



Fire Regimes and Forests of the Klamath Mountains

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“Of the hundreds of persons who visit the Pacific slope in California every summer to see the mountains, few see more than the immediate foreground and a haze of smoke which even the strongest glass is unable to penetrate.”

C. Hart Merriam

1898 Visit to Siskiyou County

Chief, Division of Biological Survey

From: Morford 1984



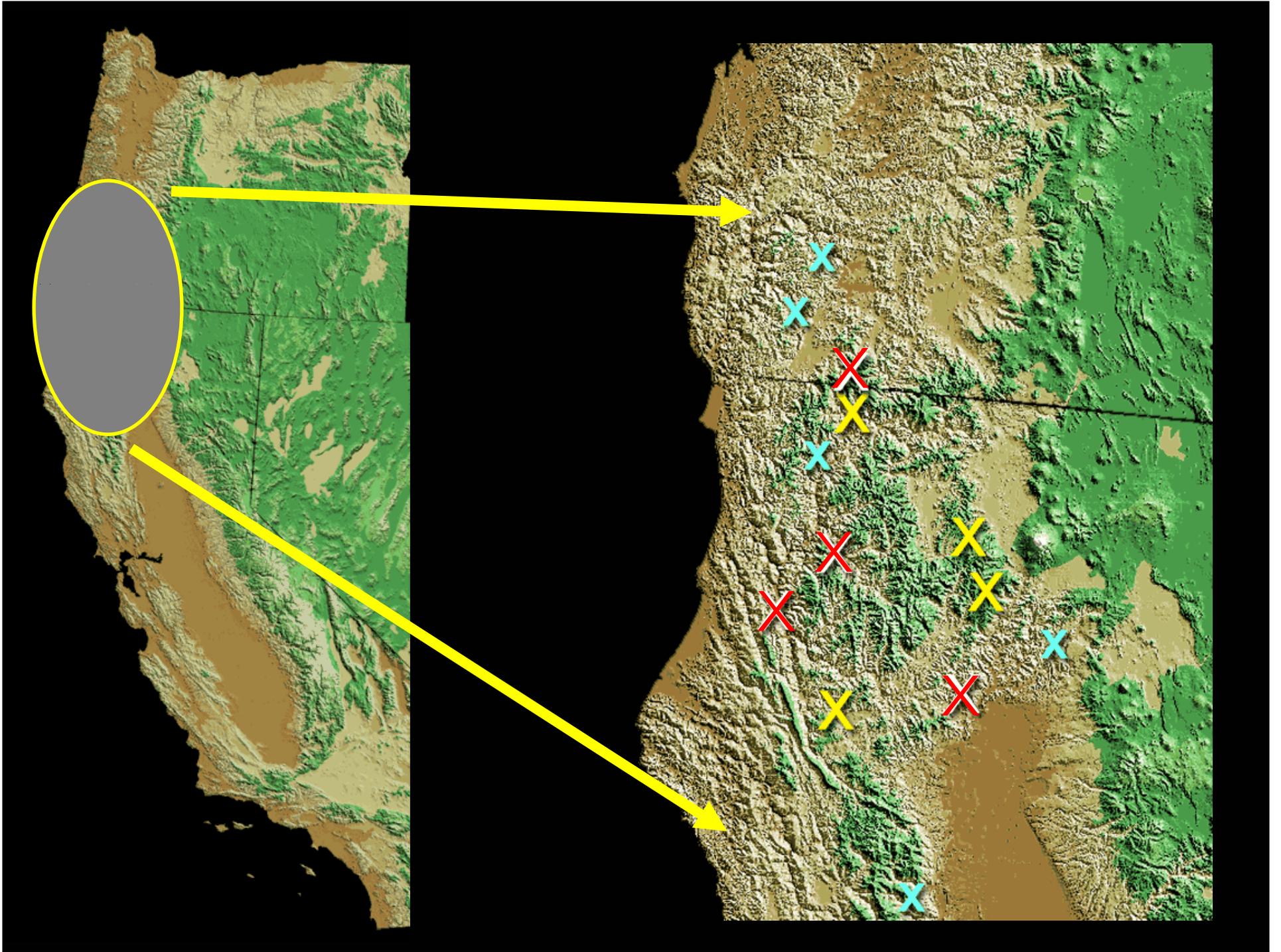
Long-term History

Fires have been an integral

PROCESS

in forested ecosystems of northern California and southwestern Oregon for millennia.

Much longer than the 3000-4000 years of current forest assemblages.







Mixed-severity Fire Regimes?

Somewhere between
Mostly Low-severity
and
Mostly High-severity



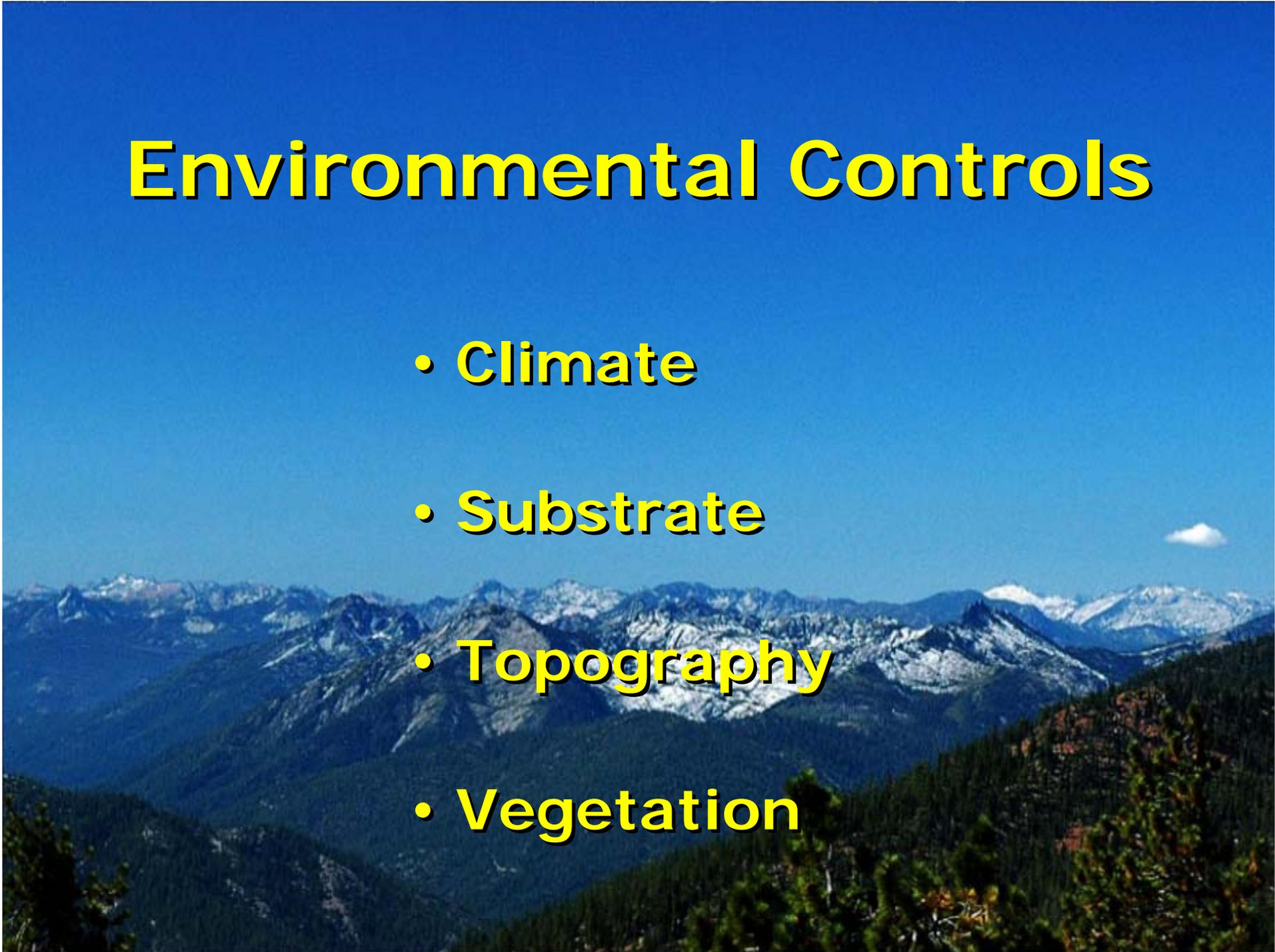
Severity Patterns in the Klamath Mts

Spatial Context

NOT Random

Environmental Controls

- **Climate**
- **Substrate**
- **Topography**
- **Vegetation**





- Climate -

- MEDITERRANEAN
- Cool/wet Winters
vegetation/fuel
- Warm/dry Summer
annual fire season
- Lightning
- Inter-annual Variability

Environmental Influence on Fire Regimes

- Climate -

- Fire Frequency –
Temperature
- Fire Extent --
Moisture

Climate Variation?





