



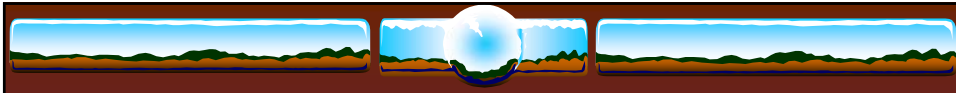
Forest Fire Hazard Mapping in Northern Idaho

❖ Don Brown



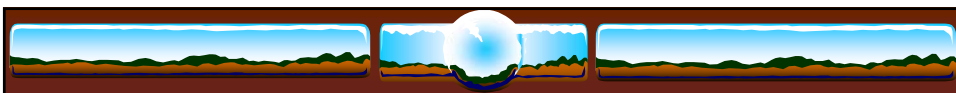
Introduction

- ❖ Where are the areas at risk and how do you determine where these areas are?
- ❖ How well can a simple model predict the future?



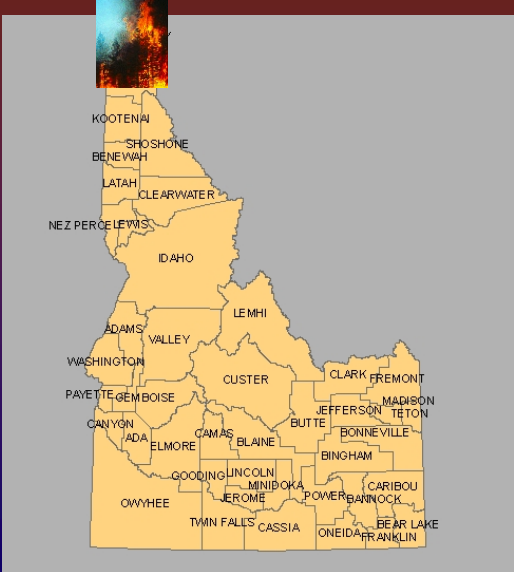
Introduction


- ❖ Why determine areas at high risk?
 - ❖ Control burns
 - ❖ Additional fire suppression resources
 - ❖ Inform public
 - ❖ Special building requirements
 - ❖ Emergency access



Area of Interest


- ❖ Boundary County, Idaho
- ❖ Why Boundary County?
 - ❖ Fire history for 1850-present





