



# Landscape Change: What it means for two species at risk in Alberta

SFI AGM

Olympic Valley, California



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foothills  
RESEARCH INSTITUTE  
Research Growing Into Practice

# Humans and Landscape Change – not a new activity.



1915



Bridgland, Courtesy of Jasper National Park



J. M. Rhemtulla and E. S. Higgs © University of Alberta



# Landscape change affects many components of the ecosystem.



1915



1999





Our society continues to use natural resources found in boreal forests. This remains a challenge of co-existence.



## Recreation





# How do changing landscapes affect grizzly bears?



© Mark Braden 2015



- Grizzly bears are a species generalist
- They are omnivores whose diet is mostly plant based.
- They thrive in a matrix of old and young forest stand ages.
- Grizzly bears benefit from edge habitats
- Linear features associated with resource extraction have resulted in increased mortality risk for bears (poaching)

# How do changing landscapes affect woodland caribou?



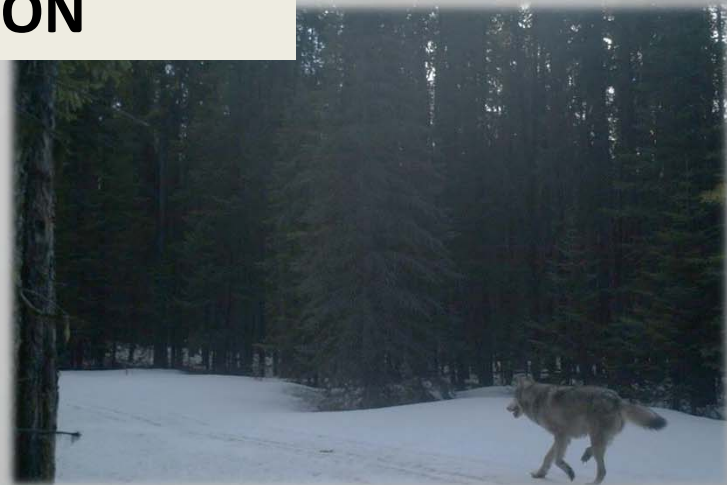
- Caribou are a species specialist
- They largely depend on foods associated with old growth forest stands (lichens)
- Linear features associated with resource extraction have increased hunting efficiency of wolves
- Landscape change has also increased the prey base within caribou range



# Different needs but some common challenges



## PREDATION





## Different needs but some common challenges



SEVERAL HUNTERS AROUND A "PLAINS GRIZZLY" KILLED NEAR INNISFAIL.  
COURTESY GLENBOW ARCHIVES (NA-103-5)

**PREDATION**

# How will we address this challenge in forest management and planning?



- Need to understand the current and long term habitat needs of these species at risk
- Plan for future habitat supply within the context of forest management
- Habitat restoration based on scientific data
- New tools to help with future habitat supply forecasting



