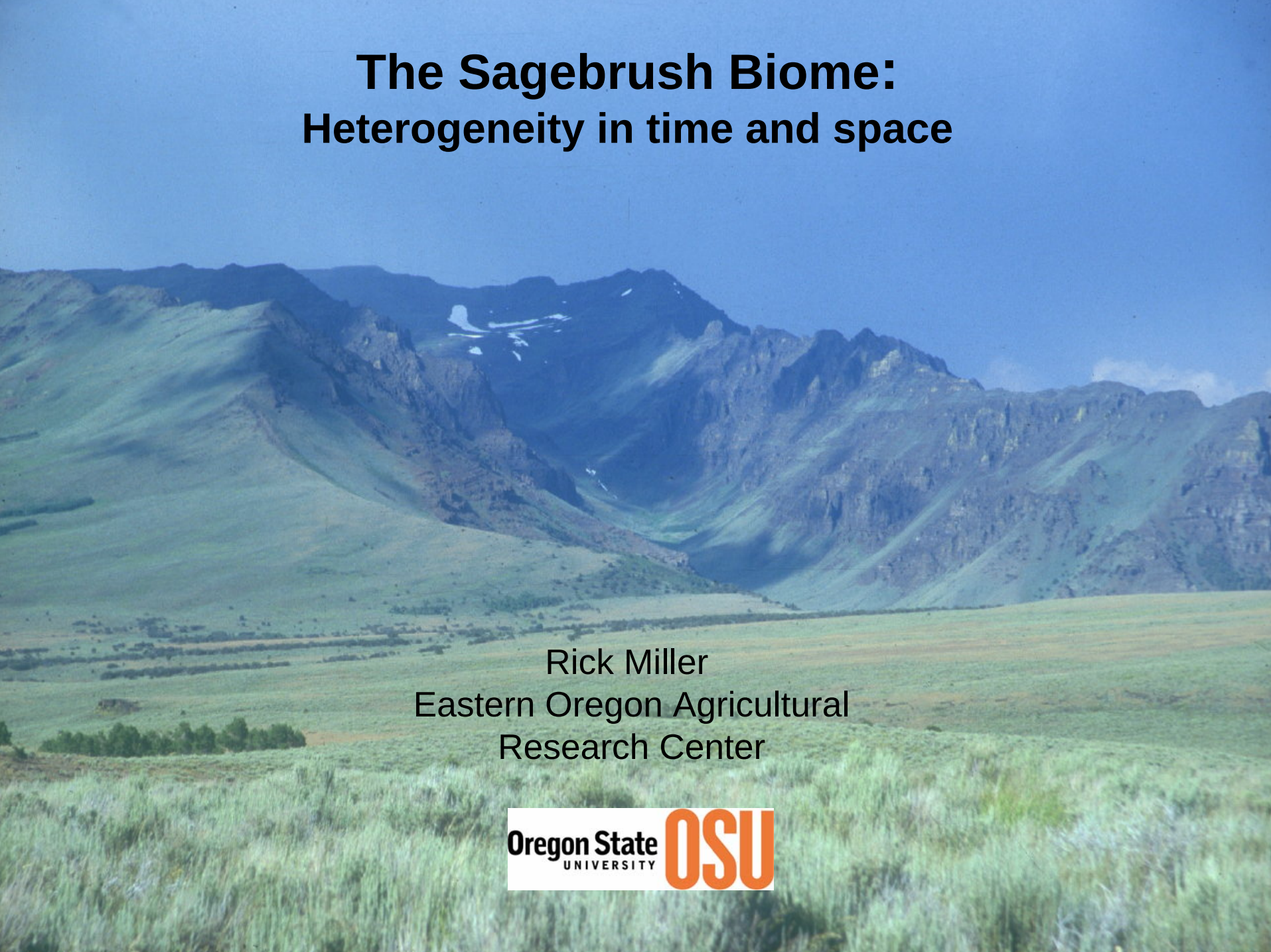
The Sagebrush Biome:
Heterogeneity in time and space