Data Used

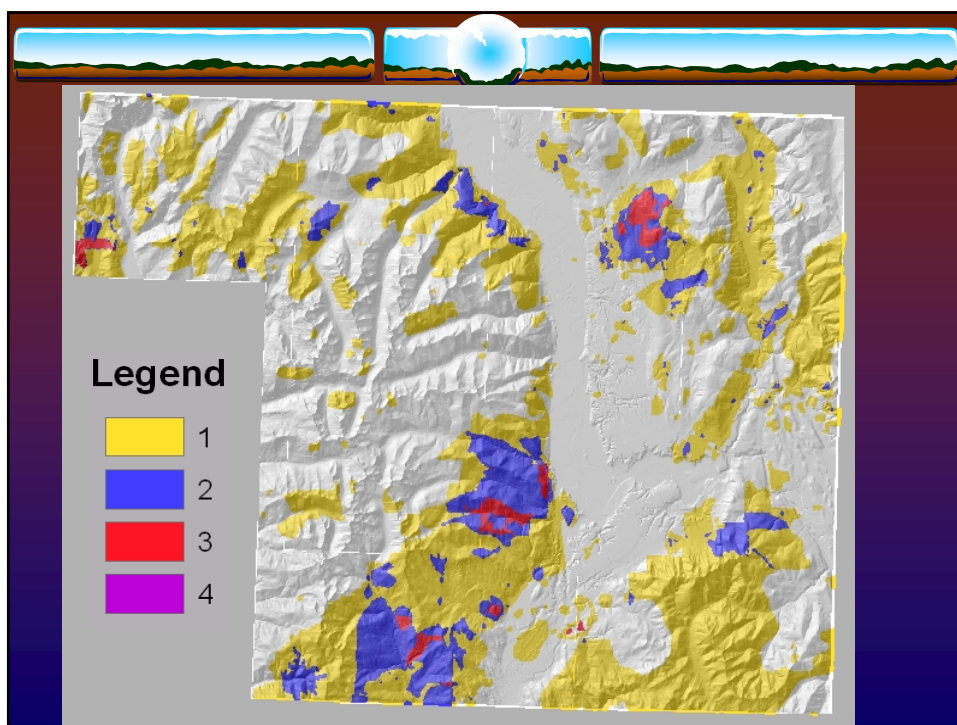
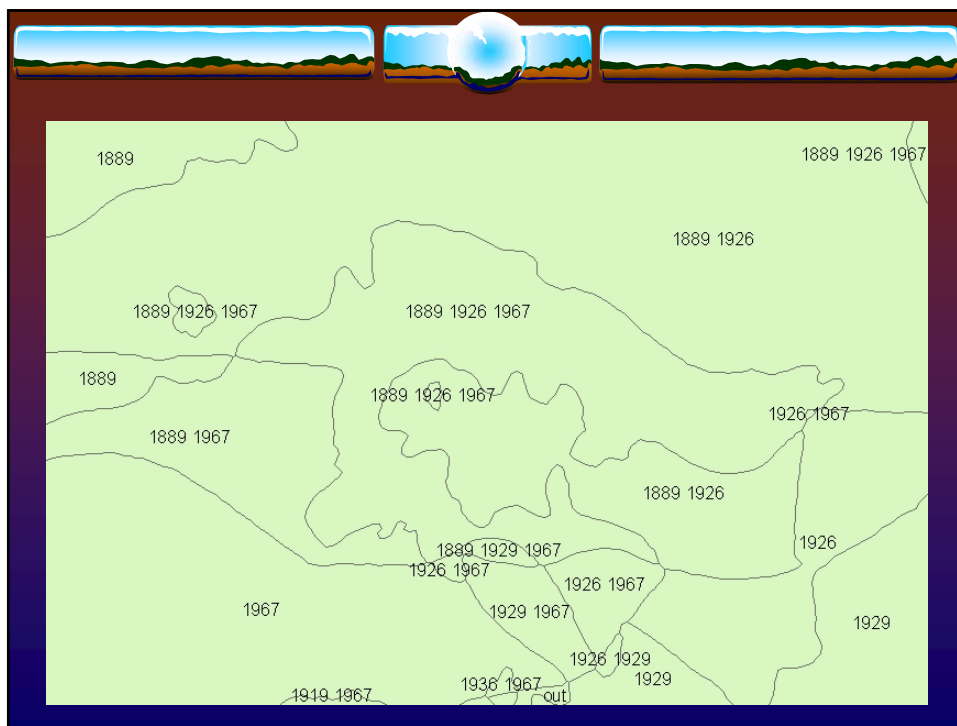
- ❖ Idaho counties
- ❖ Landcover
- ❖ Precipitation
- ❖ DEM → slope, aspect, hillshade
- ❖ Forest fire history
- ❖ All data was clipped to Boundary County



Methods

- ❖ Fire history data – overlapping regions
- ❖ Converted to raster based on number of fires in each 30m pixel

DATA		Fire1	Fire2	Fire3	Fire4	# Fires
1910 1918 1936		1910	1918	1936		3
1894 1910	→	1894	1910			2
1934		1934				1
1889 1922 1926 1967		1889	1922	1926	1967	4
1910 1943		1910	1943			2



Methods

Reclassification

- ❖ Data converted to raster
 - ❖ 30 meter pixels
- ❖ 1 – 10 rating scale
- ❖ **DEM**
 - ❖ Higher elevation less hazard

❖ 0-5000 ft.	→	8
❖ 5001-8000 ft.	→	5
❖ > 8000 ft.	→	2

Methods

Reclassification

- ❖ **% Slope**
- ❖ Greater slope
 - ↓
 - greater hazard:

❖ > 35%	→	10
❖ 25-35	→	8
❖ 10-25	→	6
❖ 5-10	→	4
❖ < 5	→	2

Methods
Reclassification

❖ **Aspect**

❖ South facing slopes get more sun

❖ 0-44; 315-360 → 2

❖ 45-89; 270-315 → 4

❖ 90-134; 225-269 → 6

❖ 135-224 → 8

Methods
Reclassification

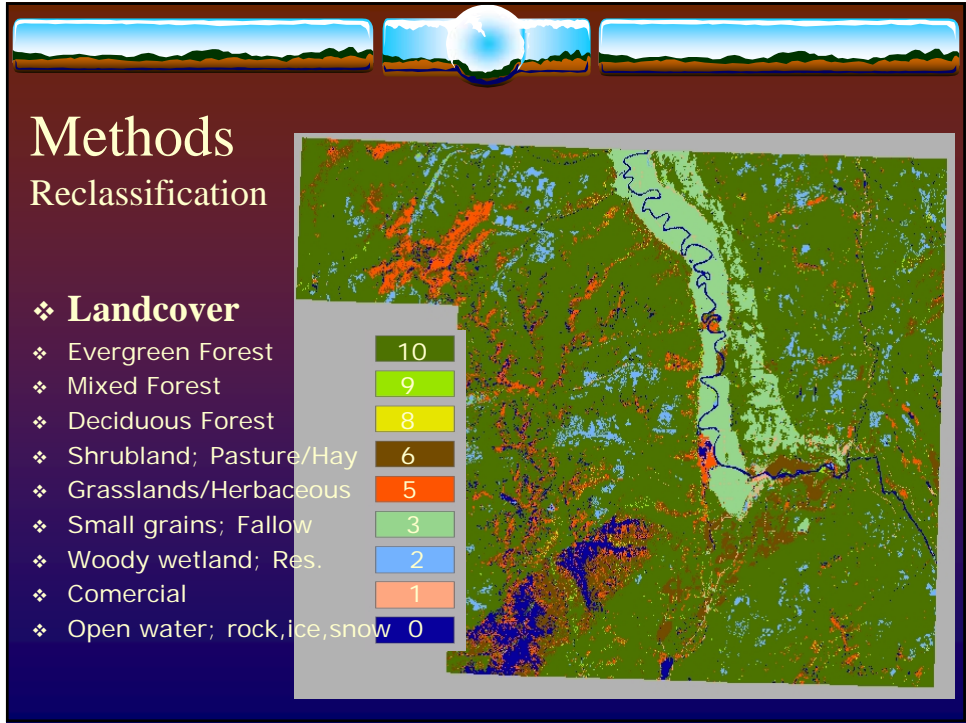
❖ **Precipitation**

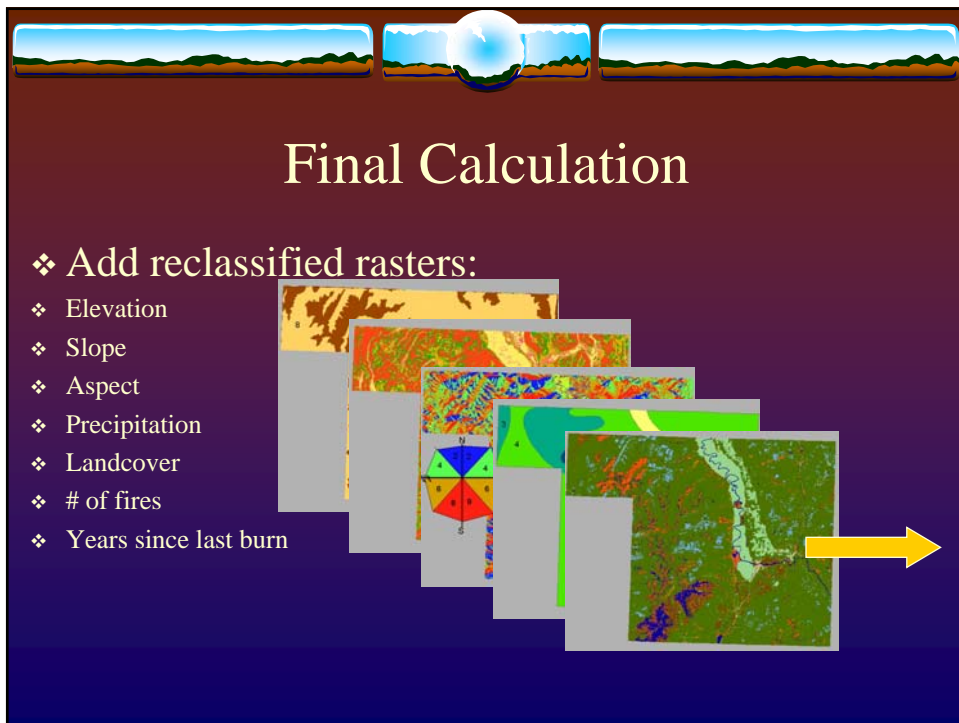