- Substrate -

- Site Productivity
- Ultramafics
- Limestone
- Fuel Breaks





-Topography-

- Topographic position
- Ridge tops
- Aspect
- Riparian Areas





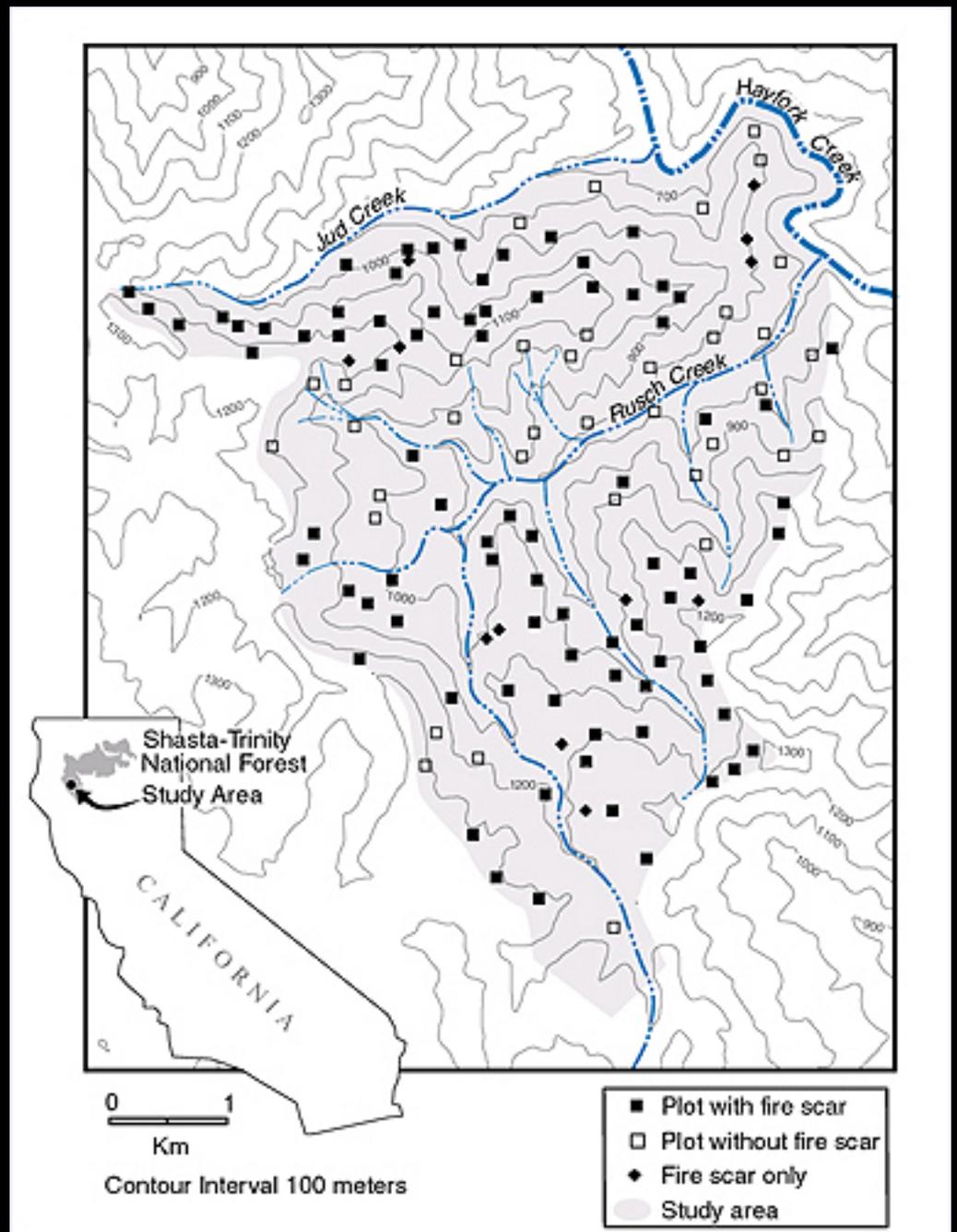
- Vegetation -

- Fuel
- Quantity
- Spatial pattern





Tree-ring Evidence



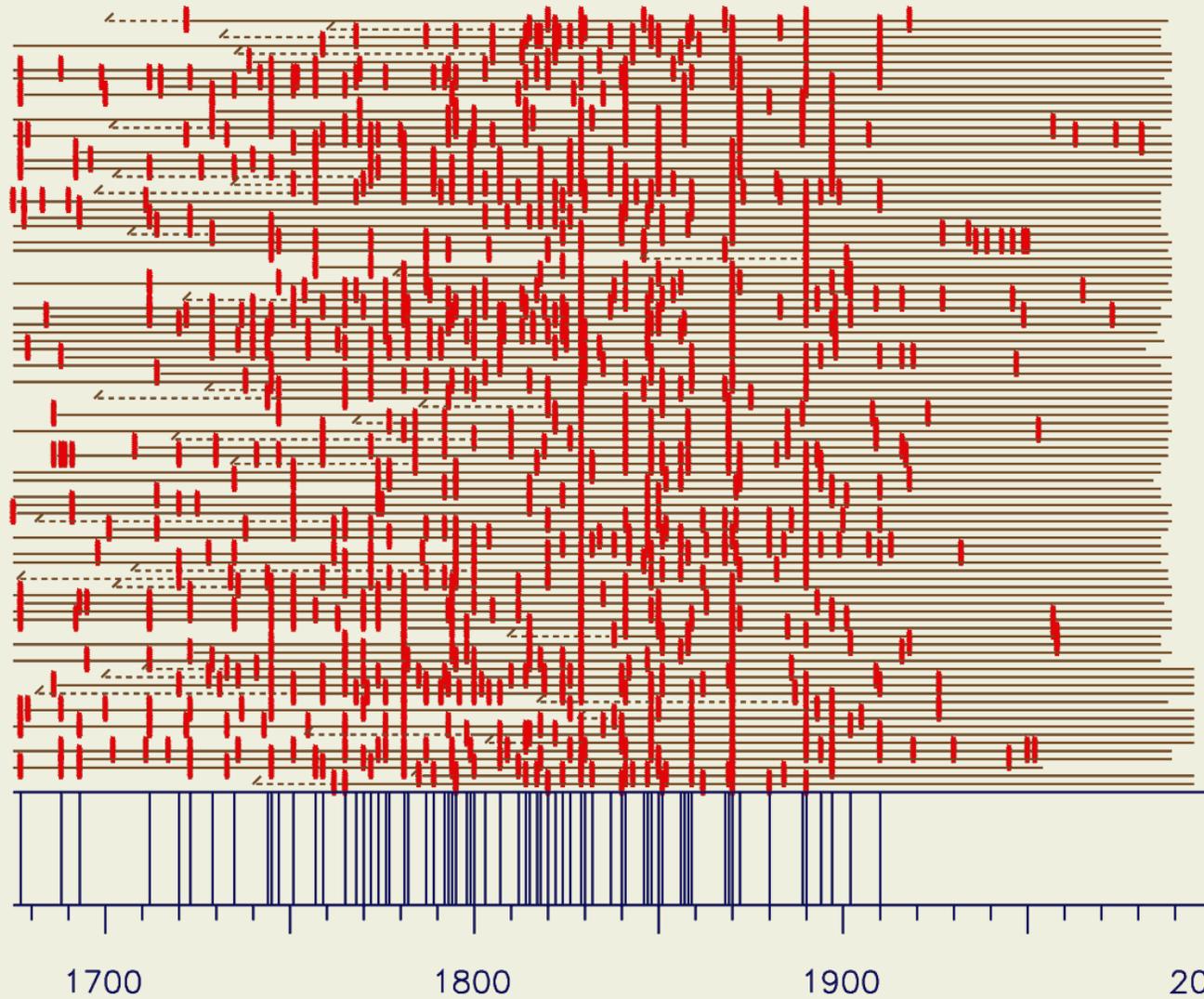


Tree-ring Evidence of Fires

-Fire Characteristics-

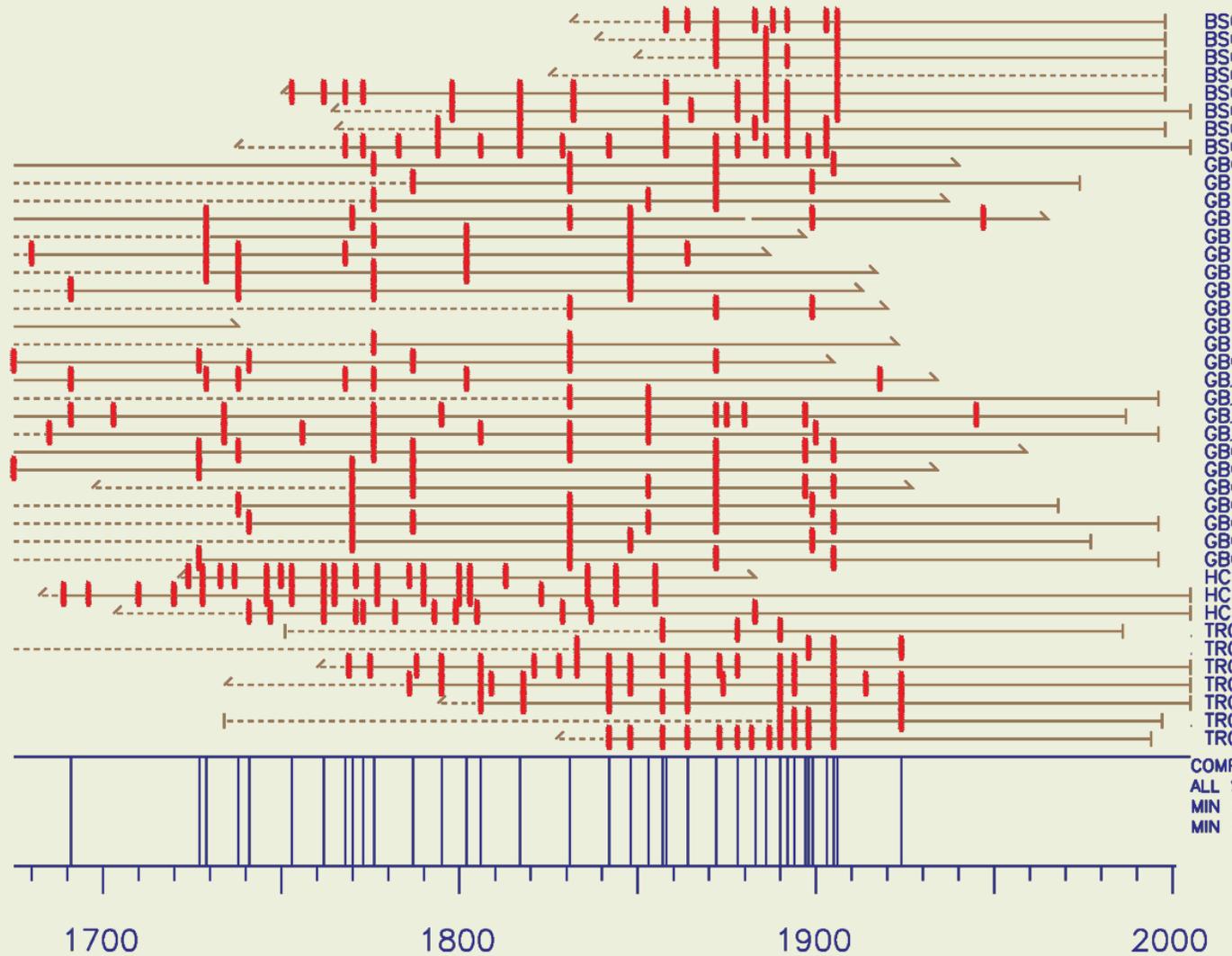
- **Mixed-severity** fire regimes
- **Generally frequent** – occur at least several times in the lives of the dominant tree species.
- Generally dominated by **low and moderate severity** effects.

