



**The Cone Fire  
September 2002**

## Original Slides from:

### ***Effects of thinning and prescribed fire on wildfire severity***

***Cone Fire  
September 2002***

***Blacks Mountain  
Experimental Forest***

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**These Slides were originally intended for a technical audience familiar with fire science.**

**They were excerpted and re-edited by Mark Vande Pol for a more general audience with my comments. They do not represent, nor are they endorsed by the US Forest Service.**

**Some photographs were distributed among more slides to make them bigger for your computer screen. None were “PhotoShopped” by me in any way.**

**No graphical features were added except annotations for clarity.**

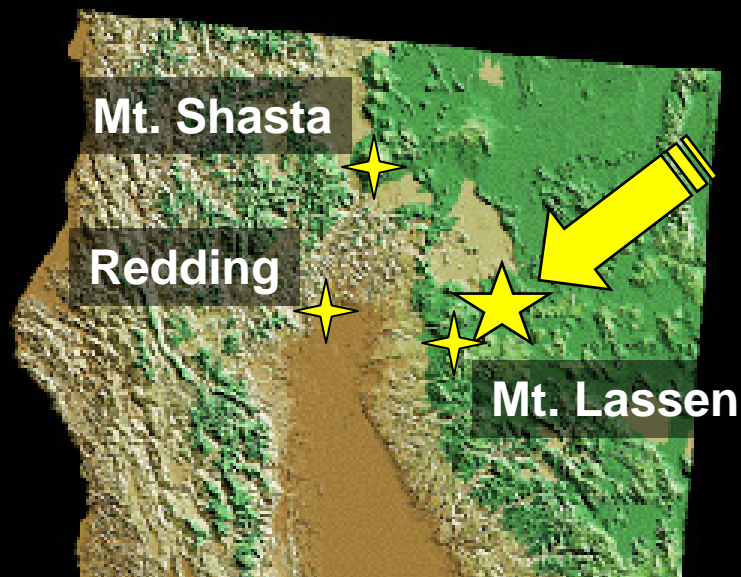
**All additional information was obtained from the Forest Service at the source links provided.**

The Cone Fire began accidentally. It spread into a research forest where there had been an ongoing project to assess ecological responses to stand structure.

It was NOT a project designed to test fire hazard reduction treatments.

The results demonstrate the importance of stand structure upon fire survivability.





## Location of Blacks Mountain Experimental Forest

### Blacks Mountain Background Information (Source information at link)

- Interior Mixed Conifer & Ponderosa Pine
  - 3-12 feet of soil over volcanic basalt
  - 11 inches annual precipitation, 90% winter snow, 10% summer showers
  - Temperatures vary from 15-100° F
- Historic Fire Regime: Aboriginal tribes set frequent low intensity fires, followed by
- A 20<sup>th</sup> Century history of fire suppression begun under...
- Lassen National Forest, established under the US Forest Service, US Department of Agriculture, in 1905
- Established as a research forest in 1934

# Fire-History Analyses Show Large, low-to-moderate intensity fires were historically frequent at Blacks Mountain

Coverage	Median Interval	Range
100s ha (ac)	7-10.5 yrs	2–16.5 yrs
1,000s ha (ac)	11 yrs	7-17 yrs
10,000s ha (ac)	19 yrs	13–35.5 yrs

**33 Fire Scars**



# Changes in Stand Structure over 74 Years of Forest Service Management

**1920**



Blacks Mountain started out as a forest similar to what most people would like to see.  
The US government "preserved it for the future."

# 1946



At that time, “preservation” did not include fire, in part, because the public doesn’t want to vacation in a burned stand. Trees just want light, soil, and water; and don’t particularly care what the public wants. They just grow.



# 1994

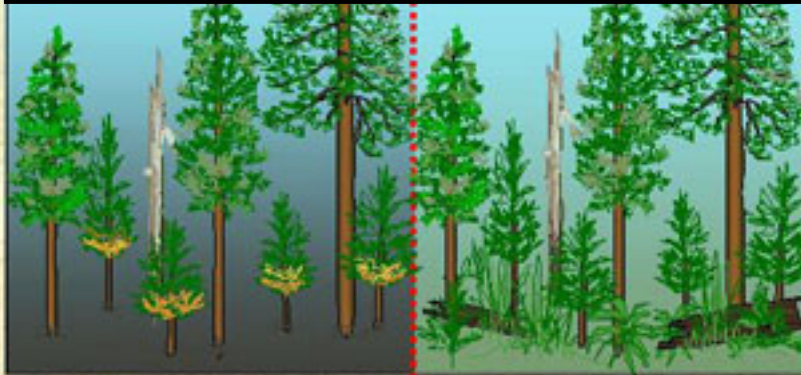


And kept growing until it was an obvious problem. At least in this case, because this is a government experimental forest, the scientists had the option to manage it. So, they designed an experiment with every possible treatment...

