

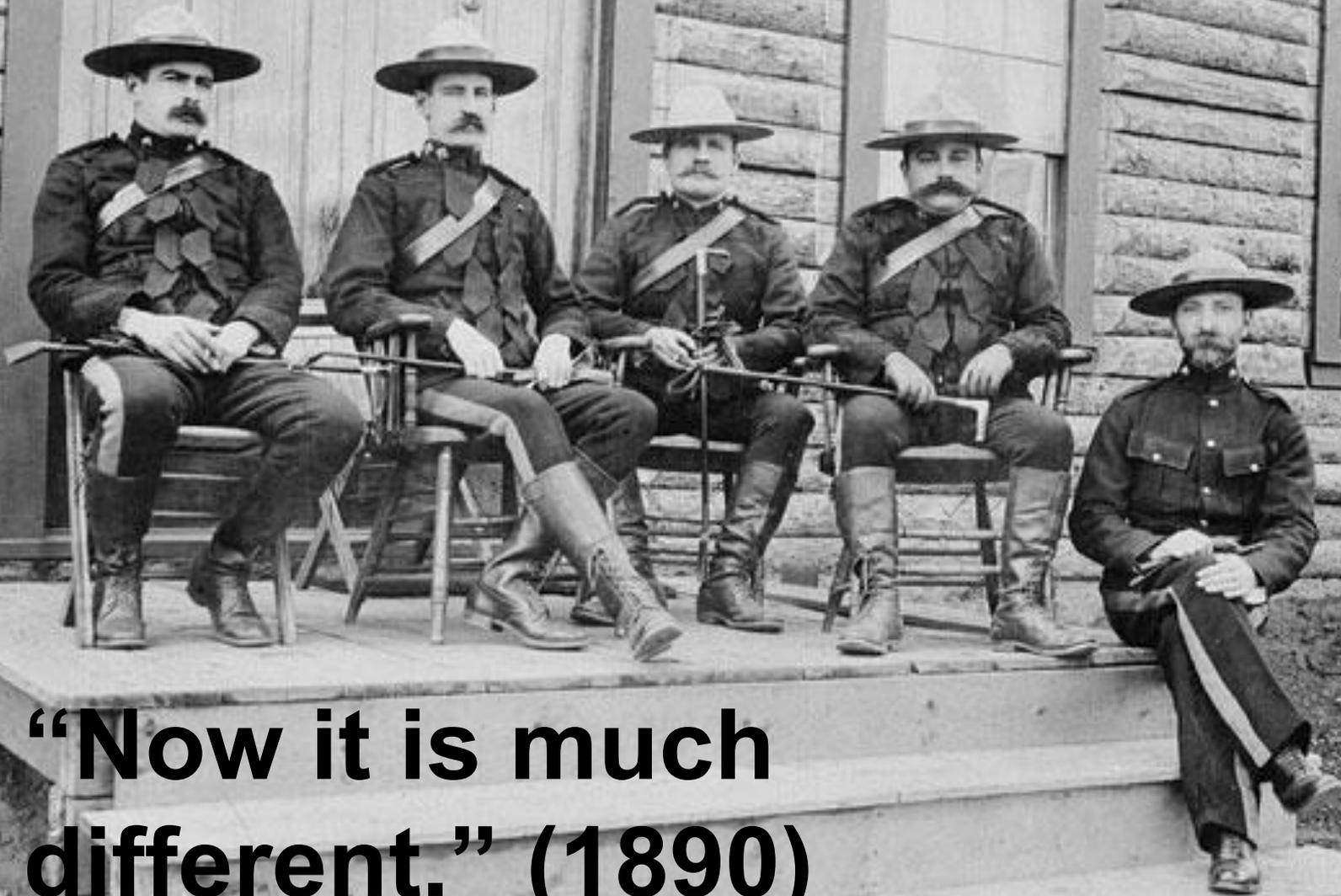
# **Stumps, Sawdust and Sediment: A legacy of logging in the headwaters?**

