

RAPID ECOREGIONAL ASSESSMENT

ALASKA TRAINING COURSE

REA POWER USER TRAINING DAY 2

Alaska State Office IT Lab

February 27, 2015



QUESTIONS?

REVIEW

DISCUSSION

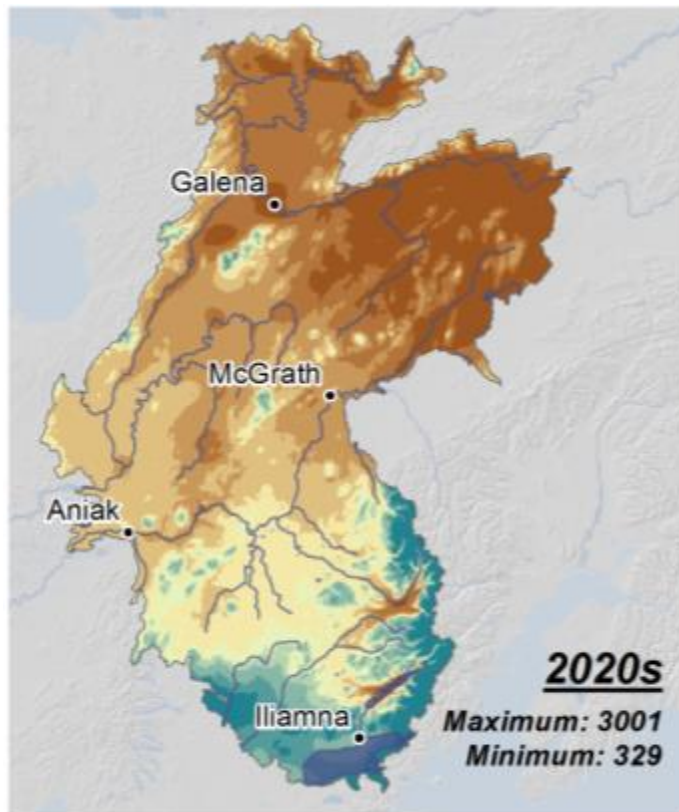


FUTURE (2025 AND 2060) MODELS

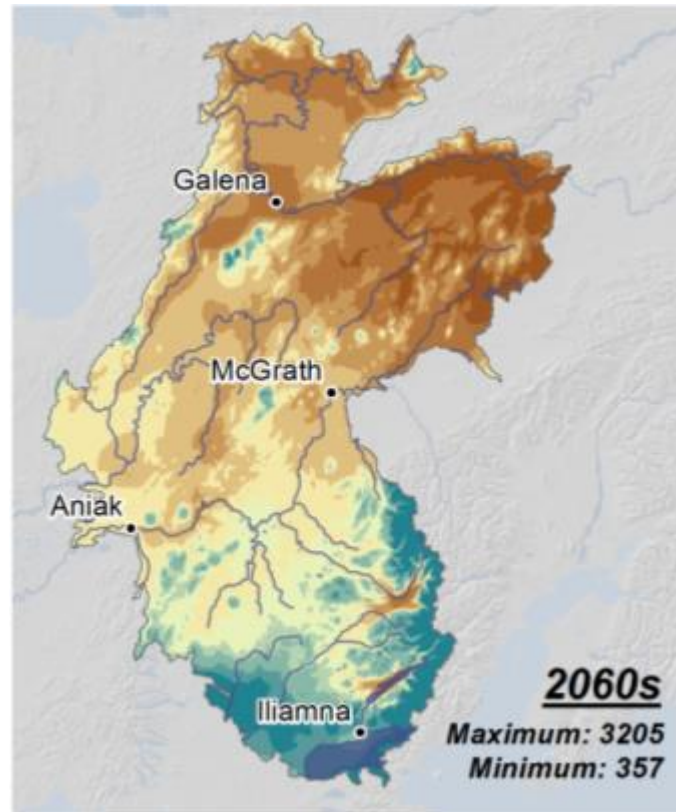


Future Scenarios

Near-Term Future:
2025 or 2020s decade



Long-Term Future:
2060 or 2060s decade



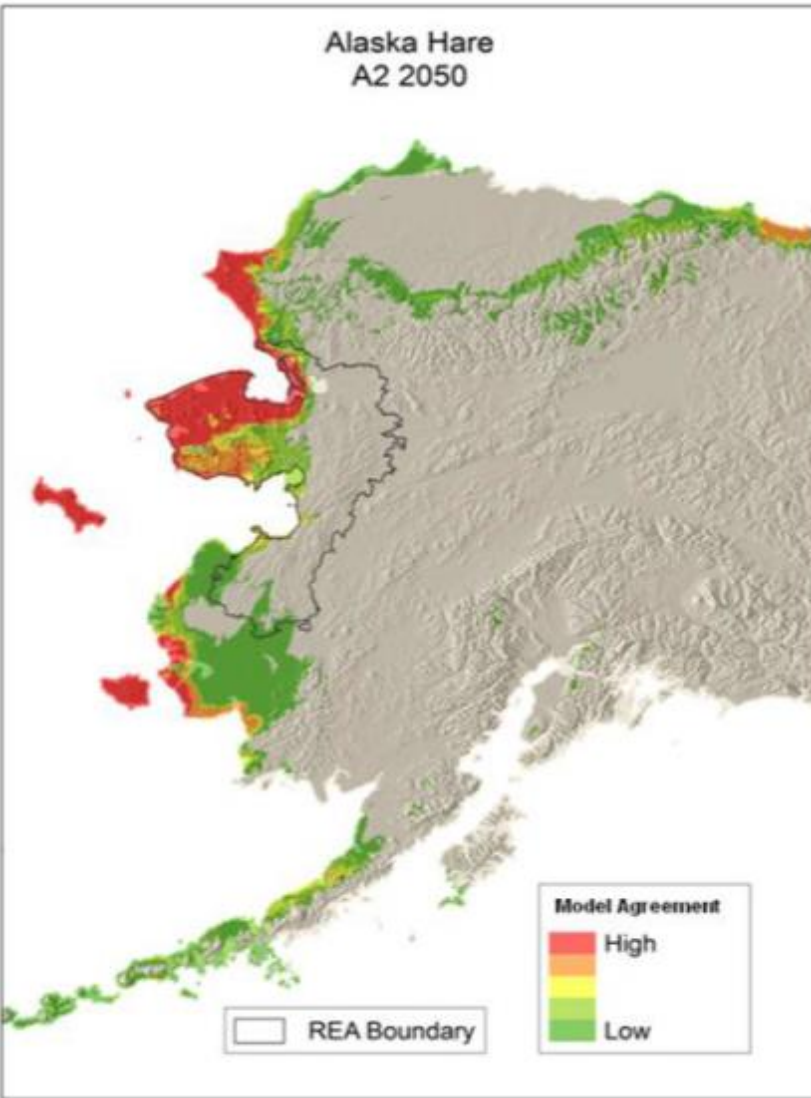
Decadal Average Total Annual Precipitation

General Limitations

- All CA statuses are modeled into the future in some form
- Insect and disease MQ not modeled into future (stochastic nature of outbreaks)
- CE distributions not modeled into future
- All CE x CA comparisons use the current CE distribution
- Model accuracy has not been assessed

Bioclimatic Envelopes in SNK

Alaska Hare
A2 2050



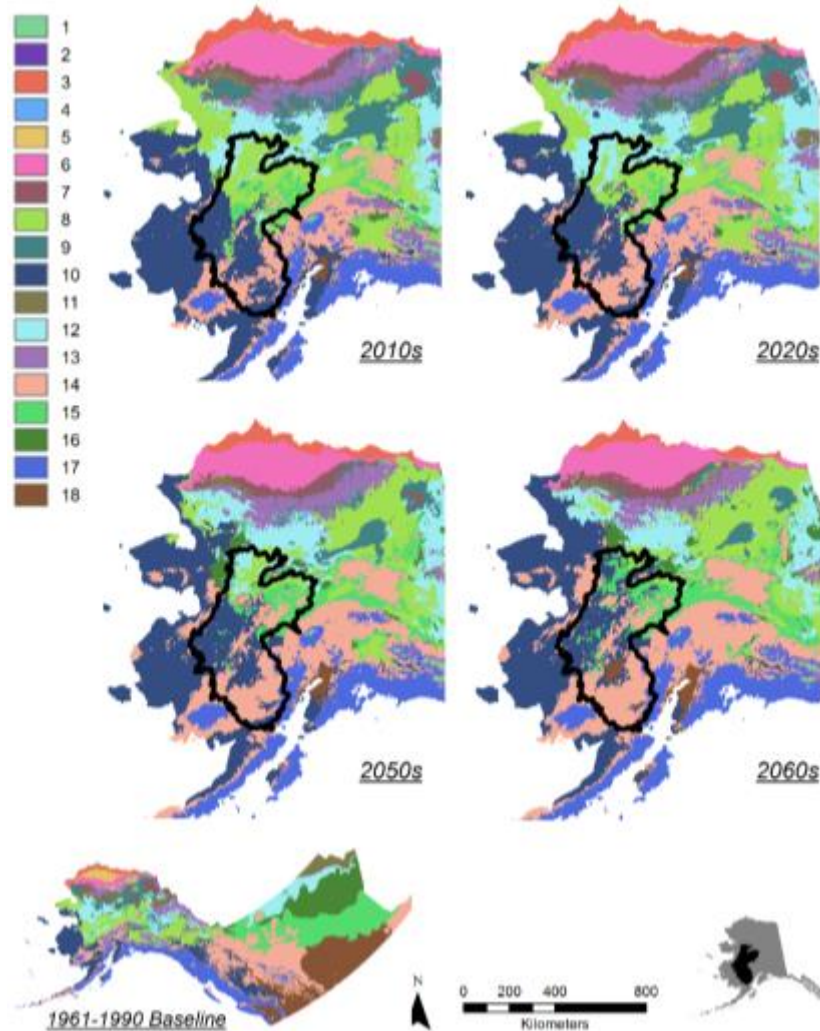
- Areas in red are where 5 out of 5 models agree that suitable habitat will occur in 2050
- Areas in green are supported by only one model

This type of analysis not included in YKL

Predictions for CAs

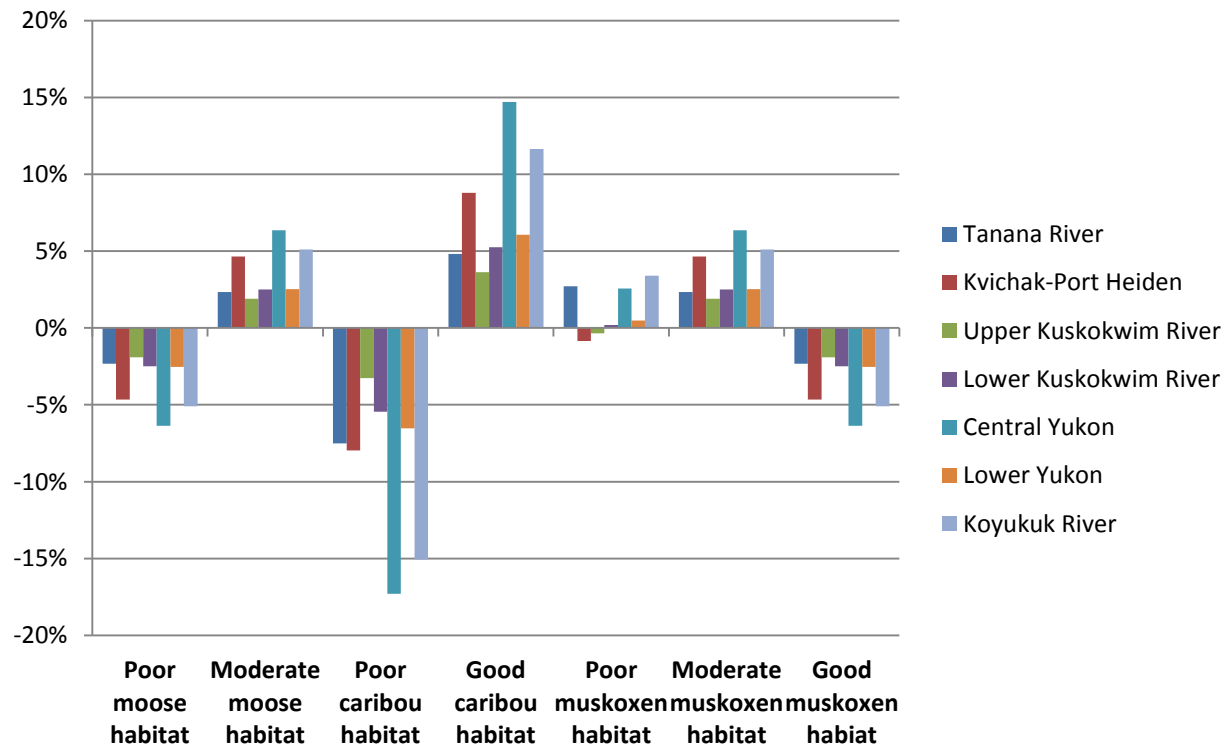
All CA statuses are modeled into the future

Projected Climate Shifts: A2 Scenario



Predictions for CEs

CE distributions are not modeled into the future for the YKL REA



Instead CEs have been assessed relative to change in climate mathematically, not spatially



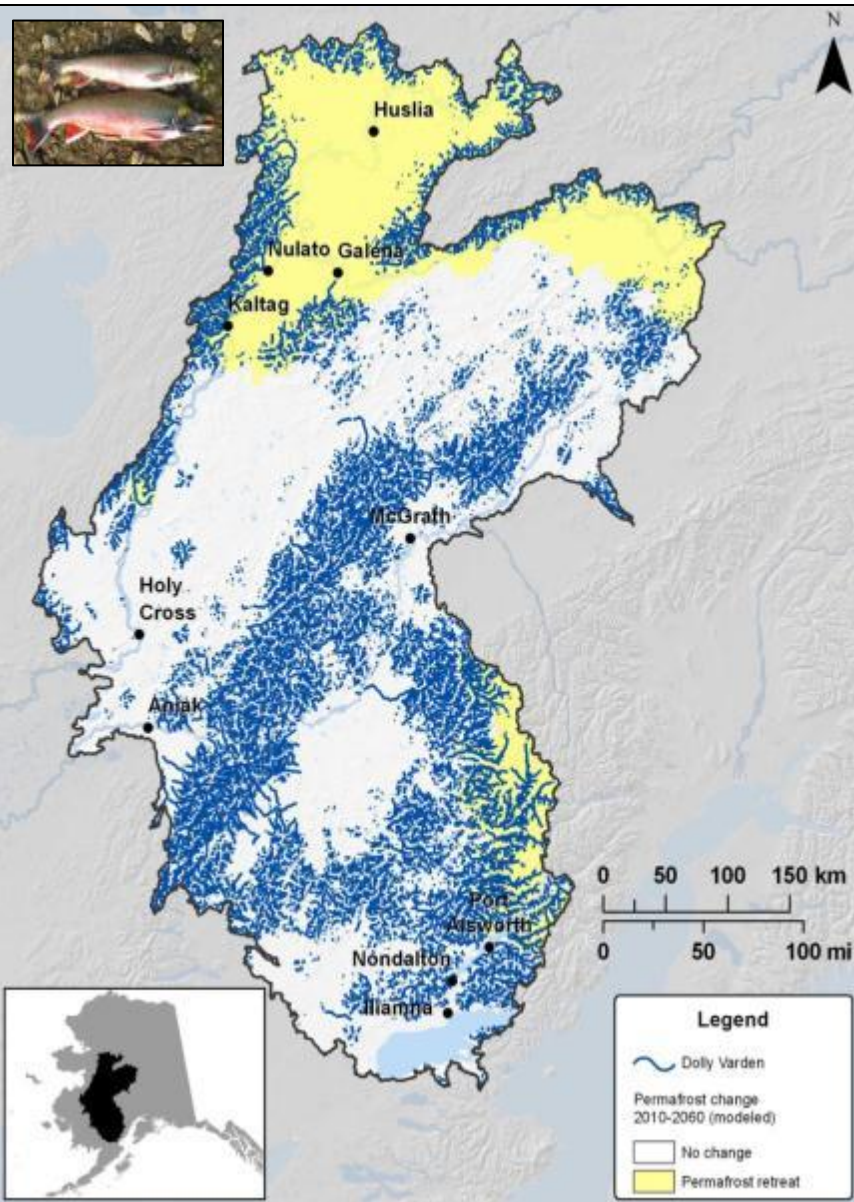
Predictions for CEs

In addition to the spatial comparisons provided for some CEs:

- Current CE distribution is compared to future status or amount of change in most relevant CA variables
- All CE distributions are compared to the LCM to determine the amount of potential human impact on habitat



Dolly Varden and Permafrost



Potential Positive Impacts

- Increased nutrient input
 - May improve the quality of feeding habitat
- Increased groundwater flows in winter

Potential Negative Impacts

- Lake drainage, loss of habitat
- Erosion
- Increased turbidity

Growing Season Length and CEs

Terrestrial Fine-Filter CE		Change in Length of Growing Season			
		< 0 Days	0 - 6 Days	7 - 14 Days	> 14 Days
Trumpeter Swan	Near Term	33%	67%	--	--
	Long Term	--	--	100%	0%
American Beaver	Near Term	45%	55%	--	--
	Long Term	--	--	80%	20%
Olive-sided Flycatcher	Near Term	47%	53%	--	--
	Long Term	--	--	88%	12%
Peregrine Falcon	Near Term	31%	69%	--	--
	Long Term	--	--	85%	15%
Grey Wolf	Near Term	39%	61%	--	--
	Long Term	--	--	86%	14%
Caribou (Calving) Range	Near Term	78%	22%	--	--
	Long Term	--	--	58%	42%
Moose	Near Term	48%	52%	--	--
	Long Term	--	--	79%	21%

- Near term (2010 – 2025) = growing season is not expected to see much change
- Long-term (2010 – 2060) = growing season is expected to increase by a week for every habitat within the distribution of the CEs in the REA