## Linear features and caribou

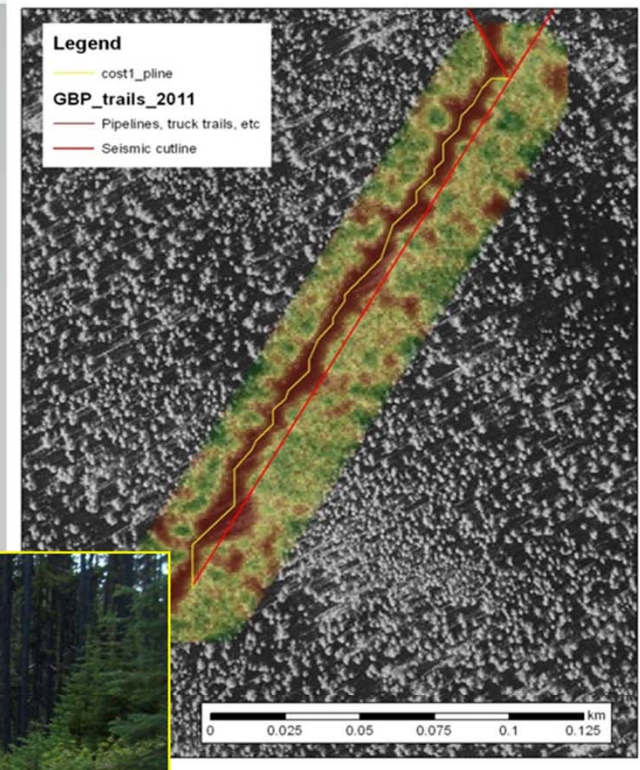


# Linear features and caribou – restoration needed

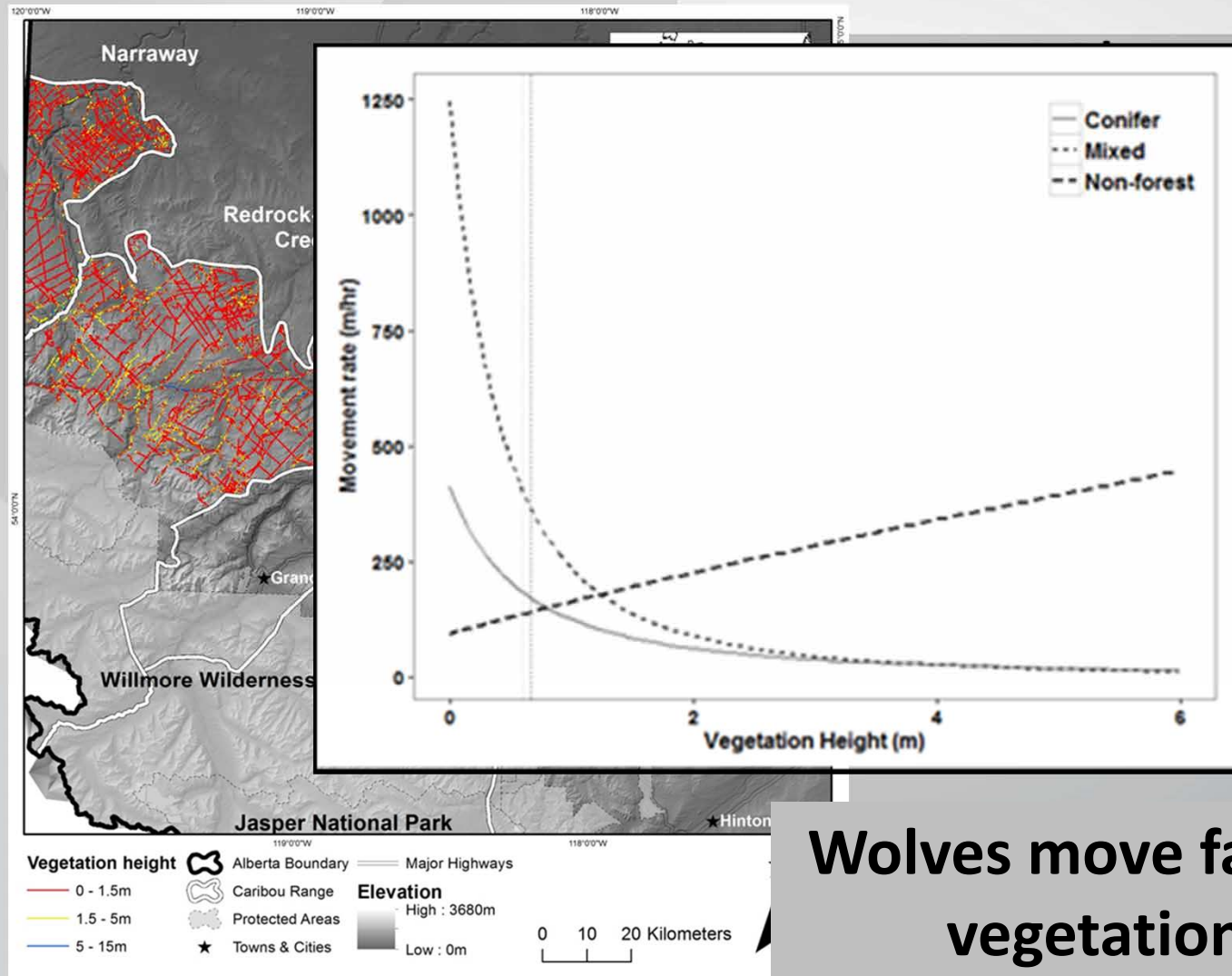




# Lidar measurement of Vegetation Height



# LiDAR measurements of vegetation height



of seismic

75%) <1m  
tion

**Wolves move faster in lower  
vegetation heights**



# A new tool to aid in forest management planning



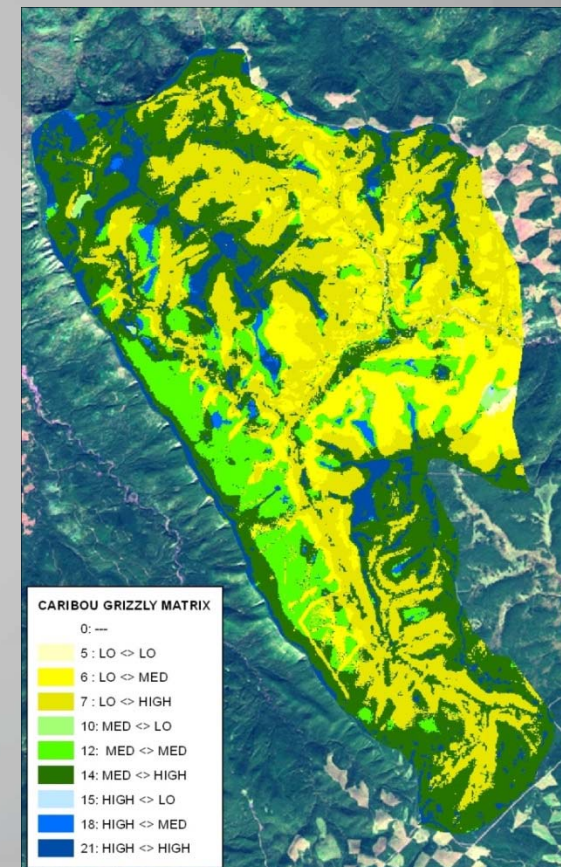
Caribou RSF: yellow to blue



Grizzly RSF: light to dark

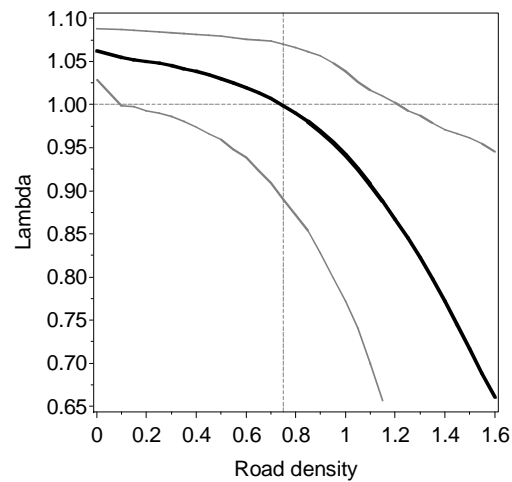


Combined

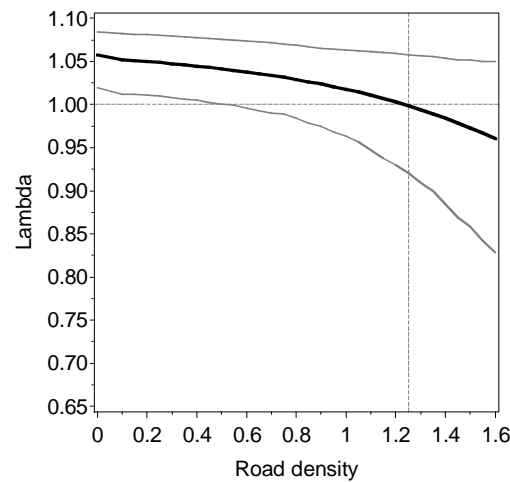


# Grizzly Bears and Human Access – open road densities

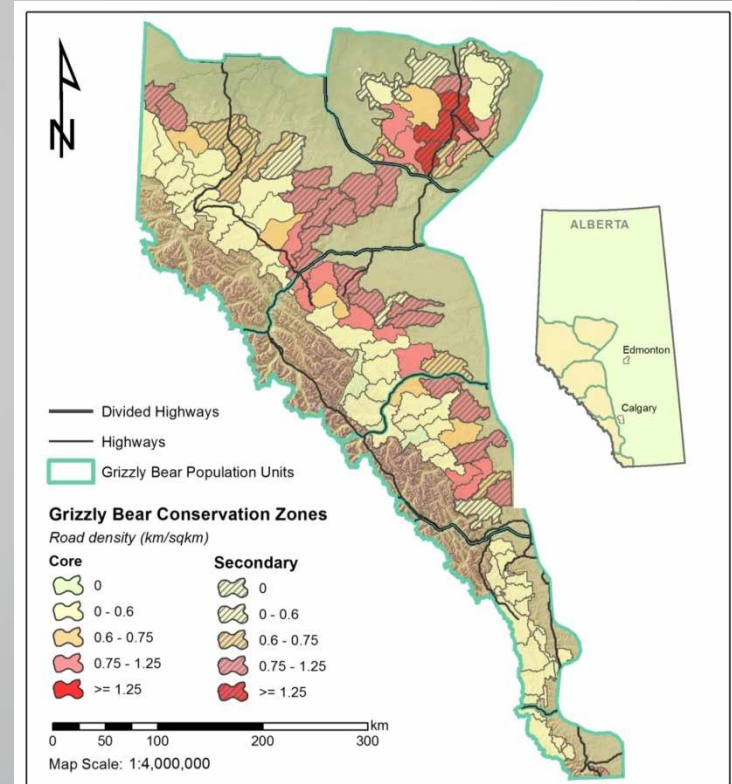
Reproductive state specific survival



Equal survival for all adult females



Boulanger and Stenhouse 2014





# Grizzly Bears and Human Access – open road densities



**The key management challenge is to control human behavior**

# Conclusions



Given that these two species co-exist on a common landscape and have some different habitat requirements, management decisions may need to both focus on and favor the species that has fewer options to deal with the landscape change that is occurring.

In my view caribou will need to be the priority for forest management planning and landscape management decisions. Grizzly bears will do fine as long as we can reduce human caused mortality.





# Thanks to...



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Questions?