**Lorne Fitch, P. Biol.**





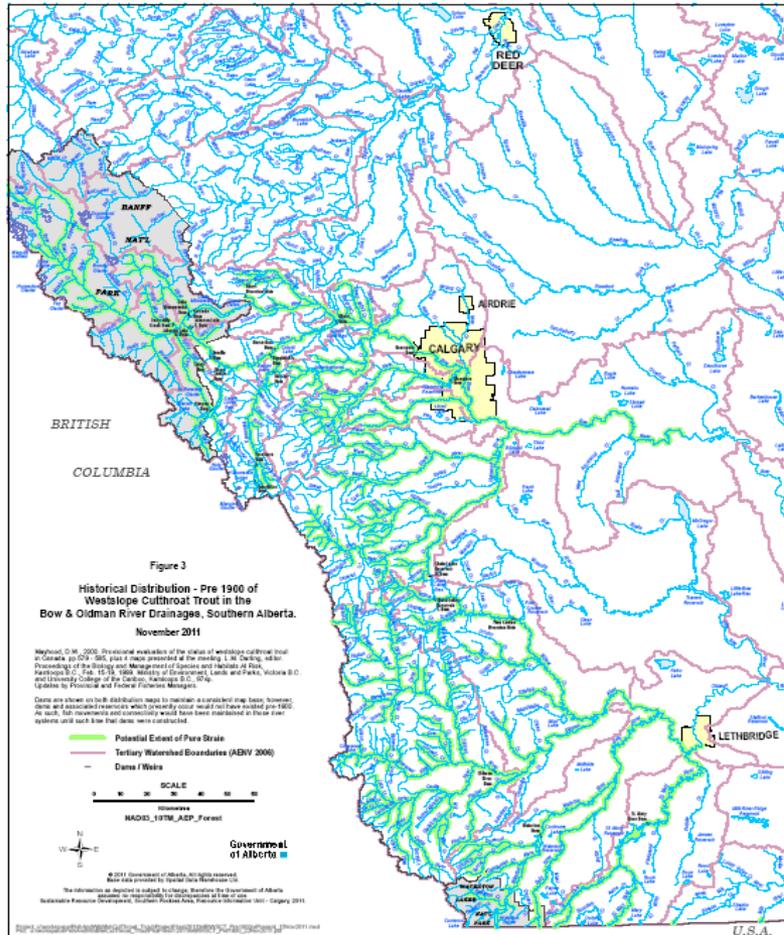
**“When I fished first about 14 years ago, the rivers teemed with fish.”**