Growing Season Length and CEs

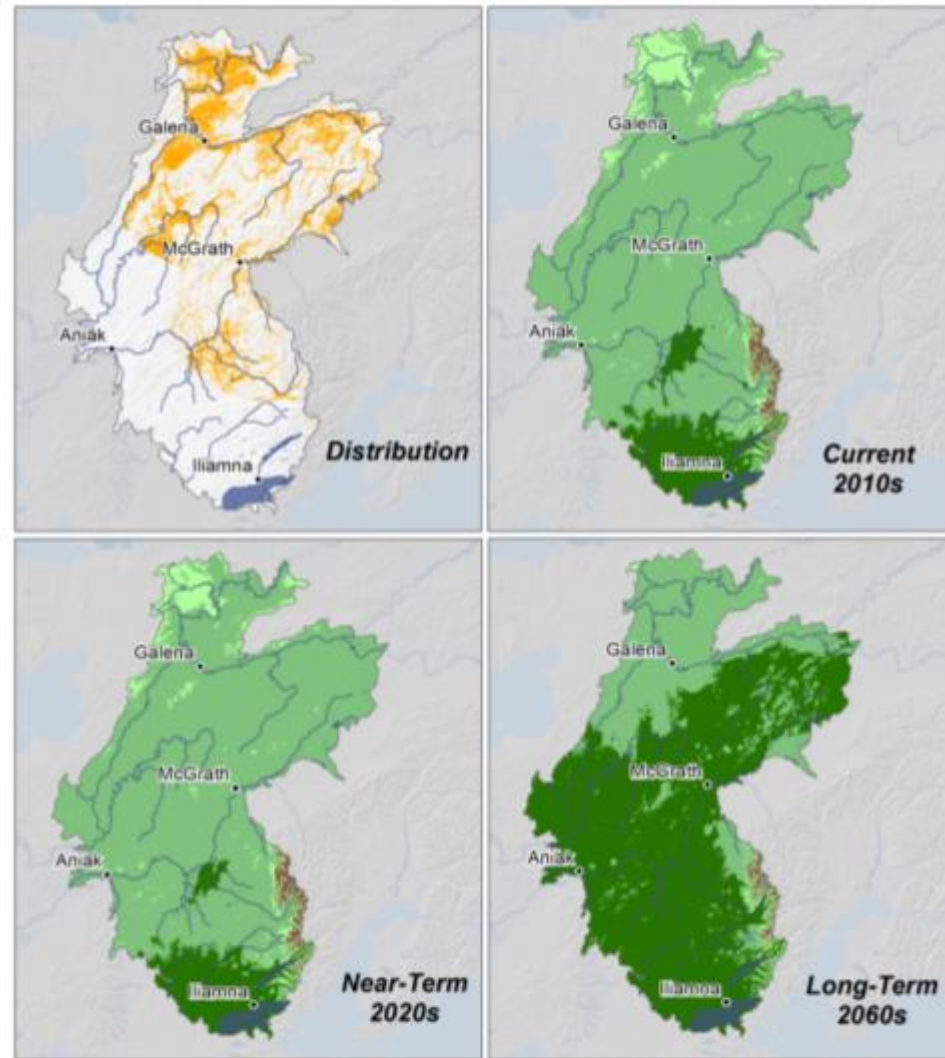
Anticipated Change	Affected CE	Affected species/functional group
Changes in timing of emergence and abundance of biting insects, forest pests, parasites, and disease vectors	caribou, moose, muskox	ungulates
Changes in timing and emergence of insect prey	olive-sided flycatcher	insectivorous predators
Changes in forage quantity and quality	moose, caribou, muskox, trumpeter swan	herbivores, waterfowl
Advanced onset of green-up	moose, caribou	herbivores
Changes in breeding season duration	caribou, olive-sided flycatcher, trumpeter swan	ungulates, passerines, waterfowl

Growing Season Length and CEs

Trumpeter Swan



- Studies show that trumpeter swans require a minimum of 140 ice-free days to breed and successfully fledge young
- Majority of the YKL meets this minimum threshold (current)
- However, 140 days is a minimum; > 180 days is optimal
- Take home = changes in growing season length could benefit swans by promoting fledging success



Growing Season Length

- Less than 140 days - Poor Habitat
- 140 - 160 days - Moderate Habitat
- 160 - 180 days - Good Habitat
- Greater than 180 days - Very Good Habitat

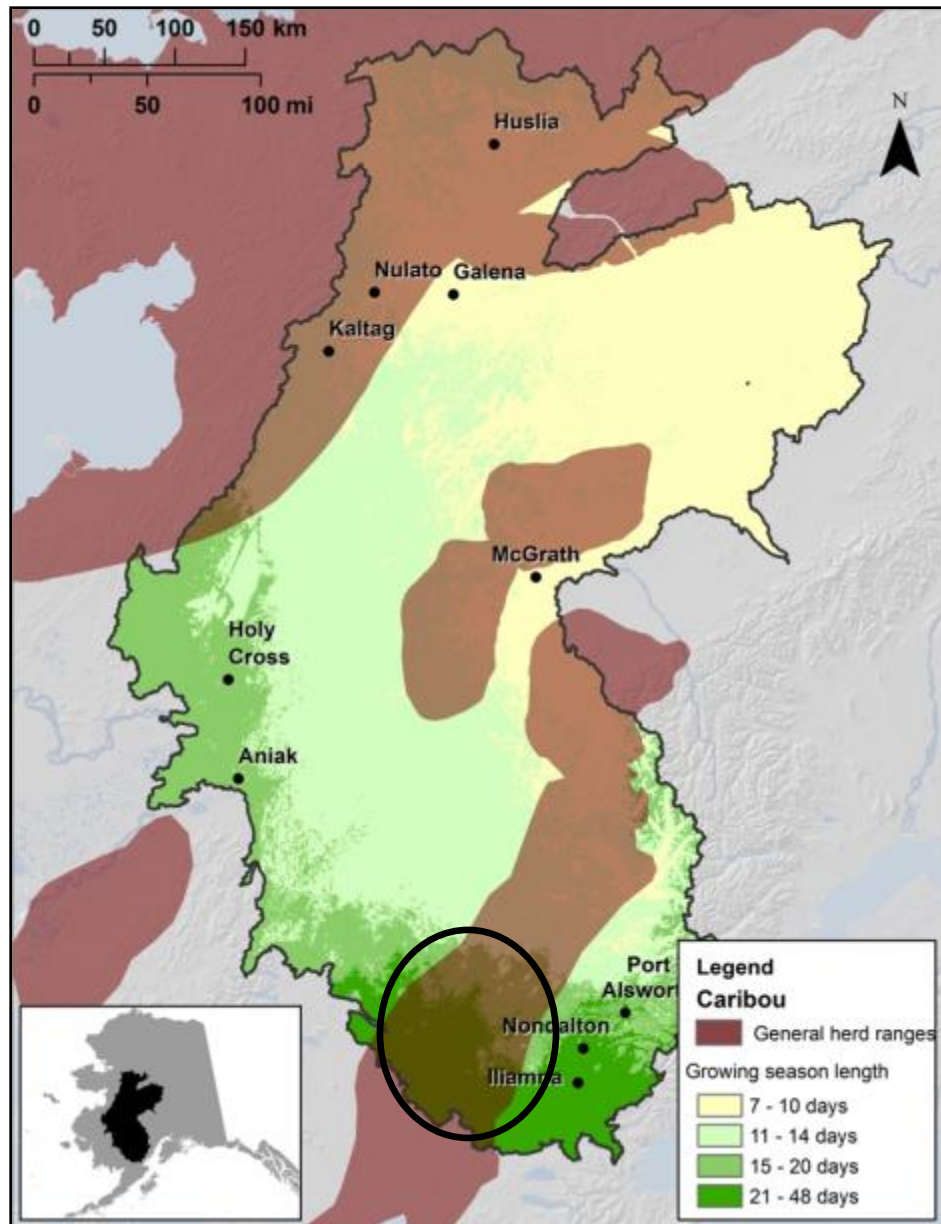
Trumpeter Swan Distribution

0 125 250 500
Kilometers



Growing Season Length and CEs

Modeled change in growing (frost-free) season length from 2010 to 2060 and current caribou ranges in the YKL study area



Temperature and CEs

Terrestrial Fine-Filter CE		Mean July Temperature Difference		
		< 0°C	0 - 0.999°C	≥ 1°C
Trumpeter Swan	Near Term	32%	68%	--
	Long Term	--	0%	100%
American Beaver	Near Term	52%	48%	--
	Long Term	--	1%	99%
Olive-sided Flycatcher	Near Term	46%	54%	--
	Long Term	--	1%	99%
Peregrine Falcon	Near Term	46%	54%	--
	Long Term	--	0%	100%
Grey Wolf	Near Term	46%	54%	--
	Long Term	--	0%	100%
Caribou (Calving)	Near Term	90%	10%	--
	Long Term	--	3%	97%
Moose	Near Term	55%	45%	--
	Long Term	--	1%	99%

- Near-term (2010 – 2025) = some habitats show slight decreases in July temps. (may be the result of model insensitivity), while others show slight increases
- Long-term (2010 – 2060)= substantial warming is expected, with 97-100% of habitats utilized by CEs expected to see summer temperatures increase by ≥ 1°C warmer than current averages

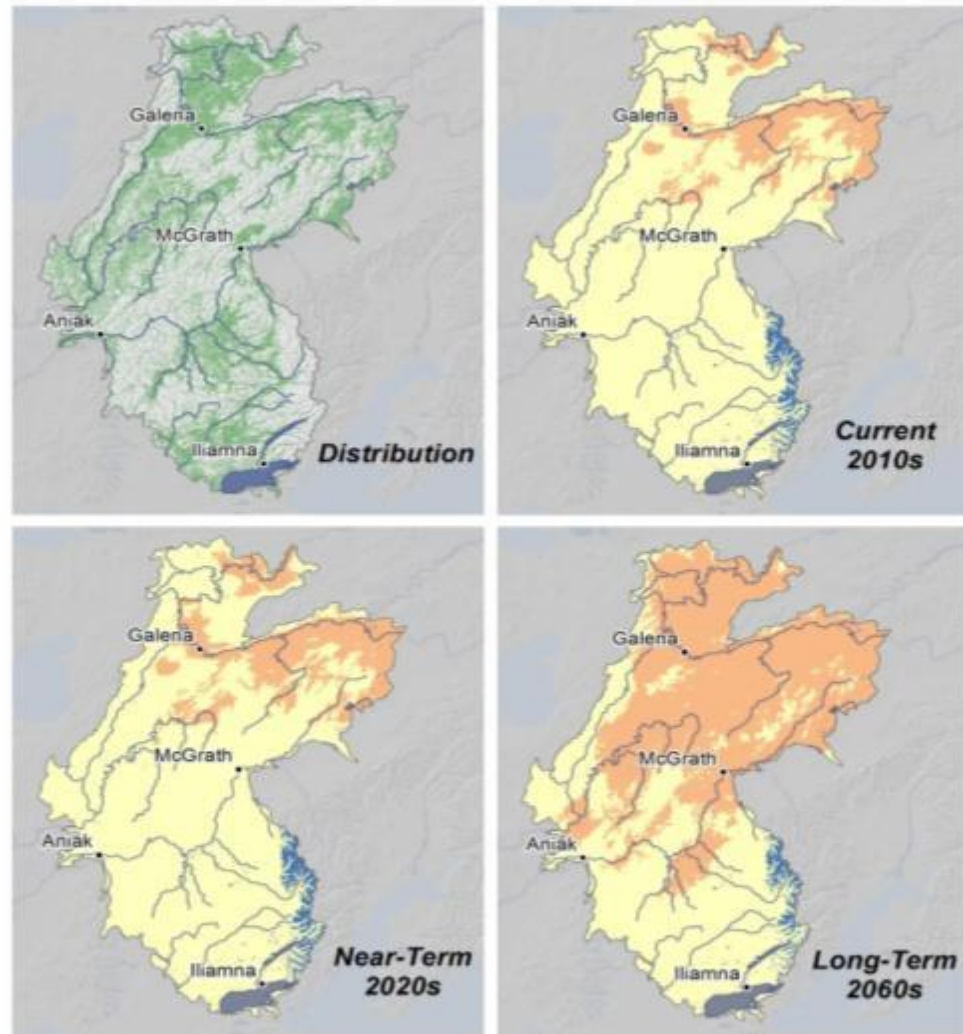


Temperature and CEs

American Beaver



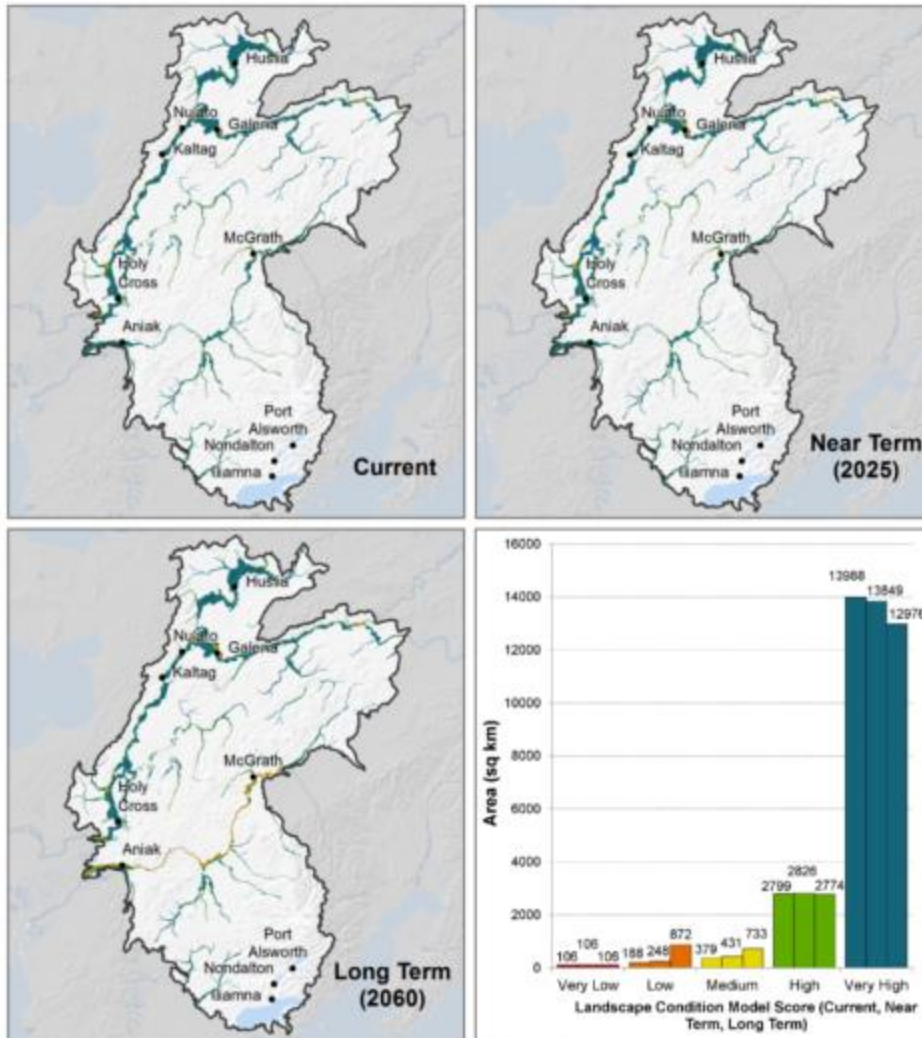
- Beaver densities are temperature dependent, with greater densities above > 14.8°C (optimal temperature threshold)
- Increasing ambient temperatures in the YKL will could result in higher beaver densities
- This effect will be most pronounced in the northern half of the REA, from McGrath northward



Jason Samson and Murray Humphries, Personal communication, November 25, 2013.
 Jensen, S.J., Samson, J., McGrath, B.J., and Humphries, M.M. (2008) Variation in abundance across a species' range predicts climate change responses in the range interior will exceed those at the edge: a case study with North American Beaver. *Global Change Biology*, 15: 508-522.



Landscape Condition and CEs



Floodplains Current, Near Term Future, and Long Term Future Status
(Based on Landscape Condition Model Score)

Very Low
Low
Medium
High
Very High

0 50 100 200 300 400 km
0 25 50 100 150 200 250 mi



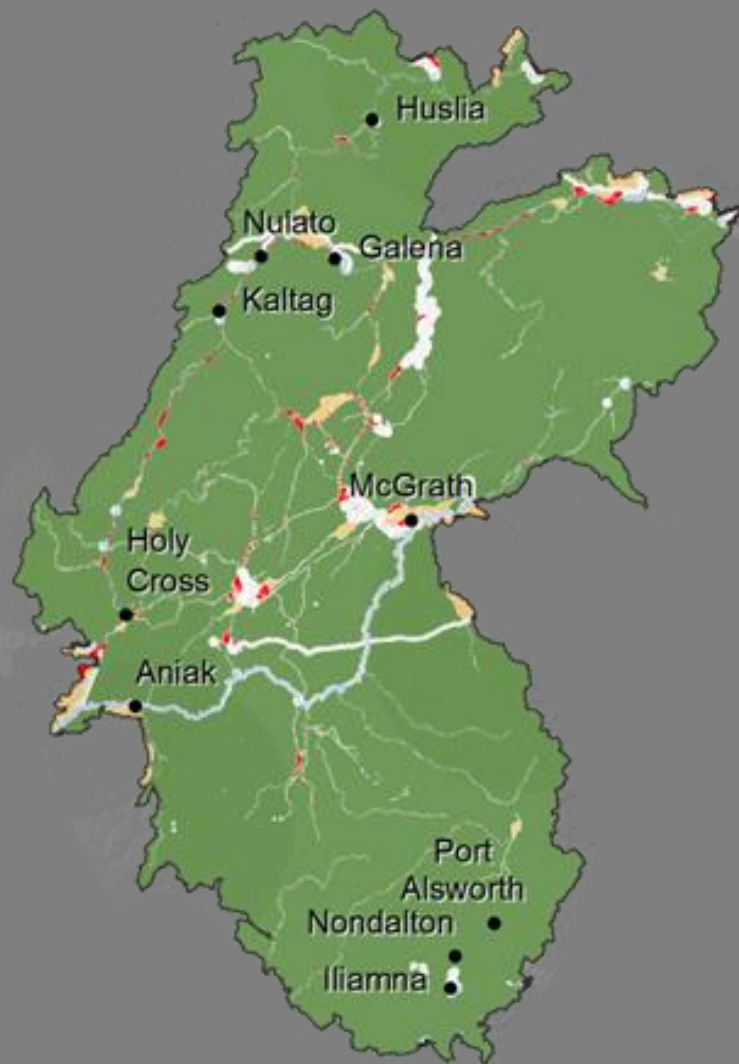
- Human disturbance on floodplains currently minimal (0.04%)
- Most villages located on floodplains
- Slight future reduction in floodplain condition caused if Kuskokwim Road is constructed

Landscape Condition and CEs

The anthropogenically disturbed area of the floodplain CE is currently 1.6% and may increase to 5.6 % by 2060.

- Kuskokwim Road south of McGrath
- Pebble Mine, an open-pit copper mine site
- Donlin Creek Mine, an open-pit gold mine site





INTEGRATED PRODUCTS

Integrated Analyses

To effectively manage resources the BLM needs **information at multiple scales**:

- Resource extent
- Condition and trends
- Stressors
- Location and nature of authorized uses, disturbances, and projects



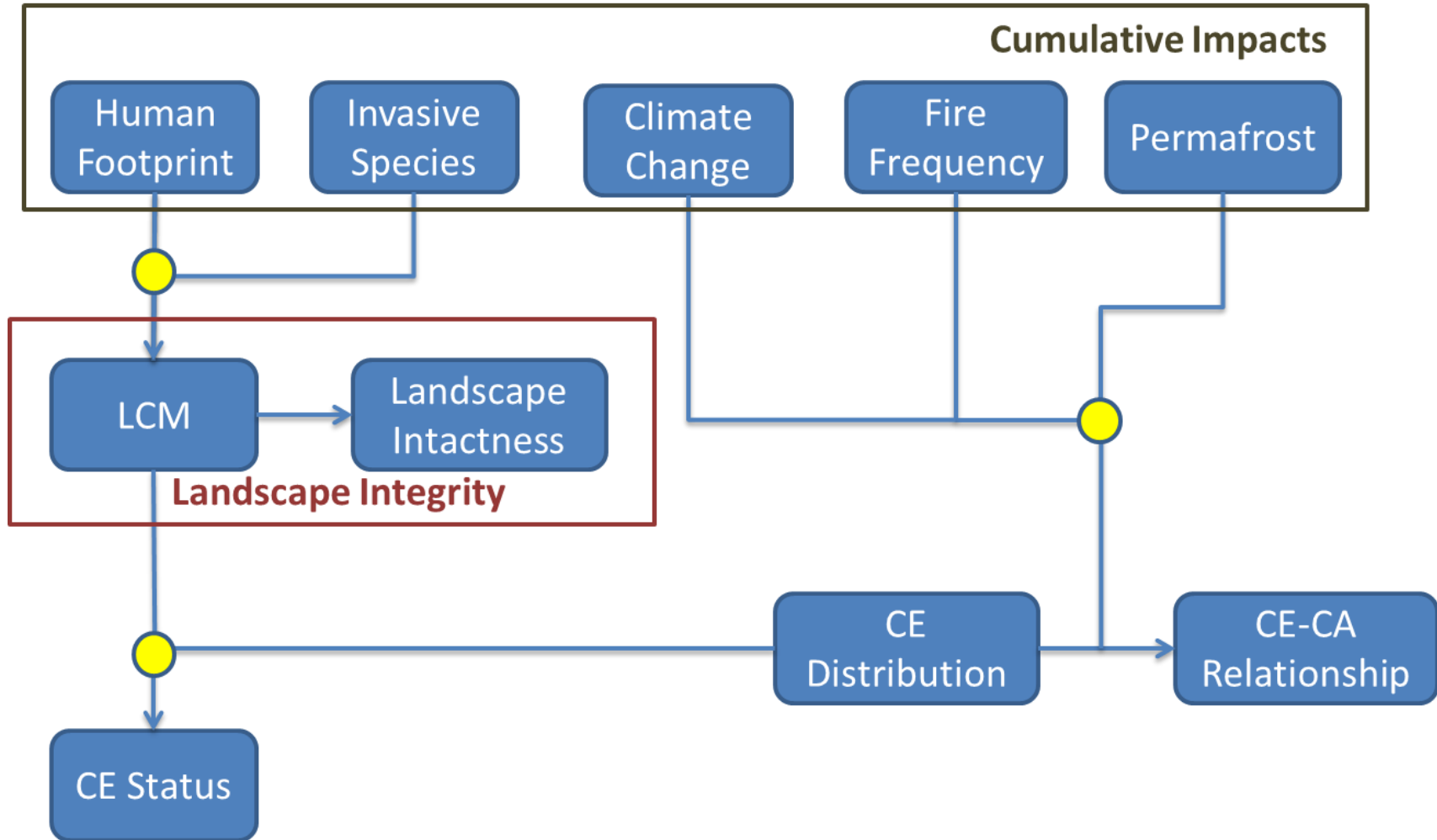
Integrated Analyses

Intactness is a quantifiable estimate of naturalness measured on a gradient of anthropogenic influence and based on available spatial data.