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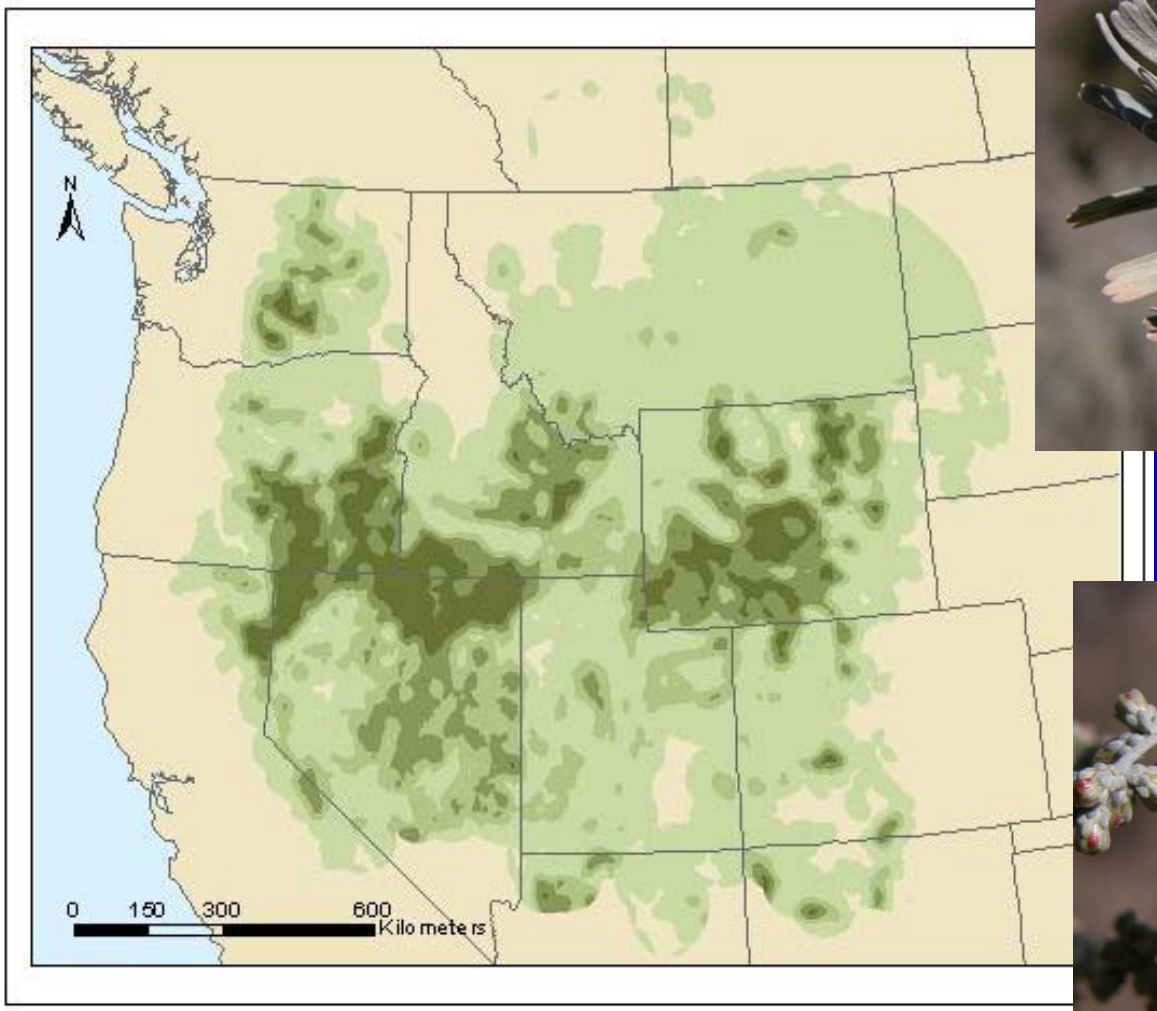
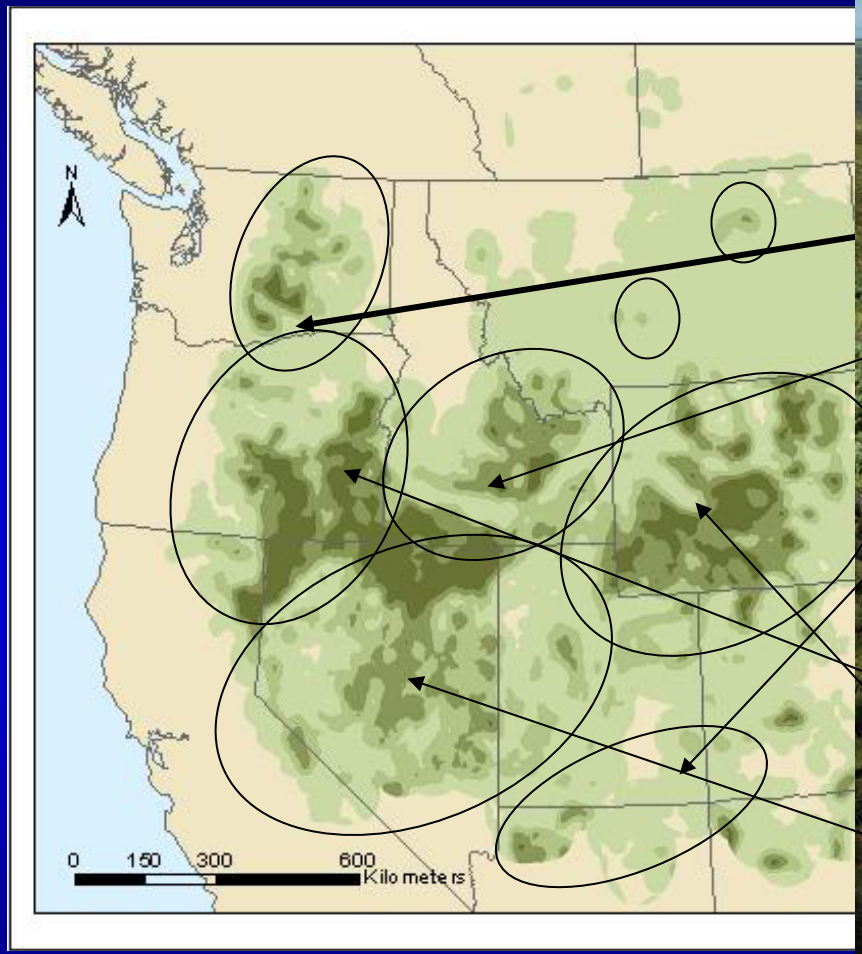
“One of the most endangered ecosystems in the United States”, Noss et al. 1995