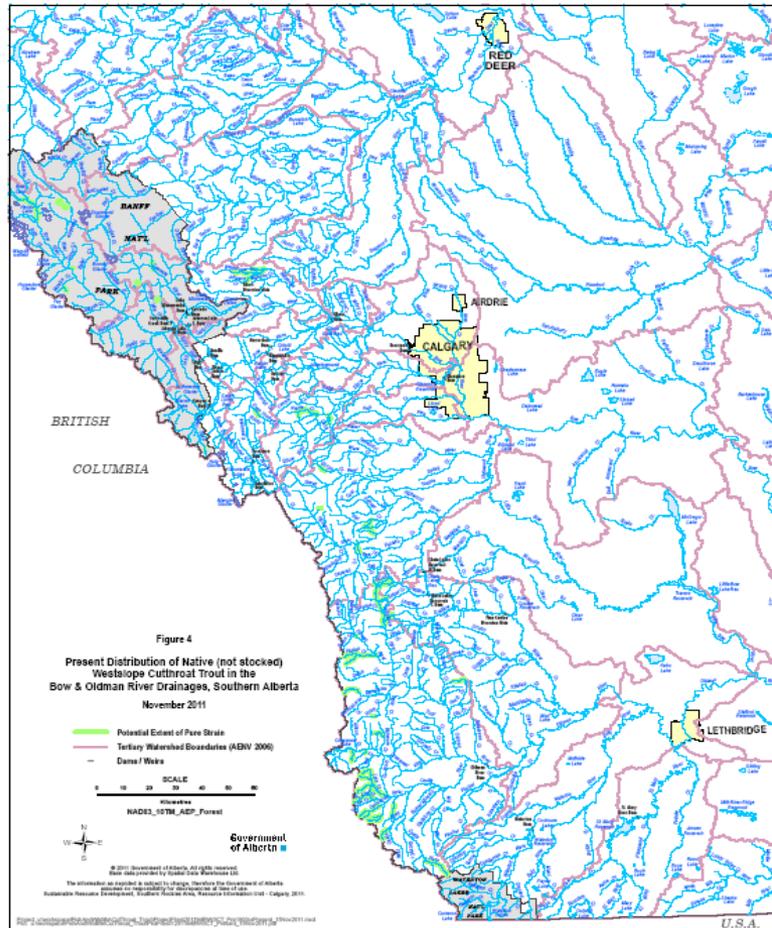
**“Now it is much different.” (1890)**

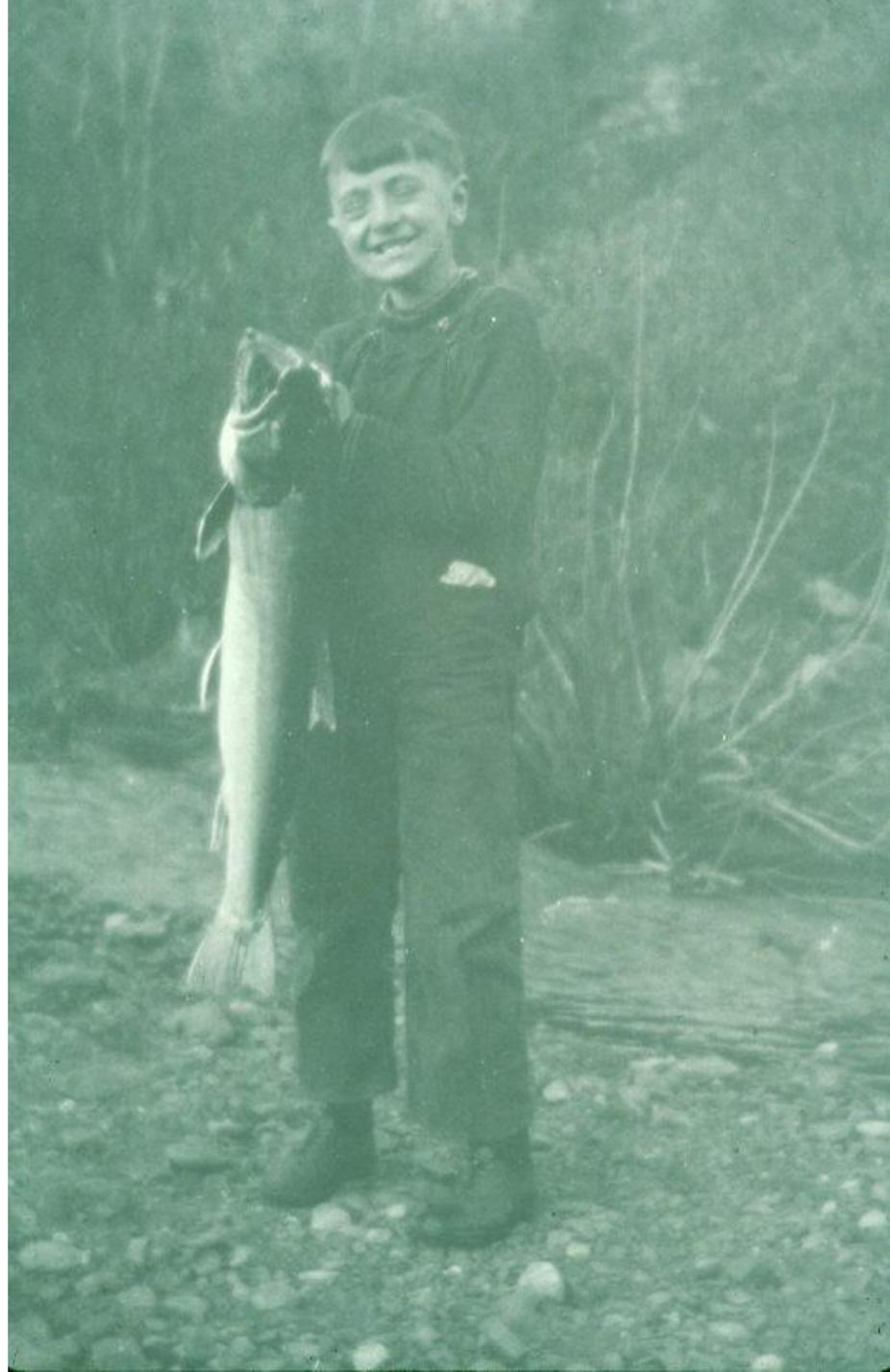


# Historical distribution of Westslope