- **Landscape Condition:** How do human activities impact the landscape?
- **Landscape Integrity:** What is the current and future fragmentation of the landscape?
- **Cumulative Impacts:** Where will the most change occur?



Integrated Products

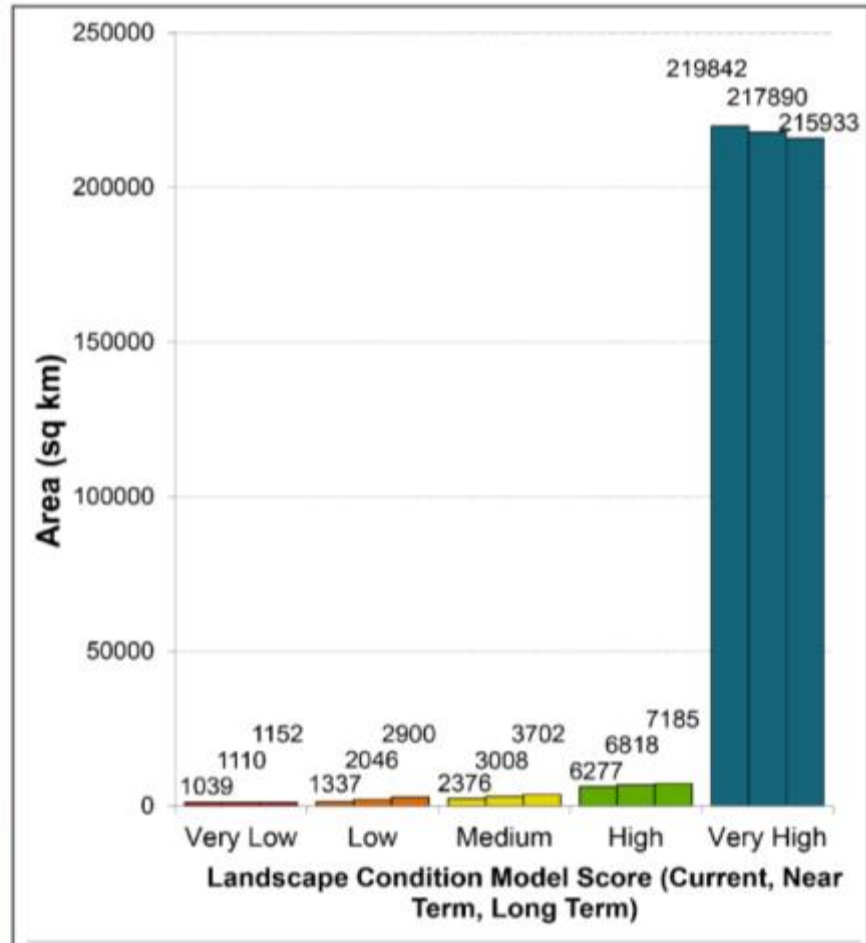
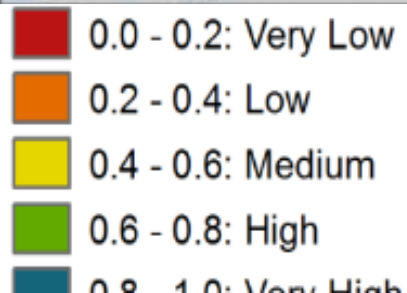
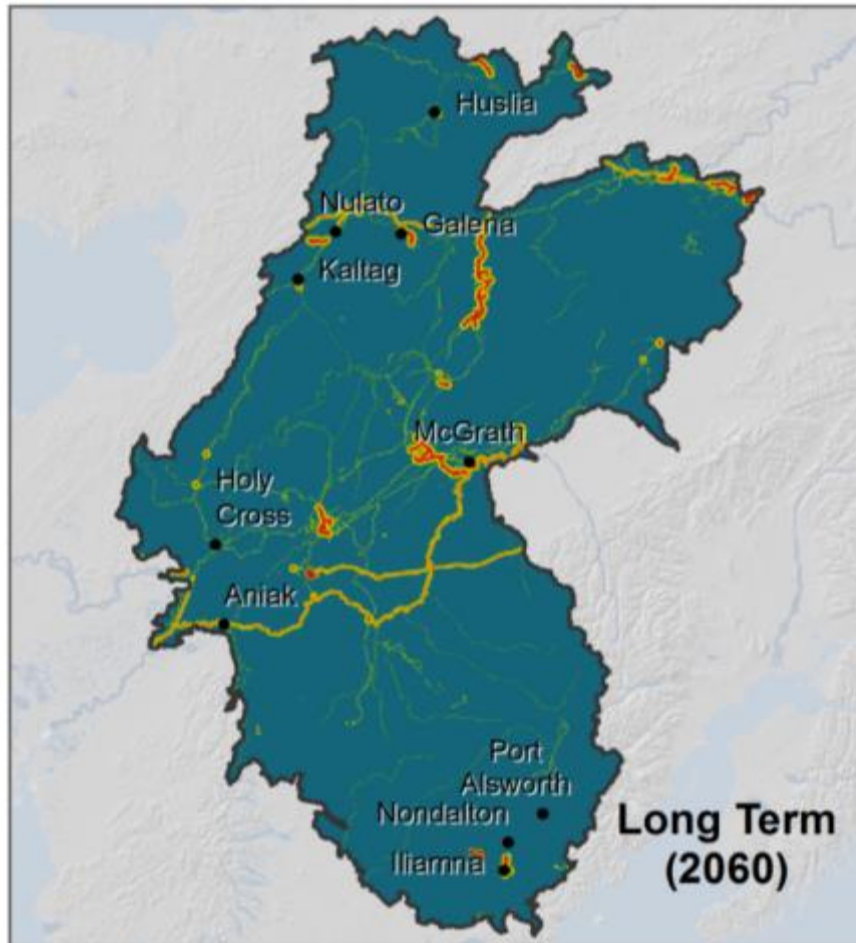


Landscape Condition Model

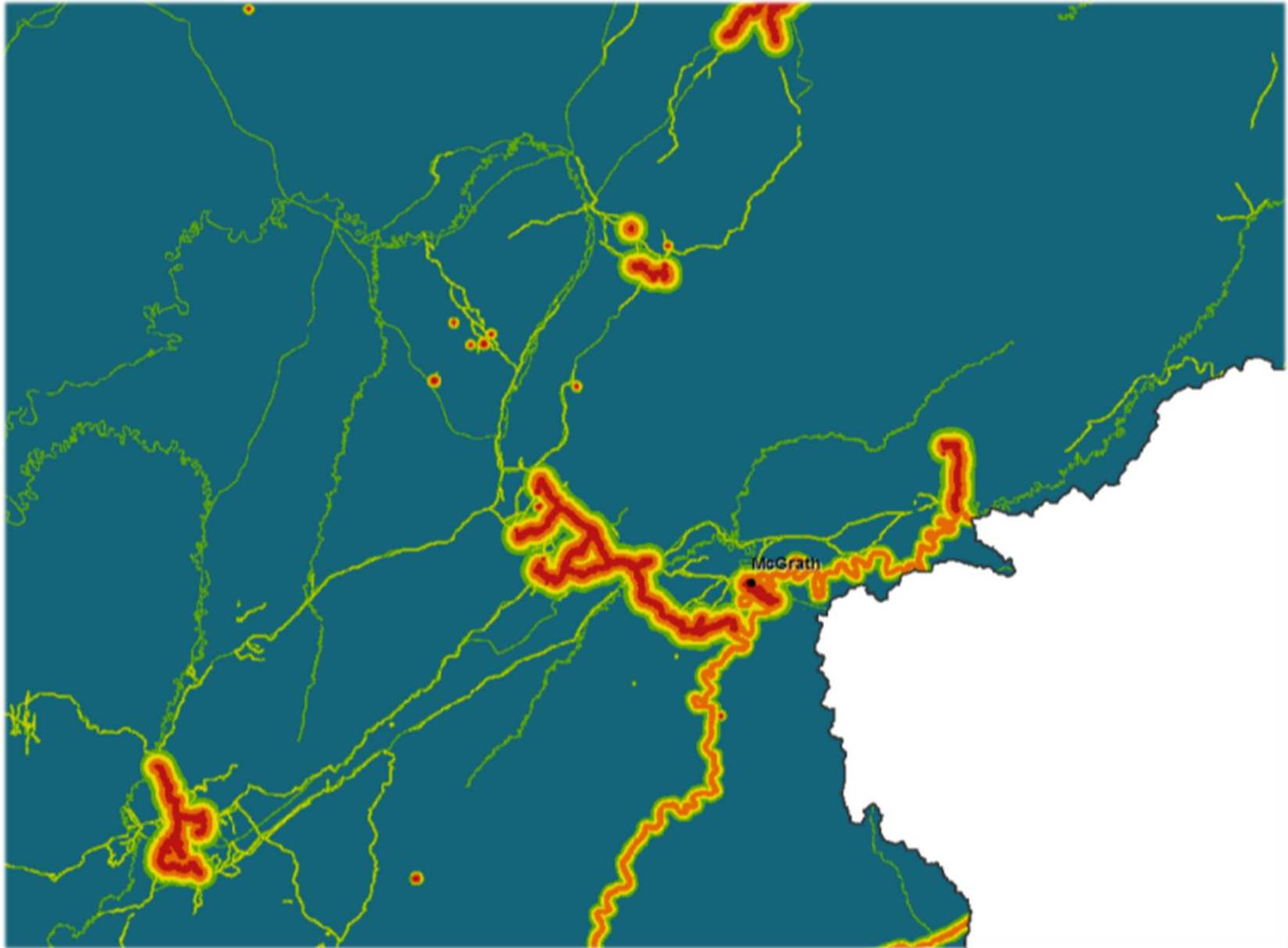
Theme	Data Source	Site Impact	Relative Stress	Decay Distance
Transportation				
Highways	AK DNR/TIGER	0.05	Very High	5000*
Secondary Roads	AK DNR/TIGER	0.2	High	2500*
Local and connecting roads	AK DNR/TIGER	0.5	Medium	500*
Historic 4x4 trails	AK DNR	0.5	Medium	250
Trails (snow machine, sled dog)	AK DNR	0.7	Low	500*
Urban and Industrial Development				
High Density Development	NLCD 2013	0.05	Very High	2000
Medium Density Development	NLCD 2013	0.3	Medium	1000
Low Density Development	NLCD 2013	0.6	Medium	1000
Powerline/Transmission lines	USGS/AK DNR	0.5	Medium	500
Oil /gas Wells	BLM/AK DNR	0.5	Medium	500
Historic Mines	ARDF/BLM/State	0.5	Medium	500
Current Mines	ARDF/BLM/State	0.05	Very High	1500*
Managed and Modified Land Cover				
Cultivated Lands	NLCD 2013	0.3	High	200
Introduced Vegetation	NLCD 2013/AKEPIC	0.5	Medium	200



Landscape Condition Model



Landscape Condition Model



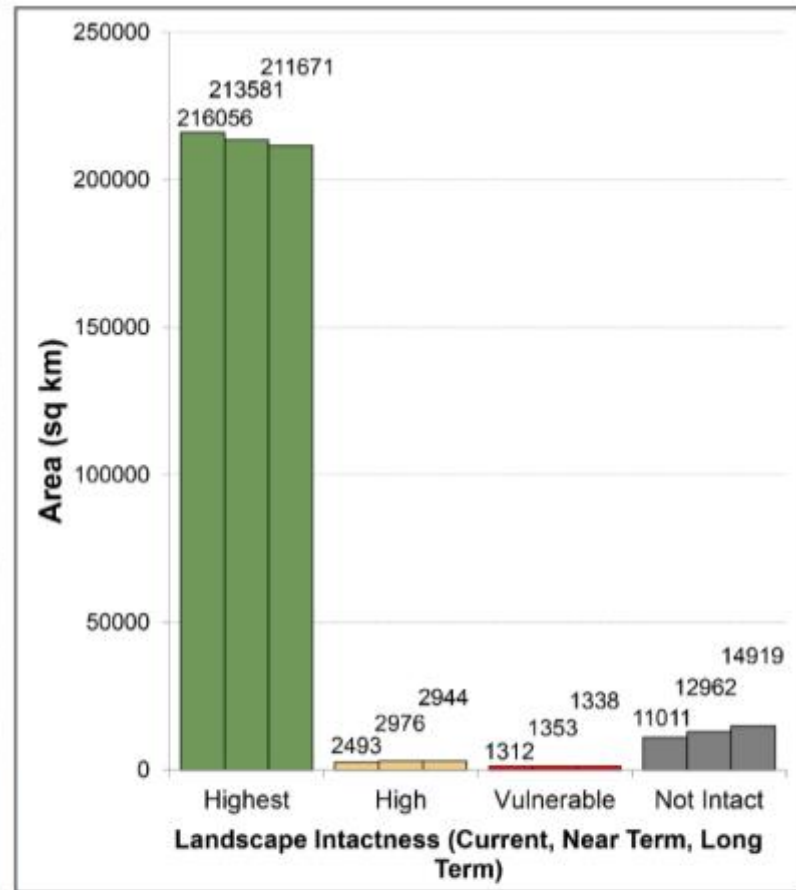
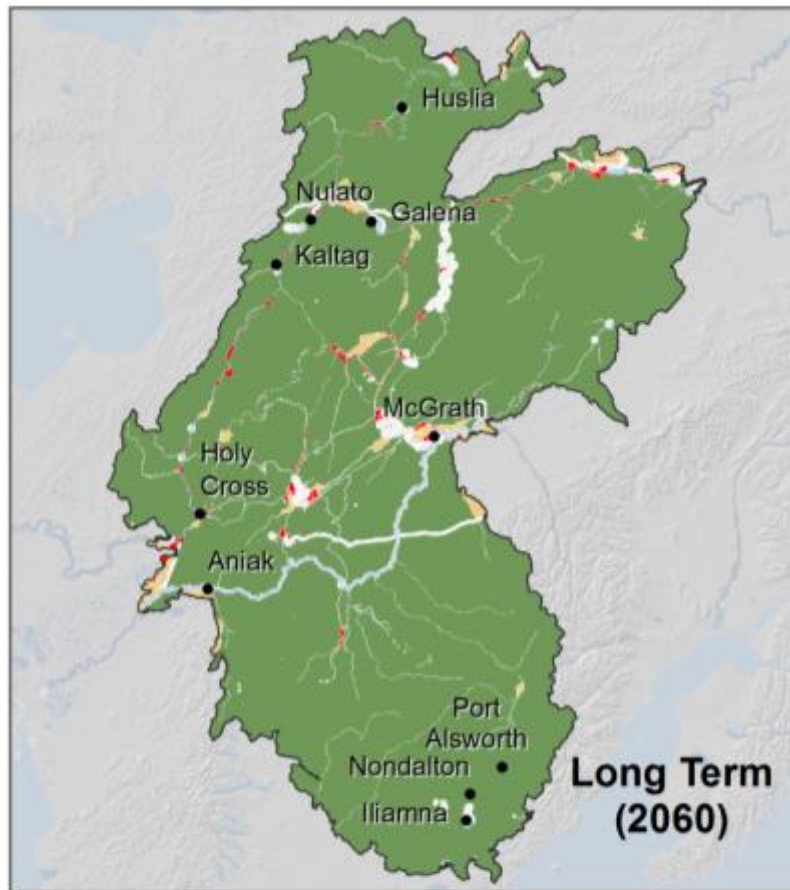
Landscape Integrity

Current (km ²)	Near-Term (km ²)	Long-Term (km ²)	Designation	Size
216,056 (93%)	213,581 (92%)	211,671 (91%)	Highest Landscape Integrity	≥ 50,000 acres
2,493 (1%)	2,976 (1%)	2,944 (1%)	High Landscape Integrity	< 50,000 acres, ≥ 10,000 acres
1,312 (1%)	1,353 (1%)	1,363 (1%)	Vulnerable to change	< 10,000 acres
11,011 (5%)	12,962 (6%)	14,894 (7%)	Low Landscape Integrity	Variable

Large Intact Blocks (LIBs) ≥ 50,000 continuous acres with LCM value > 0.8 classified as highest integrity