# HIGH STRUCTURAL DIVERSITY

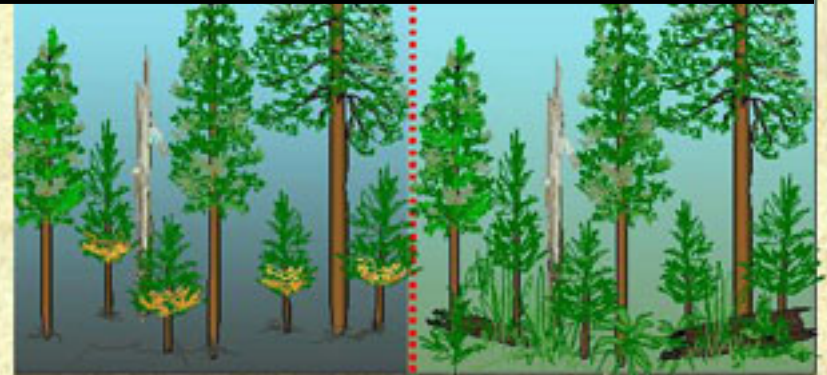
## Blacks Mountain Experiment Design

**GRAZING**



**WITH  
FIRE**

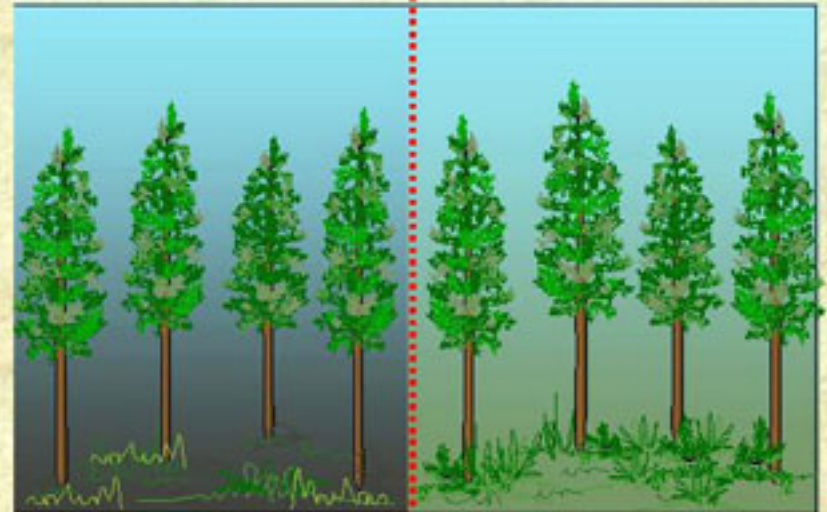
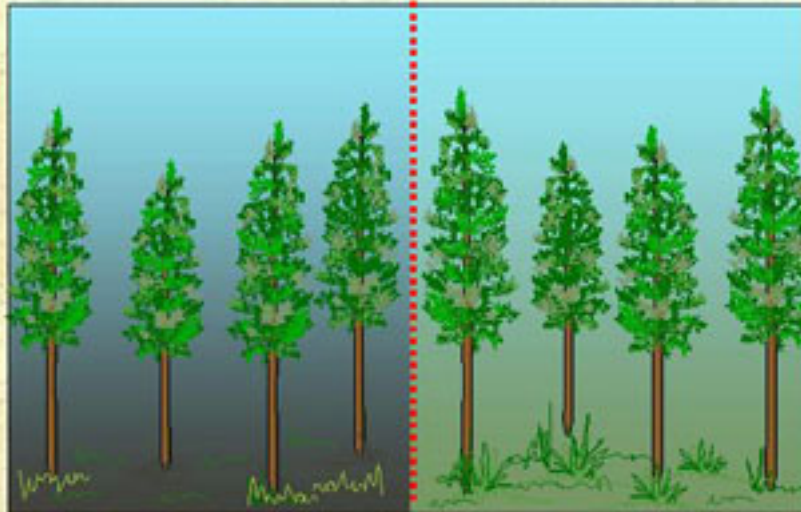
**WITHOUT  
FIRE**