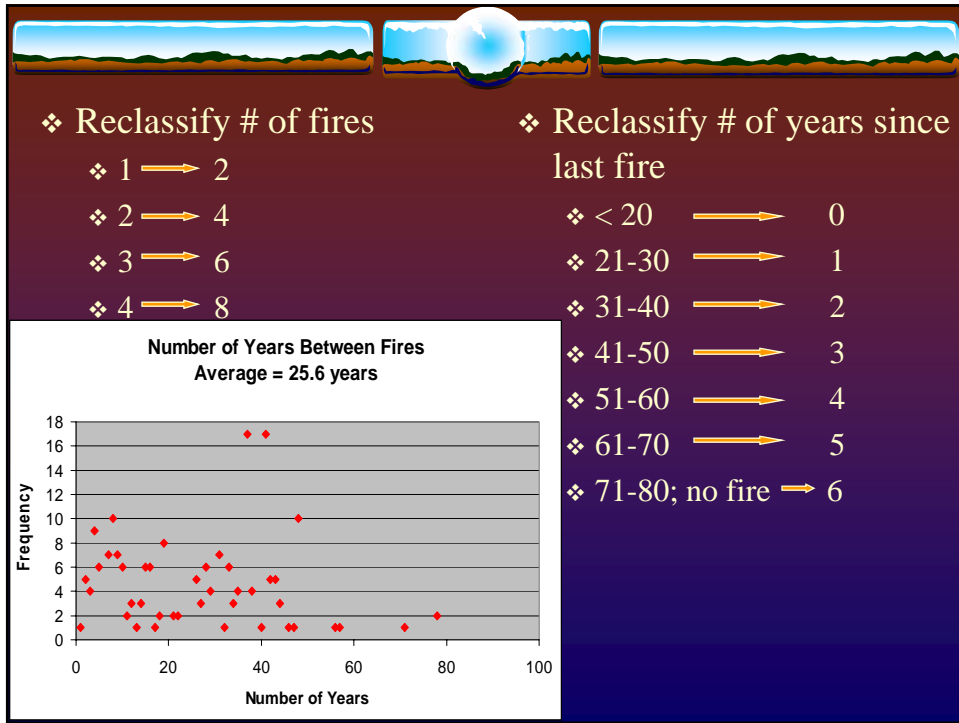
❖ 0-20 → 5

❖ 21-40 → 4

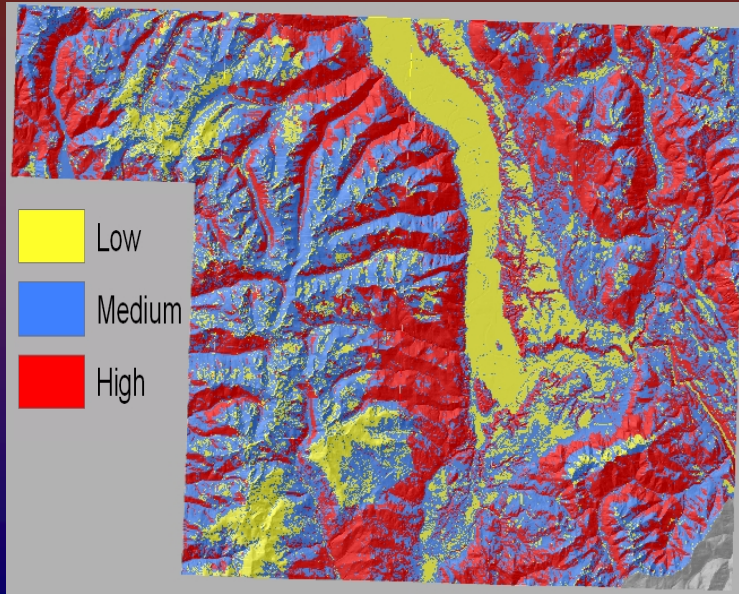
❖ 41-60 → 3

❖ 61-80 → 2





Results



Conclusions

- ❖ There are many areas where wildfires can spread in Northern Idaho
- ❖ Fire modeling can be a very complex
 - ❖ Ignition sources, wind, droughts, location of fire suppressant, etc...

Remember - only you can...