Hayfork Study Area



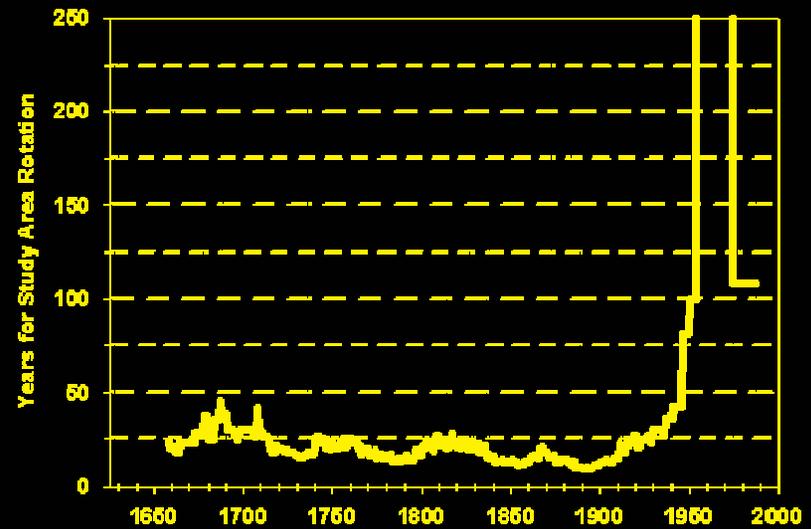
COMPOSITE
ALL SERIES
MIN SCARS = 5
MIN SAMP = 1

Cave Junction Vicinity

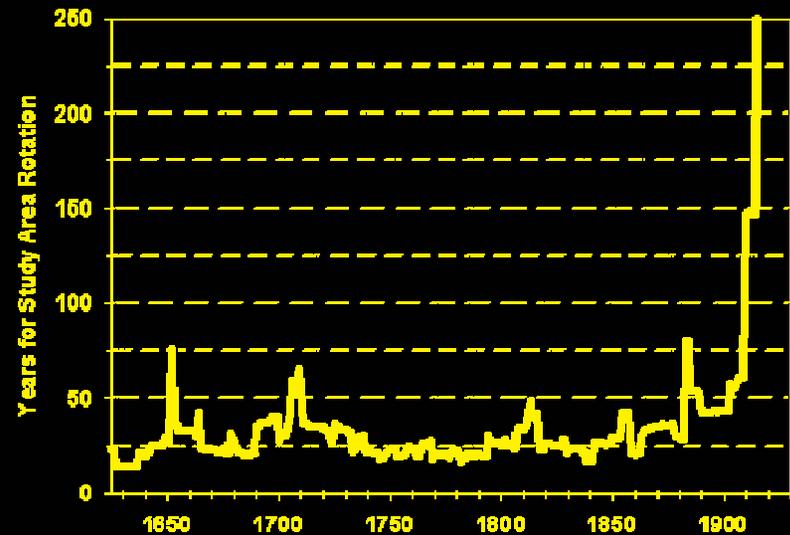


Fire Suppression Effect

Thompson Ridge



Judd & Rusch Creeks





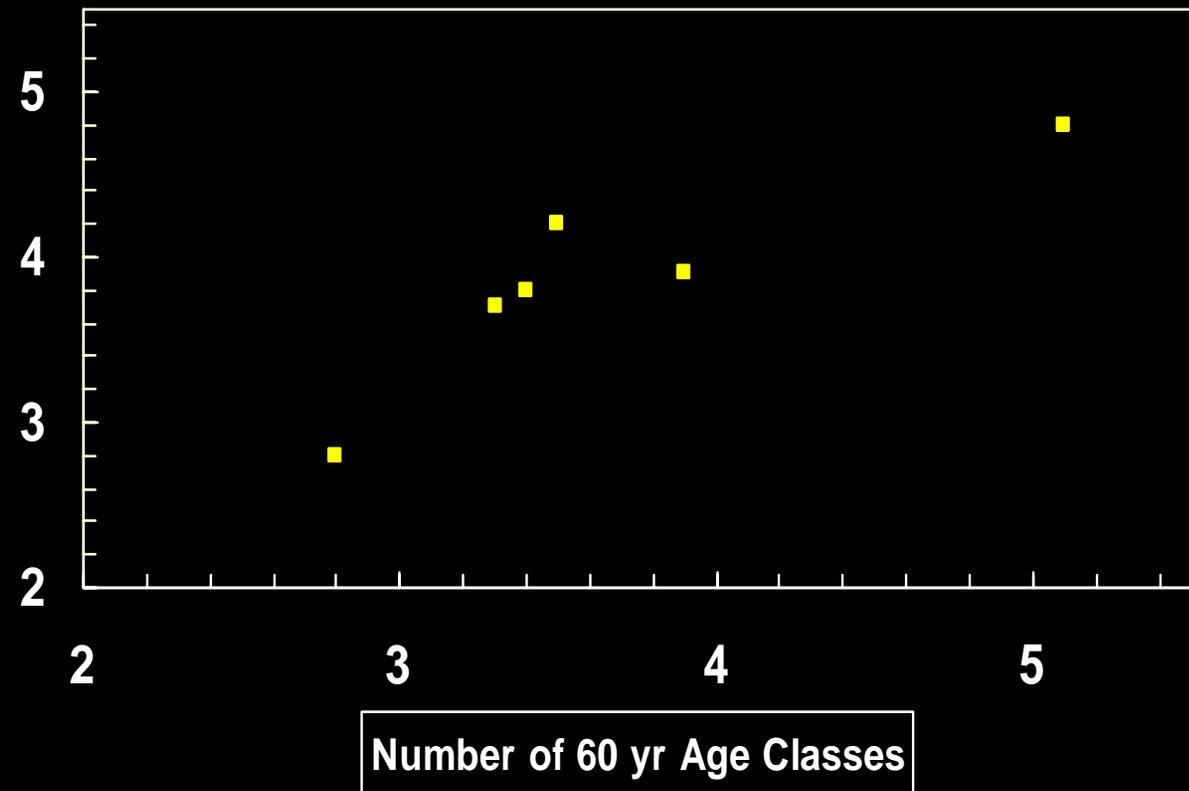
LSOG Stand

Fires and Age Structure

Thompson Ridge



Fires / Age
Class