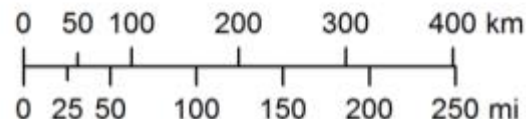
Landscape Integrity



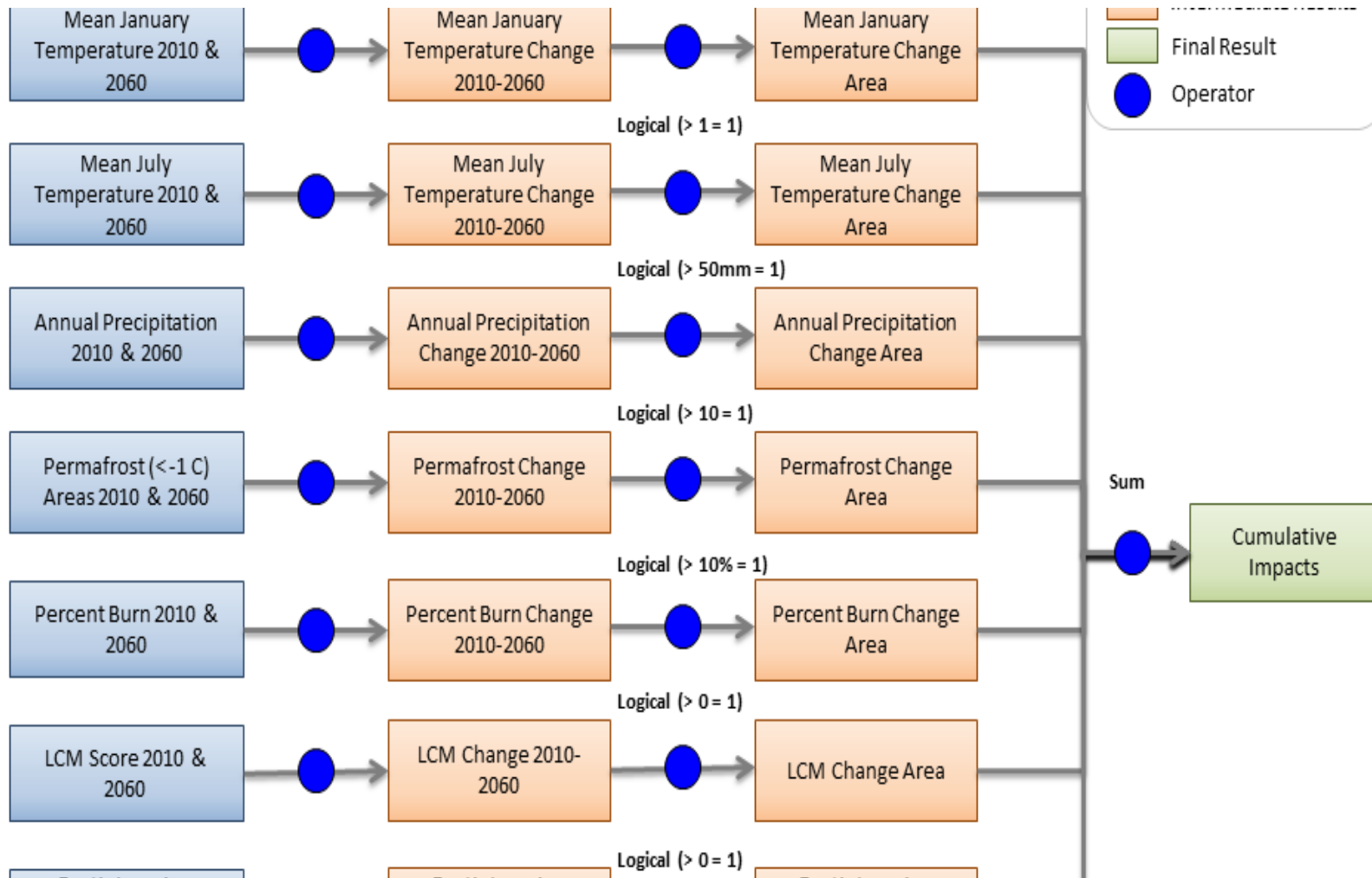
Current, Near Term Future, and Long Term Future Landscape Intactness

(Areas of no color indicate landscapes that are not considered intact currently or in future projections)

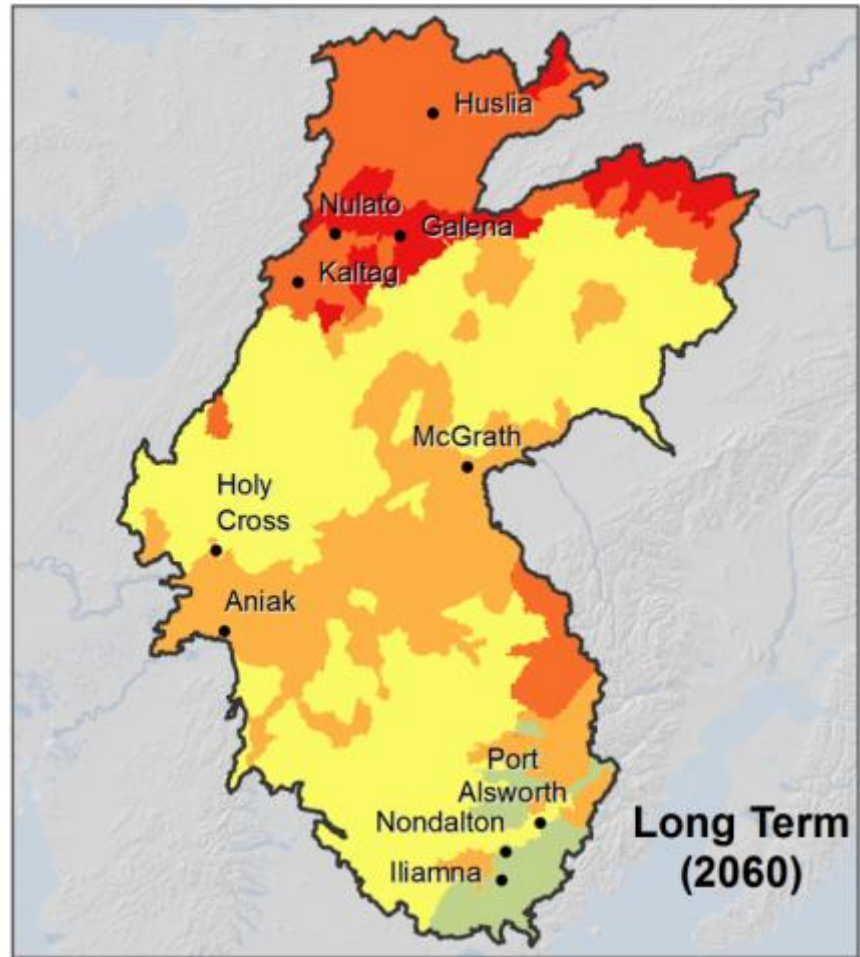
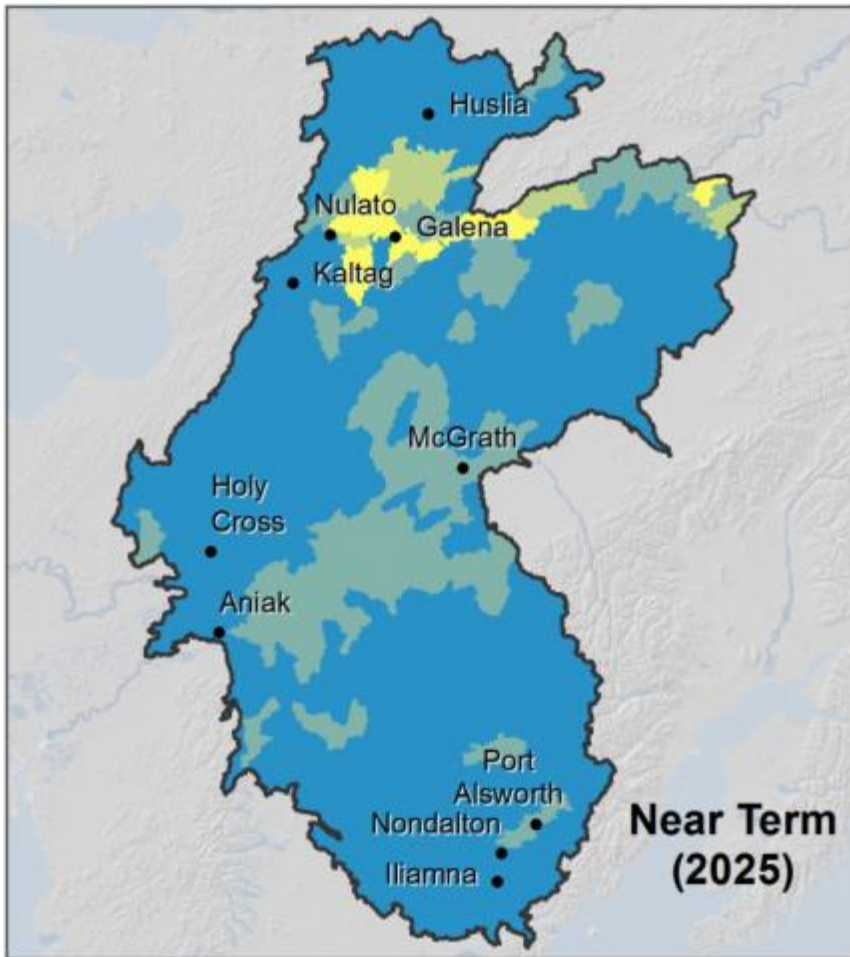
- Highest
- High
- Vulnerable



Cumulative Impacts



Cumulative Impacts

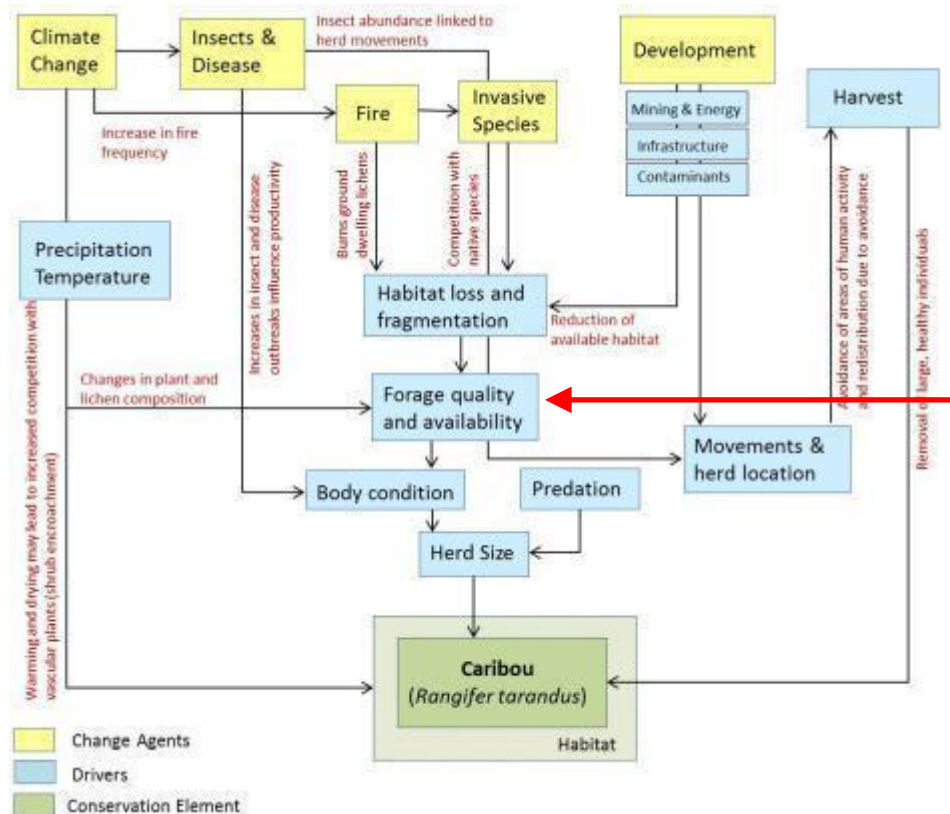


EXAMPLE MQ: CARIBOU WINTER FORAGE



MQ Background

What is the current distribution of primary winter forage (lichen) for caribou in the region, and how is that expected to change?

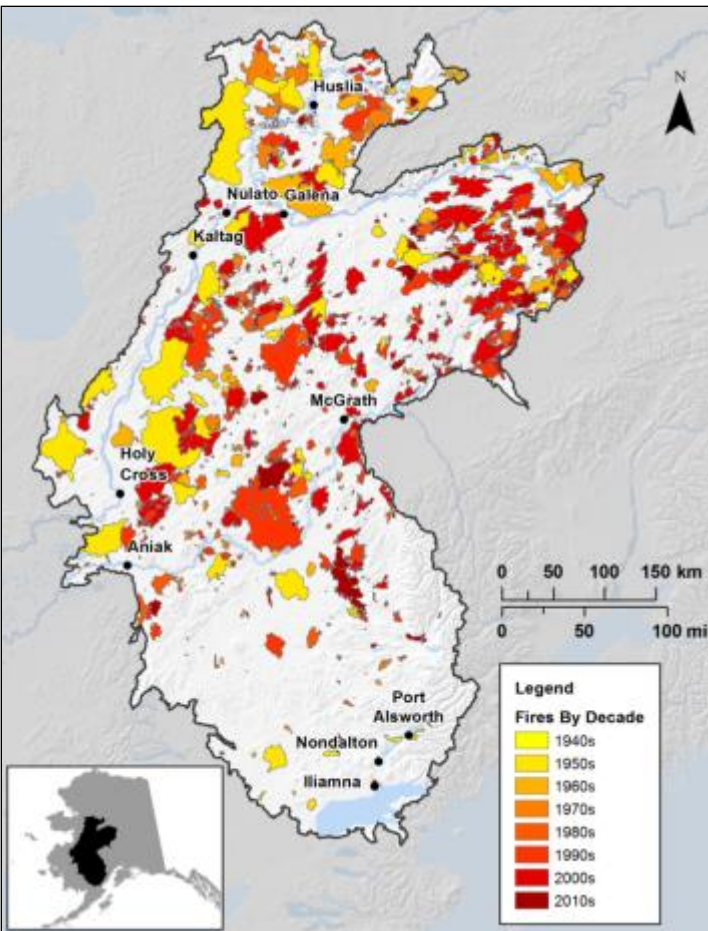


Forage quality and availability also identified in conceptual model

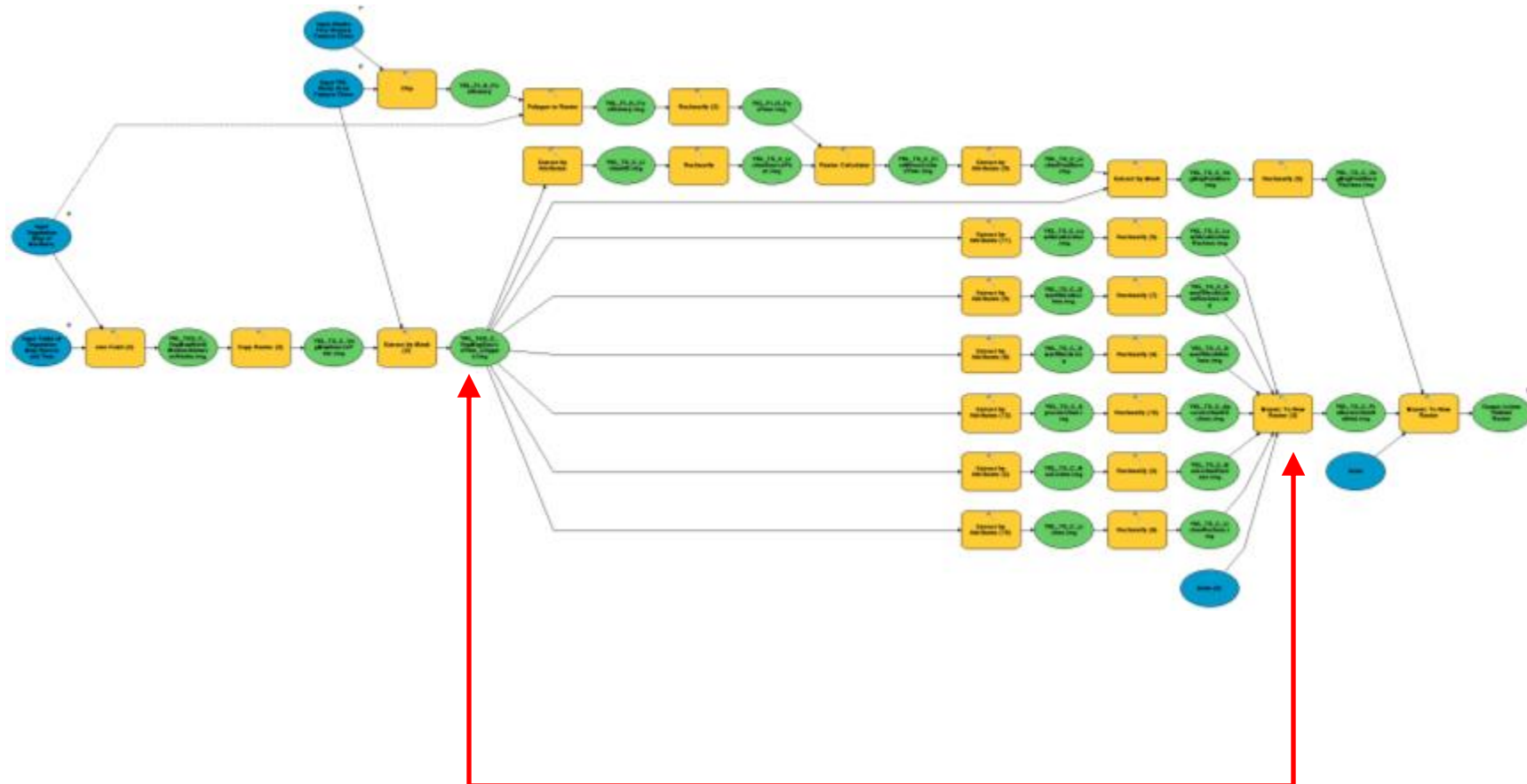
Methods

Lichen vegetation classes	Forage Quality
White spruce or black spruce/lichen (Woodland-Open)	Good
Low shrub/lichen	Good
Dwarf shrub	Moderate
Dwarf shrub/lichen	Good
Lichen	Good

Removal of areas burned within the past 58 years from consideration as good or moderate quality lichen habitat