Sagebrush Biome



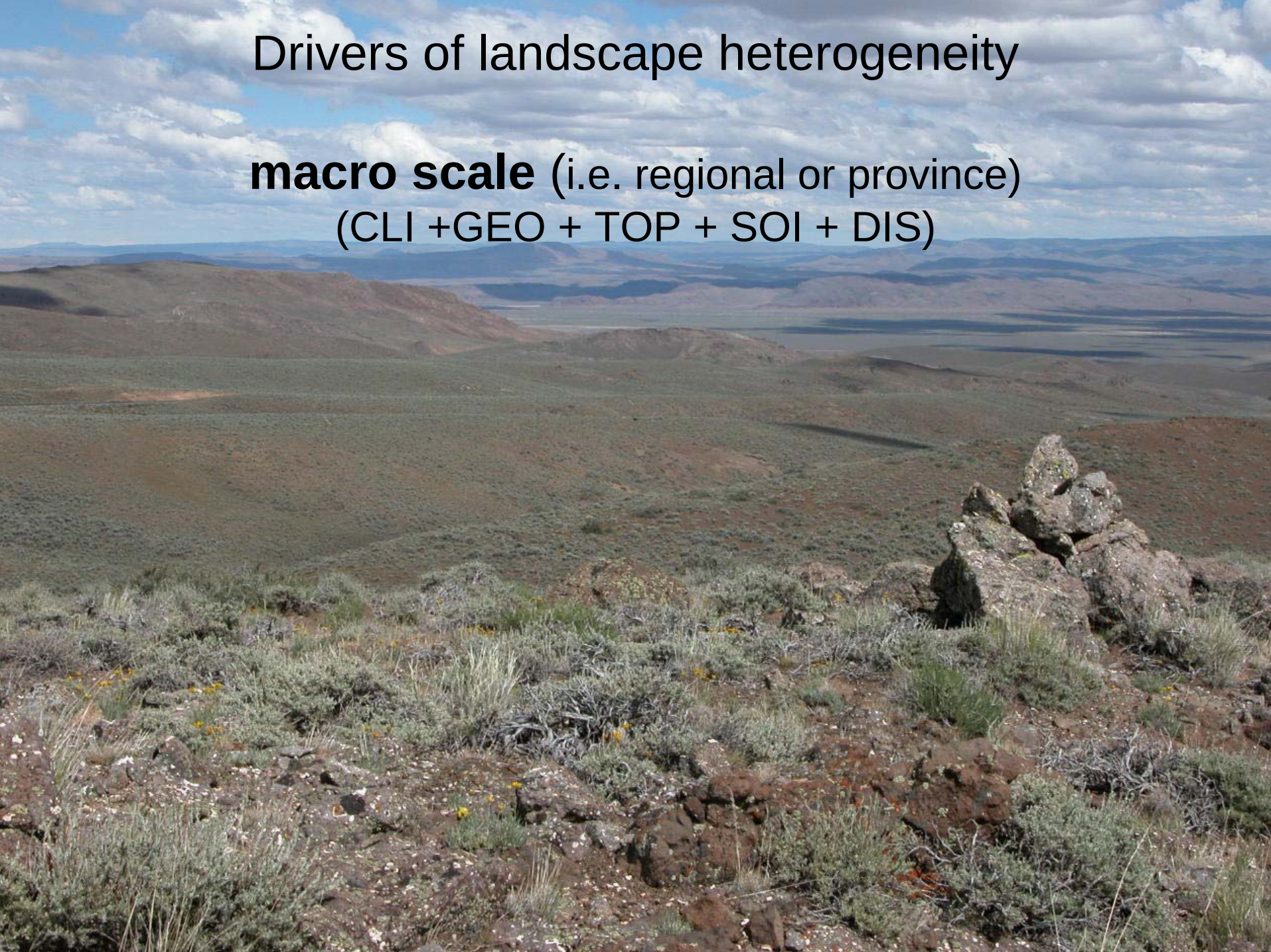
Varies Regionally



X

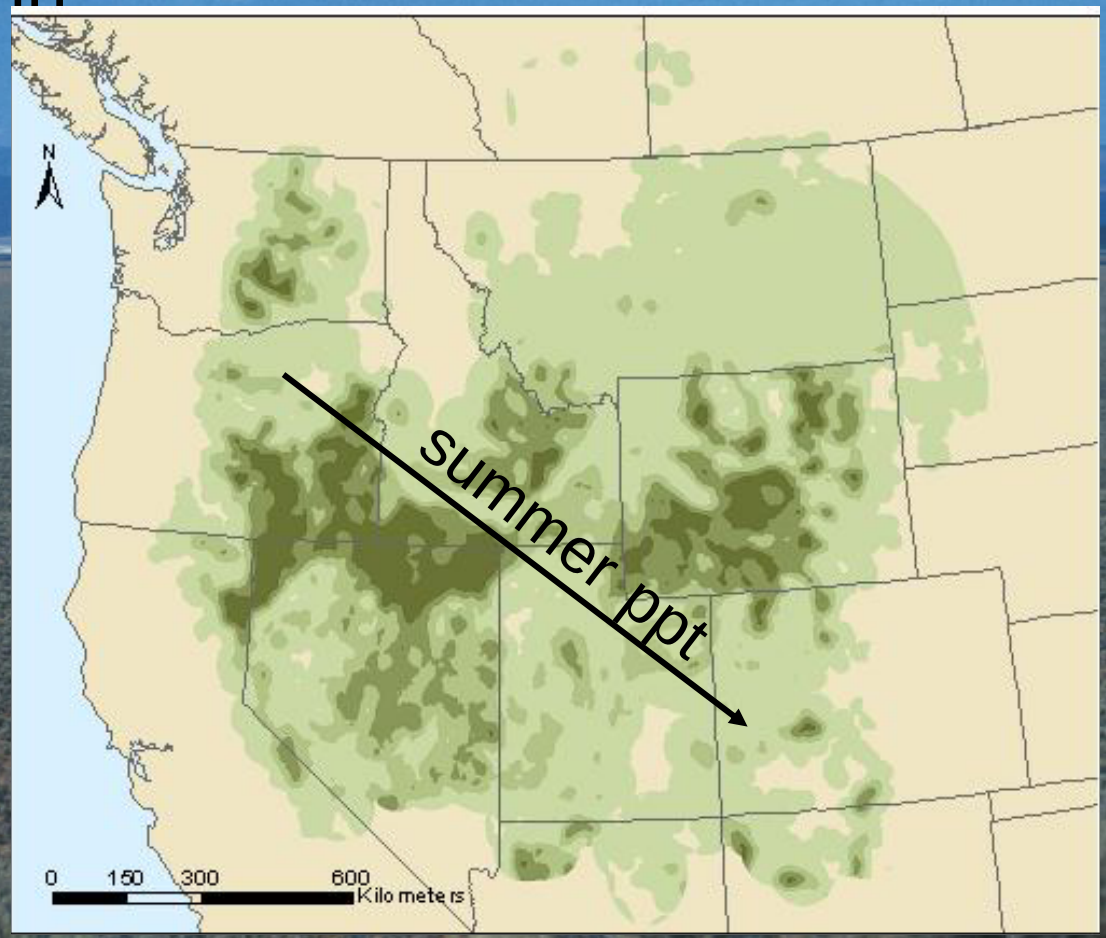
Drivers of landscape heterogeneity

macro scale (i.e. regional or province)
(CLI +GEO + TOP + SOI + DIS)