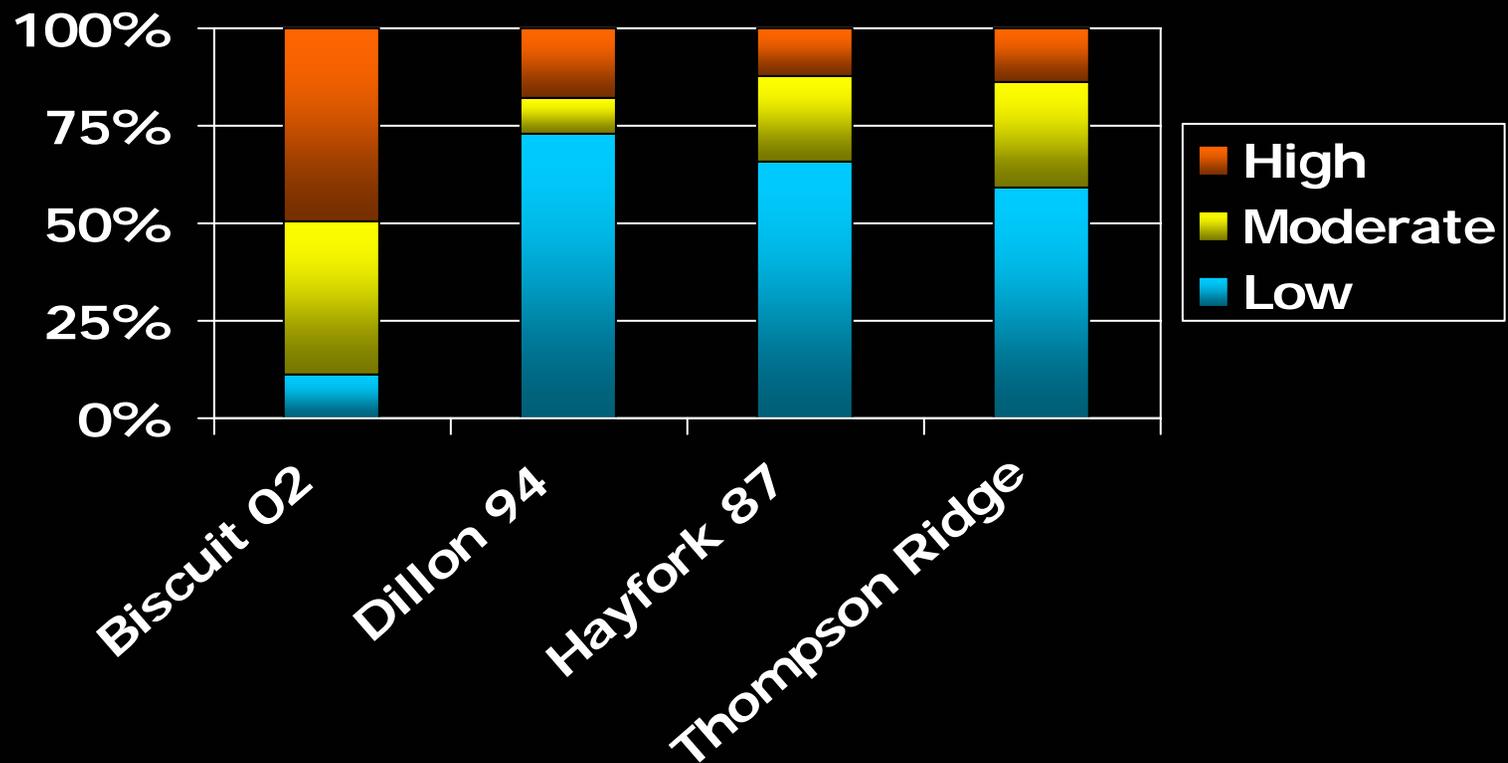
Taylor & Skinner 1998



Tree-ring Evidence of Fires - Landscapes -

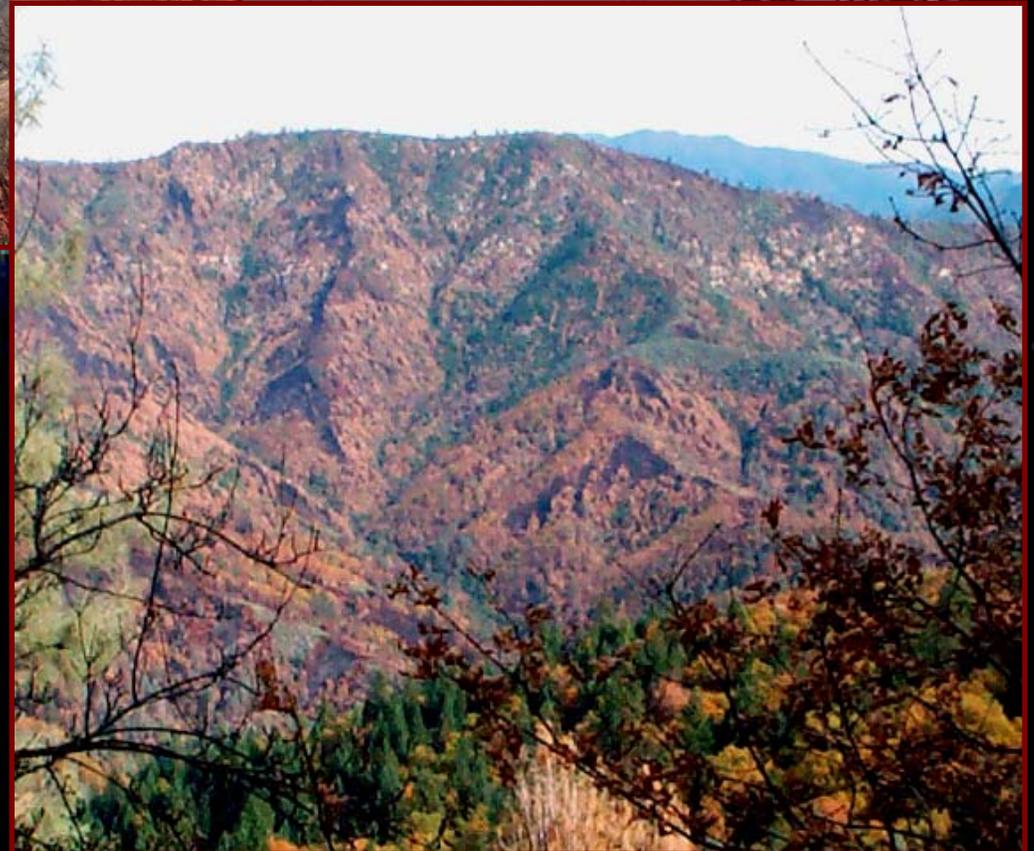
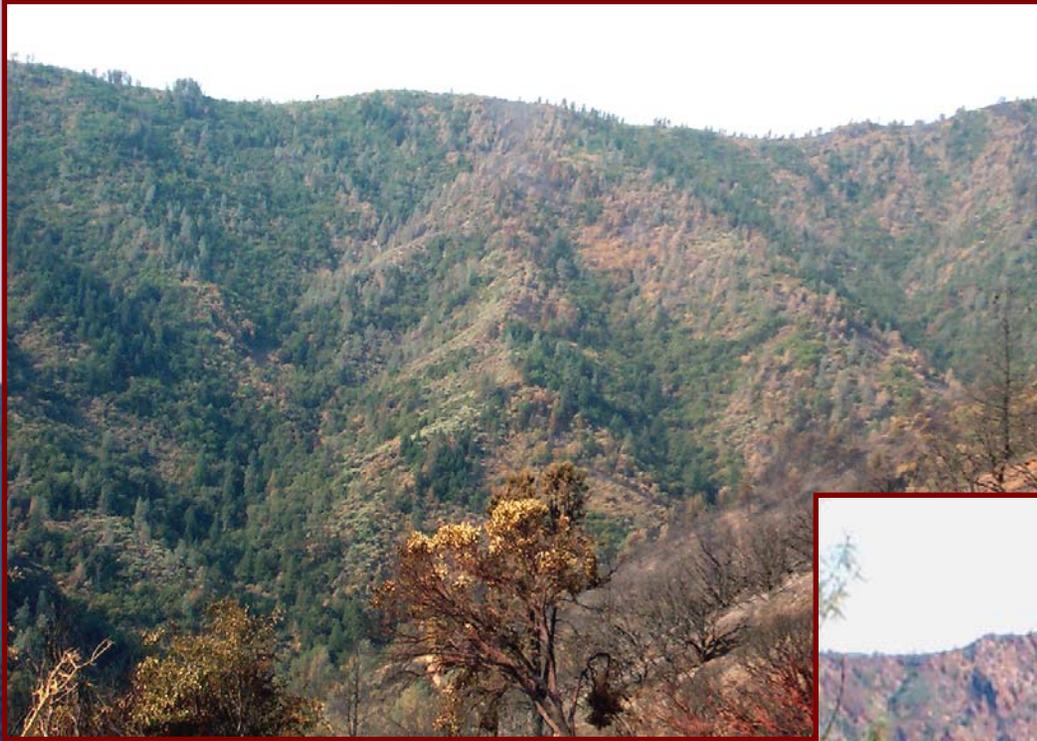
- Forests of **variable structure**
- Mostly **more open** than today
- Stands of **large, old trees common in the lower slopes and on north and east facing slopes.**