cutthroat trout

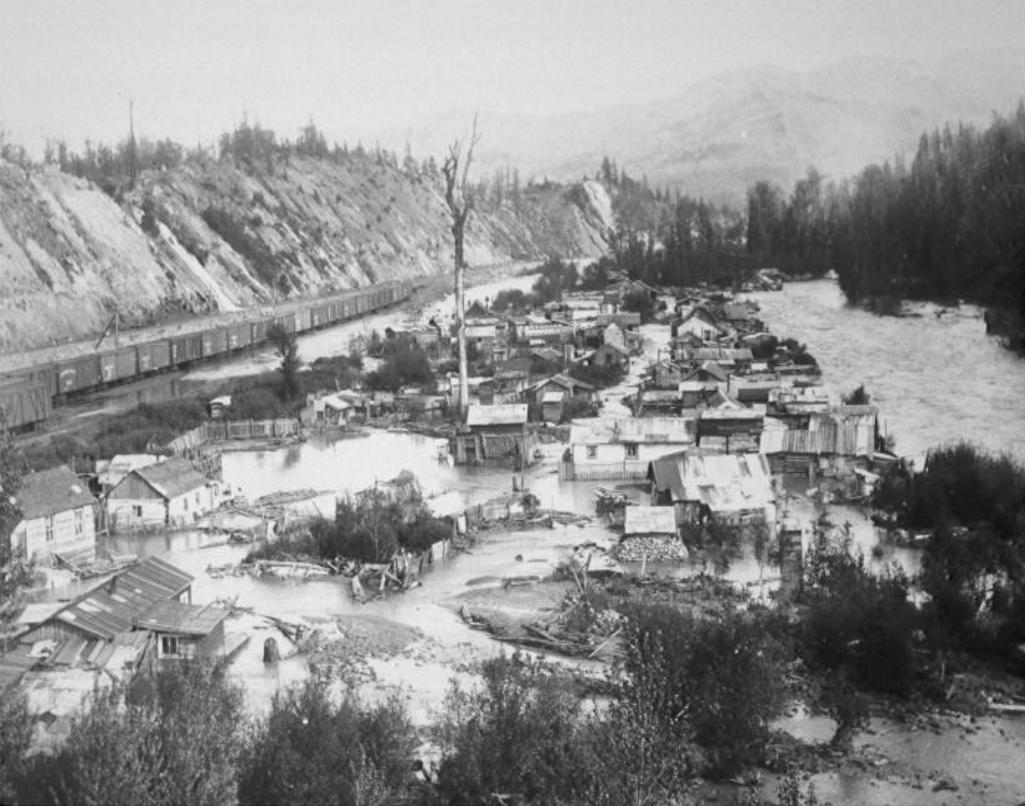


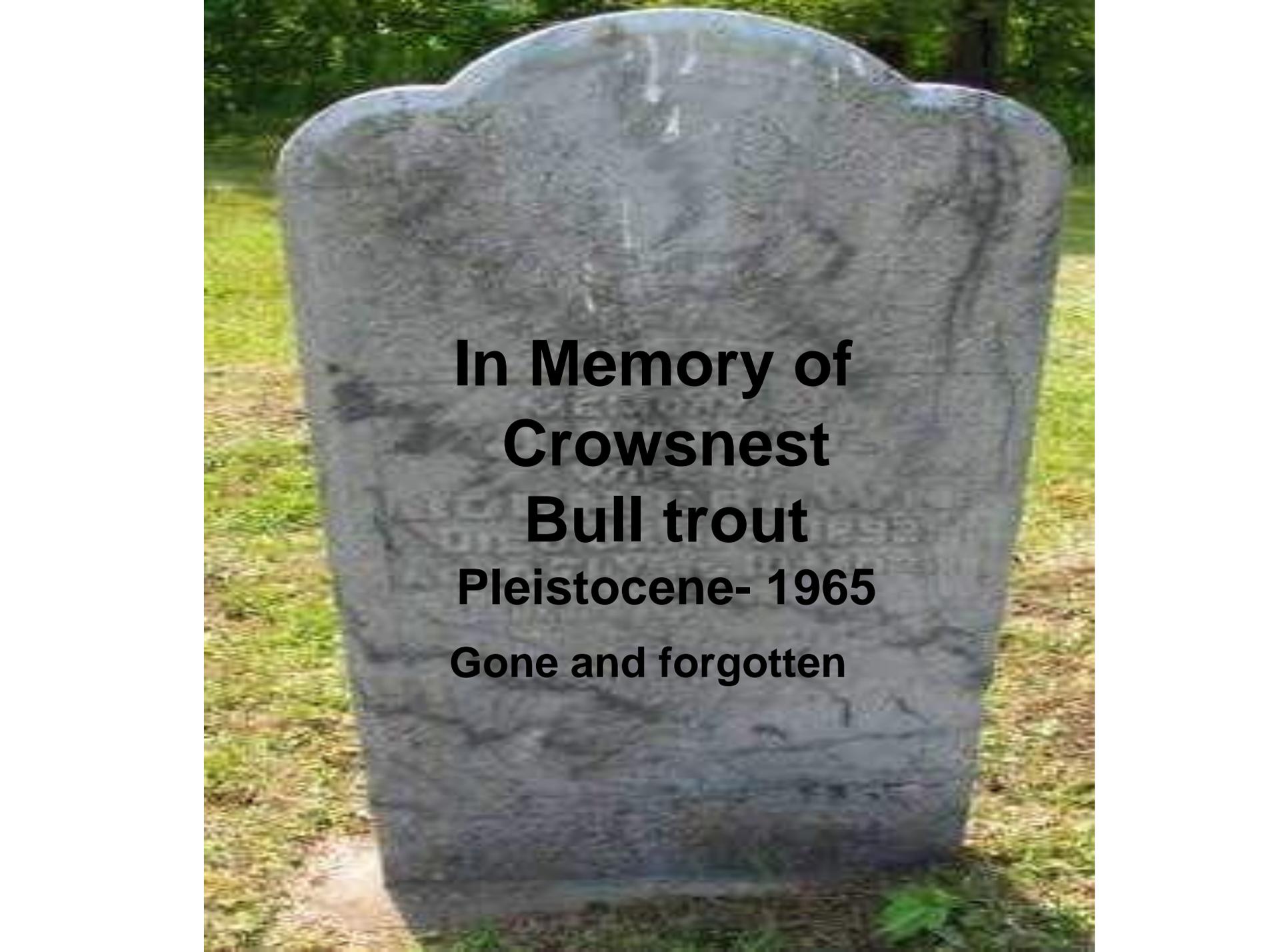
# Current distribution of Westslope cutthroat trout