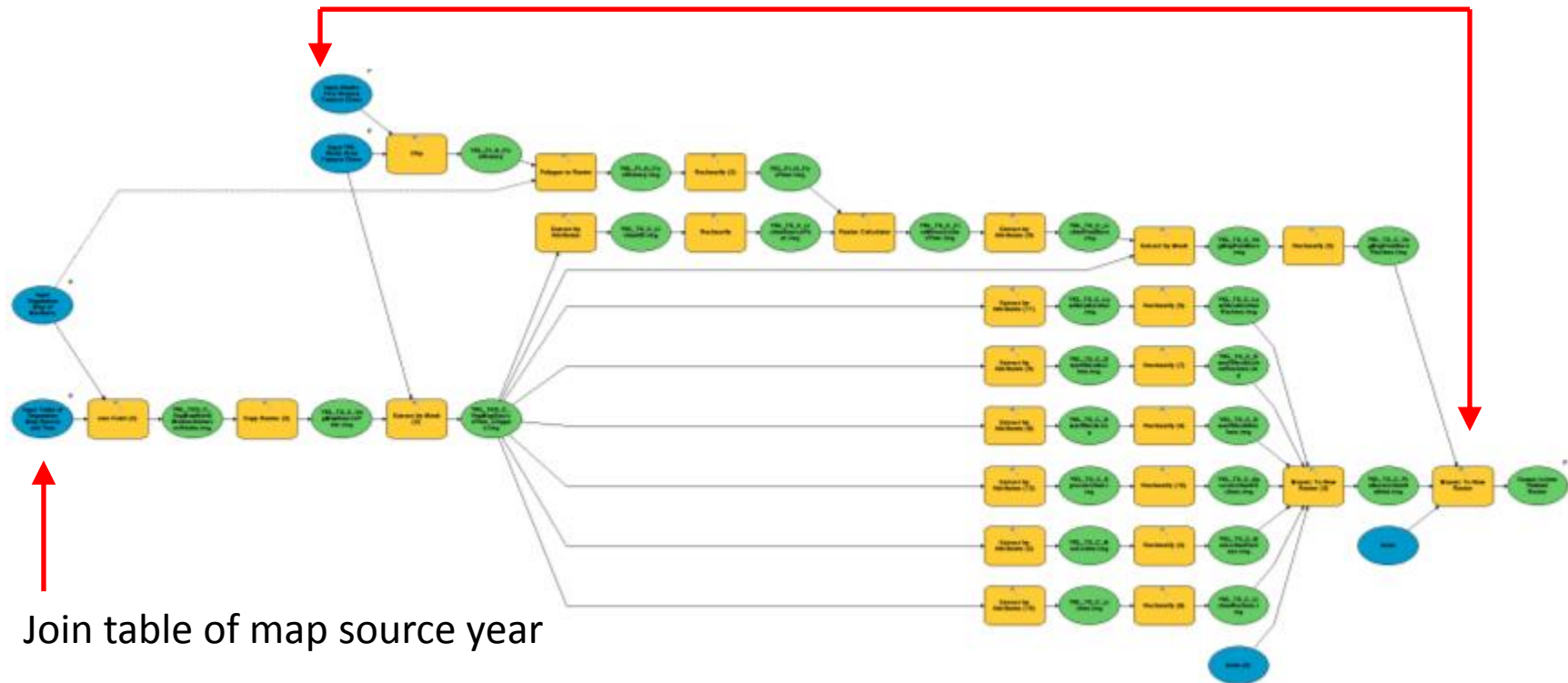
Model



Extraction of good and moderate quality vegetation classes for lichen habitat

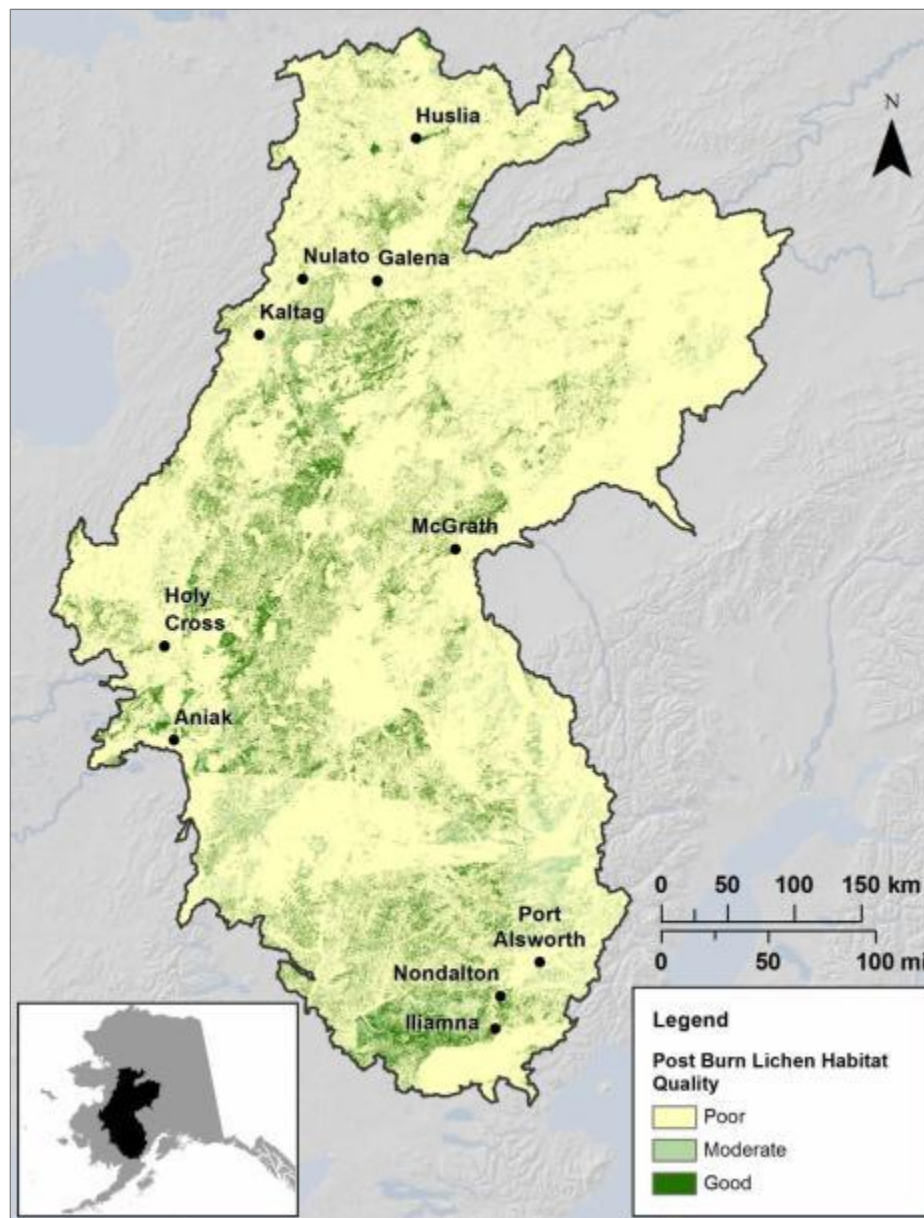
Removal of Burned Areas

Creation of burned area raster to erase areas of good or moderate habitat burned after vegetation mapping completed



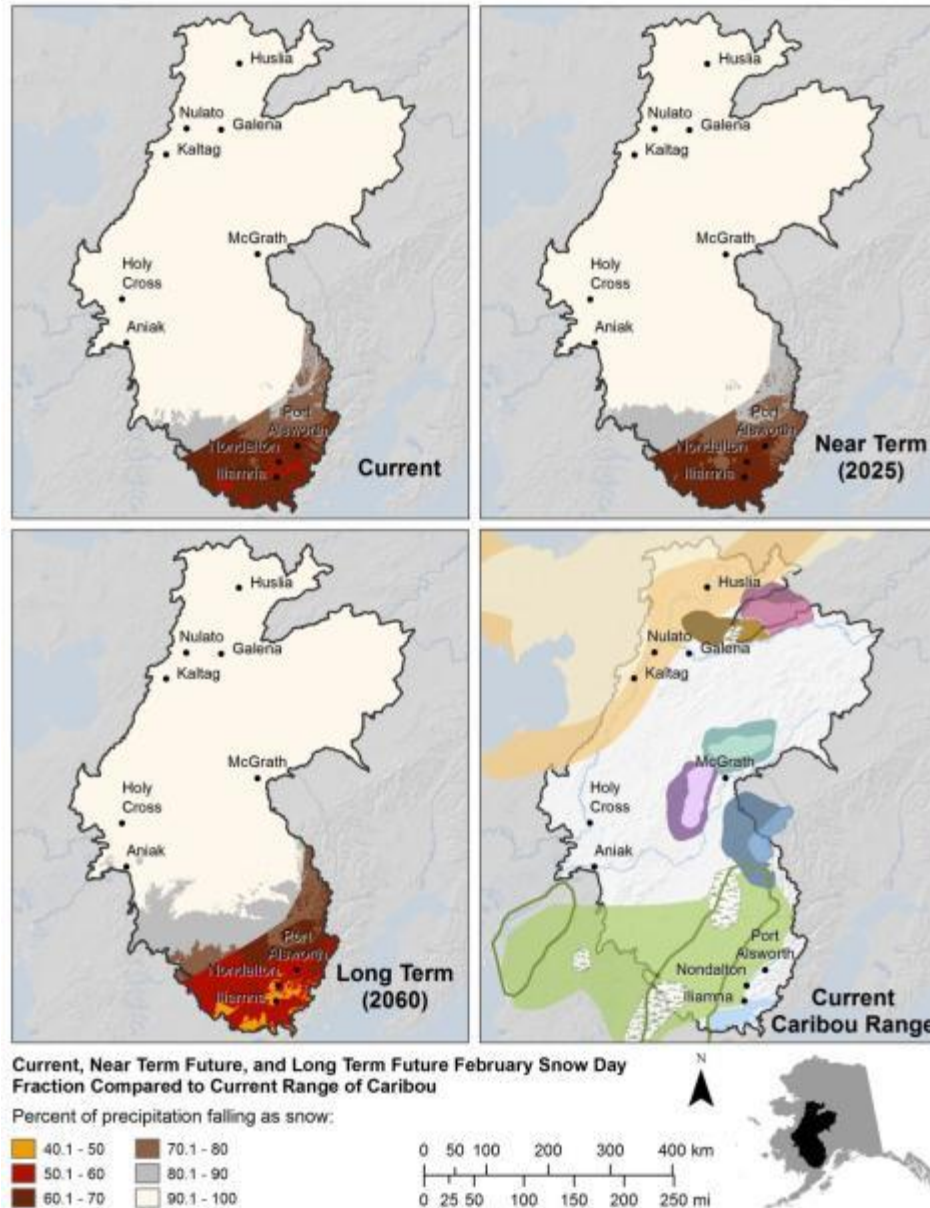
Results

- Good lichen habitat covers 12% of study area
- Moderate lichen habitat (dwarf shrub) covers 4% of study area
- Areas burned after vegetation mapping are poor lichen habitat



Implications of Climate Change

- No snow depth layer or surrogate
- Increase in rain on snow events may make lichen relatively inaccessible in southern portion of study area by 2060





APPROPRIATE & INAPPROPRIATE DATA USE



Metadata

ArcGIS Internal Metadata

YKL_TES_C_LowShrub.img

Raster Dataset

Thumbnail Not Available

Tags

vegetation, biota, Alaska

Summary

This dataset was developed for the BLM Rapid Ecoregional Assessment for the Yukon River Lowlands - Kuskokwim Mountains - Lime Hills and represents the current (2013) distribution for the Terrestrial Coarse-Filter Conservation Element low shrub.

Description

Low shrub is defined as vegetation classes in which shrub contribute 25% to 100% of the vegetation cover, shrubs greater than 1.3 m in height contribute less than 25% of the vegetation cover, and either more than 25% of the site consists of shrubs between 0.2 and 1.3 m in height or shrubs between 0.2 and 1.3 m in height are the most common shrubs. Low shrub covers 12% of the YKL study area and occurs throughout the study area. The low shrub CE is common on wet and mesic mountain slopes, hill slopes, flats, and stream banks and also occurs in lowlands and wetlands. Low shrub sites occur from 20 ft. to 6,255 ft. within the YKL study area. Patch size is small to large and often linear along small streams, and low shrub can be matrix-forming. Soils range from mesic to wet, and mineral to organic peat. Permafrost is often present. Common shrubs include *Betula nana*, *Rhododendron tomentosum*, *S. pulchra*, *S. glauca*, *S. nigriclada*, *S. chameissoni*, *S. Indowana*, *S. lasclaya*, *Empetrum nigrum*, *Chamaedaphne calyculata*, *Vaccinium uliginosum*, and *Myrica gale*. Other shrubs include *Alnus viridis* ssp. *fruticosa*, *Theropodion glandulosum*, *Oryzopsis microcarpa*, *Comarum palustre*, and *Salix fluviatilis*. Additional species include *Calluna vulgaris*, *Carex aquatilis*, and *Sphagnum* spp. Lichen cover (primarily *Cladonia* spp.) can be greater than 20% and occur in large patches between shrubs. The low shrub dataset consists of the following aggregated coarse-scale vegetation classes from the Vegetation Map of Northern, Western, and Interior Alaska: low shrub and low shrub / lichen. These coarse-scale vegetation classes were extracted to the YKL study area.

Credits

There are no credits for this item.

Use Limitations

NON-PUBLIC. BLM INTERNAL USE ONLY. NOT FOR DISTRIBUTION. NO WARRANTY IS MADE BY BLM AS TO THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THESE DATA FOR INDIVIDUAL USE OR AGGREGATE USE WITH OTHER DATA. The user is cautioned that these data have not been verified, and have not been approved for release. The User should take reasonable measures to ensure that these data are protected

FGDC External (xml) Metadata

Current (2013) distribution of northern pike habitat in the Yukon River Lowlands - Kuskokwim Mountains - Lime Hills

FGDC Metadata

Show Definition

Introduction | Spatial | Data Structure | Data Quality | Data Source | Data Contributor | Metadata

Resource Description

Citation

Title: Current (2013) distribution of northern pike habitat in the Yukon River Lowlands - Kuskokwim Mountains - Lime Hills

Originator: Rebecca Shafel, Alaska Natural Heritage Program, University of Alaska Anchorage

Publication date: 20140810

Data location: http://www.blm.gov/wis/it/en/program/Landscape_Approach/areas/dataportal.html

Description

Abstract: Northern pike (*Esox lucius*) are a strictly freshwater fish that live in, migrate through, feed in, and spawn in the Yukon River Lowlands - Kuskokwim Mountains - Lime Hills. This dataset provides the modeled current (2013) spatial distribution of northern pike within the REA study area for the analysis of northern pike as an Aquatic Fine-Filter Conservation Element. This dataset was produced by calculating 14 predictor variables in ArcGIS based on presence and absence data from the Alaska Freshwater Fish Inventory (AFFI) dataset and telemetry data for northern pike in the Kuskokwim drainage. The Alaska Freshwater Fish Inventory is developed and maintained by the Alaska Department of Fish and Game and contains the occurrence datasets from fish and aquatic habitat inventories. Predictor variables were as follows: elevation, permafrost, gradient, floodplain (presence or absence), slope over area ratio, stream order, watershed area, average watershed annual precipitation, average watershed annual temperature, average watershed elevation, average watershed slope over area ratio, average watershed slope, percent permafrost cover in watershed, and percent lake cover in watershed. Subsequently, the 14 calculated predictor variables provided the input data for the Random Forests model to generate an output raster of northern pike distribution. The raster data was post-processed in ArcGIS to clip and then the results. A subset of the AFFI data was withheld from the calculation of predictor variables and was used to determine the predictive accuracy of the generated model. The variable importance plots indicated that the most important predictors for northern pike were watershed area, stream order, stream elevation, lake density, and floodplains. Northern pike were predicted in stream reaches with connected floodplains that had larger watersheds, higher stream order, lower elevation, and higher lake density than stream reaches without northern pike. The model predictions in GIS resulted in approximately 10,000 km of potential habitat for northern pike in the YKL REA study area.

Purpose: This dataset was developed for the BLM Rapid Ecoregional Assessment for the Yukon River Lowlands - Kuskokwim Mountains - Lime Hills and represents the modeled current (2013) distribution for the Aquatic Fine-Filter Conservation Element northern pike.

Supplemental information: Northern pike distribution is modeled through a Random Forests model.

Point Of Contact

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Hours of service: Monday through Friday, 0900 to 1700 Alaska Time

Instructions: <http://aknhp.uaa.alaska.edu/>

Address type: mailing and physical

Address: 707 A Street

City: Anchorage

State or Province: AK

Postal code: 99501

Interpreting Results

Interpreting and misinterpreting REA results

- Absence of universal interpretations...
Must consider the subject.
- Color, scales, legend.
- Depends on use.
- Future predictions are not a certainty.
- Occurrence and development probability.

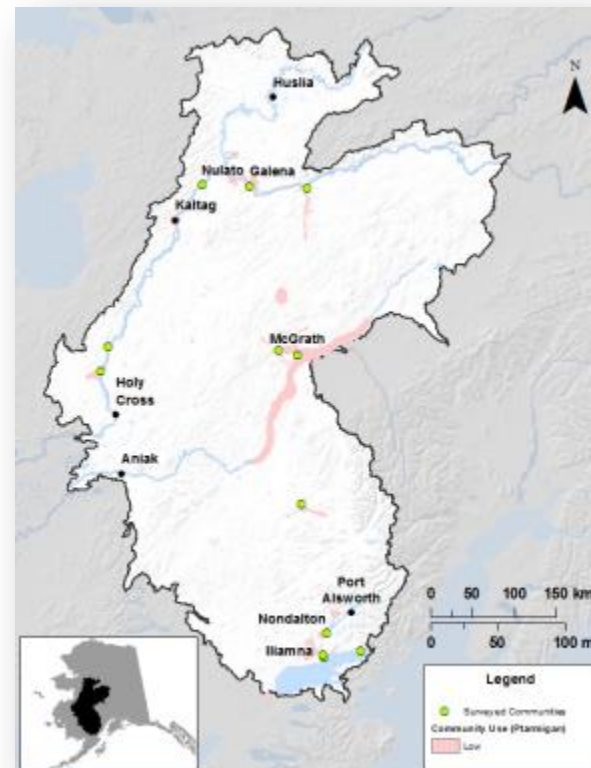
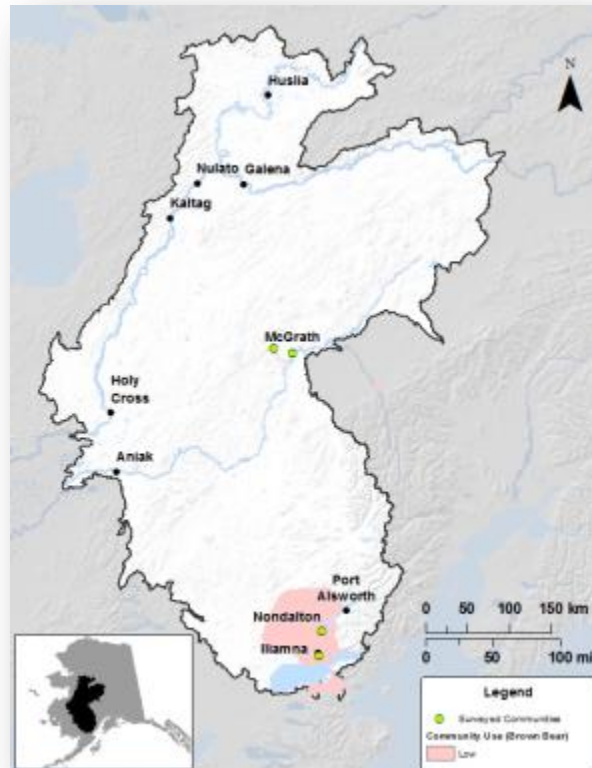


Interpreting Results

Misinterpretation...of the results

Comparing indices from one species to another

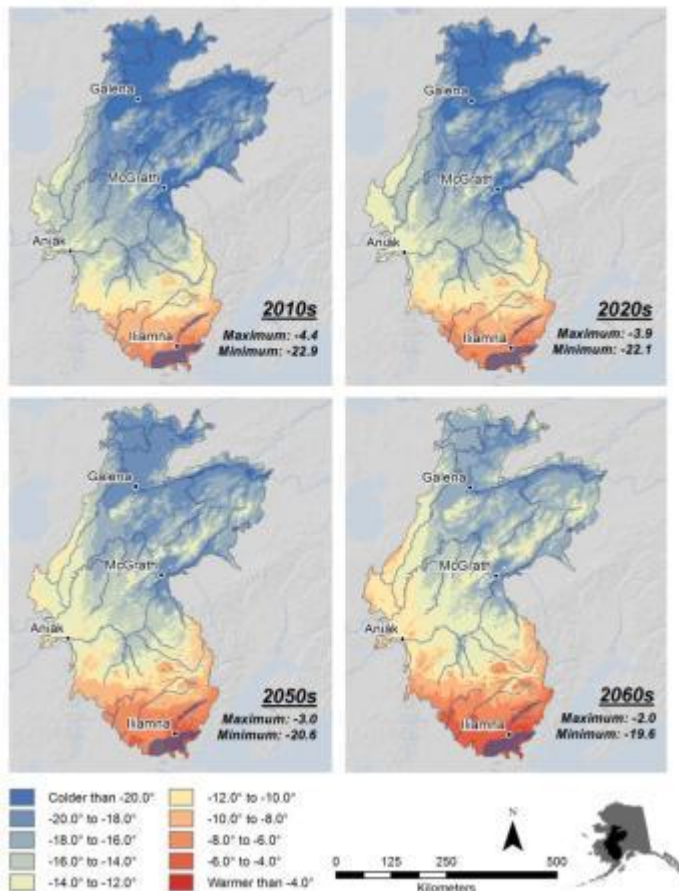
- ***Interpretation*** is required depending on responses to anthropogenic disturbances.
- Consider the species/subject.