Fire Severity Distribution



*USDA Forest Service 2003
Taylor & Skinner 1998
Weatherspoon & Skinner 1995*

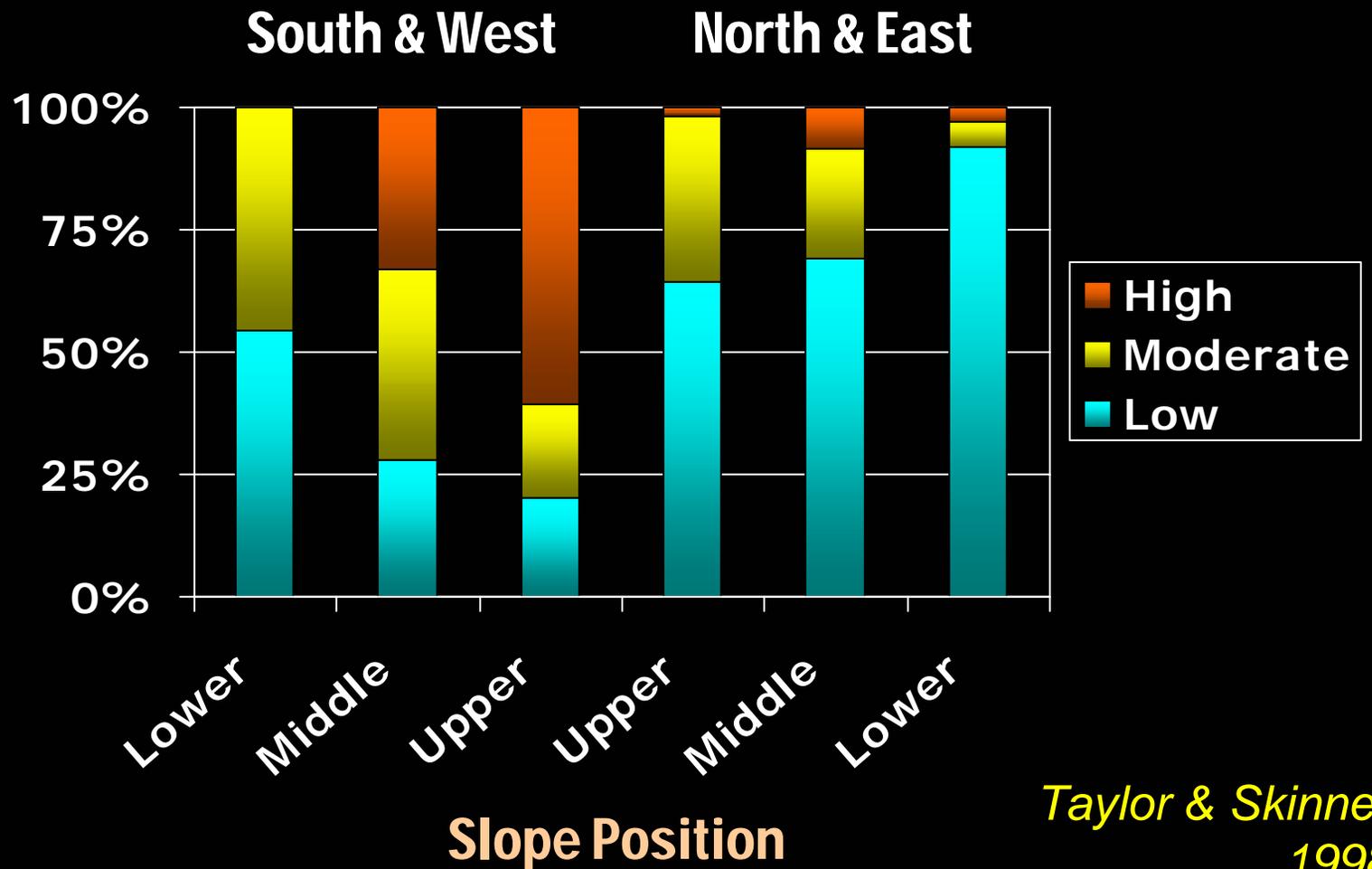
Fire Severity Patterns



High Complex
1999
Shasta-Trinity NFs

Fire Severity Distribution

Thompson Ridge



Taylor & Skinner
1998

Fire Severity Patterns

Upper Slope
Greater %
High Severity

Mid Slope
Intermediate

Lower Slope
Greater %
Low Severity



Taylor & Skinner 1998

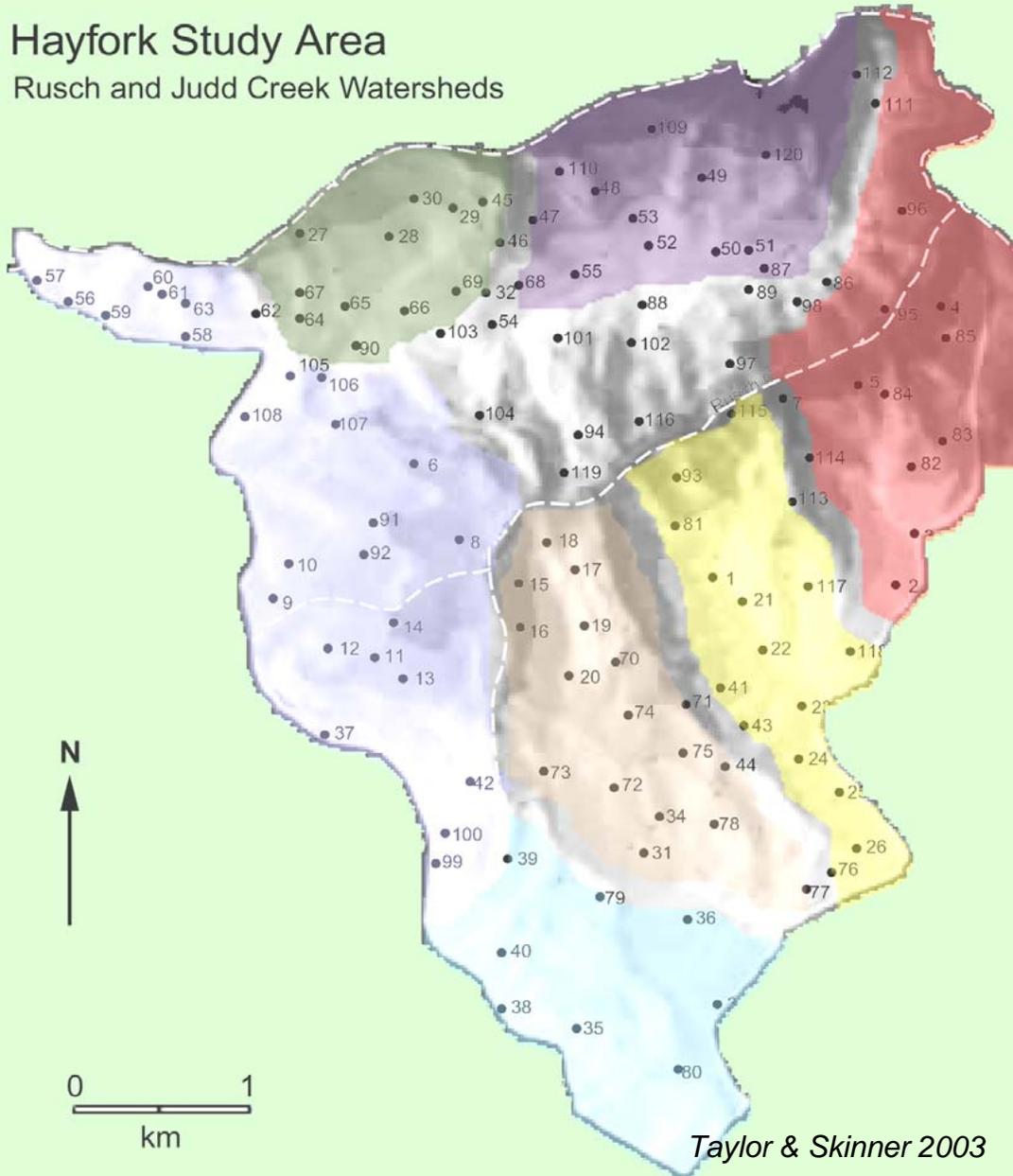
Temperature Inversions





Hayfork Study Area

Rusch and Judd Creek Watersheds



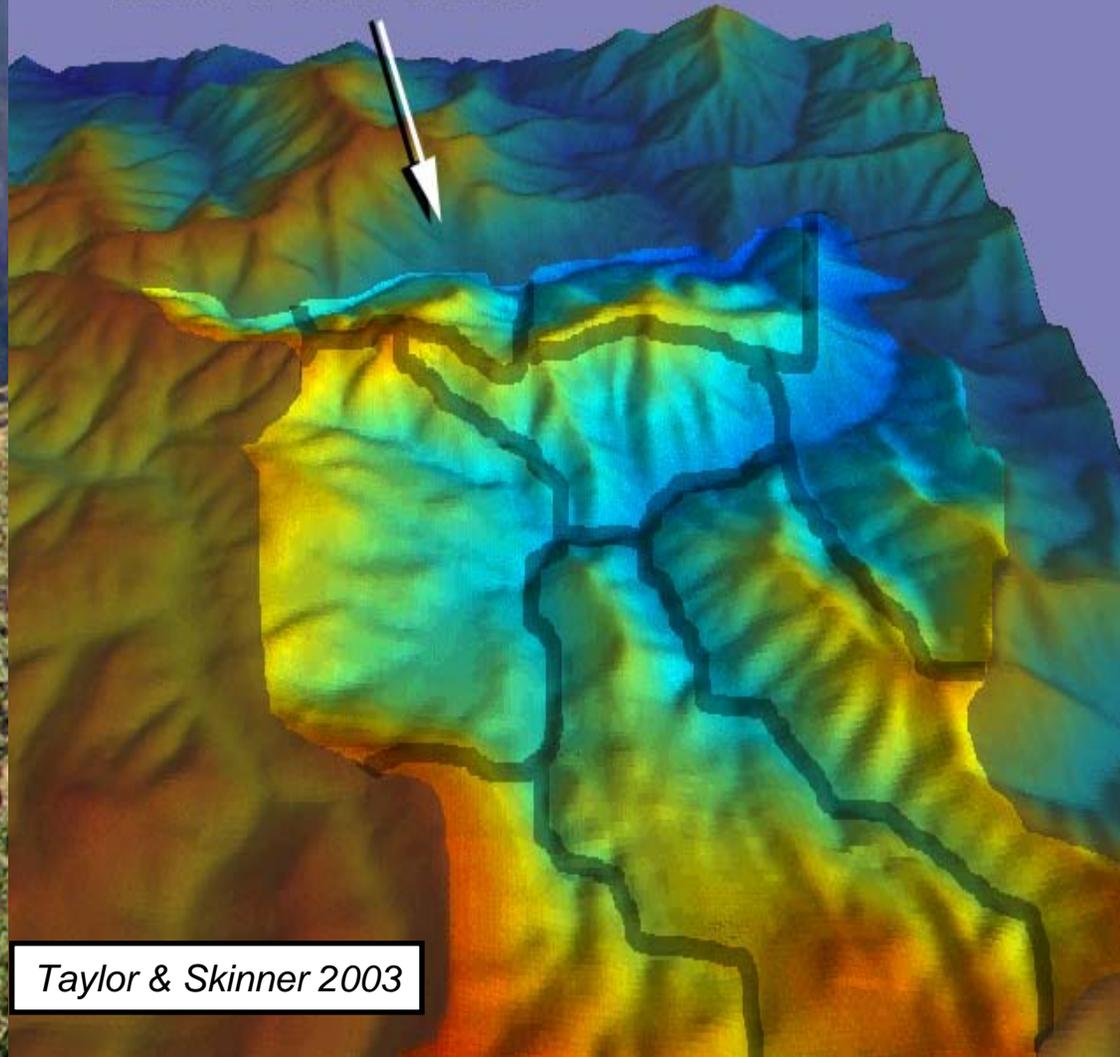