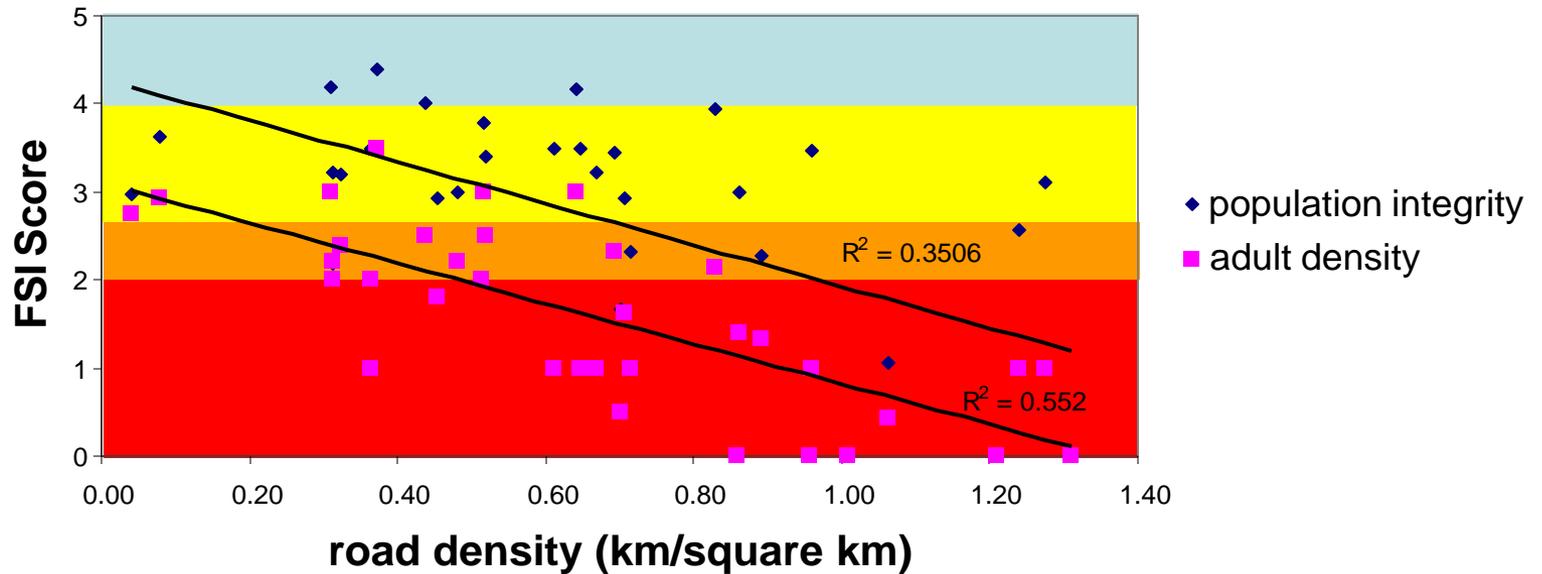
**In Memory of  
Crowsnest  
Bull trout  
Pleistocene- 1965  
Gone and forgotten**



# E.g. bull trout population vs. just roads

Bull Trout FSI 2008 Population Metrics vs. Road density 2007

Tertiary Watershed Averages



# Road Density (km/km<sup>2</sup>): Headwaters

|                          |     |
|--------------------------|-----|
| Upper Carbondale River - | 1.8 |
| West Castle River-       | 1.6 |
| Lower Castle River-      | 2.0 |
| South Castle River-      | 0.7 |
| Beavermines Creek-       | 2.0 |
| Beaver Creek-            | 4.5 |
| Ghost River-             | 5.1 |