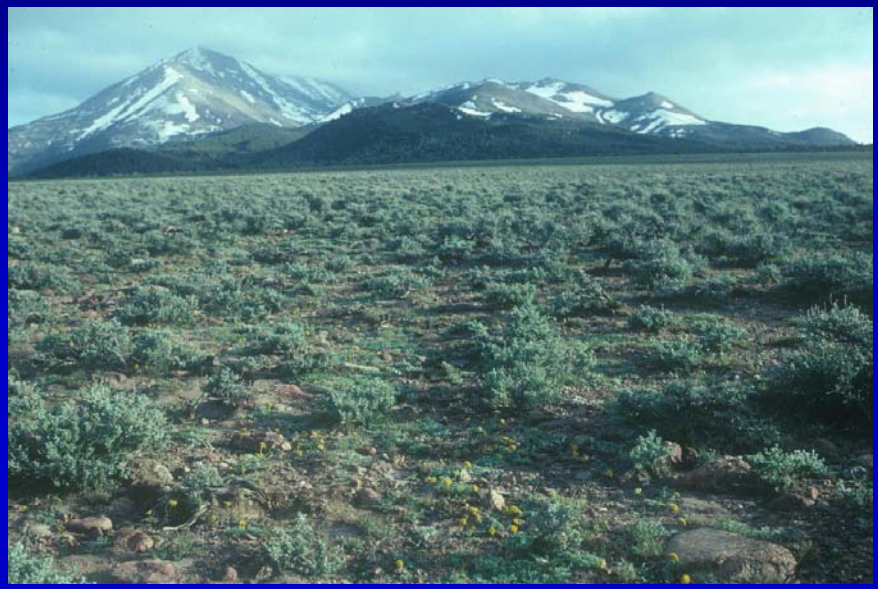
Precipitation

mean 11 in;
range 6 to 16 in
Extremes 3-5 and 60 in



Soils and parent material

Soils and parent material

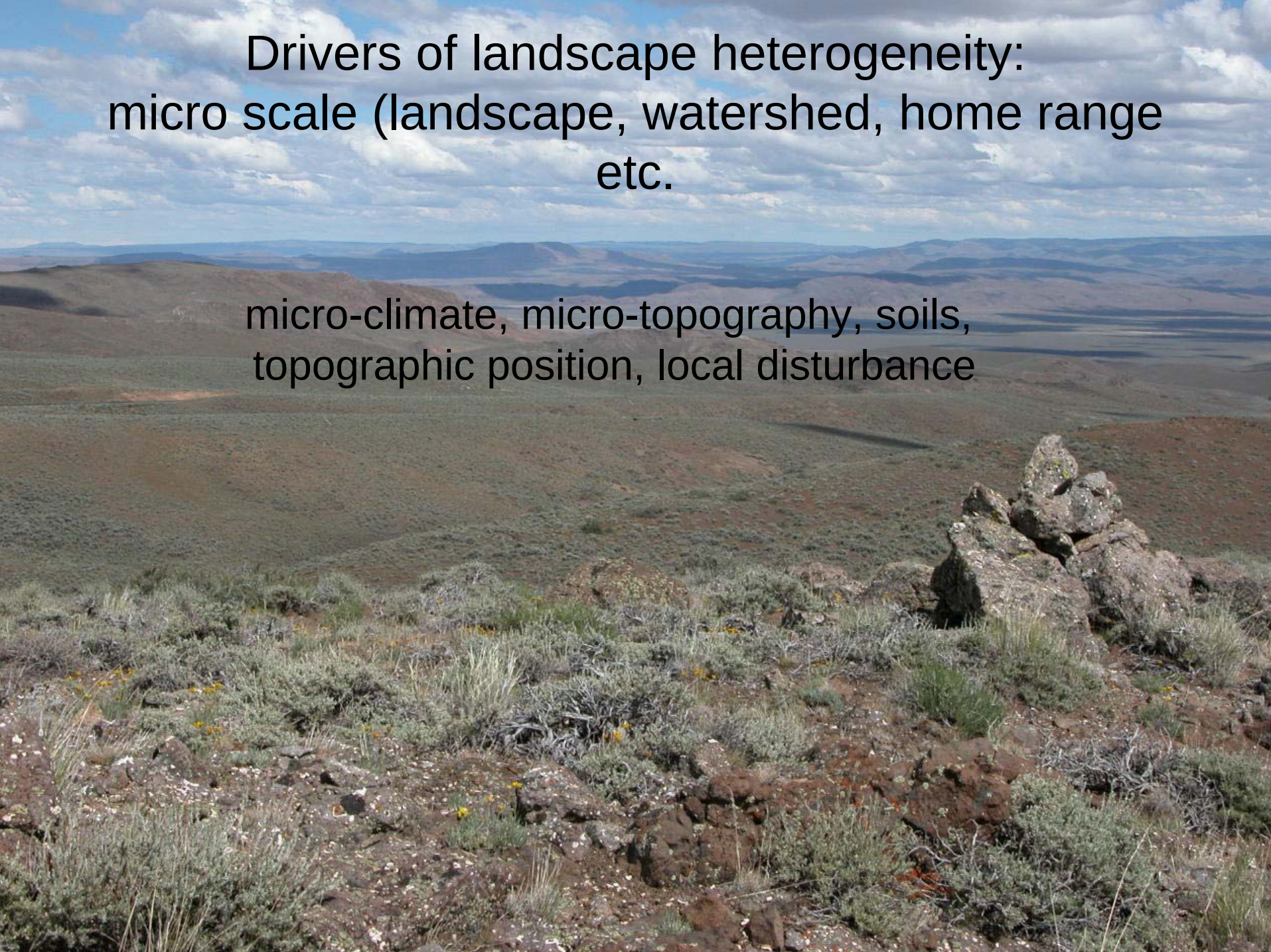


Low sagebrush
basalt
shallow clays

Mountain big sagebrush
Basalt and ash
deep loams

Disturbance Regimes

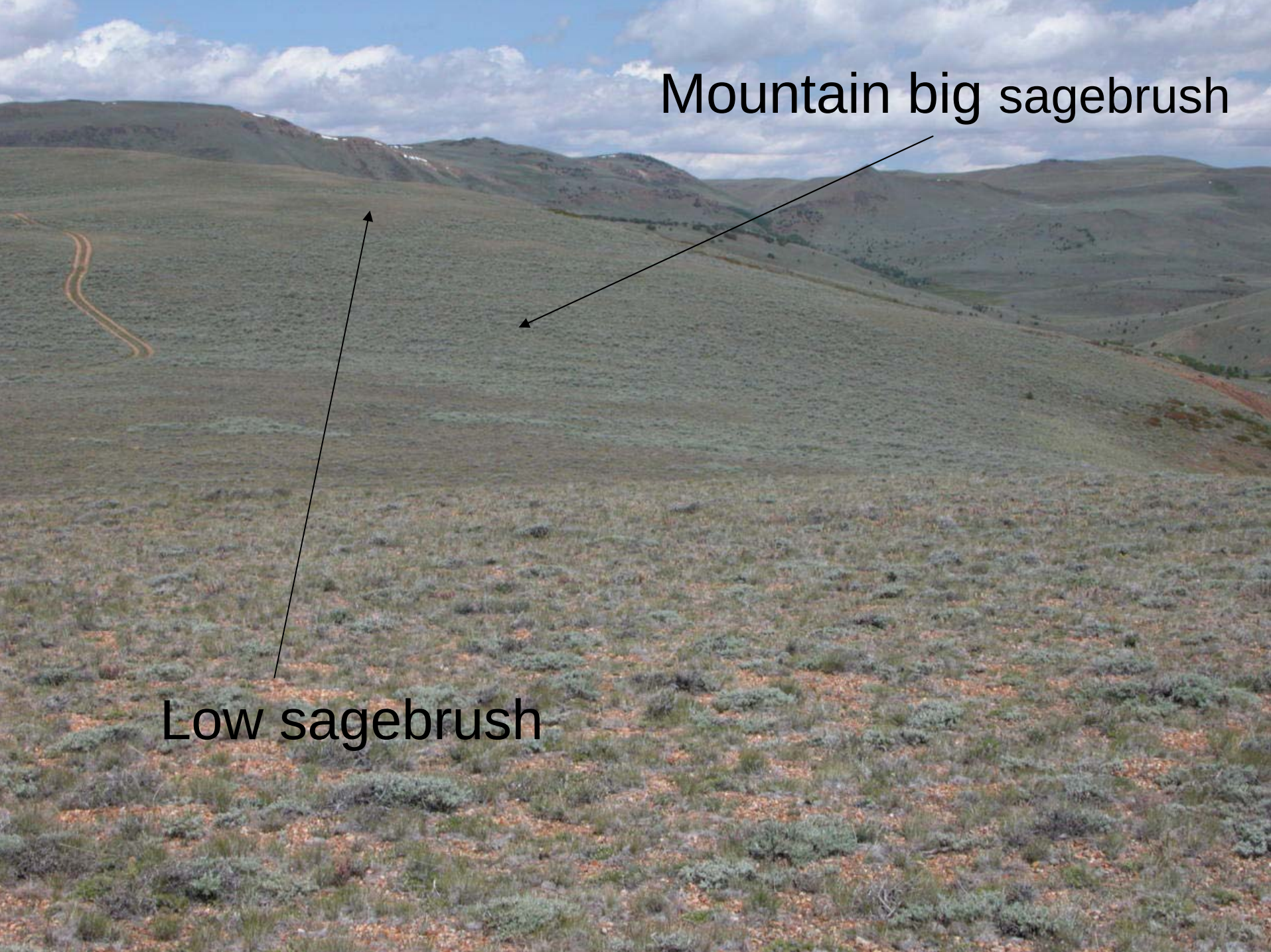
Fire regimes = climate, topography, landscape composition, fuel structure & composition, ignition source