Taylor & Skinner 2003

Topography & Fire Regimes

Fire Occurrence Groups

Fires were limited by topographic features (ridgetops, streams, aspect changes, etc.)

Hayfork Study Area
Rusch & Judd Creeks



Taylor & Skinner 2003

Topography & Fire Regimes

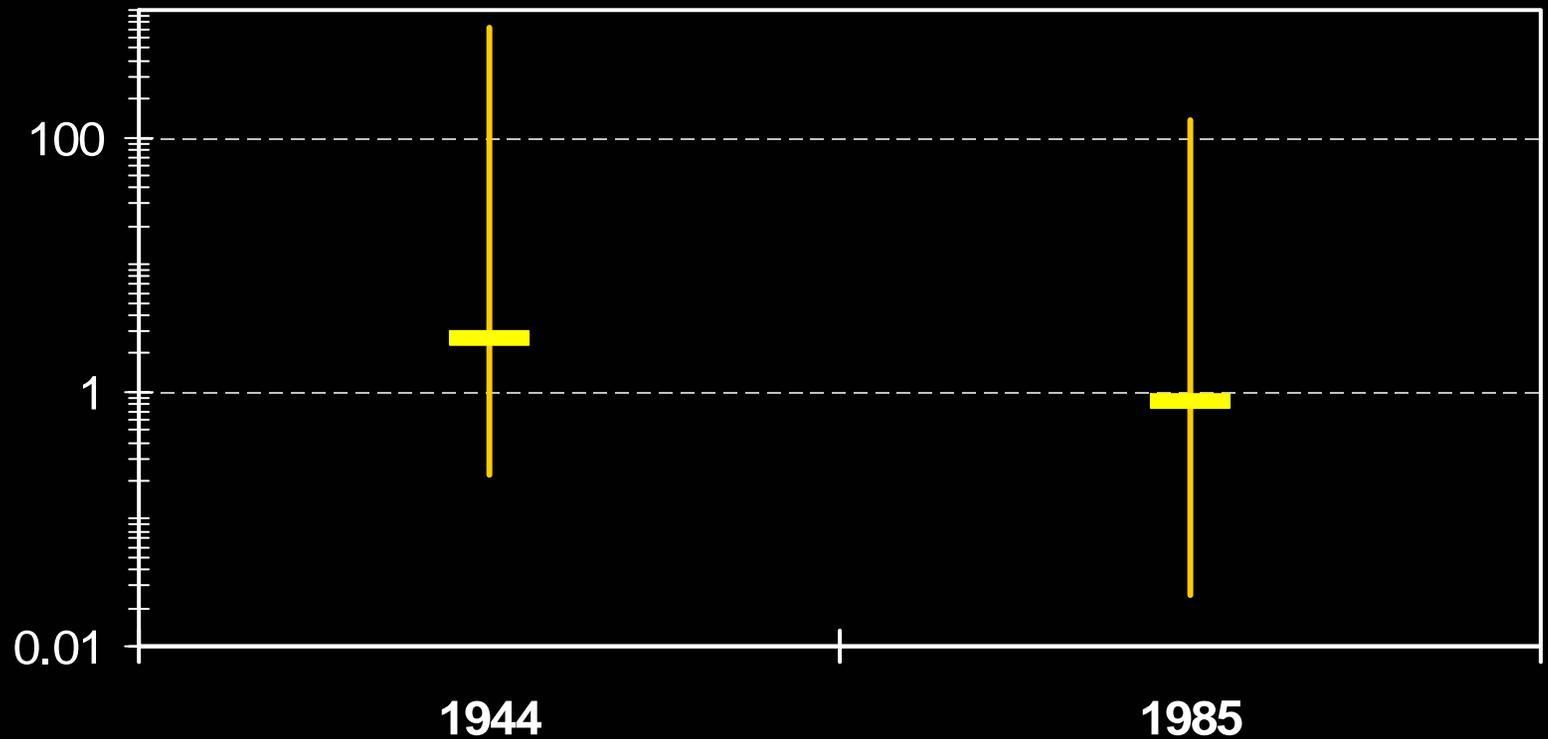
Fire Occurrence
Groups

Fires were limited by
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(ridgetops, streams,
aspect changes, etc.)



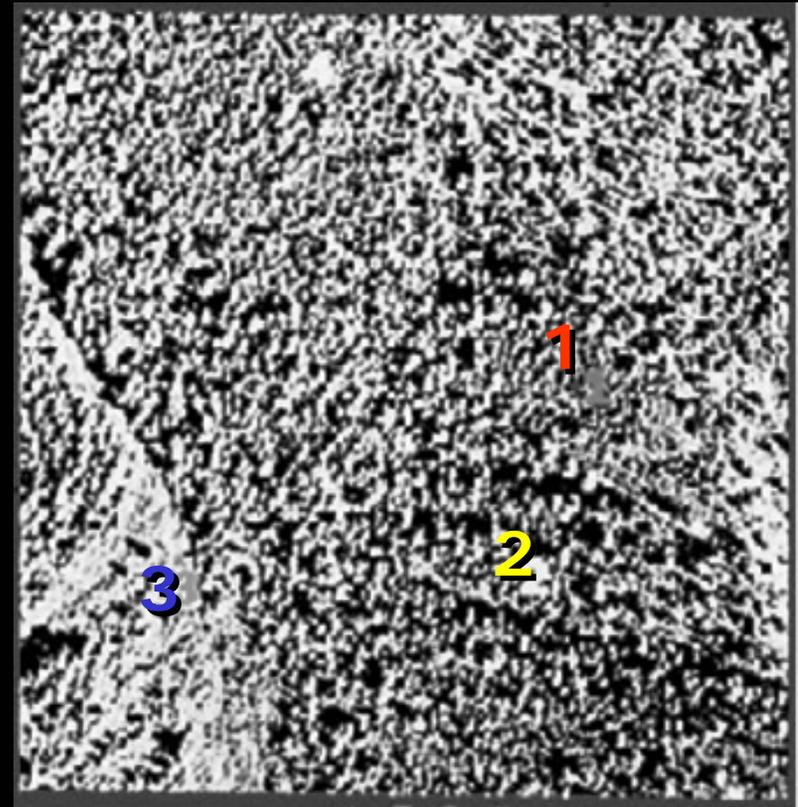
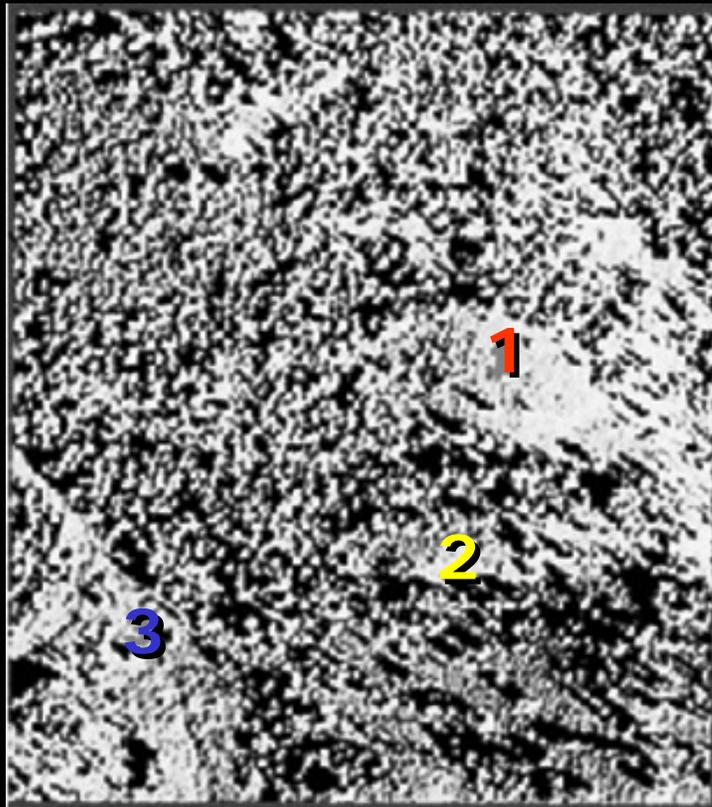
Reduction in Size of Forest Openings