**Key Thresholds:**

**0.2- 0.5 km/km<sup>2</sup>**

# Stream Crossings (#/km<sup>2</sup>): Oldman Watershed

Racehorse Creek- 2- >4

Dutch Creek- 1- >4

Oldman River- 0.5- >4

**1950-** 177 crossings

**2001-** **2803** crossings

# Gravity is a significant factor in watersheds











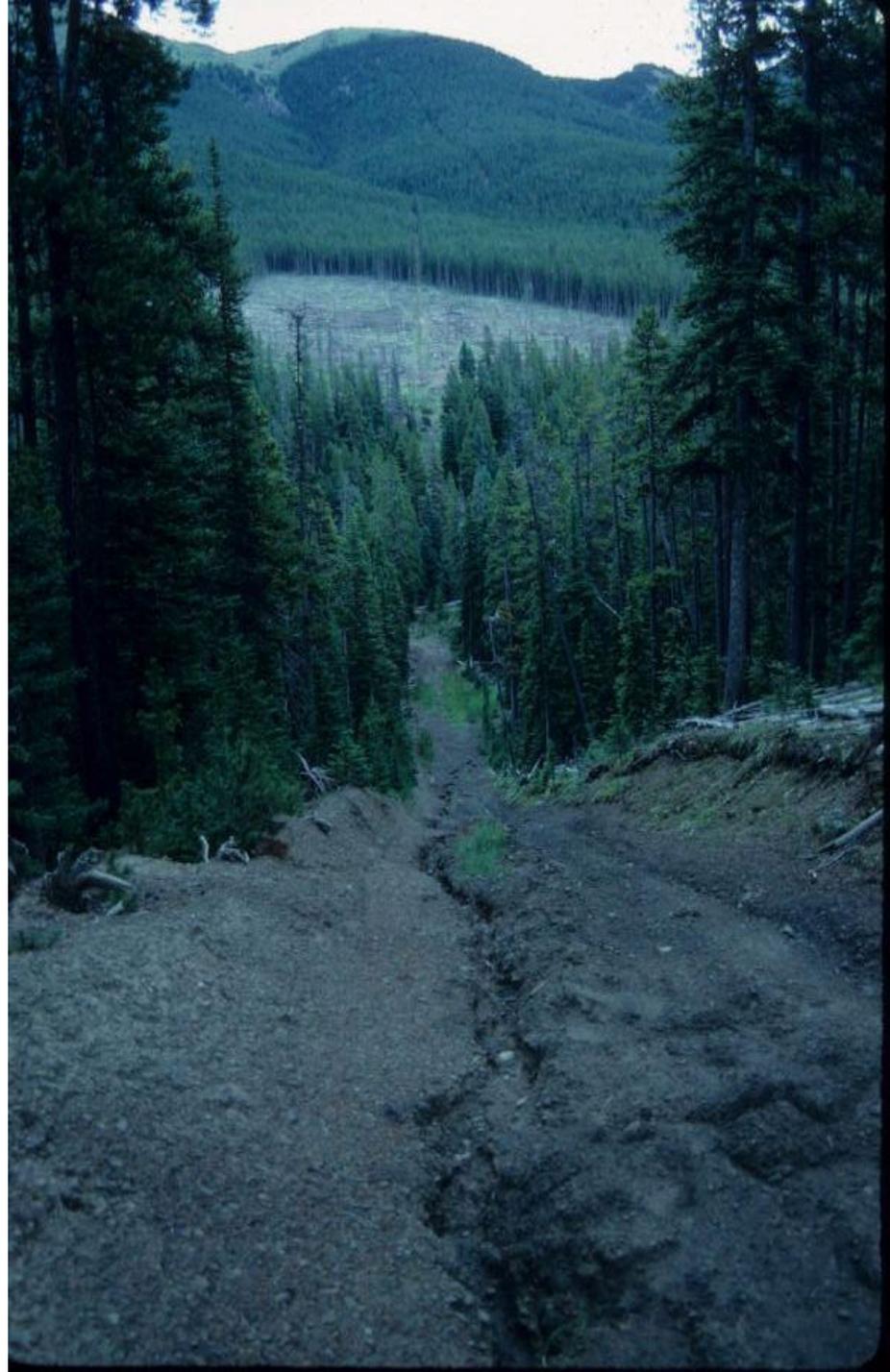


















**No vehicles: 30 years**



**No vehicles:  
50 years**





“...no silt has escaped from the roadway into the creek...” Alberta Forest Service