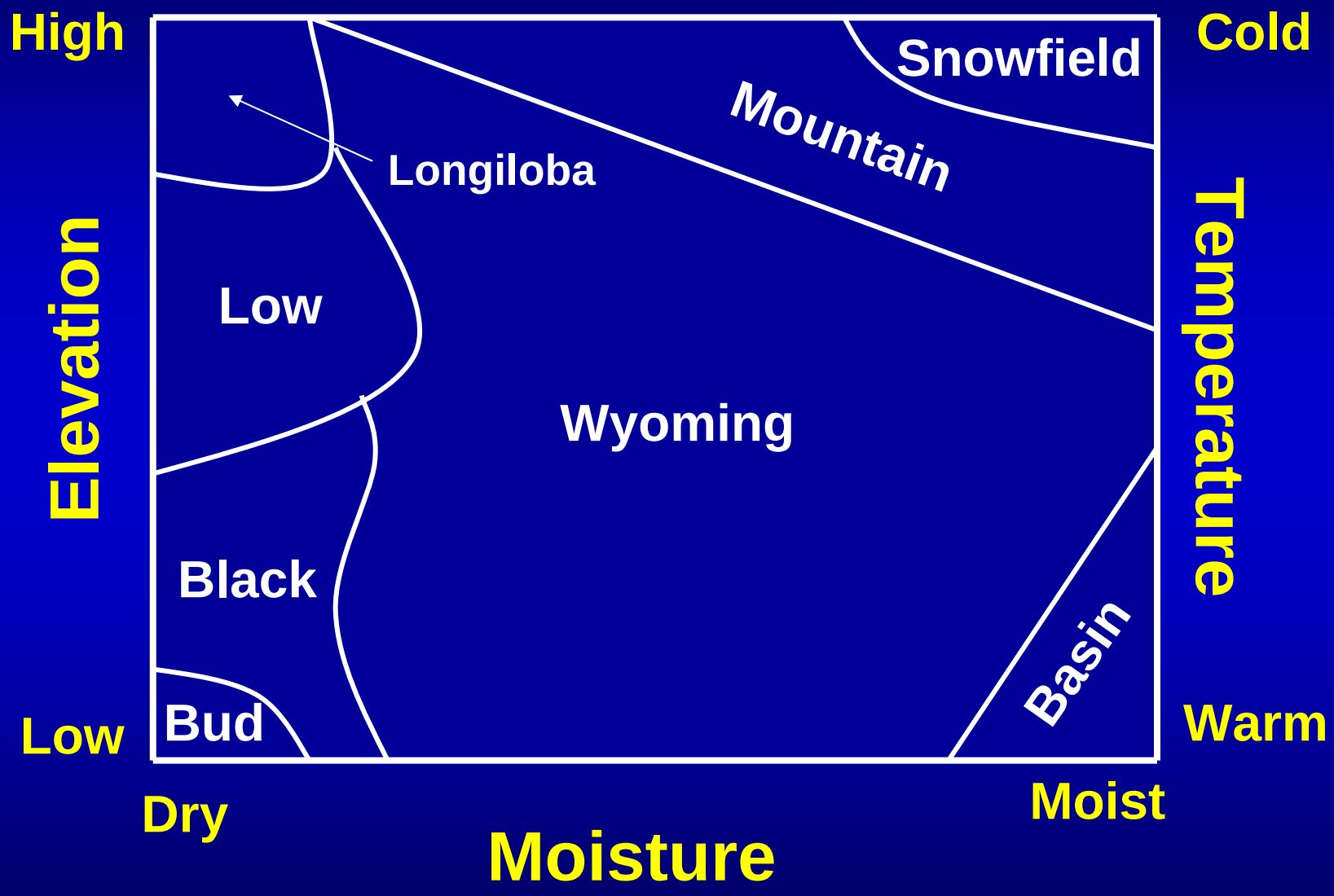
Drivers of landscape heterogeneity: micro scale (landscape, watershed, home range etc.