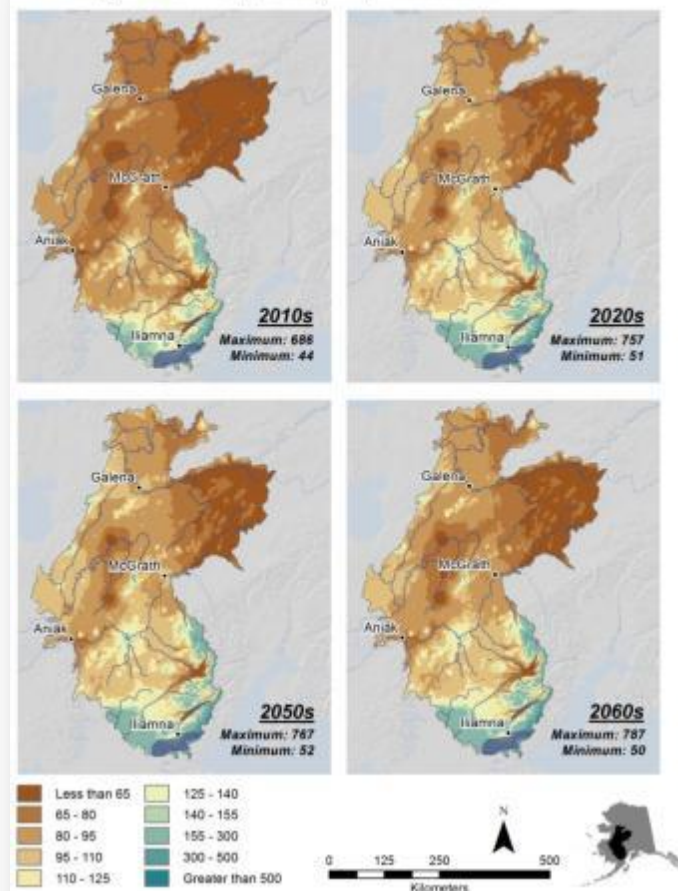
Misinterpreting Results

- **Interpretation** is required! Critical analysis of the legend and the subject is very important. This area shows a change in precipitation and a change in temperature. That could be significant...

January Temperatures (°C): A2 Scenario



Average Winter Precipitation (mm): A2 Scenario



- Red (bad) to green (good) color scheme
 - Not necessarily the case
 - Red could indicate high density of a native species
 - Need to read legend carefully!

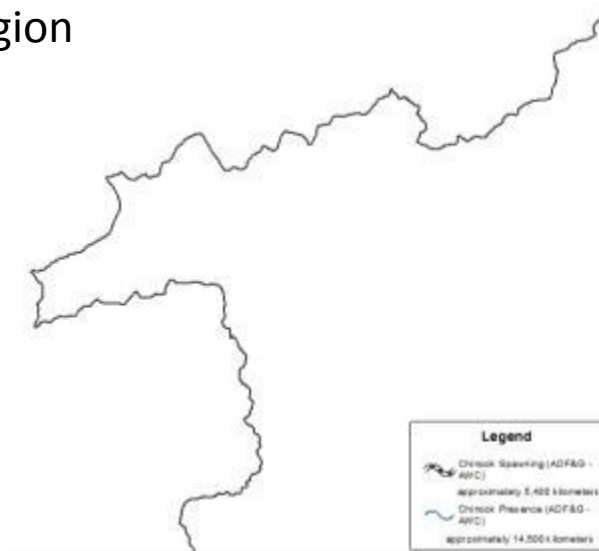


Appropriate Scales

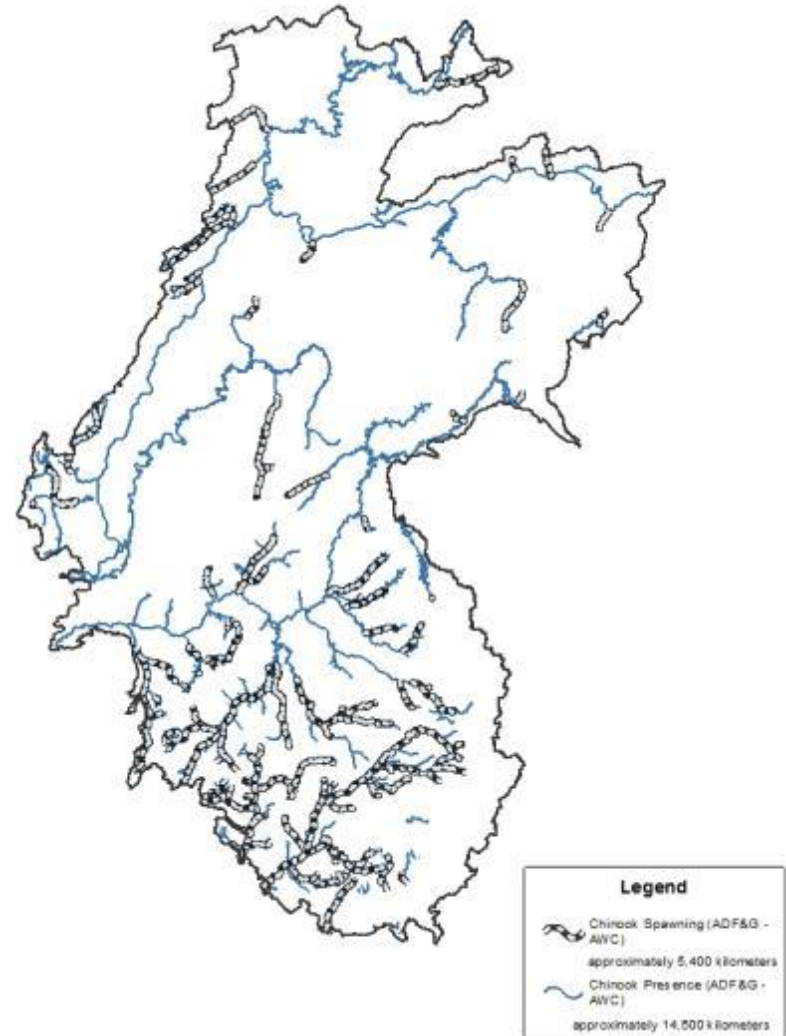
Inappropriate Uses

- Clipping to a small area and ignoring the context around it
- Analyzing a single pixel value to determine entire answer
- Resampling to a smaller scale (30m)

Incorrect: Chinook spawning restricted or absent from the northern part of the Ecoregion

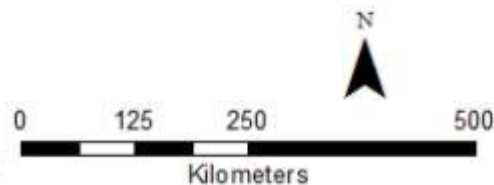
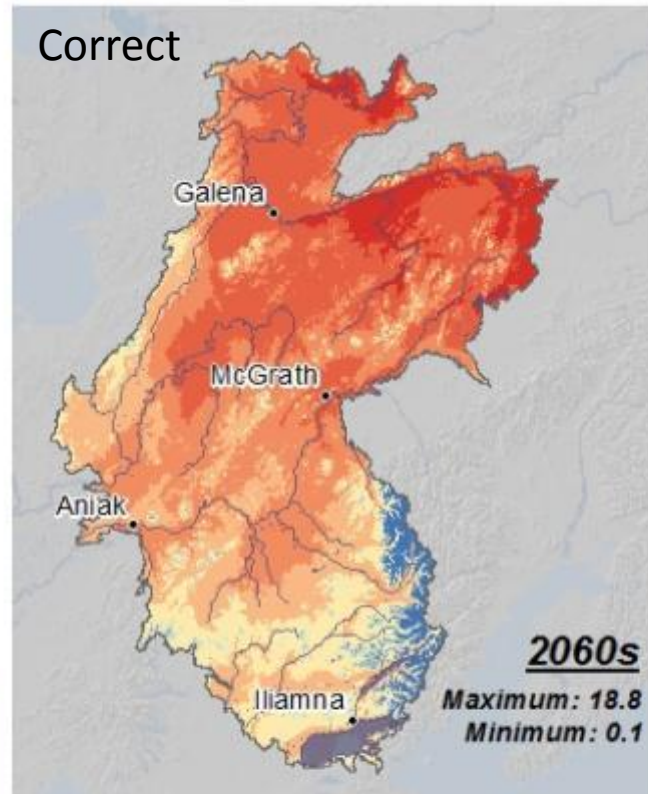
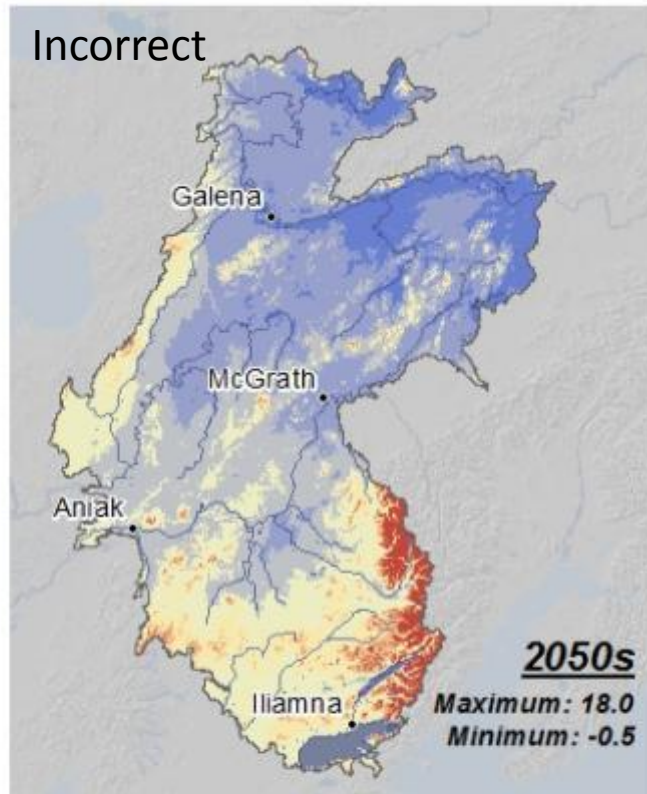


Correct: Chinook spawning areas throughout the ecoregion



Legends

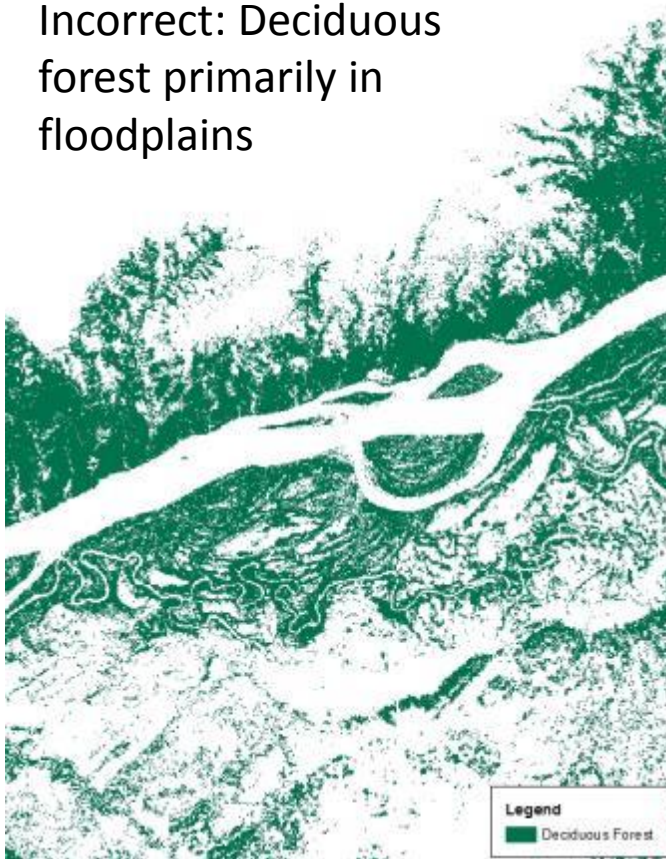
Legends: Flipping



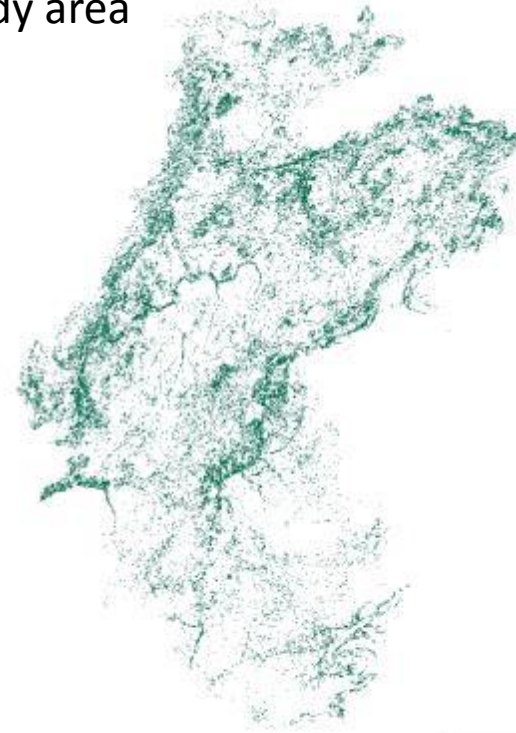
Patches vs Matrix

- Patches out of context may not represent a matrix as a whole

Incorrect: Deciduous forest primarily in floodplains



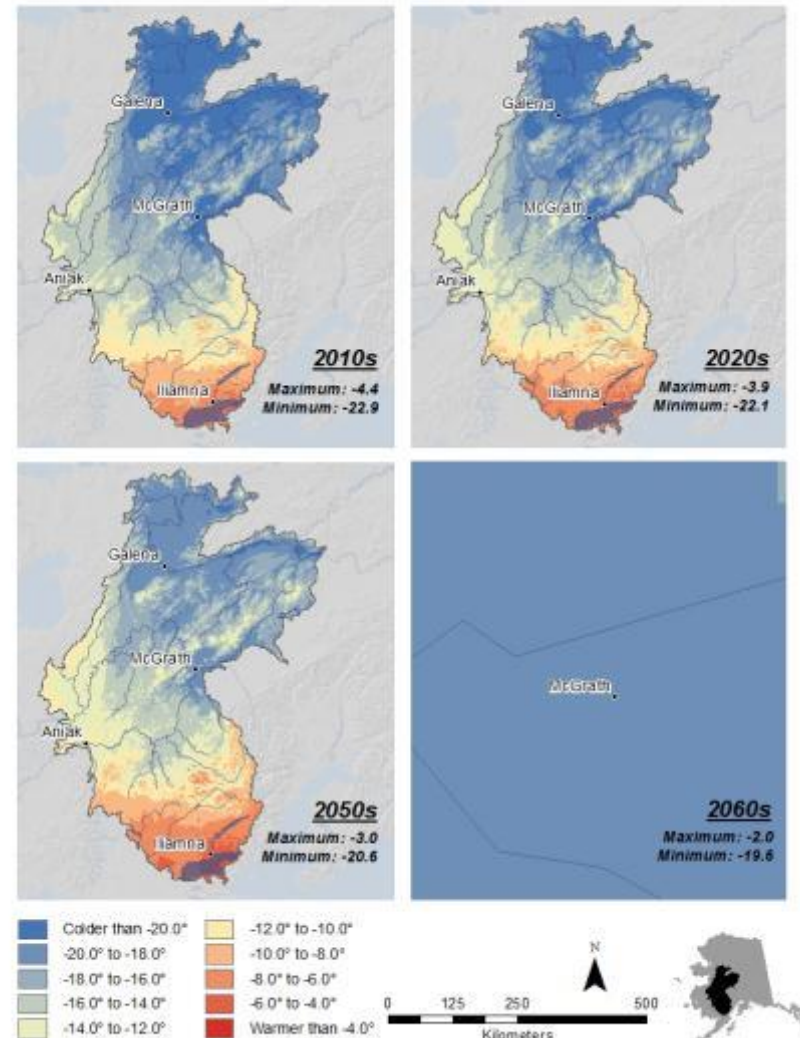
Incorrect: Deciduous forest throughout study area



Hot Spots

- Just because there is one hot spot in an area – it should not be looked at in isolation.
- Example looking at the city of McGrath
 - Pattern patchy

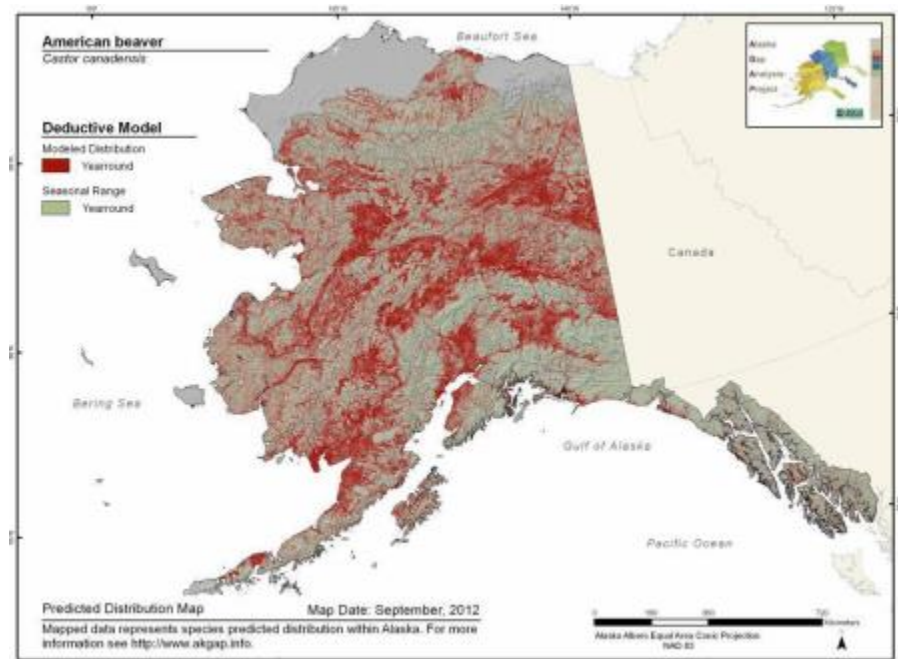
January Temperatures (°C): A2 Scenario



Understanding the Input Data

Consider Inputs

- Accuracy
- Age
- Completeness
- Issues/gaps
- Alternative datasets



- REA's are comprised of the best available landscape data.

Data Limitations

- **No formal accuracy assessment done, but a thorough data evaluation was completed.**
- **Often poor or no surrogate was available to represent an important process for a CE, especially for future.**
 - Natural breaks gives a relative condition, not biological capacity.
- **Geospatial inequality across landscapes.**
 - Regional data wasn't always available, higher quality data sometimes not complete for entire ecoregion.



Data Limitations: Data Gaps

Additional analysis or data gathering is suggested to address management questions for: Corridor mapping for big game species

- Invasive species mapping
- Distribution mapping for big game and protected species



REAs and Accuracy

- “Garbage in garbage out.”
 - All datasets went through DQE.
 - Assumptions and models supported by literature.
- “All models are wrong, some are useful.”
 - There is no true “accuracy assessment,” since what we model is not measured (index).
 - How do you appropriately interpret?
- Accuracy assessment vs. sensitivity analysis.

