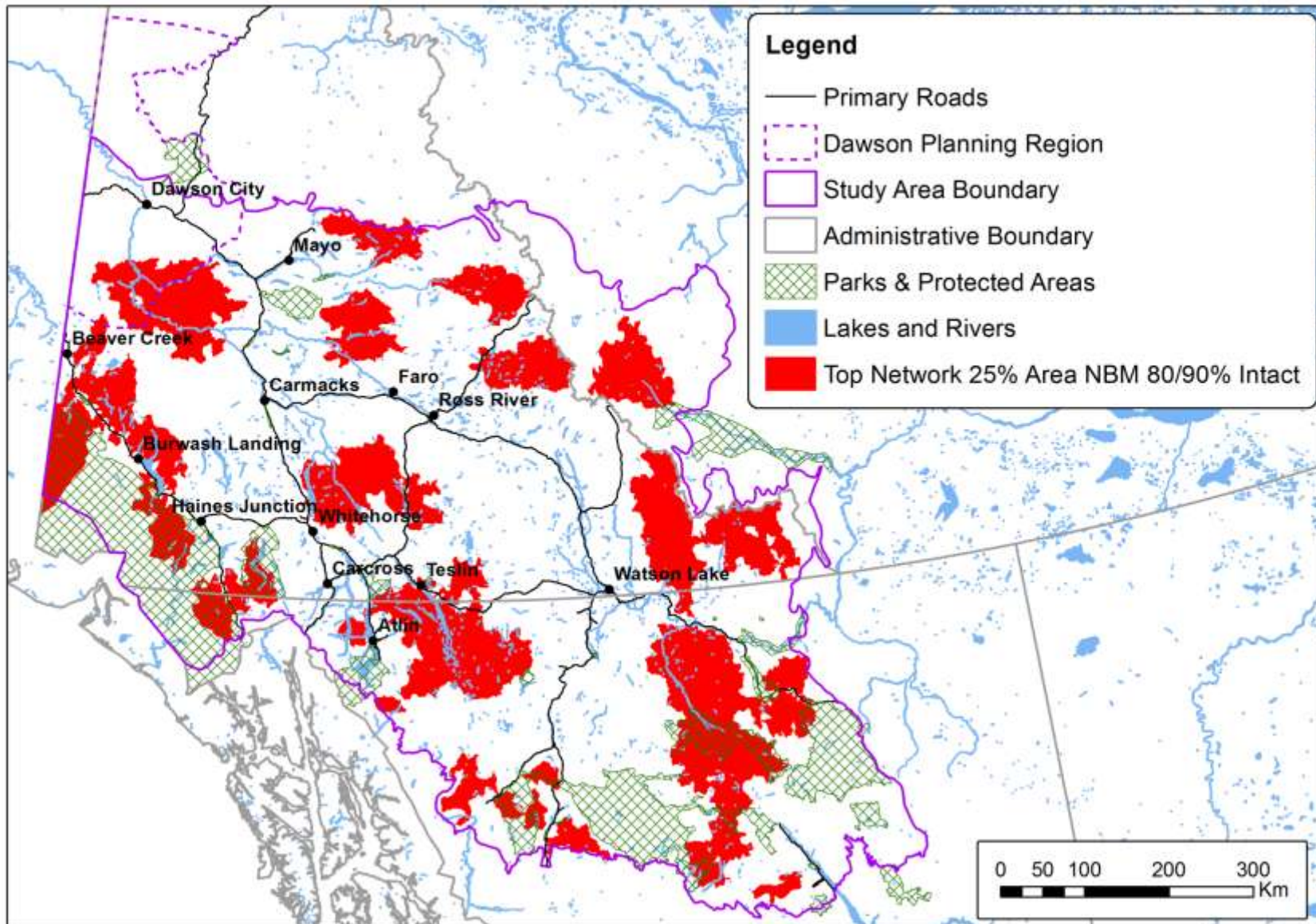
100% vs 90% Intact Benchmark Areas

100% Intact Catchments & Benchmarks Areas, 25% Area Target for Network



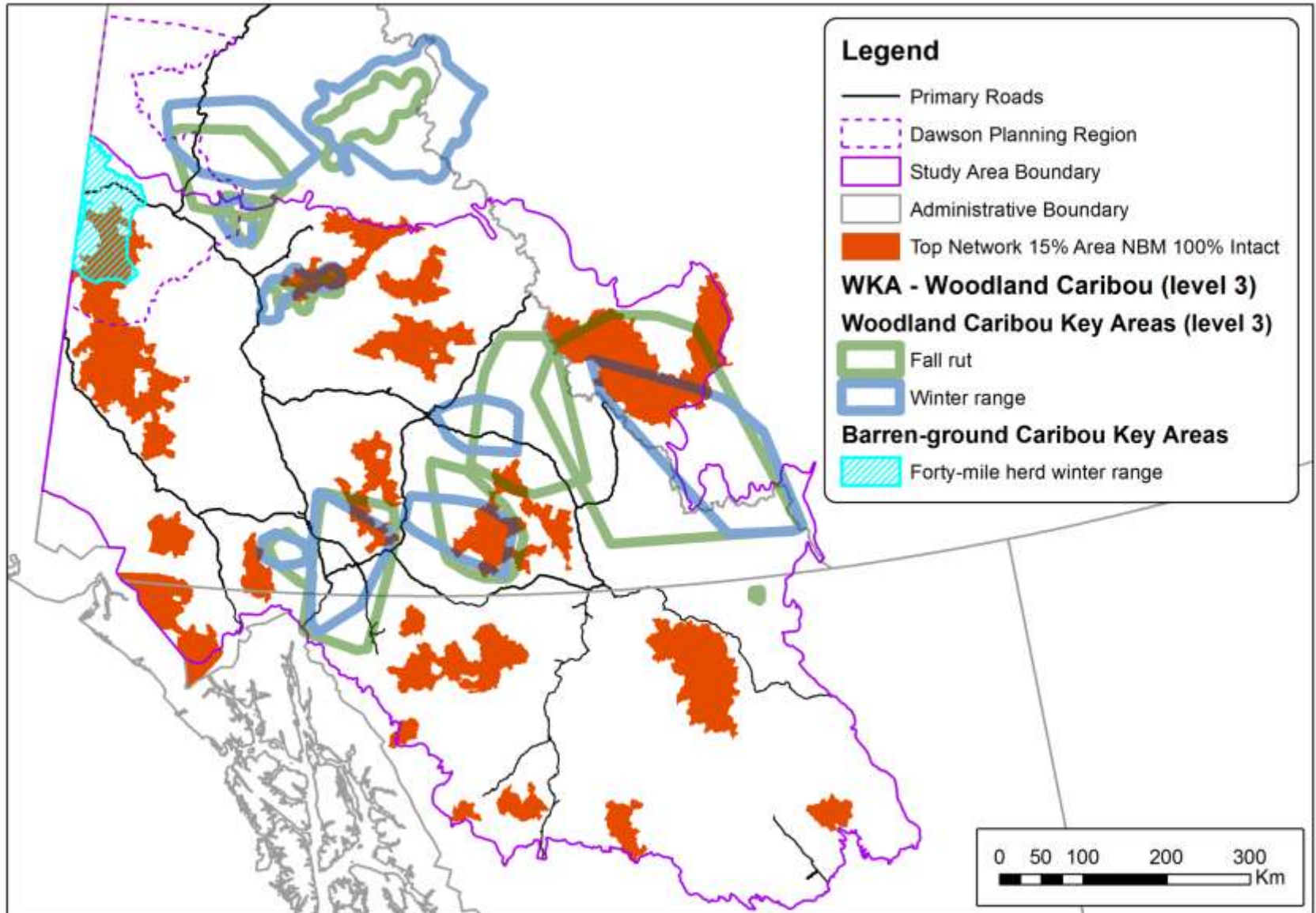
100% vs 90% Intact Benchmark Areas

80% Intact Catchments, 90% Intact Benchmark Areas, 25% Area Target