micro-climate, micro-topography, soils, topographic position, local disturbance

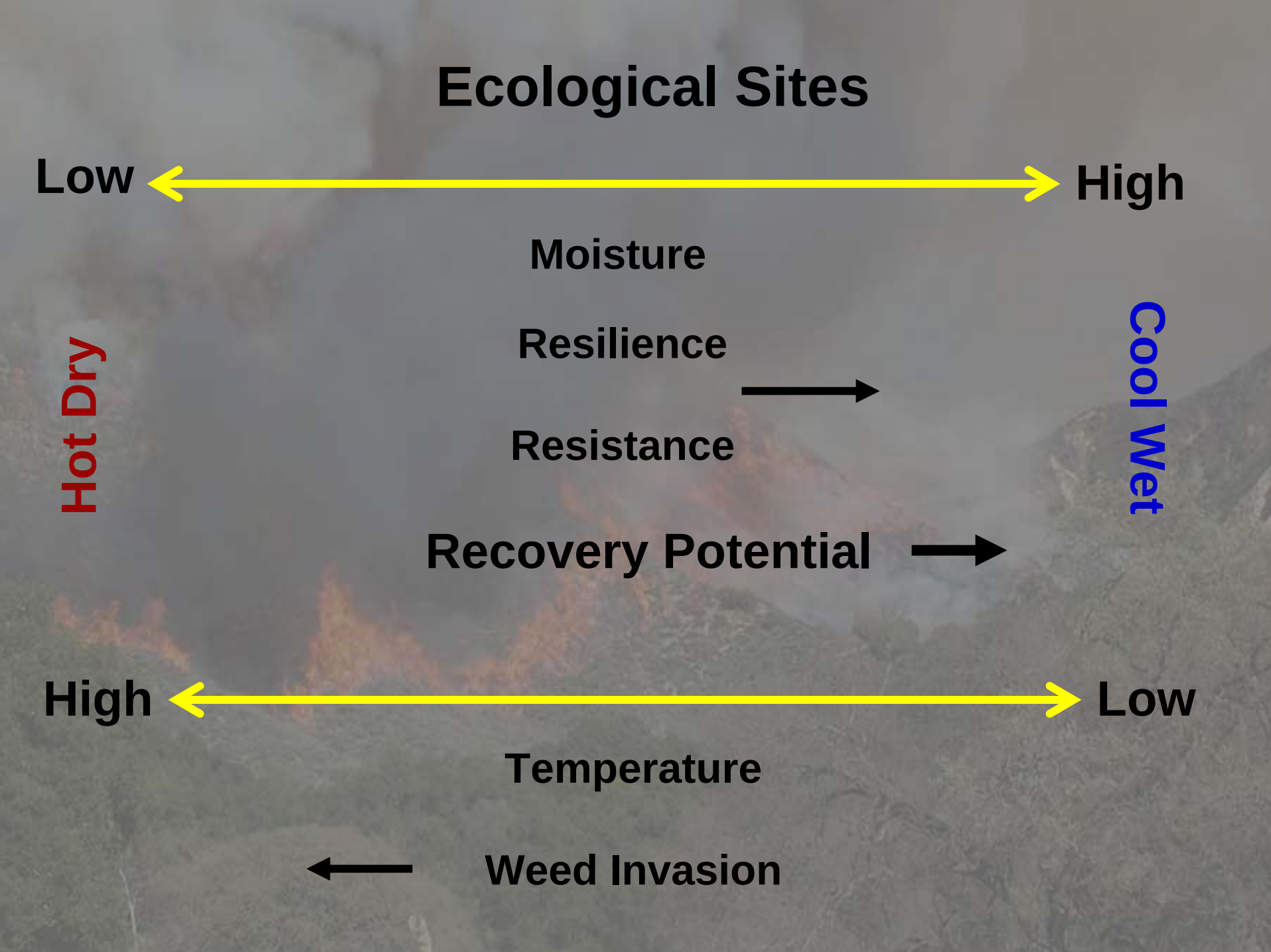
> 20 Artemisia species


Mountain big sagebrush
Low sagebrush

Artemisia sp. (Great Basin)

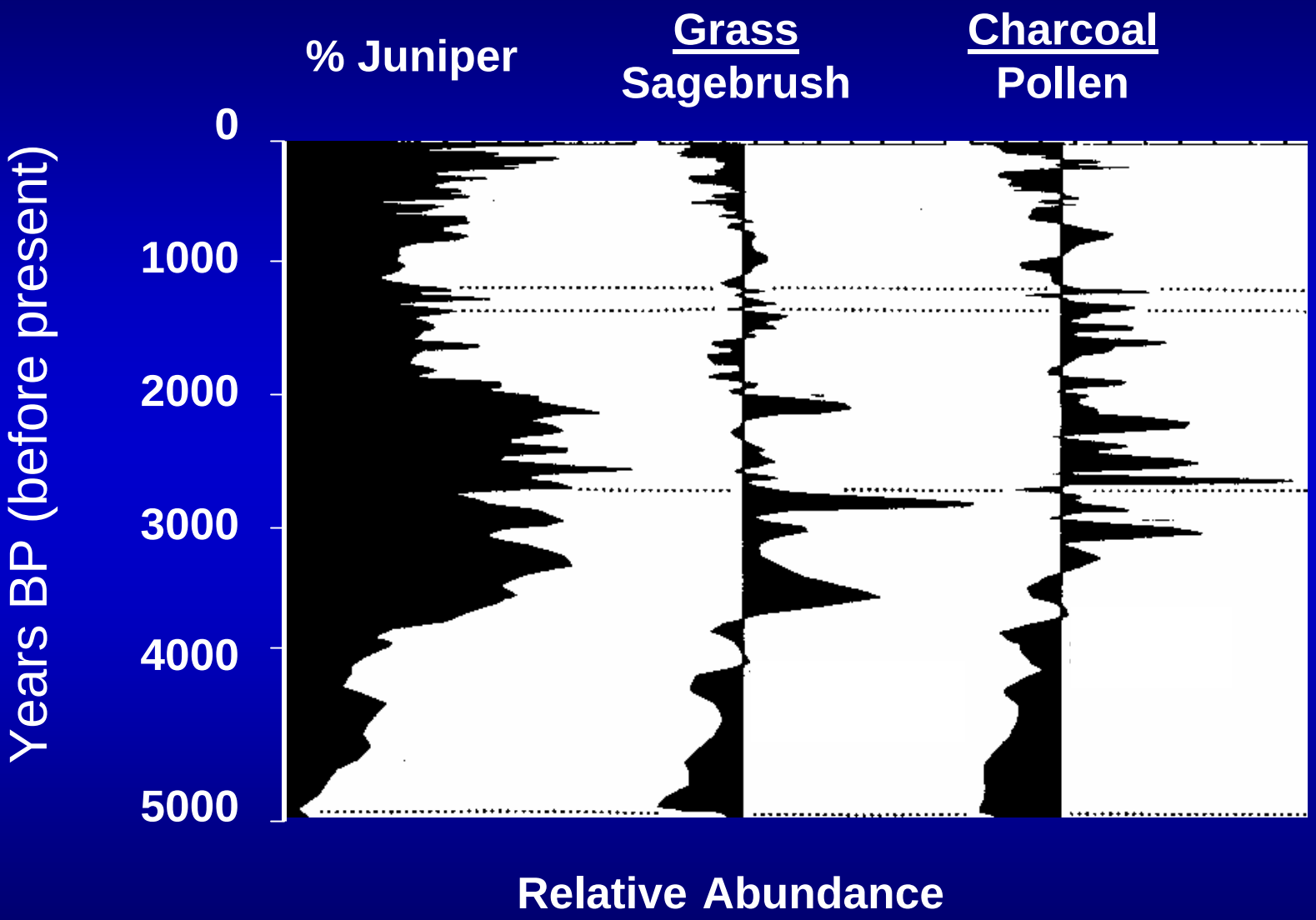


Snowfield sagebrush
9,800ft


Ecological Sites
Low
High
Moisture
Resilience
Resistance
Hot Dry
Cool Wet
Recovery Potential
High
Low
Temperature
Weed Invasion