**“All erosion control measures  
are in place...”**

**Alberta Forest Service**















**Upstream of  
logging**



**Downstream of  
logging**









Unlogged



Logged







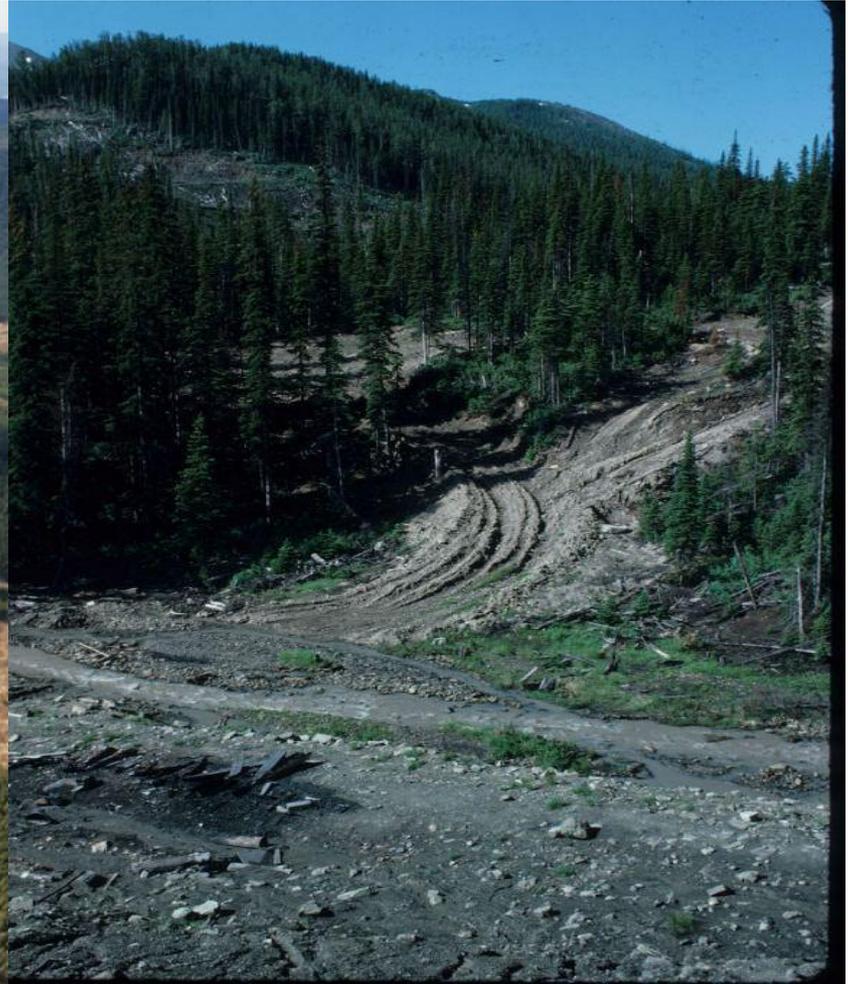
# Where to go?