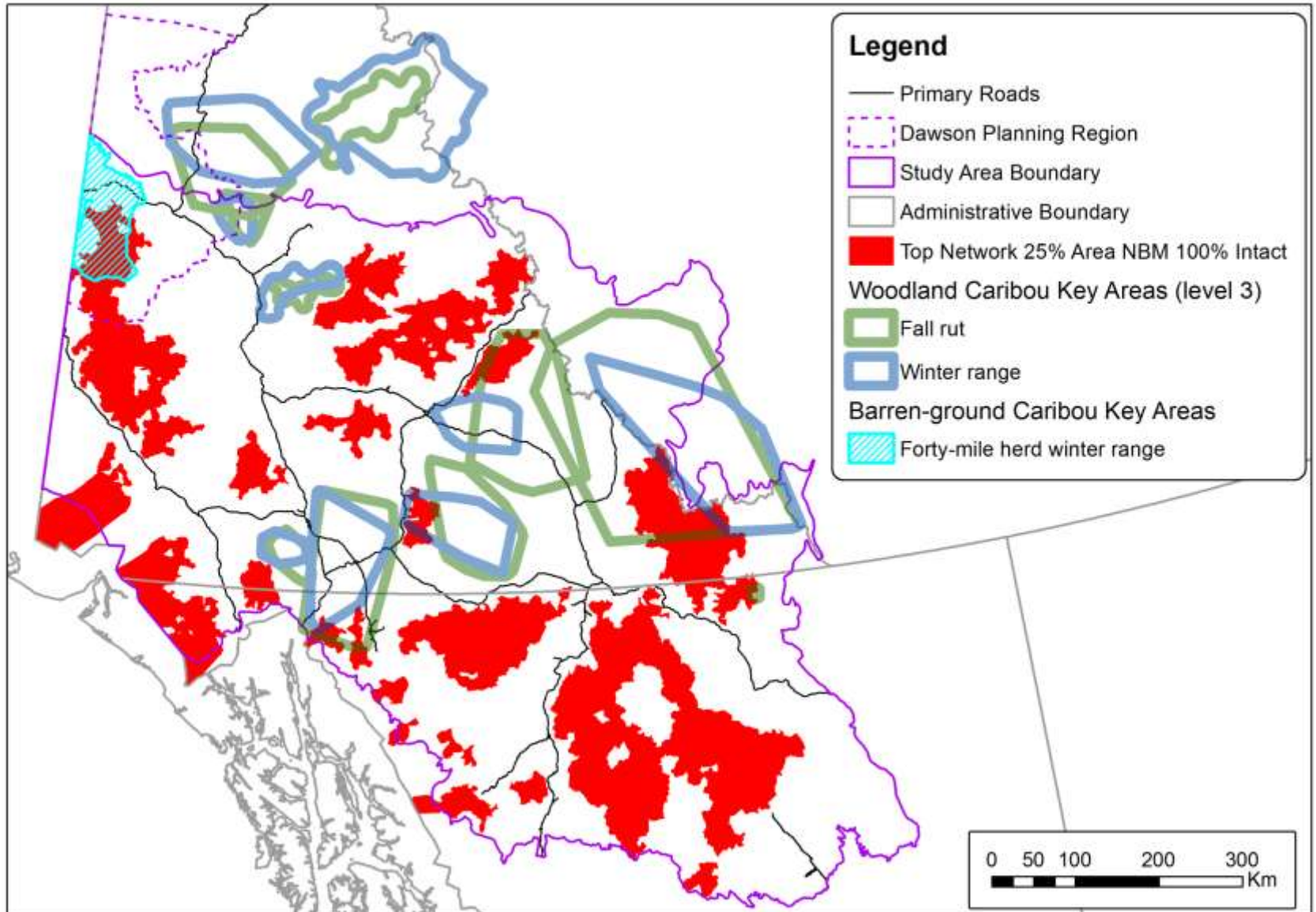
Refining Benchmark Networks: Key Wildlife Habitat

100% Intact Catchments & Benchmarks Areas, 15% Area Target for Network



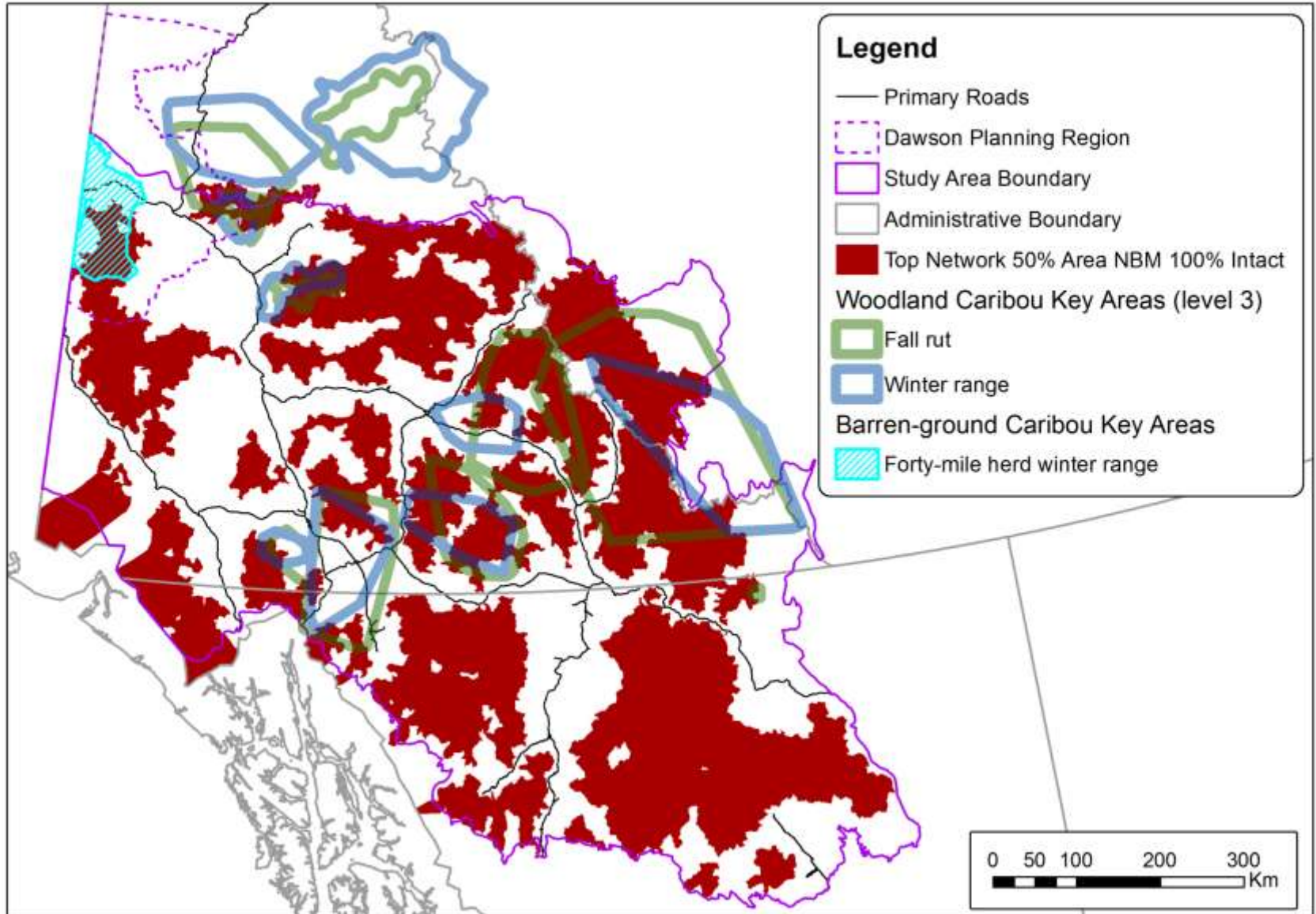
Refining Benchmark Networks: Key Wildlife Habitat