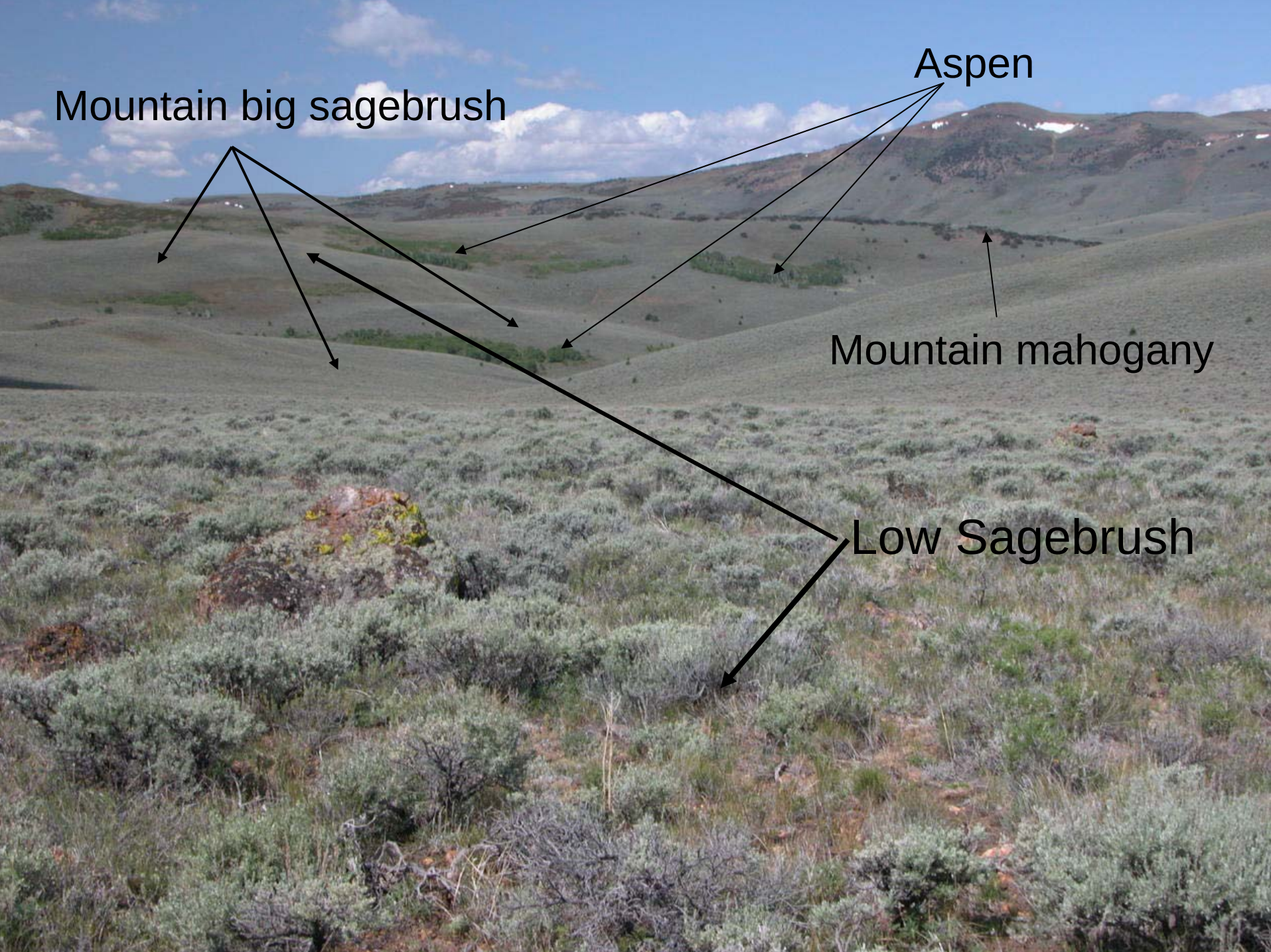
Long term temporal change

Diamond Craters, OR

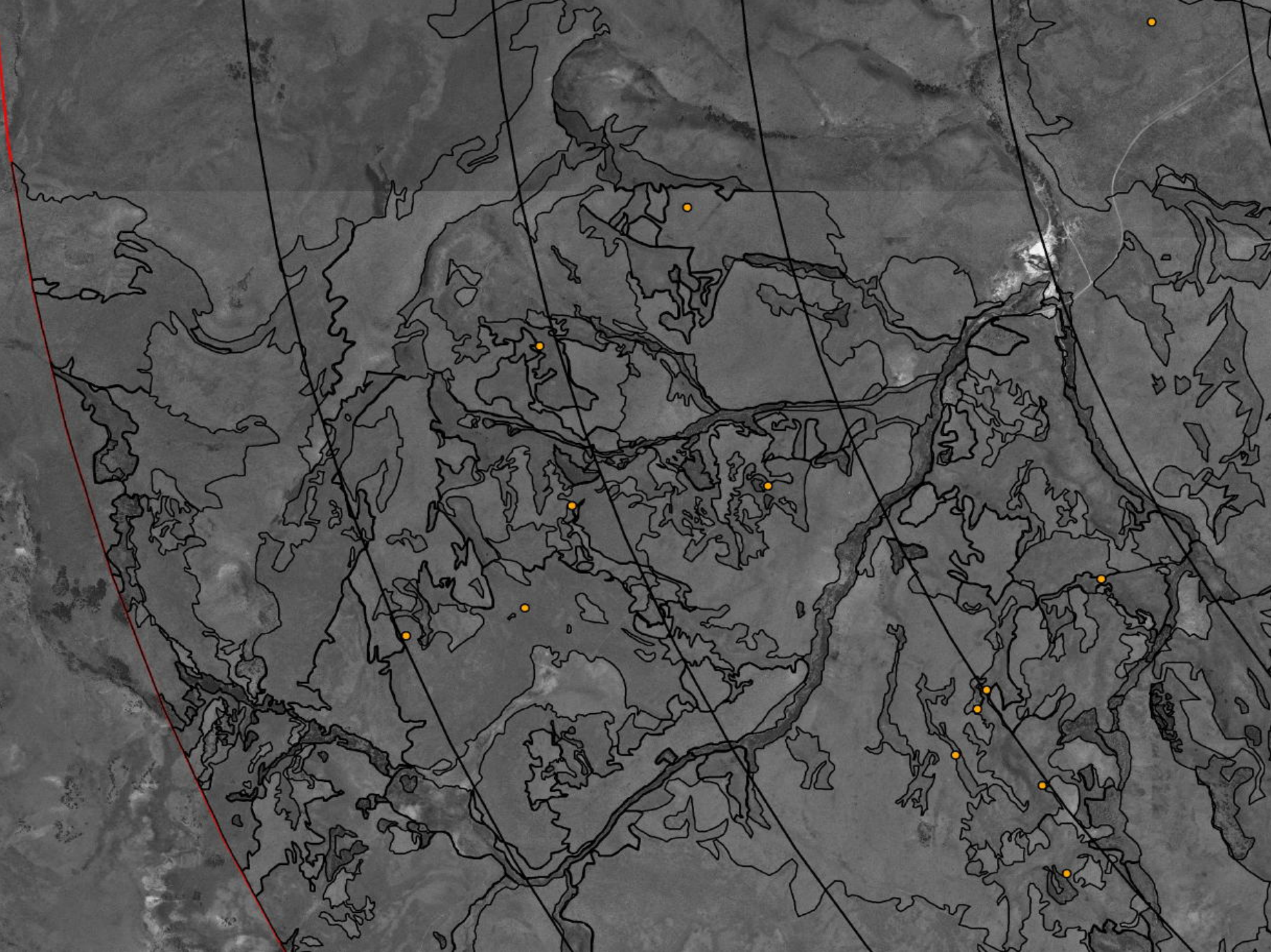


Time since fire = 63 years

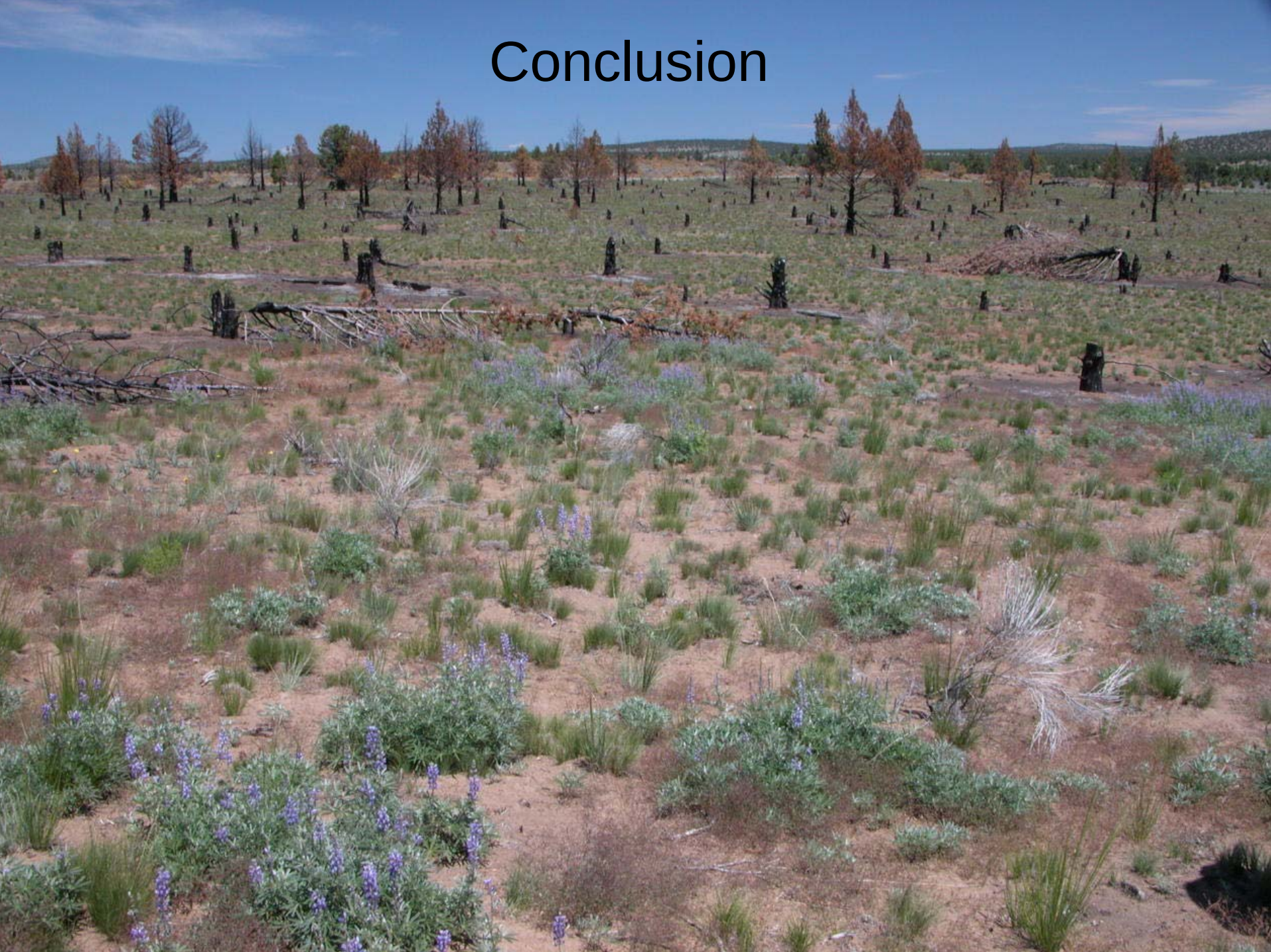
“A landscape is a mosaic of patches of different spatial arrangement giving each landscape a unique pattern.”
Urban et al. 1987


Aspen
Mountain big sagebrush
Mountain mahogany
Low Sagebrush

Patch –
size, shape, spatial arrangement, composition



Conclusion



Transitions & Reference