- Shift from sustained timber production to sustainable forest management



# Where to go?

- Reduce the footprint



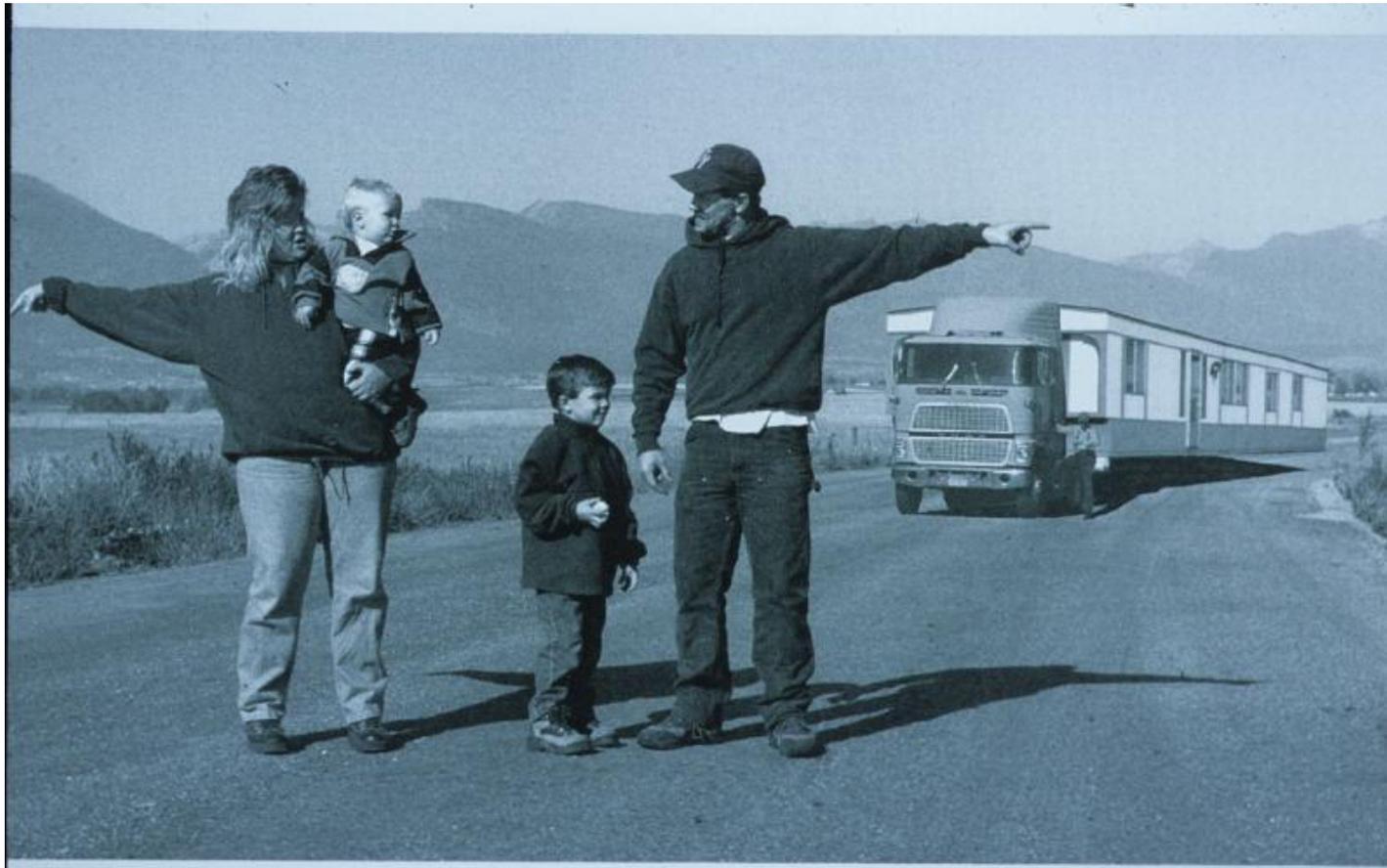
# Where to go?

- Plan for, anticipate natural processes



# Where to go?

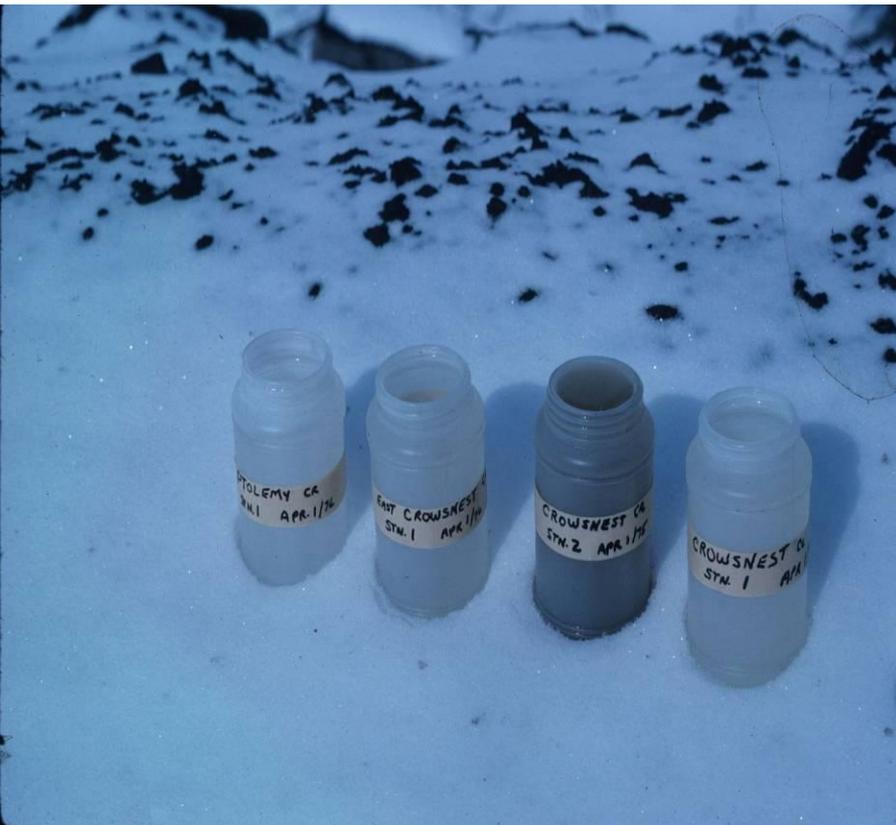
- Engage in ecosystem-based planning



*Land Use Planning in Montana*

# Where to go?

- Measure, Monitor, Adapt



# Where to go?

- Measure success with broad metrics