100% Intact Catchments & Benchmarks Areas, 25% Area Target for Network



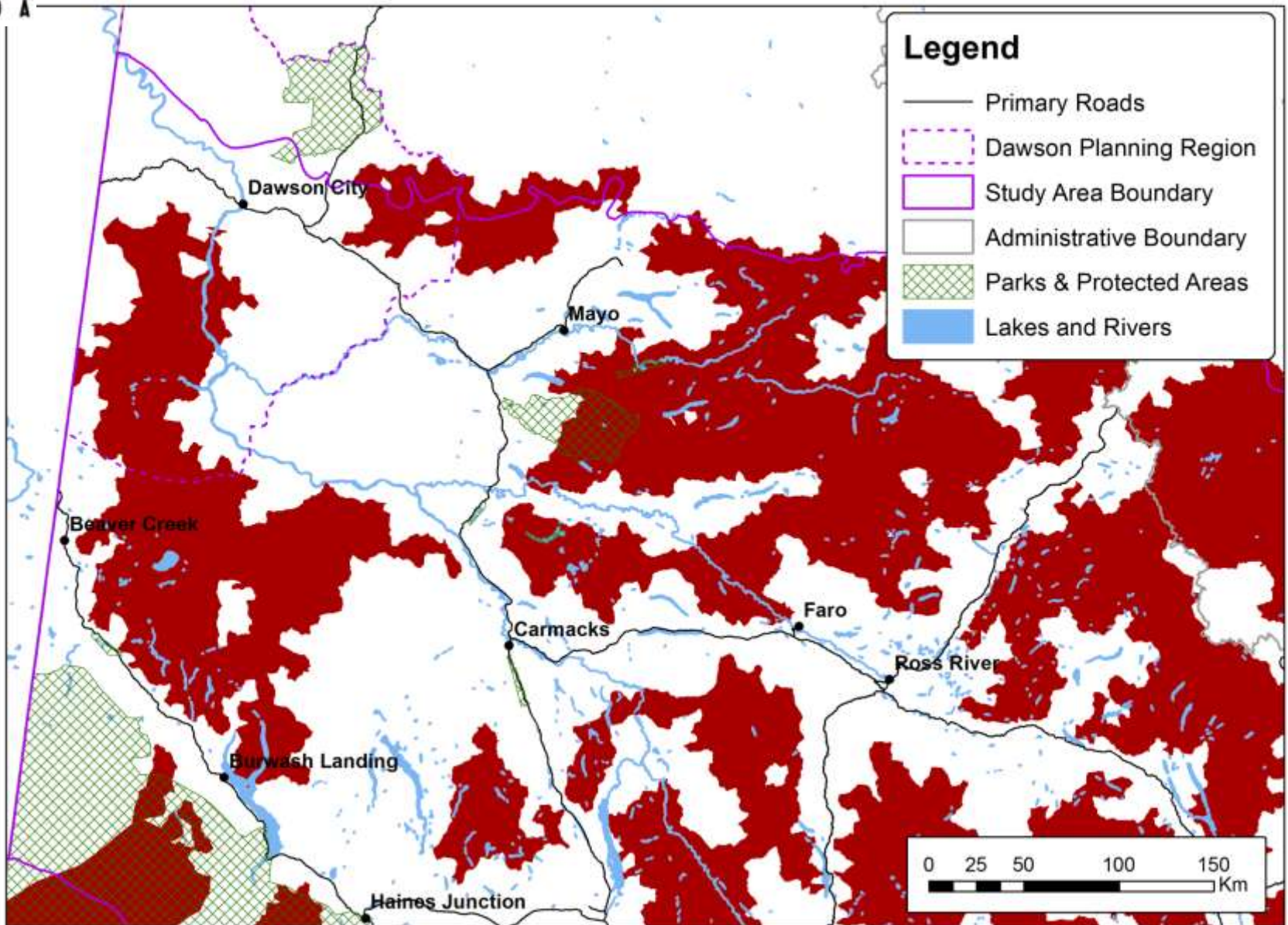
Refining Benchmark Networks: Key Wildlife Habitat

100% Intact Catchments & Benchmarks Areas, 50% Area Target for Network



Refining Benchmark Networks: Disturbance Mapping

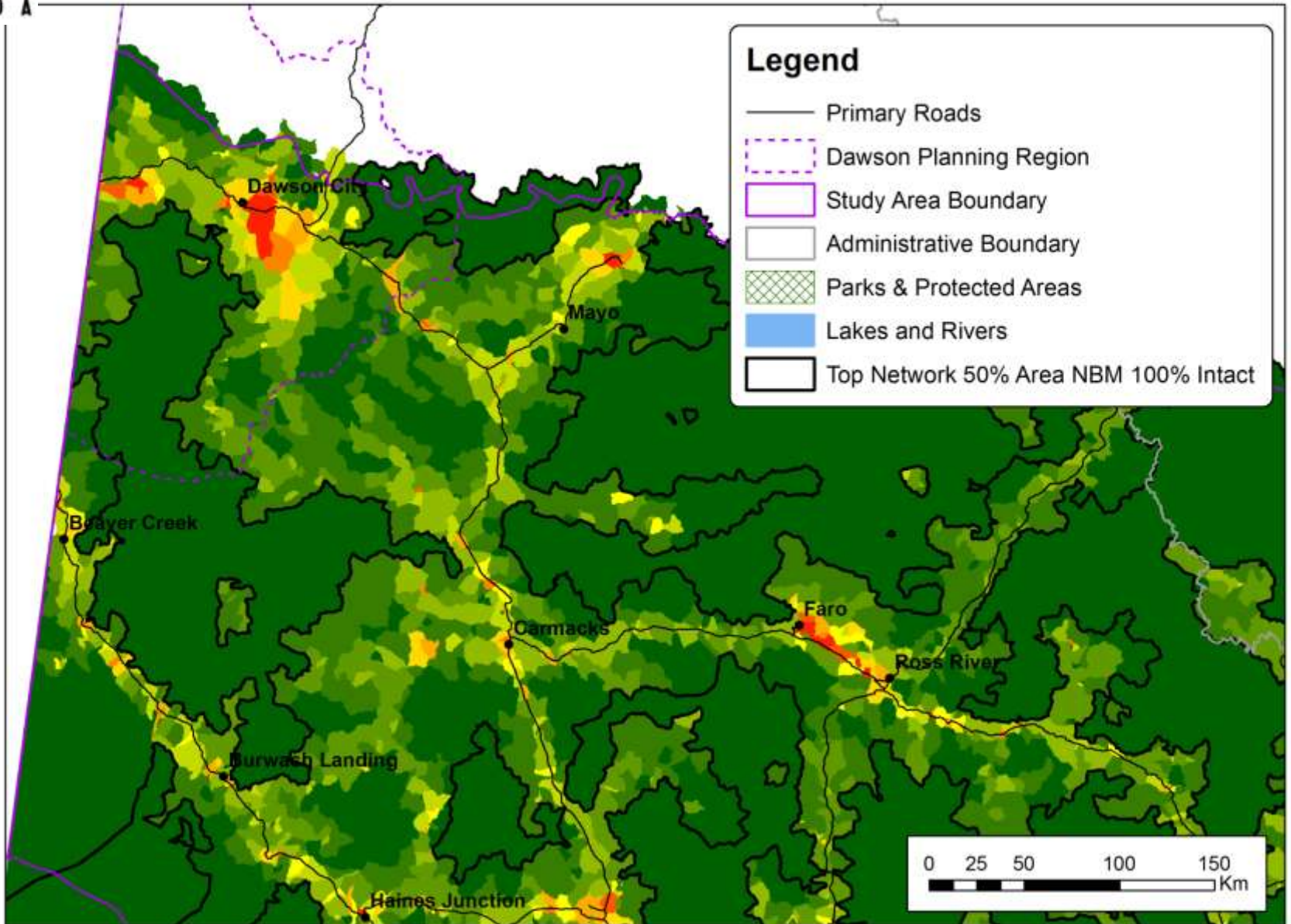
100% Intact Catchments & Benchmark Areas, 50% Area Target