Acres (log scale)



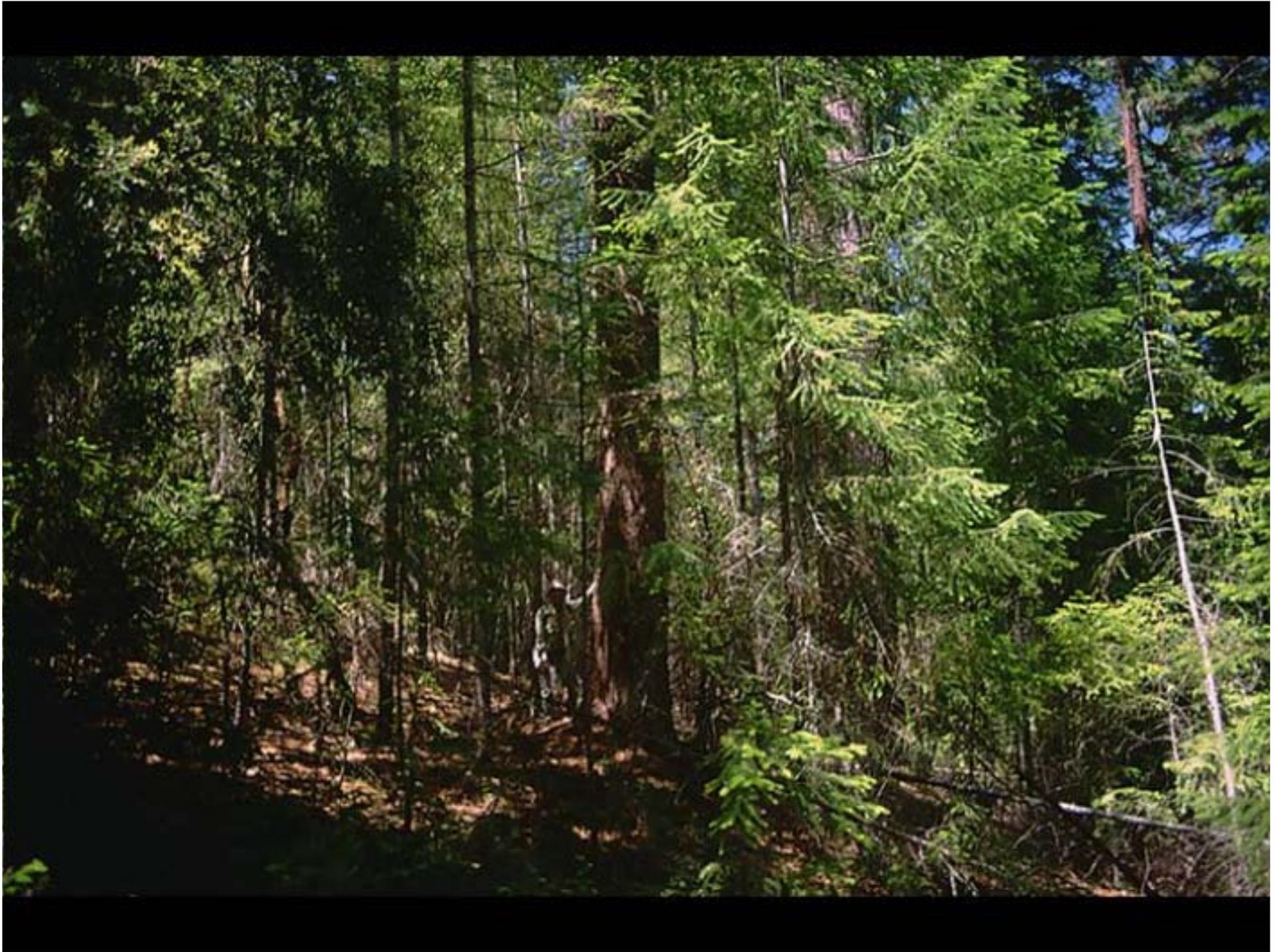
Skinner 1995

Changes in Fuel Continuity



Skinner 1995





THE WORLD IS
A COMPLICATED
PLACE, HOBBS.

WHENEVER IT
SEEMS THAT WAY,
I TAKE A NAP
IN A TREE AND
WAIT FOR DINNER.