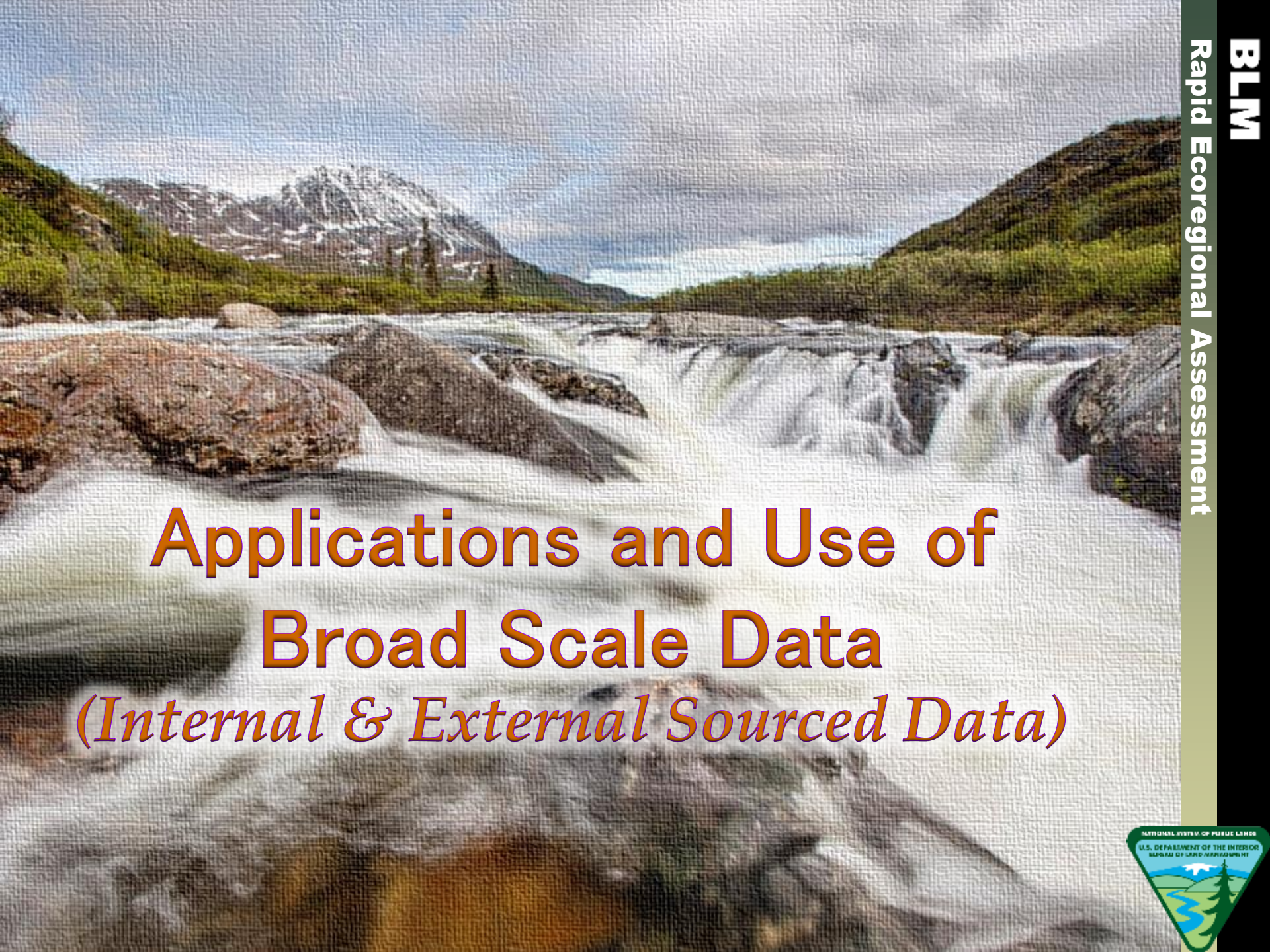


Sensitivity Analysis

How important are your assumptions for the analysis results?

- If I change an assumption how do my results change?
- Data and assumptions that “drastically” change results with smaller “differences” are more sensitive.
- USGS comparison of REA techniques.





Applications and Use of Broad Scale Data *(Internal & External Sourced Data)*

FLPMA, NEPA and the
Landscape Approach to
Natural Resource Planning

Using Broad Scale Data

Other landscape level data,
efforts & examples

Discussion

BLM

Rapid Ecoregional Assessment



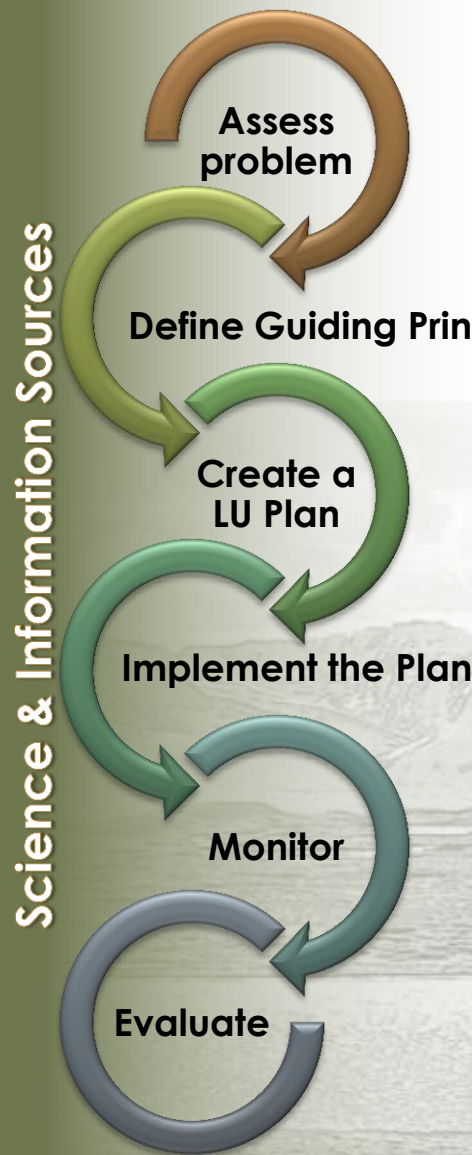
- 1) Inventory (Sec. 102(2)) & keep it current.
- 2) Use inventory information during the land use planning process (Sec. 102(2))
- 3) Establish goals and objectives as guidelines for public land use planning; RMP level goals and objectives carry the weight of the law (Sec. 102(7))
- 4) Manage on the basis of multiple use and sustained yield (Sec. 102(7))
- 5) Manage in a manner that will protect... ecological... qualities and values. (Sec. 102(8))
- 6) Concerning the management of use, occupancy and development, take any action necessary to prevent unnecessary or undue degradation of the lands (Sec 302(b))

Landscape Approach to Natural Resource Planning

Way to think through ecological concerns for setting management priorities

Based on the BLM "Wagon Wheel" & Ontario Ministry of Natural Resources "Taking a Broader Landscape Approach: A Policy Framework for Modernizing Ontario's Approach to Natural Resource Management. 28pp.

56

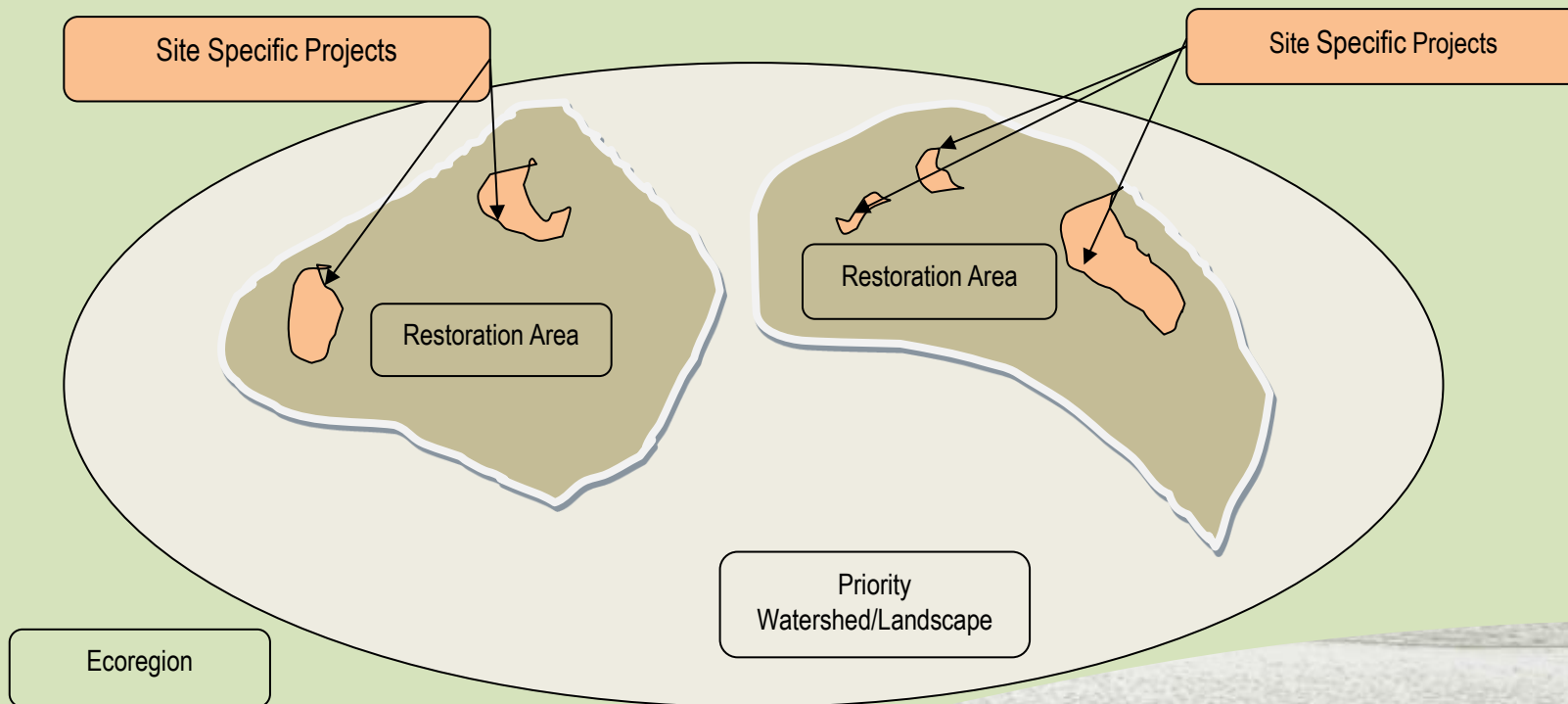


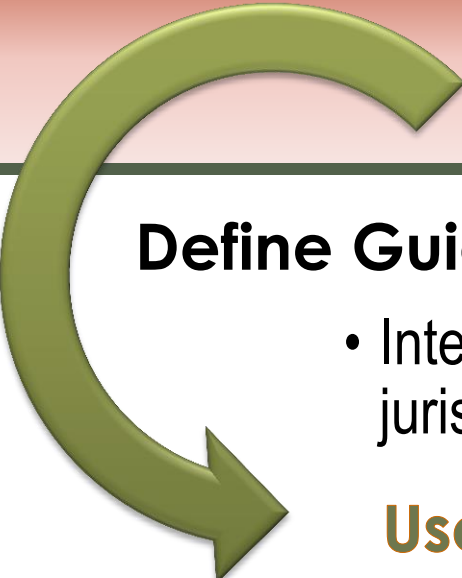
- Use ecological functions and structures to identify ecologically meaningful scales to assess the problem
- Integrate and coordinate across programs, jurisdictions & stakeholders
- Set finer-scale management goals & objectives
- For plan conformance
- To maintain resource records
- For goal achievement?
- Meeting objectives?
- Need to revisit assumptions?
- Adjust, Adapt management?



Assess Problem

- Use ecological functions and structures to identify ecologically meaningful scales to assess the problem





Define Guiding Principles

- Integrate and coordinate across programs, jurisdictions & stakeholders

Use REAs to:

- ✓ Improve public understanding of the resource use and conservation issues
- ✓ Help with public scoping
- ✓ Highlight areas that may require additional management attention,
- ✓ Provide a geospatial aspect to issues that previously could only be generalized over a broad area

Create a LU Plan

- Set finer-scale management goals & objectives

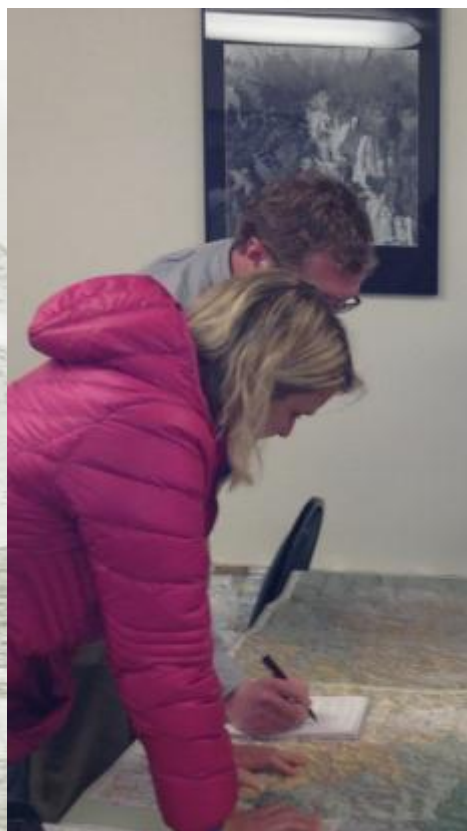
REAs support the Planning 2.0 Initiative

Planning 2.0 roll-out is targeted for 2016

Three related goals of Planning 2.0:

- ✓ Create a more dynamic and efficient planning process;
- ✓ Enhance opportunities for **collaborative** planning;
- ✓ **Plan across landscapes and at multiple scales.**

IM 2014-125 is our policy to incorporate landscape assessment into the land use planning and project level decision making process.



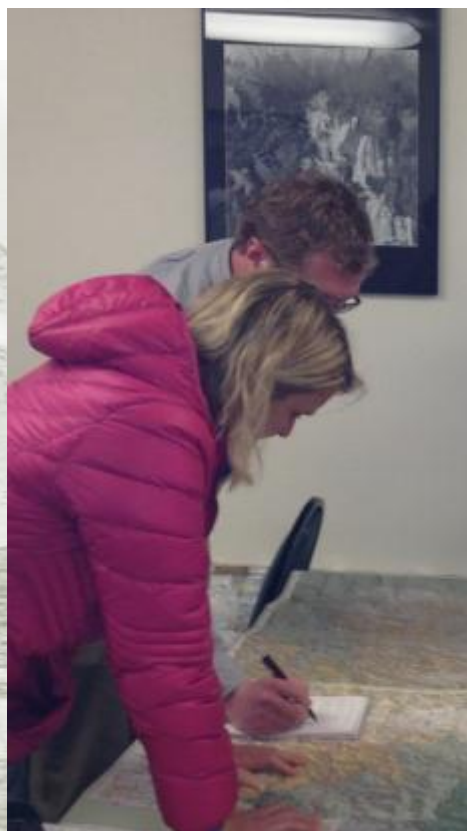
Create a
LU Plan

REAs support Identifying landscape-level priorities

Analysis of the Management Situation

Identify regional public issues and management concerns

Evaluate consistency with other local, state, tribal and federal plans



Create a
LU Plan

REAs support cross-jurisdiction coordination

BLM has authority

BLM has ability (significant enough)

Partner/Cooperator?

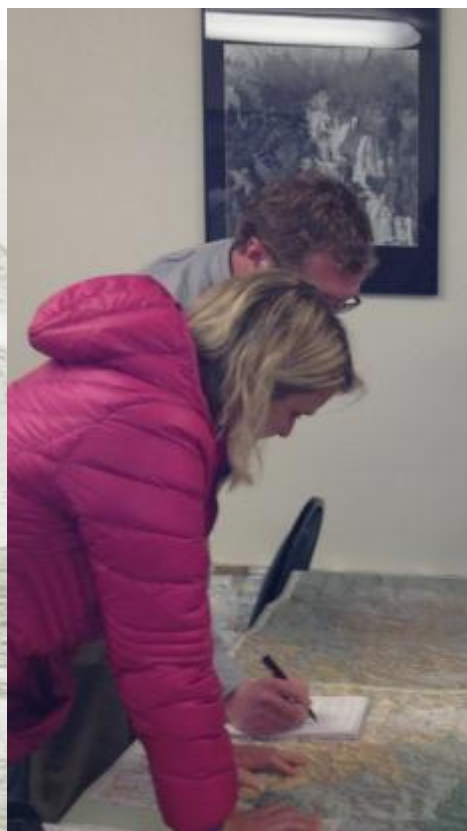
Establish desired outcomes (*goals and objectives*) that have regional ecological meaning

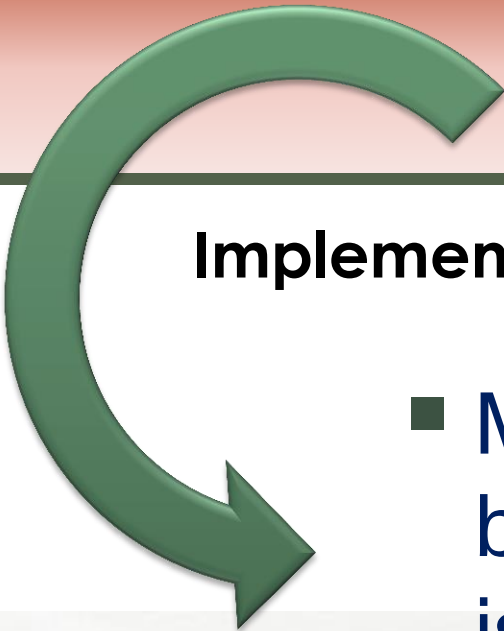
Goals describe conditions that are not necessarily quantifiable

“Maintain ecosystem health”

Objectives are usually quantifiable and measurable and may specify time-frames.

Manage vegetative communities on the upland portion of the Clear Creek Watershed to achieve, by 2020, an average 30 to 40 percent canopy cover of sagebrush to sustain sagebrush-obligate species.”





Implement the Plan

- May wonder “How do we use broad scale info after the ROD is signed?”
 - Design conservation action plans
 - Conduct regional prioritization with partners
 - Internal workload prioritization

Monitor



Planning

- **Implementation**
(do what we say?)
- **Effectiveness**
(plan objectives)

Resource

- **Condition, Status & Trend** *(examples)*

- Landscape Scale
 - REAs
 - AIM and NRI*
 - Sage-grouse Strategy
- Mid-scale
 - Healthy Landscapes
- Fine/Site Scale
 - PFC/MIM
 - Standards for Rangeland Health
 - AML
 - Scenery
 - Recreation

Newest initiatives are filling a gap at this level

- For plan conformance
- To maintain resource records

Use REAs to:

- Reflect changes in conditions
- Identify new/emerging resource and other values.

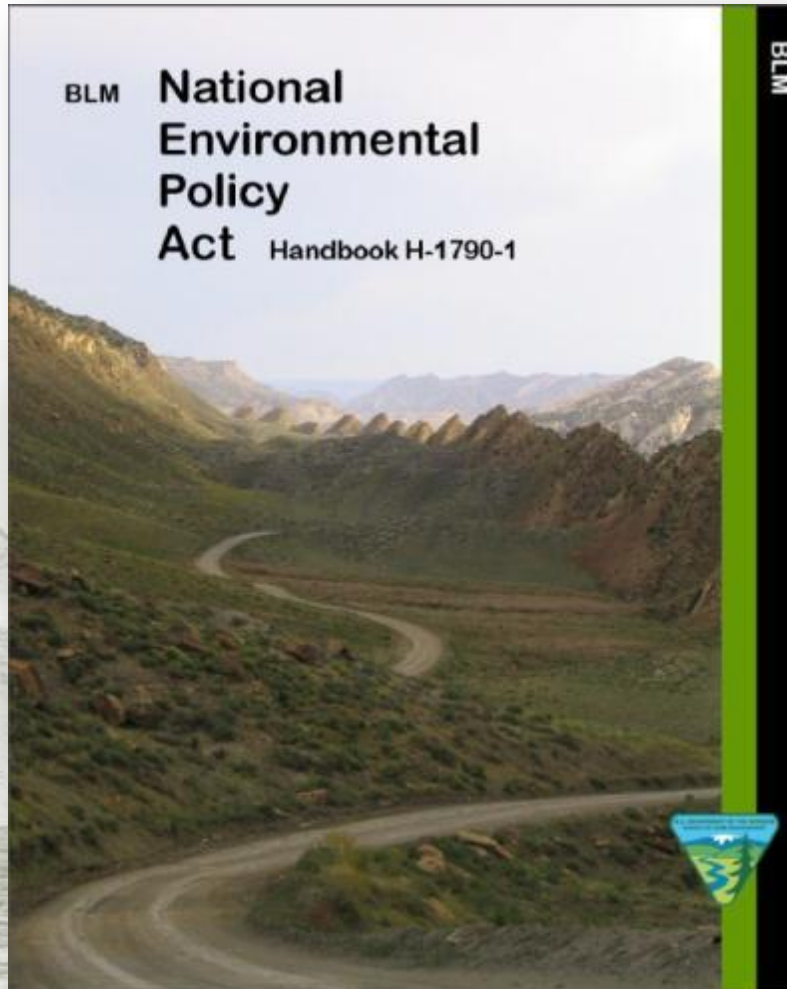
Evaluate

- For goal achievement?
- Meeting objectives?
- Need to revisit assumptions?
- Adjust, Adapt management?