Refining Benchmark Networks: Disturbance Mapping

100% Intact Catchments & Benchmark Areas, 50% Area Target

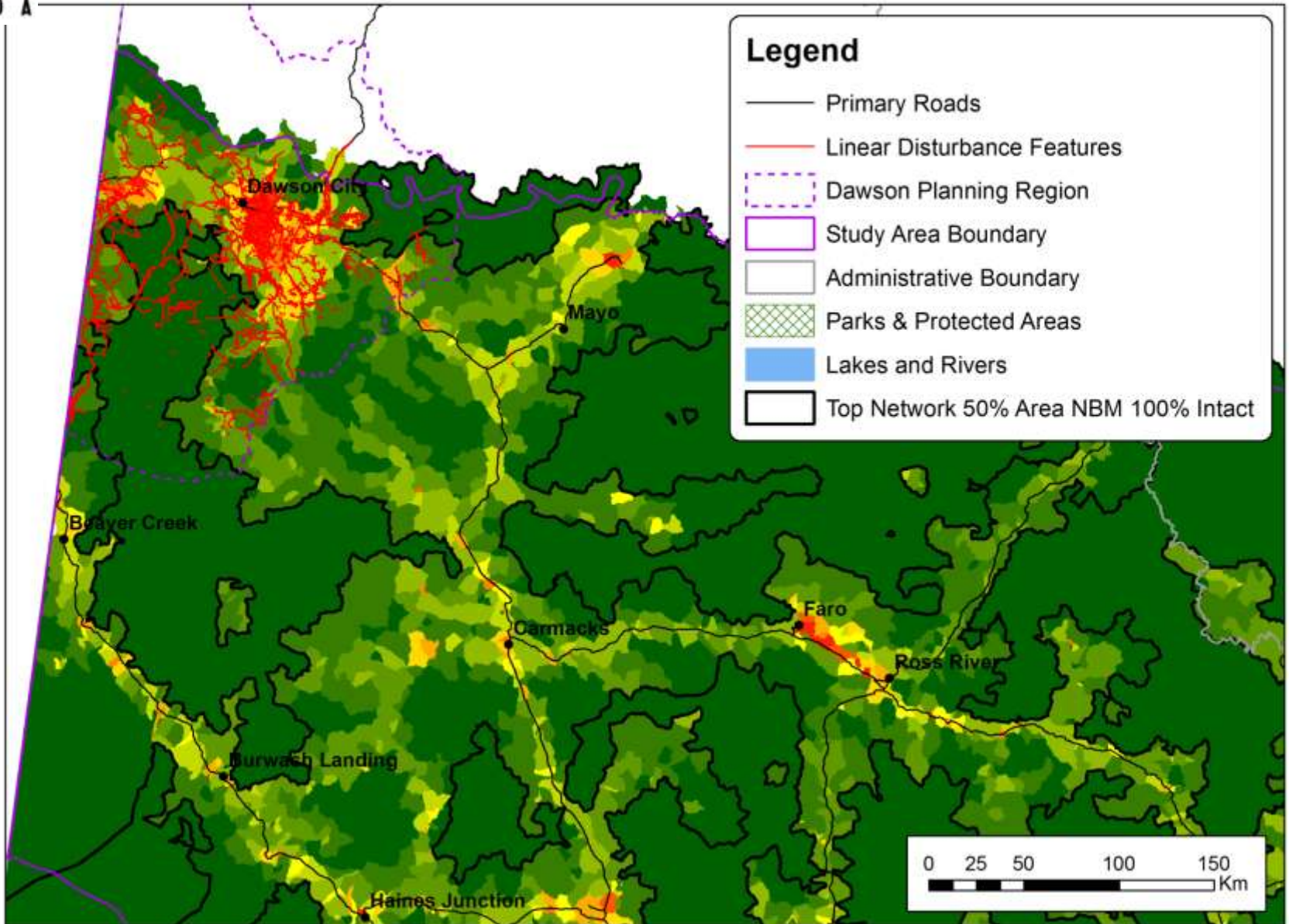
C A N A D A



Refining Benchmark Networks: Disturbance Mapping

100% Intact Catchments & Benchmark Areas, 50% Area Target

C A N A D A



Insights & Cautions from Exploratory Analysis

- 100% intact benchmarks: important ecosystems likely excluded
- Excluded ecosystems may disproportionately occur in valley bottoms
- National intactness data likely not capturing existing disturbance
- Identify & assess benchmark networks using regional ecological values
 - detailed human disturbance mapping
 - regional ecological land classification
 - local & scientific knowledge of key wildlife habitats





Questions?



Chapter 22 – Regional Economic Development Planning Process

for the Traditional Territory of the
Tr'ondëk Hwëch'in

CURRENT OBJECTIVES

- To develop a Regional Economic Development Plan for Tr'ondëk Hwëch'in Traditional Territory pursuant to Chapter 22 of the Tr'ondëk Hwëch'in Final Agreement.

PURPOSE

- To promote sustainable economic development for the Tr'ondëk Hwëch'in and for all residents and commercial and industrial interests within Tr'ondëk Hwëch'in Traditional Territory, in accordance with the provisions and the principles of the Tr'ondëk Hwëch'in Final Agreement.

PARTIES TO THE CHARTER

- Tr'ondëk Hwëch'in
- Government of Canada as represented by the Canadian Northern Economic Development Agency (CanNor)
- Yukon Government as represented by the Department of Economic Development

TEMPORAL BOUNDARIES FOR THE PLAN

- The plan will focus on both near term (1-4 years) and longer term (5-10 years) economic planning within the Traditional Territory of Tr'ondek Hwech'in.

OVERSIGHT COMMITTEE

- Made up of all levels of government.
- The City of Dawson may also assign one or more representatives to sit in an ex officio capacity.
- This committee sets the strategic direction for the development of the plan, including identifying and outlining the process to be taken in the development of the plan.
- Recommends approval of the plan to the Ministers and Chief of the Tr'ondëk Hwëch'in.

ADVISORY COMMITTEE

- The advisory committee will be made up of key members of the community who represent a cross section of interests. The role of the advisory committee is to provide advice on the development of the plan.

TASKS

- There are five key tasks to be undertaken.
- The first three tasks have been completed.
- Task 1: Prepare a high level social, demographic and economic scan of the economy in TH Traditional Territory (TT).

- Task 2: Assess the potential for development in at least the 8 sectors specified in the THFA (communication, culture, transportation, agriculture, energy, non- & renewable resources, tourism).

- Task 3: Community-based primary research to develop values framework as a basis to prioritize the specific economic development initiatives identified in Task 2 according to Tr'ondëk Hwëch'in values and objectives as well as the principle of Sustainable Development.

- Tasks 4 and 5 are the next tasks to be undertaken.
 - Funding is in place;
 - The consulting team has been engaged and
 - The anticipated completion date is March 31, 2012.

Task 4 (2011/12):

- Develop a Regional Economic Development Plan, incorporating the findings of Tasks 1 to 3 and ensuring all other relevant economic plans and strategies are effectively integrated. This will include identifying & recommending measures necessary to coordinate the development and implementation of all such plans.

Task 5 (2011/12)

- To prepare a detailed Implementation Plan which recommends the actions Tr'ondëk Hwëch'in, Government of Canada, and Government of the Yukon should take to implement the Regional Economic Development Plan.

Knowledge-Based Habitat Suitability Mapping in Dawson Regional Land Use Planning

Heather Clarke
Habitat Biologist
Environment Yukon



Outline

- Knowledge-based habitat suitability mapping:
 - What/Why
 - How
- Wildlife Key Area mapping.
- Ecologically Important Area mapping.
- Mapping for the Dawson Land Use Plan.



Why are we interested?

- Habitat = the place where an animal lives.
- Animals find some types of habitat better than others.
- By knowing what kind of habitat is best for a species, we can inform land use planning.



OR



Habitat suitability can be mapped

1. Using scientific data

- Data collected during surveys or from collared animals
- RSF models, machine learning models, etc.

Habitat suitability can be mapped

1. Using scientific data

- Data collected during surveys or from collared animals
- RSF models, machine learning models, etc.

2. Using knowledge

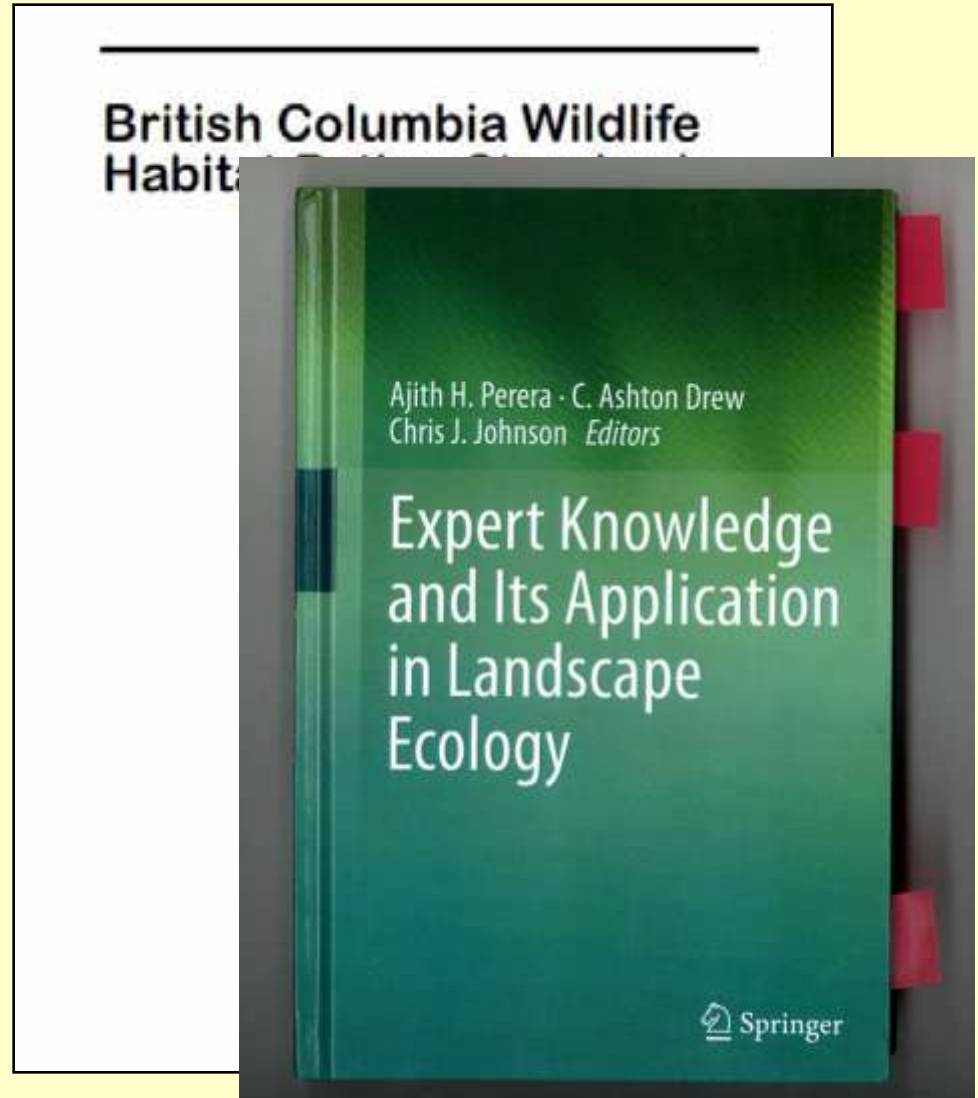
- Information gathered from those experienced with the species of interest in the area of interest
- Knowledge-based Habitat Suitability Index (HSI)

HSI Methods

- Highly variable

HSI Methods

- Highly variable
- Limited literature



HSI Methods

- Highly variable
- Recent literature
- YG has produced:

Yukon Standards and Guidelines for
Knowledge-Based Habitat Suitability Modeling

Draft 4, November 28, 2011

Prepared by Heather Clarke, Department of Environment, Yukon.