WELSH

Spotted Owls & Fire

Nesting

- LSOG
- North Slopes
- Lower Canyons

Fire

- LSOG
on North Slopes
- LSOG
in Lower Canyons



Spotted Owls & Fire

Foraging

- Open for flying/hunting
- Woodrats
- Thickets/Shrubs

Fire

- Generally open stands
- Thickets/Shrubs: edge

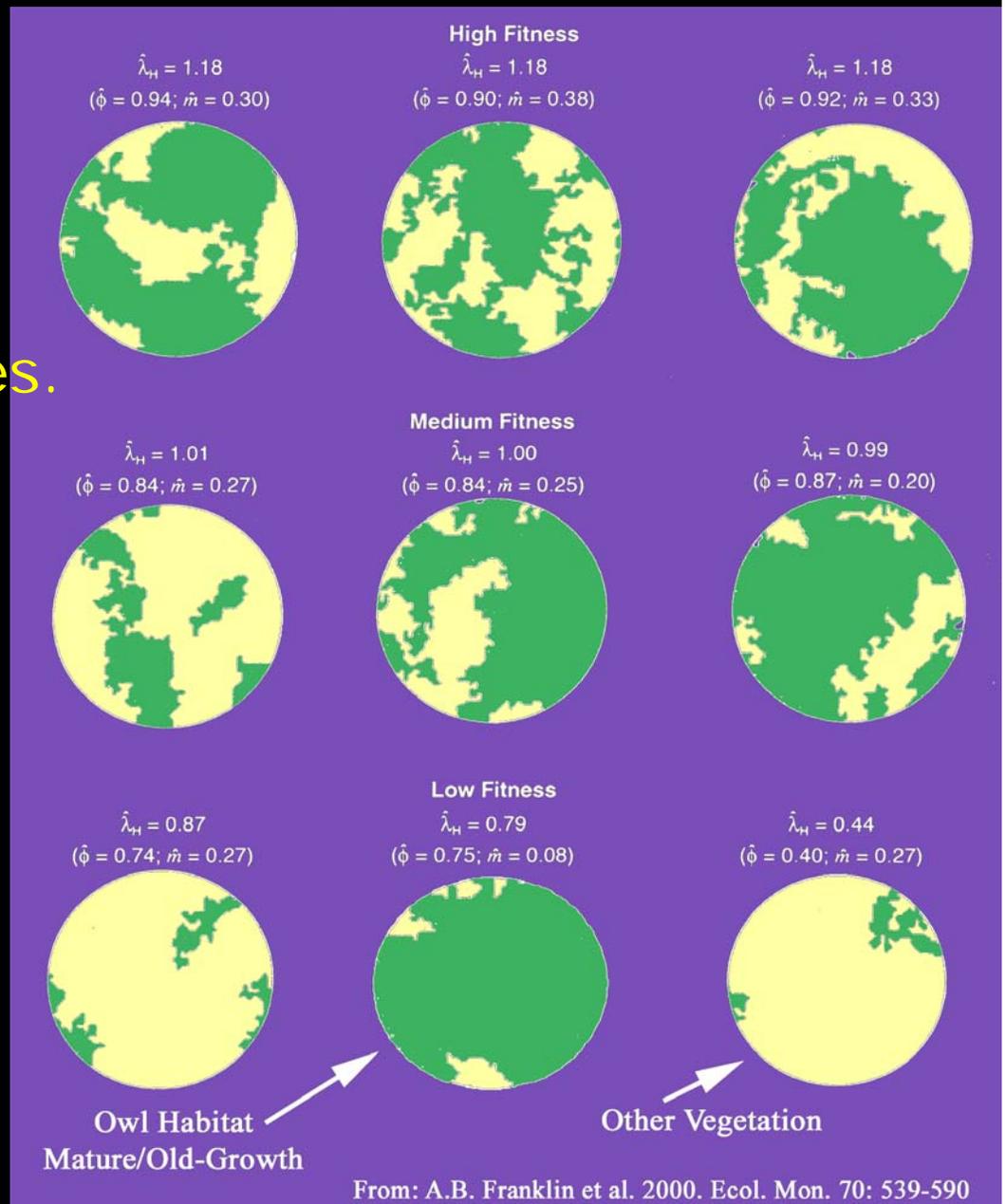




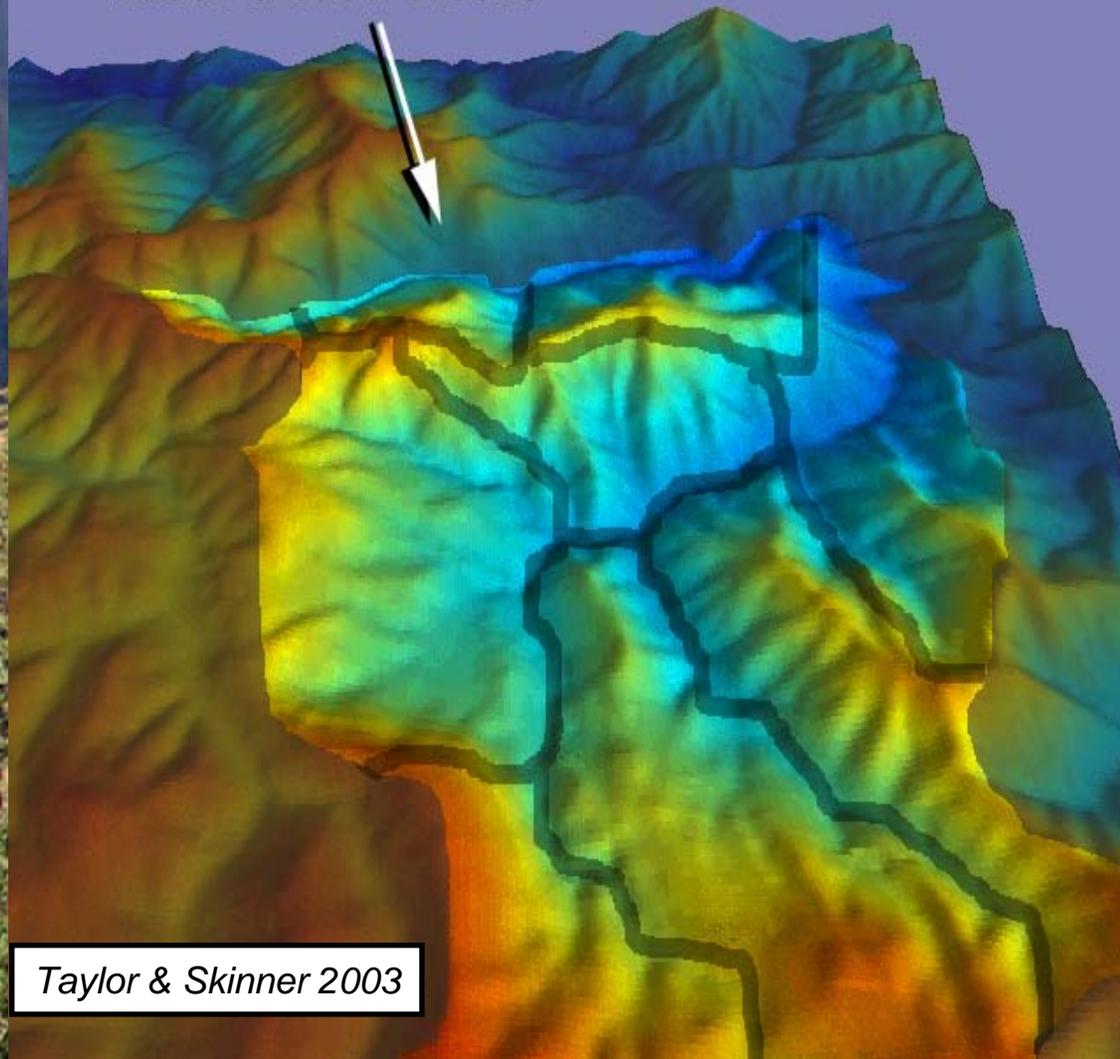
Typical Pattern
in mixed
low-moderate
severity
fire regimes
with frequent fires.

Landscape Patterns

Typical pattern
in high severity
fire regimes.



Hayfork Study Area
Rusch & Judd Creeks



Taylor & Skinner 2003

Topography & Fire Regimes

Fire Occurrence
Groups

Fires were limited by
topographic features
(ridgetops, streams,
aspect changes, etc.)

Fire Severity Patterns

Upper Slope
Greater %
High Severity

Mid Slope
Intermediate

Lower Slope
Greater %
Low Severity



Taylor & Skinner 1998

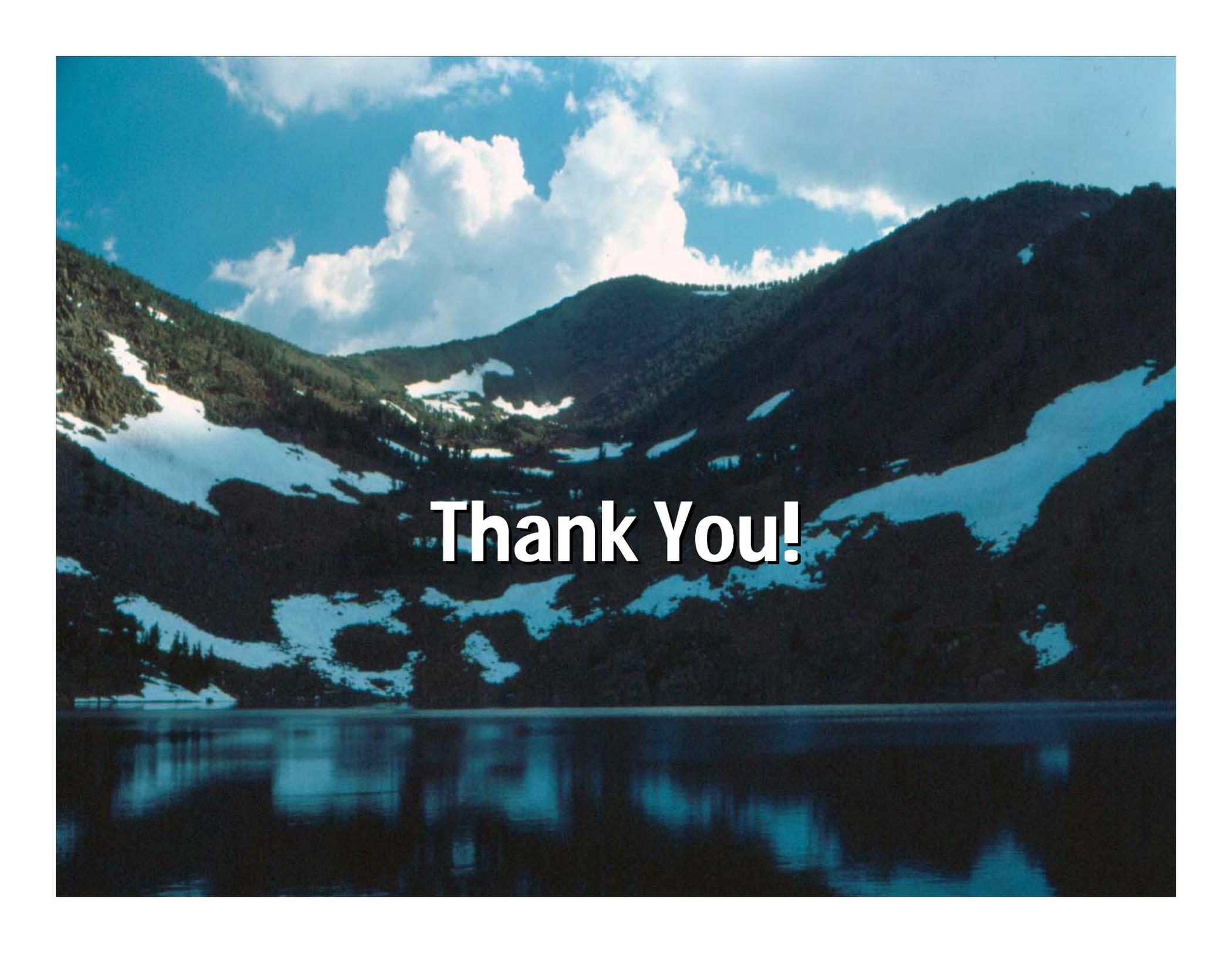
Fire Severity Patterns

More Severe
Fuels Treatments

Mid Slope
Intermediate

Least Severe
Fuels Treatments

Taylor & Skinner 1998

A scenic landscape photograph of a mountain valley. The foreground shows a calm lake reflecting the sky and mountains. The middle ground features rolling hills and mountains covered in dense green forest, with several large, irregular patches of snow scattered across the slopes. The background shows a clear blue sky with large, fluffy white clouds. The overall scene is bright and clear.

Thank You!