REAs support the HL evaluations (M 4180)

- Evaluations of land health will occur primarily at the watershed level, but can be completed at other spatial scales to properly evaluate the standard and/or the geographic area. For example, regional assessments may be used to identify condition of wildlife habitat with respect to habitat fragmentation.
- Regional assessments may identify specific areas for conservation and/or restoration. These areas would then become a priority for conducting the local land health evaluation.
- To address workload priorities, conducting regional assessments may take precedence over conducting site or local level monitoring and/or evaluations in low priority areas.

NEPA – Better Decision Making



NEPA binds all federal agencies to implement the NEPA process for the protection of the environment. (40 CFR 1500.1(a))

BLM is required by NEPA to assess consequences of federal actions on the quality of the human environment. (40 CFR 1500.2(f))

BLM is required to comply with the NEPA process during the development of an RMP and for all actions that implement the RMP (40 CFR 1500.1 (a) & 1500.2(c))



NEPA- EA/EIS

REAs may support NEPA requirements...

- Environmental Assessments – Regional View
 - ◇ Scoping Issues
 - ◇ Describing The Existing/Affected Environment
 - ◇ Formation Of Alternatives
 - ◇ Evaluation Of Environmental Impacts
 - ◇ Identification Of Mitigation Opportunities At The Regional (Or Landscape) Scale– On Or Off Of BLM

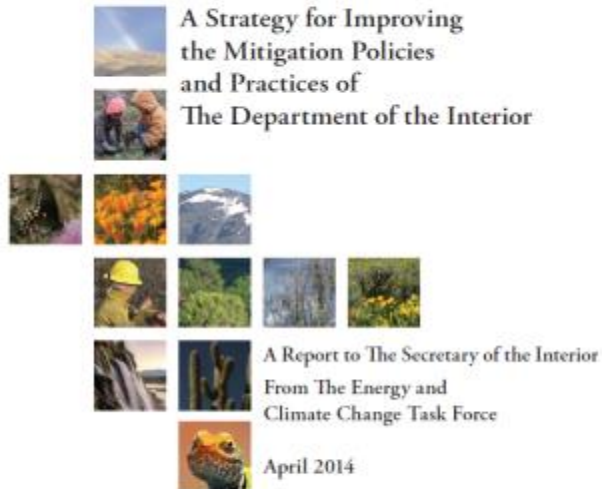


NEPA – Mitigation

■ Impact Analysis

◇ Mitigation with regional consideration

- Interior Secretary Order No. 3330 – Policy to improve mitigation policy and practices.
- A Strategy for Improving Mitigation Policies and Practices of the Department of the Interior: A Report to the Secretary of the Interior from the Energy and Climate Change Task Force. April 2014.



Key Points and Ideas for REA Use

- Use the information to supply context
- Understand what goes into a model
 - ◇ Opportunity and priority are driven by “why” not just the end conclusion
- Where are we information/data poor?
- Bring in local data as applicable
- The amount of information is overwhelming, find a starting point or question and build from there
- Use resources available!

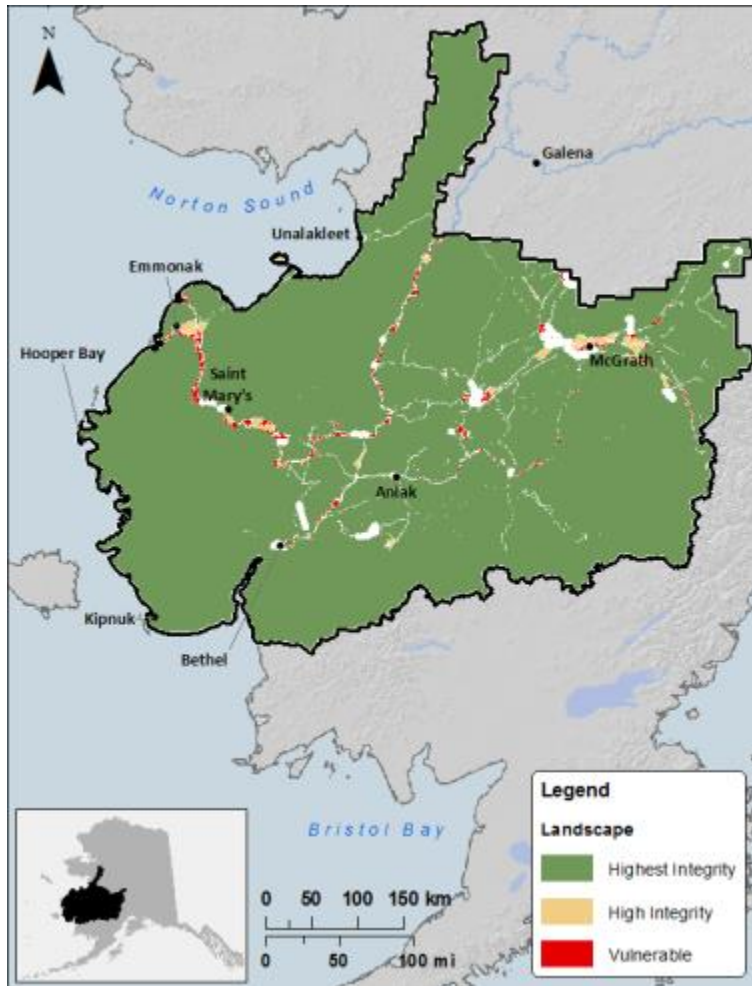


YKL REA for BSWI RMP

Goal of incorporating landscape assessment into land use planning process

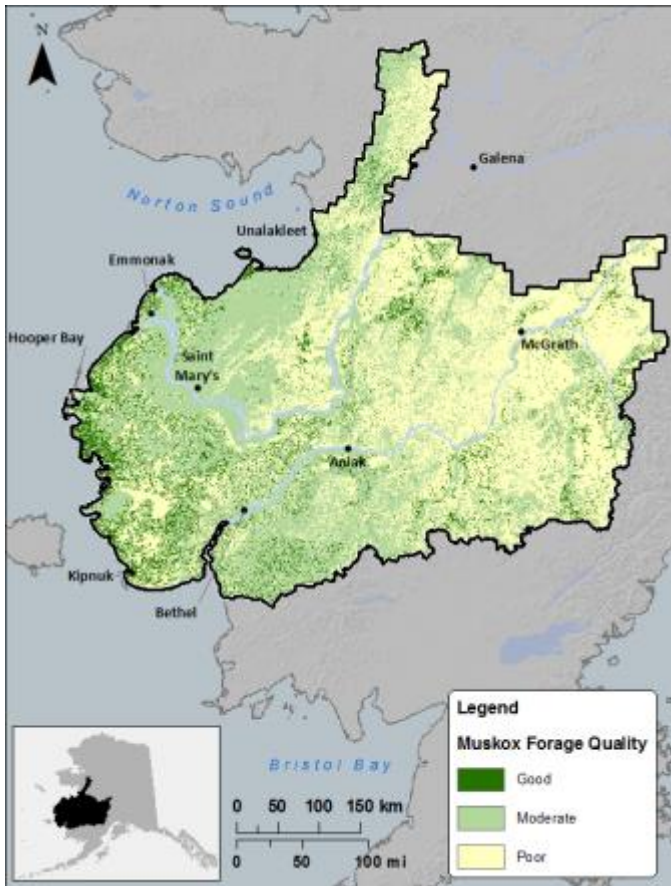
Tailored existing assessment methods for select variables to a BLM planning area

Landscape Integrity in the BSWI RMP

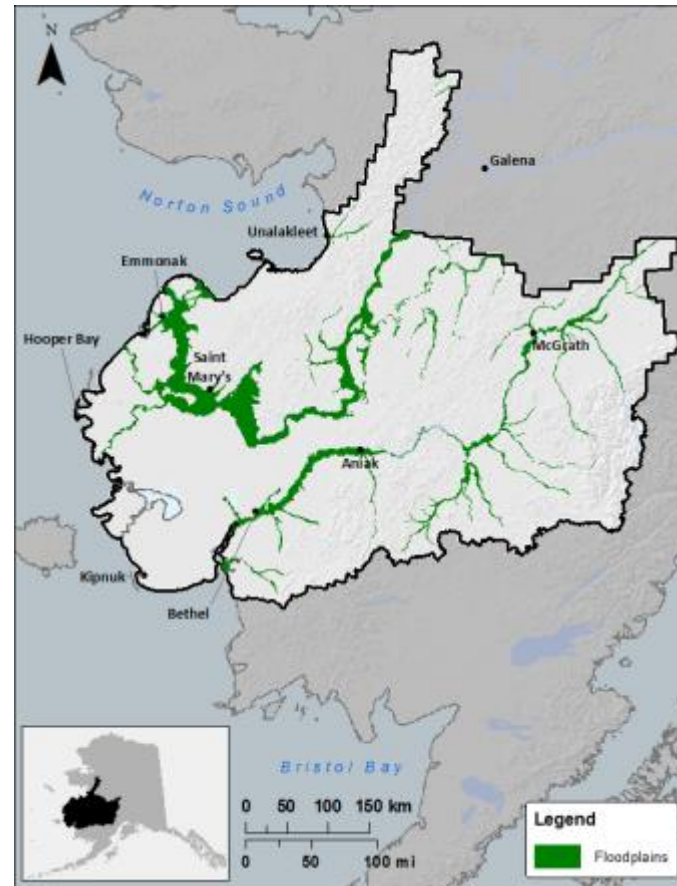


YKL REA for BSWI RMP

Methods from YKL REA applied to a planning boundary



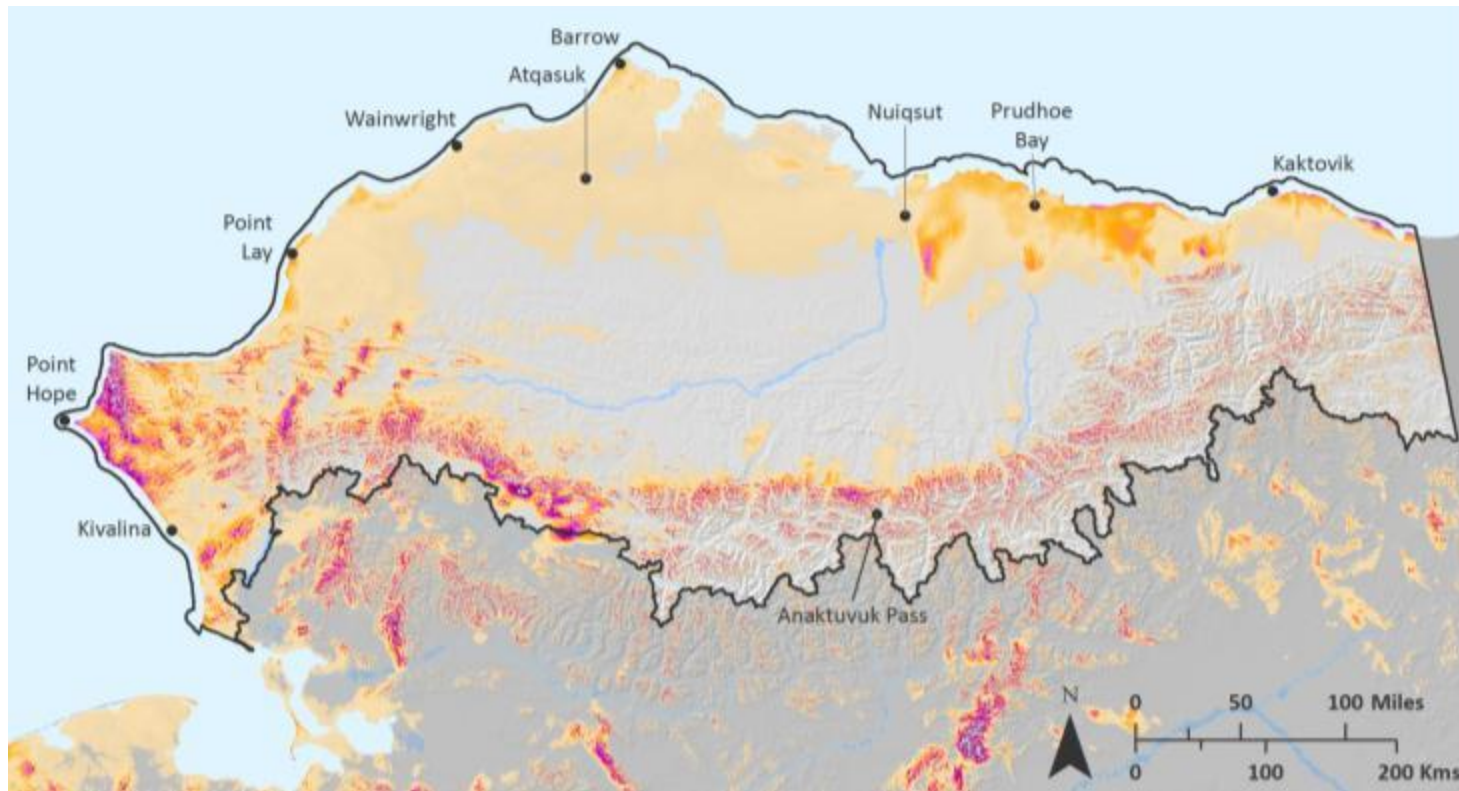
Muskox forage quality in
BSWI RMP



Floodplains distribution
in BSWI RMP

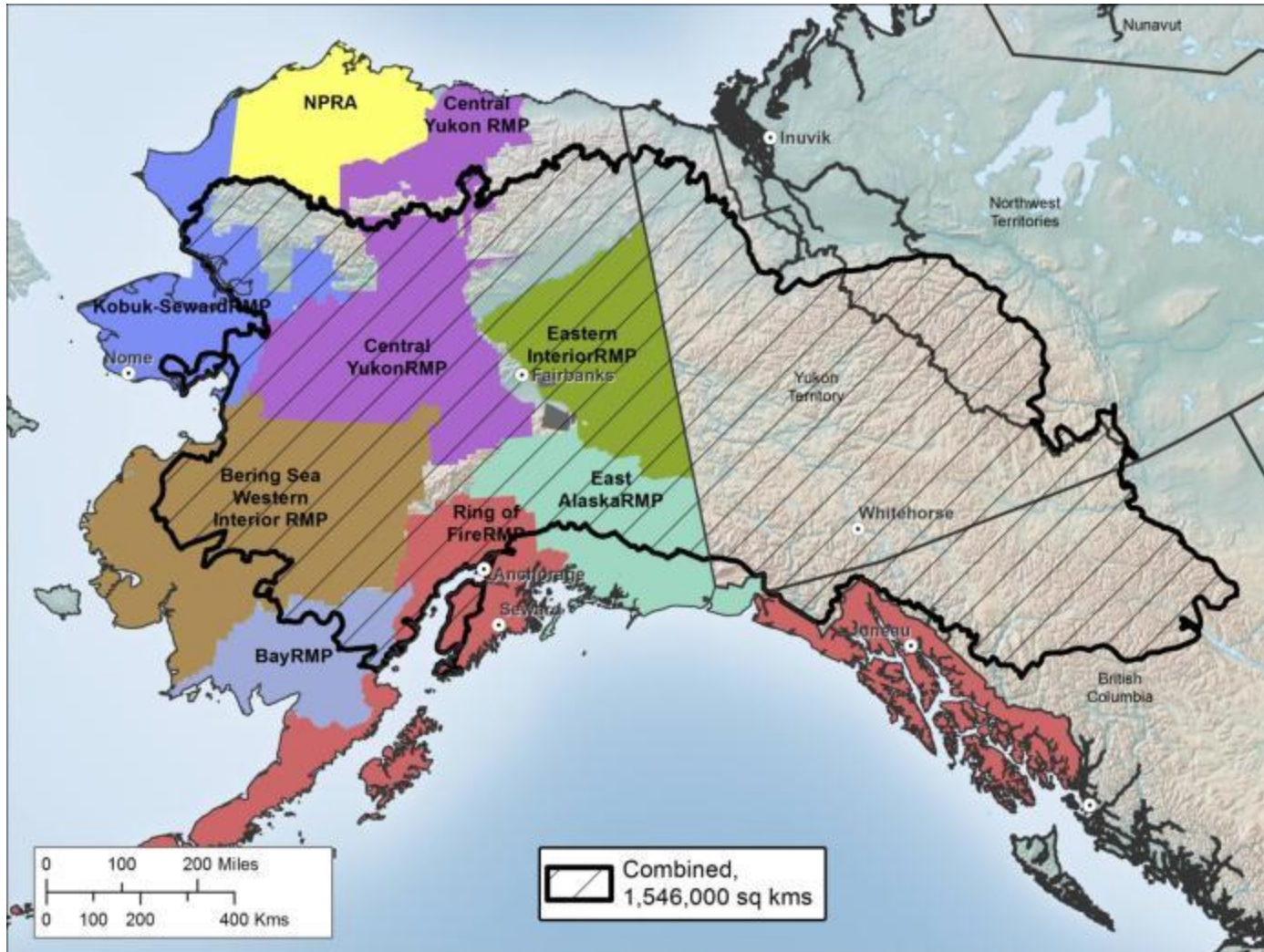
NOS REA and NSSI

Collaboration with NSSI to incorporate their development scenario into the North Slope REA



Wind power potential developed for NSSI Scenarios Project

CYR REA and BEACONS



BLM RMPs compared to combined REA / LCC area

Other landscape level efforts

External Efforts



Western Governors Association (WGA)

Crucial Habitat Assessment Tool (CHAT)

Assists states to identify and conserve crucial wildlife habitat & corridors across the region.

Multiple states contribute data.

Spatial mapping product.

Other landscape level efforts

External Efforts

Landscape Conservation Cooperatives

Initiated by
Secretarial Order
3289, through the
USFWS.



A network of public-private partnerships providing shared science to ensure the sustainability of America's land, water, wildlife and cultural resources.

Discussion

- What multi-scale issues or projects do you have where adding information from this class will be of utility?
- What can you bring to the table that will inform decisions across spatial scales?
- What help do you need to meet your multi-scale natural resource challenges?



Review Workshop Objectives

Given an environmental challenge that spatially crosses management boundaries, identify and employ information from the **Rapid Ecoregional Assessment** to understand the ecological context and the extent and pattern of natural and human influences.

Given a public land management question, utilize the **Rapid Ecoregional Assessment** as one broad-landscape decision support tool for planning where to develop, conserve and restore environmental values and qualities or to direct mitigation.



Round Robin



- Comments – are you comfortable with what has been covered?
- Are you satisfied that we met the objectives?