Working group consisted of: Heather Clarke, Mark O'Donoghue, John Ryder, Oliver Barker, and Val Loewen (Department of Environment, Government of Yukon); Hilary Cooke and Don Reid (Wildlife Conservation Society); Sam Skinner (Yukon Land Use Planning Council); John Meikle (Kwanlin Dun First Nation); Simon Lapointe (Ta'an Kwä'ech'in Council).

HSI Methods

1. Identify people with knowledge of species and habitat
2. Conduct interviews and rank habitats
3. Map information
4. Use in planning

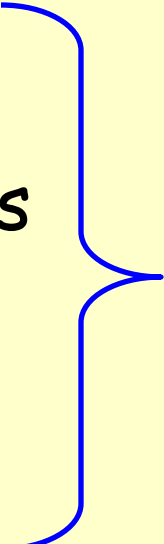


HSI Methods

1. Identify people with knowledge of species and habitat



People with Knowledge

- First Nations → **Traditional knowledge**
 - Hunters / Trappers
 - Outfitters
 - Conservation officers
 - Miners
 - Pilots
 - Biologists
- Local knowledge**
- 

Knowledge specific to:

- Different species
- Sexes or ages (male, female, old, young)
- Seasons (winter, summer, etc.)
- Life functions (calving, rutting, denning)

Information sharing agreements and confidentiality
- only share what you are comfortable with.



HSI Methods

1. Identify people with knowledge of species and habitat
2. Conduct interviews and rank habitats



Interviews & Habitat Rankings

- Interviews can be conducted in a group or one-on-one.
- Group interviews are preferred.
- Can be by invitation or public open-house.
- Habitat "types" are selected *a priori*.
- Avoid biasing habitat type selection.



Interviews & Habitat Rankings

- Photos of different habitats are shown.
- Participant indicates how important (suitable) each habitat is for the species.
- This is "ranking".
- Ranking usually: **nil**, **low**, **moderate**, **high**.



Example - Caribou in late-winter

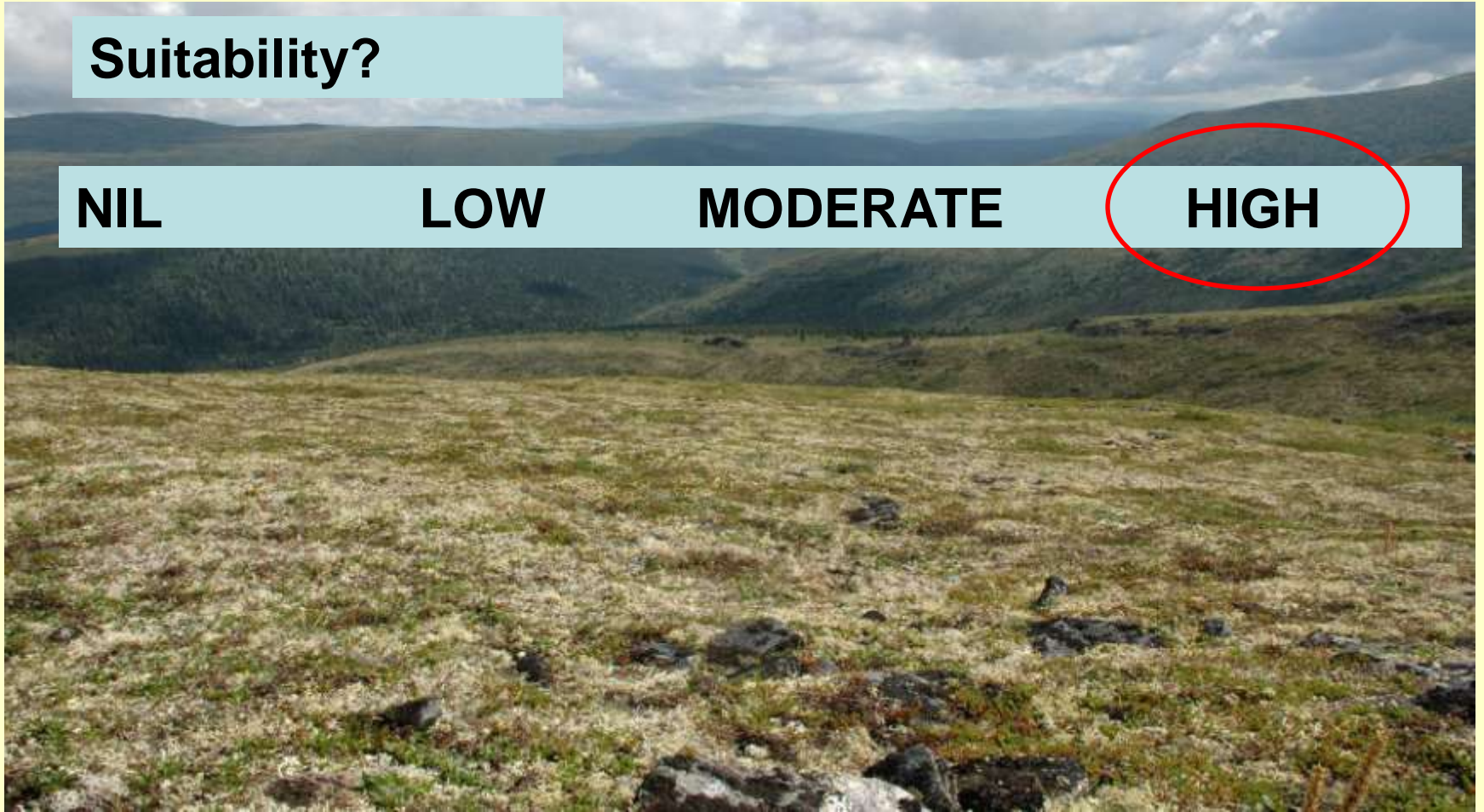
Suitability?

NIL

LOW

MODERATE

HIGH



Example - Caribou in late-winter

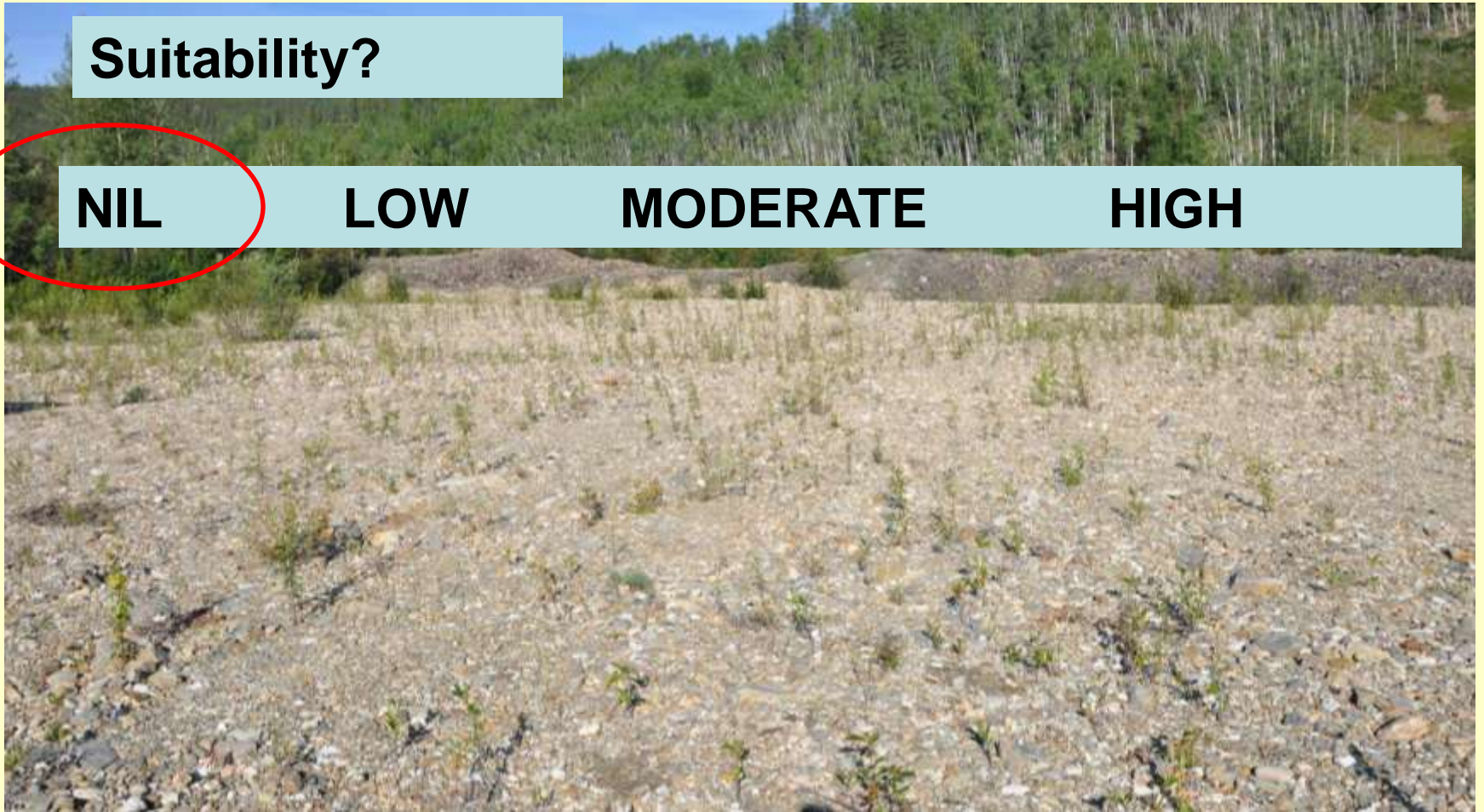
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Example - Caribou in late-winter

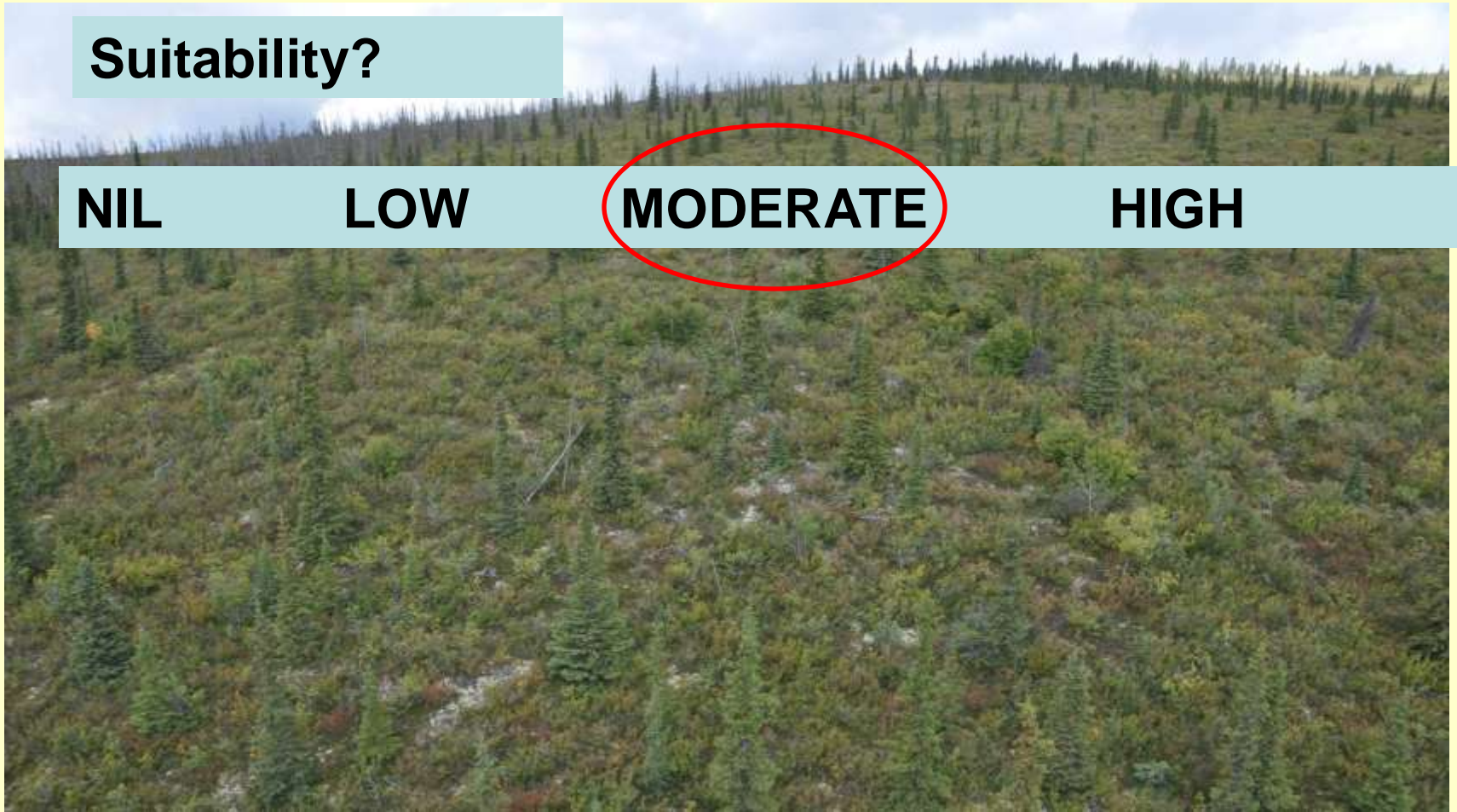
Suitability?

NIL


LOW

MODERATE

HIGH



DLUP Habitat Suitability Ranking Workshop

Species: Moose, woodland caribou, marten, lynx, grizzly		Participant			
Recorder		Interviewer		Date	
Suitability Ranks (importance): 0 = Nil 1 = Low 2 = Moderate 3 = High		Species(Season/Life Requisite)			
		Moose (late-winter)	Woodland caribou (late-winter)	Marten (winter)	Lynx (year-round)
Exposed land/rock/snow/ice					/
Disturbed			0		/
Streams			1		/
Wide rivers/open water			1		/
Gravel bar			2		/
Riparian shrub			3		/
Riparian broadleaf/mixedwood					/
Conifer riparian					/
Herbaceous wetland					/
Shrub wetland					/
Treed wetland					/
Shrub lichen					/
Sub-alpine shrub					/
Boreal shrub					/
Lichen >50%					/
Herbaceous					/
Conifer lichen					/
Conifer open					/

HSI Methods

1. Identify people with knowledge of species and habitat
2. Conduct interviews and rank habitats
3. **Map information**

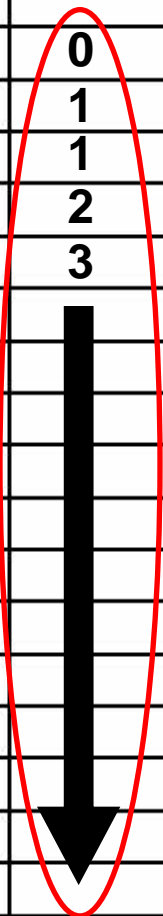


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Suitability Ranks (importance): 0 = Nil 1 = Low 2 = Moderate 3 = High		Species(Season/Life Requisite)				
		Moose (late-winter)	Woodland caribou (late-winter)	Marten (winter)	Lynx (year-round)	Grizzly (spring / summer)
Exposed land/rock/snow/ice					/	
Disturbed			0		/	
Streams			1		/	
Wide rivers/open water			1		/	
Gravel bar			2		/	
Riparian shrub			3		/	
Riparian broadleaf/mixedwood					/	
Conifer riparian					/	
Herbaceous wetland					/	
Shrub wetland					/	
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Boreal shrub					/	
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Conifer lichen					/	
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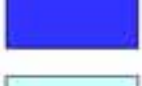

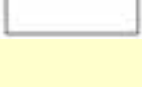
MODE

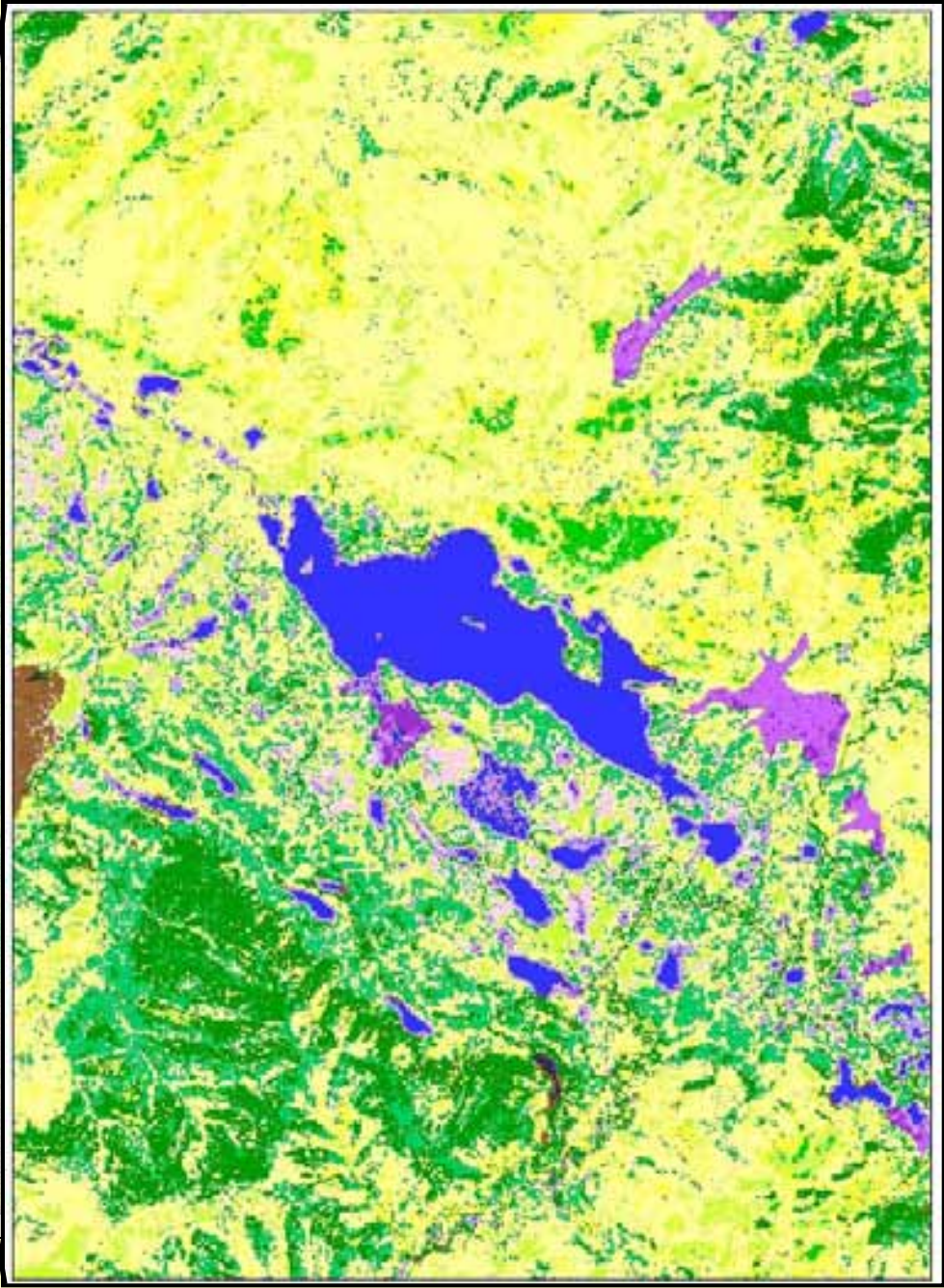
Apply in a GIS using a spatial inventory

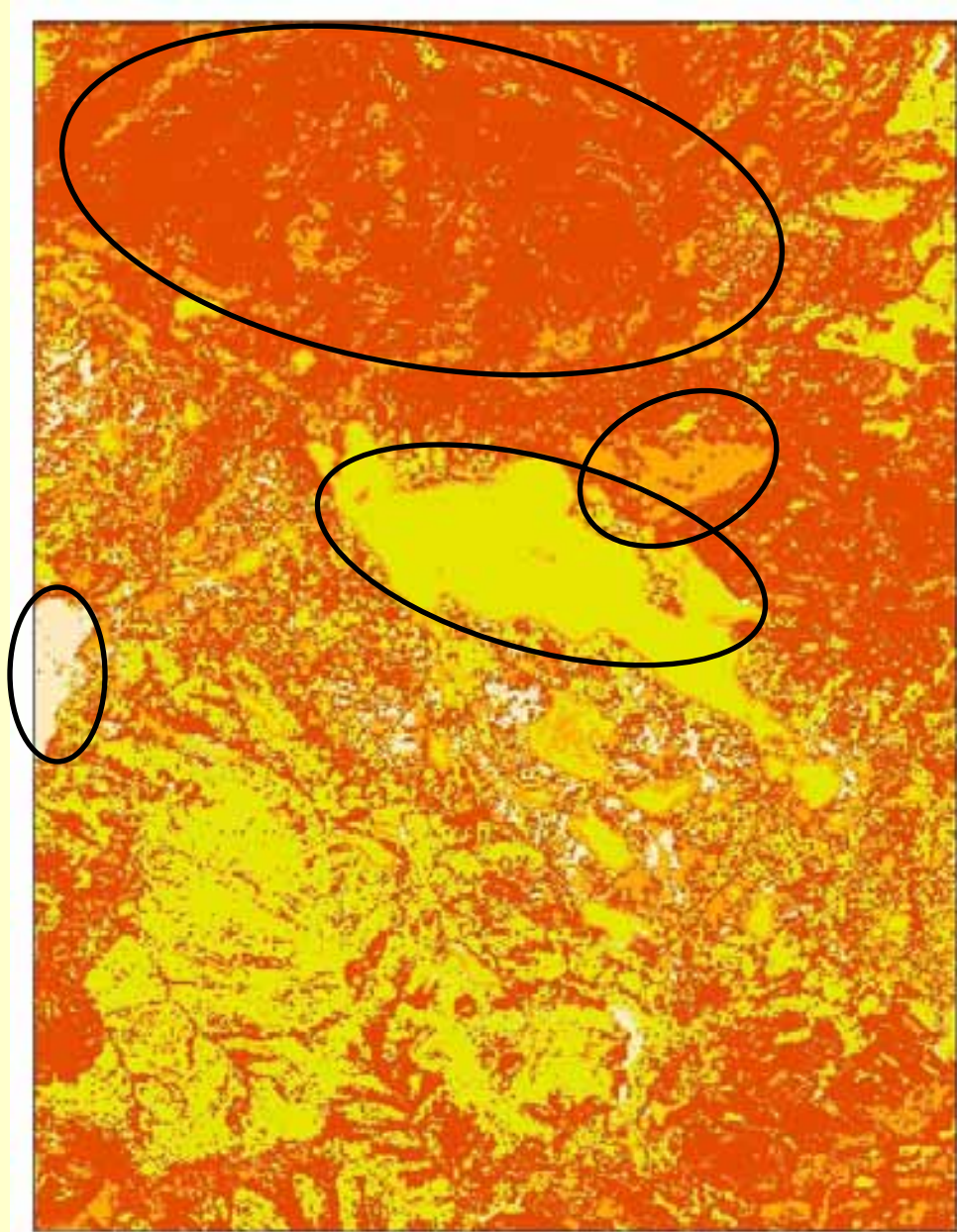


Example:

EOSD Land Cover Classes

	Coniferous Dense	1		Herb	2
	Coniferous Open	1		Wetland Treed	1
	Coniferous Sparse	1		Wetland Shrub	3
	Broadleaf Dense	2		Wetland Herb	2
	Broadleaf Open	2		Bryoid	0
	Broadleaf Sparse	2		Exposed Land	0
	Mixedwood Dense	2		Rock/Rubble	0
	Mixedwood Open	2		Water	1
	Mixedwood Sparse	2		Snow/Ice	0
	Shrub Tall	3		Shadow	0
	Shrub Low	3		Cloud/No Data	0





Information on relative habitat suitability can inform species and habitat management planning.

Not all good habitats are equal...

- Sometimes 2 similar habitats in different places on the landscape have different value for a species.
- E.g. moose may prefer shrubs close to water more than shrubs away from water
- This is called "landscape context"
- Rankings can be adjusted for it.



		Main Habitat Type	
Landscape context		Shrub	Water
	Shrub	2	2
	Water	3	1

Shrub = 2






Shrub near water = 3

Water = 1

Water near shrub = 2

Example:

EOSD Land Cover Classes

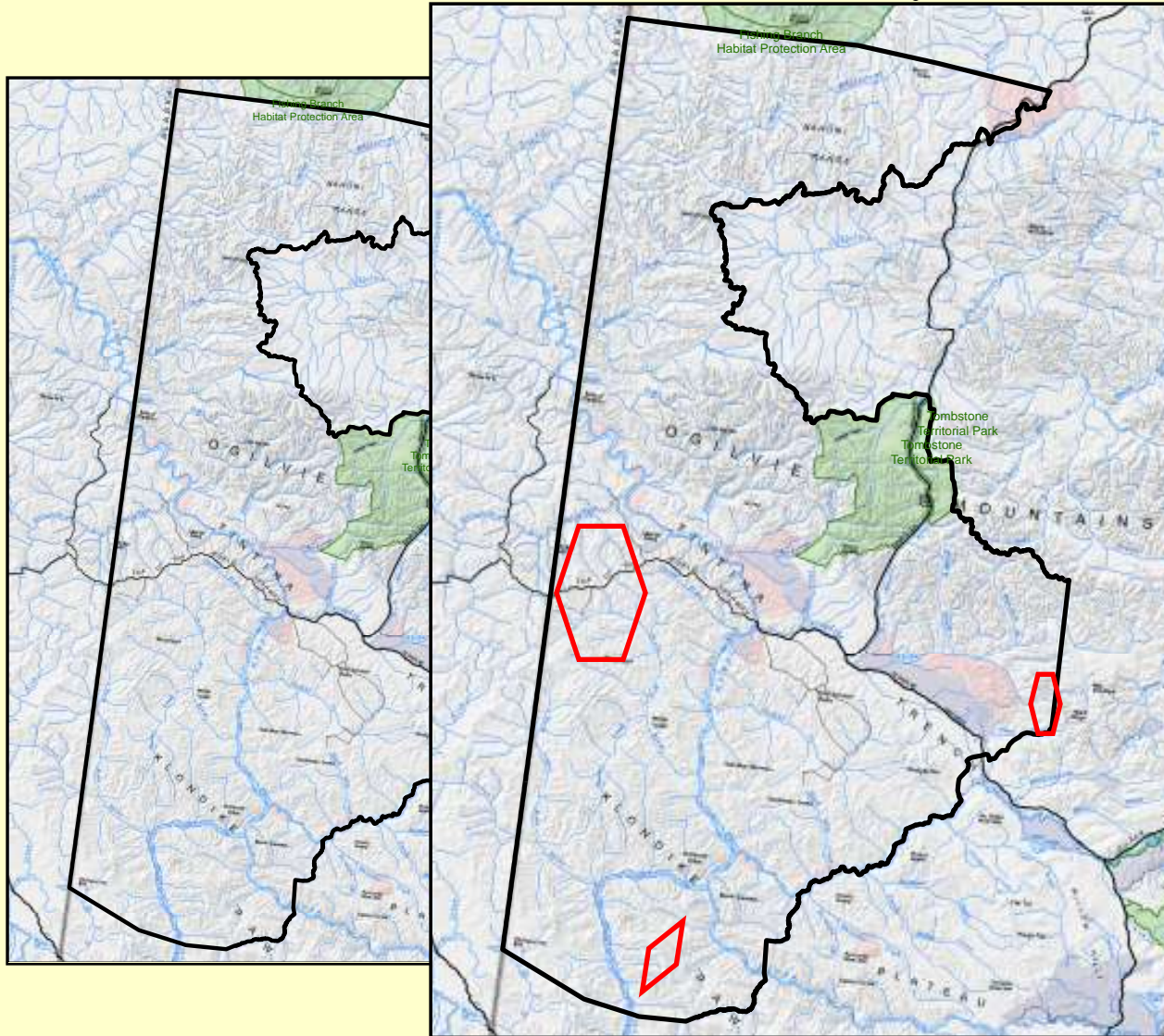
	Coniferous Dense	1		Herb	2
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	Broadleaf Dense	2		Wetland Herb	2
	Broadleaf Open	2		Bryoid	0
	Broadleaf Sparse	2		Exposed Land	0
	Mixedwood Dense	2		Rock/Rubble	0
	Mixedwood Open	2		Water	1
	Mixedwood Sparse	2		Snow/Ice	0
	Shrub Tall	3		Shadow	0
	Shrub Low	3		Cloud/No Data	0

Wildlife Key Area and Ecologically Important Area Mapping

- Not suitability *per se* but indicates areas of high value for wildlife.
- Local knowledge is an important source of information.
- Incorporated into HSI workshops.
- No ranking → spatial and verbal description.
- Highly sensitive areas are buffered.



Wildlife Key Areas



- *s* = summer
- *f* = fall
- *y* = year round
- *u* = unknown

- *s* = stage (i.e., migratory stop-over area)
- *m* = moult
- *y* = rear young
- *c* = migration corridor
- *a* = all functions
- *l* = mineral lick

Ecologically Important Areas

- Similar methods to WKA
- Other habitat / wildlife values not included in WKA
 - Rare habitats
 - Sensitive habitats
 - Areas with species of conservation concern
 - Areas of high biodiversity
 - Important or unique physical features (e.g. springs, caves, canyons)



HSI Methods

1. Identify people with knowledge of species and habitat
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HSI in the Dawson Land Use Plan

- YG plans to provide the Planning Commission with the following local knowledge-based HSI maps:
 - Late winter MOOSE
 - Late winter WOODLAND CARIBOU
 - Winter MARTEN
 - Pre-berry, Berry, Denning Shoulder - GRIZZLY
 - Breeding - PEREGRINE
 - Annual LYNX, BEAVER, MUSKRAT
- YG also collecting WKA and EIA information.
- 2 knowledge workshops - December 2011, January 2012.

Look Downstream (*Look Far*)



Dawson Regional Planning Conference
January 18-19, 2012

Tourism in Yukon

In any given year, Tourism:

- Provides revenue to 26%-29% of Yukon's businesses (approx. 900)
- Tourism represents one of the Yukon's largest private sector employers
- Accounts for between 4.6% to 7.2% of Yukon's GDP
- Contributes between \$173.5M to \$197M to private sector revenue.

(Source: Yukon Business Survey from Yukon Bureau of Statistics; Invest Yukon from the Department of Economic Development)



Tourism in Yukon

- In 2010, Statistics Canada reported that Yukon outperformed all other jurisdictions in Canada in growth of one or more night travel by non-residents



Who is visiting Yukon?

- Leisure Travellers
 - FIT and group travellers: RVs, motorcoach and fly drive, VFRs, adventure travellers, cultural explorers, hunting and fishing
 - From hostellers to very high-end travellers paying up to \$35,000/person for custom trips
- Meeting, convention and incentive travellers
- Sport, event and festival travellers
- “Locals” (Yukoners, Alaskans and Northwest Territorians) preferring to ‘get away’ close to home
- And, of course, we benefit from government and business travel



Where are our visitors from?

- The United States
- Canada
- Germany
- Switzerland
- Australia
- United Kingdom
- Mexico, France, Netherlands, Japan and South Korea



What is Yukon to our visitors?

- When asked what images came to mind when thinking about Yukon
 - Prior to visiting
 - 41% scenery
 - 18% wildlife
 - One year in future (projecting)
 - 43% scenery
 - 10% wildlife

Department of Tourism and Culture Visitor Exit Survey, 2004



The Dawson Region

- No better example of how tourism and mining are so connected.
- Both historically, culturally, economically important.
- Economy is strongest with both.
- Both will thrive with balanced planning, that recognizes the value of all uses – and non-uses.



The Yukon River Corridor

- A historic river corridor.
- An important tourism asset.
- The river's blend of scenery, wildlife and history – and its accessibility – makes it the most popular canoe route in Canada's North.



The Yukon River

- The river has a rich history, and a long traditional of multi-use.
 - A historic transportation corridor
 - High recreational use
 - Hunting, fishing, harvesting
- It offers users:
 - Pretty geography
 - Important heritage resources
 - To vicariously follow in a miner's footsteps
 - Accessible – both in proximity and difficulty



And for the “slightly” less adventurous

- The Klondike Loop, including Klondike and Top of the World Highways, and the Dempster Highway offer their own adventure.



And at the end “gold”

- An authentic gold rush town bursting with attractions
- Tr'ondëk Hwëch'in heritage and culture
- Arts, Music
- The Dempster Highway
- Tombstone Territorial Park



Recommendations

- The Dawson Region will be strongest with a mixed economy.
- Balance the existing uses as well as the non-uses including mining, tourism, recreation and traditional uses.
- Ensure all are integrated into, and valued within, the Plan.
- Remember: we can always develop, or expand developments. As this region can attest, it is more difficult to undevelop.



Opportunities

- To ensure the Yukon River has an adequate buffer along the river recognizing the importance of viewscales. The buffers that now used for most industrial activities are only 30 metres – a kilometre would be better .
- To identify and protect significant hikes off the River.
- To limit the number of access points off the River for industrial activity.
- To ensure river access points are access points and not industrial staging areas ; to ensure all equipment is stored out of sight.



Opportunities (cont'd)

- To protect the sites along the River most heavily used by river travelers.
- To ensure views along the highway corridor are protected, especially 5 Finger Rapids and the Dempster Highway.
- To ensure trails leading to, and access points bordering, Tombstone Territorial Park are protected.



Opportunities (cont'd)

- To ensure the Dawson Trail is preserved for winter use by the Yukon Quest and other users.
- To ensure tourism businesses can sustainably, and predictably, offer river cruises and other products on the river.
- To minimize wildlife disruptions as much as possible, particularly during key cycles (ex. Calving)
- To provide planners with tools, such as the Mining-Tourism MOU, to resolve potential conflicts when implementing the plan.



The Mining-Tourism MOU

- Signed October 2008 by Klondike Placer Miners Association, the Yukon Chamber of Mines and the Tourism Industry Association of the Yukon. To:
 - *provide a foundation of mutual recognition, respect, education, open dialogue, and cooperation between the Parties and their respective members in order to foster the development of healthy industries and minimize the potential for conflict between the Parties and, where such conflict occurs, provide a forum in which to endeavor to defuse tensions and resolve differences cooperatively.*





Thank You!

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