**WITH  
FIRE**

**WITHOUT  
FIRE**

**NO GRAZING**



**LOW STRUCTURAL DIVERSITY**

Pre-Fire



High Structural Diversity - No Prescription Burn

Pre-Fire



High Structural Diversity – Prescription Burn

Pre-Fire

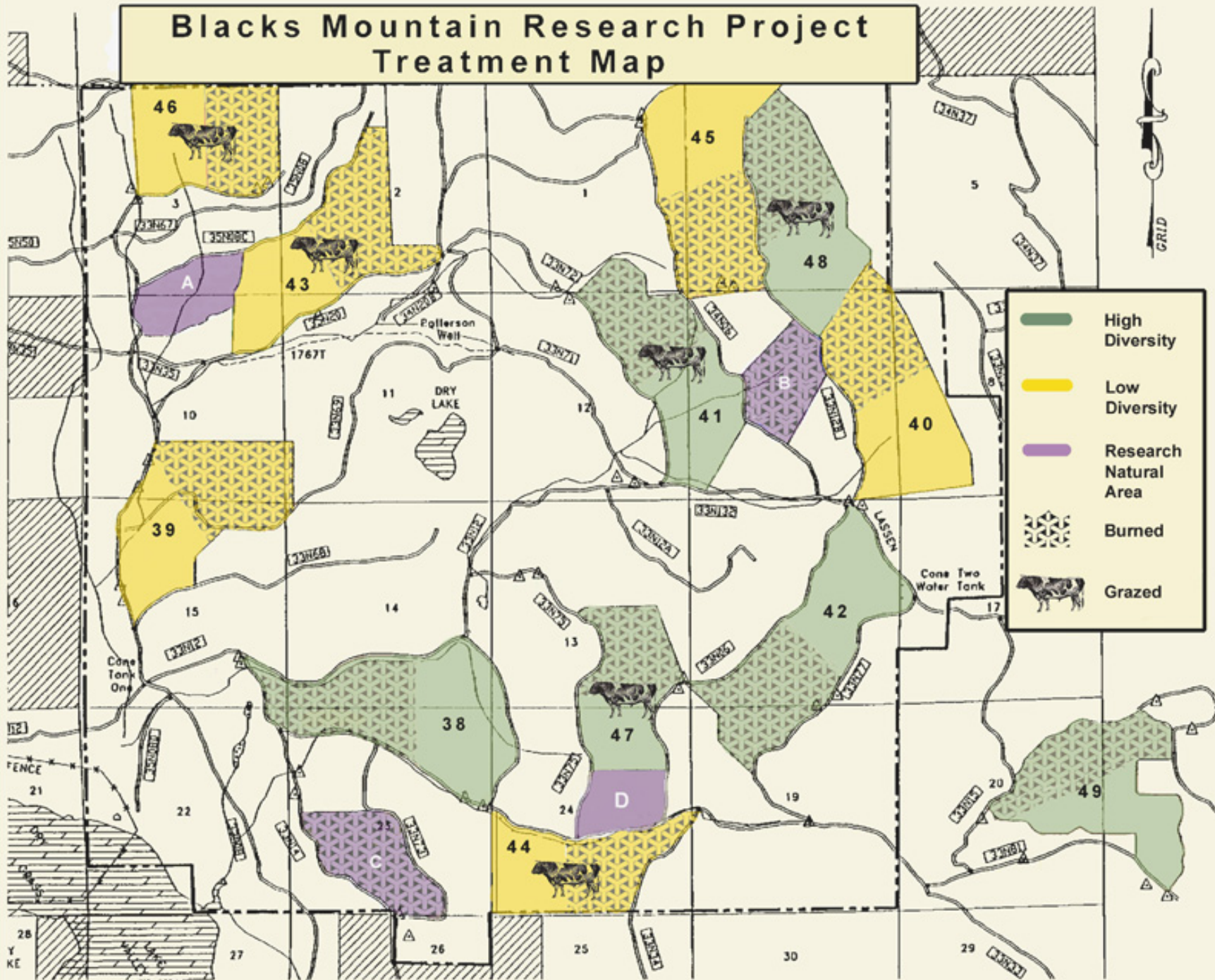





Low Structural Diversity – No Prescription Burn



**Low Structural Diversity – Prescription Burn**

# Blacks Mountain Research Project Treatment Map



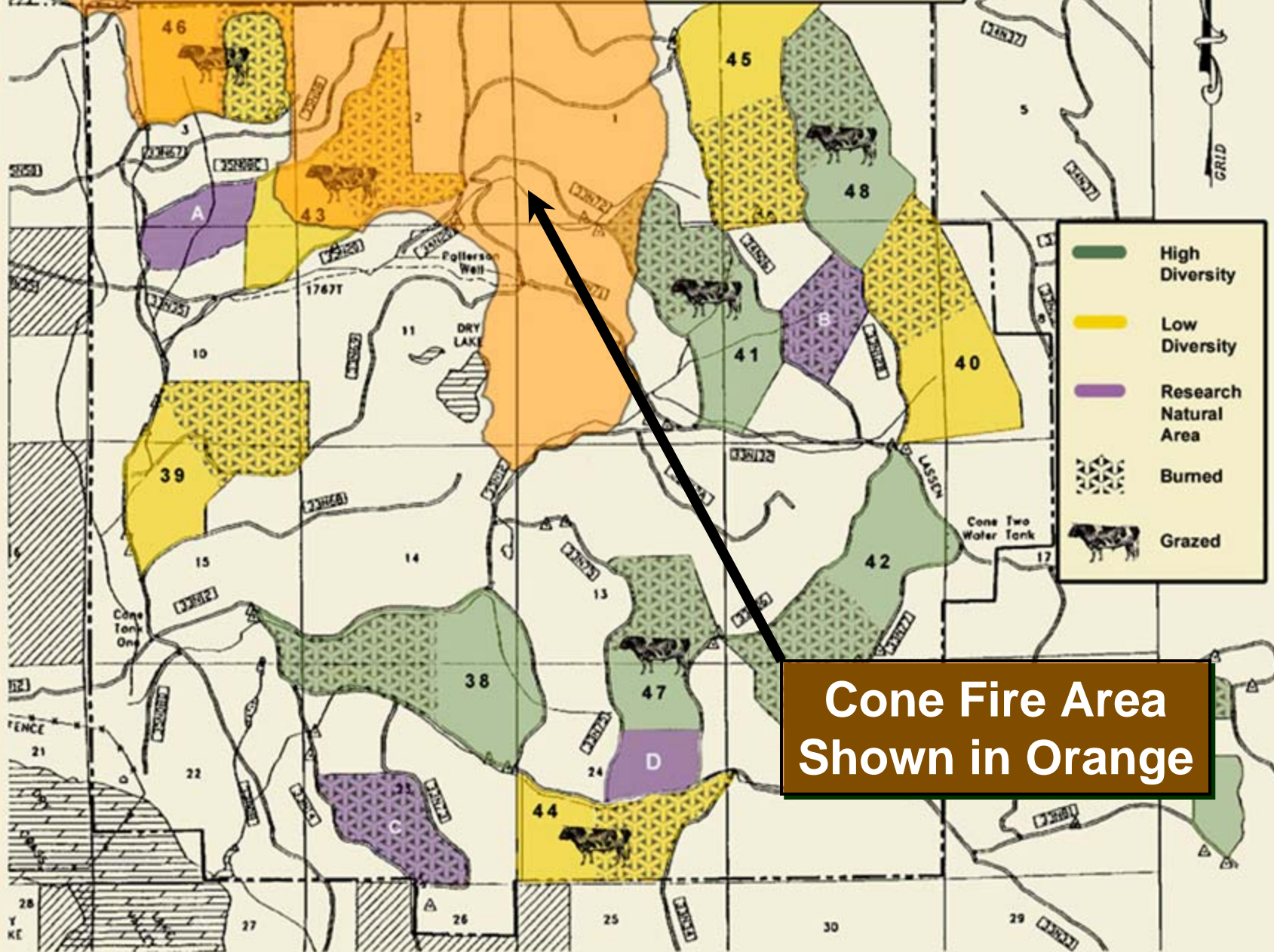
-  High Diversity
-  Low Diversity
-  Research Natural Area
-  Burned
-  Grazed



**Cone Fire  
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# Blacks Mountain Research Project Treatment Map



**Cone Fire Area  
Shown in Orange**



**Unthinned**

**Thinned 1998  
Prescription  
Burn 2000**

**Unthinned**

**Thinned Mid 1980s  
No Prescription Burn**

The thing to notice here is not just that there is a difference, but that no matter which management method they chose, they were all superior to the usual option demanded by environmental groups, commonly called “the no action alternative.”



**Unthinned**

**Thinned + Prescription Burn**

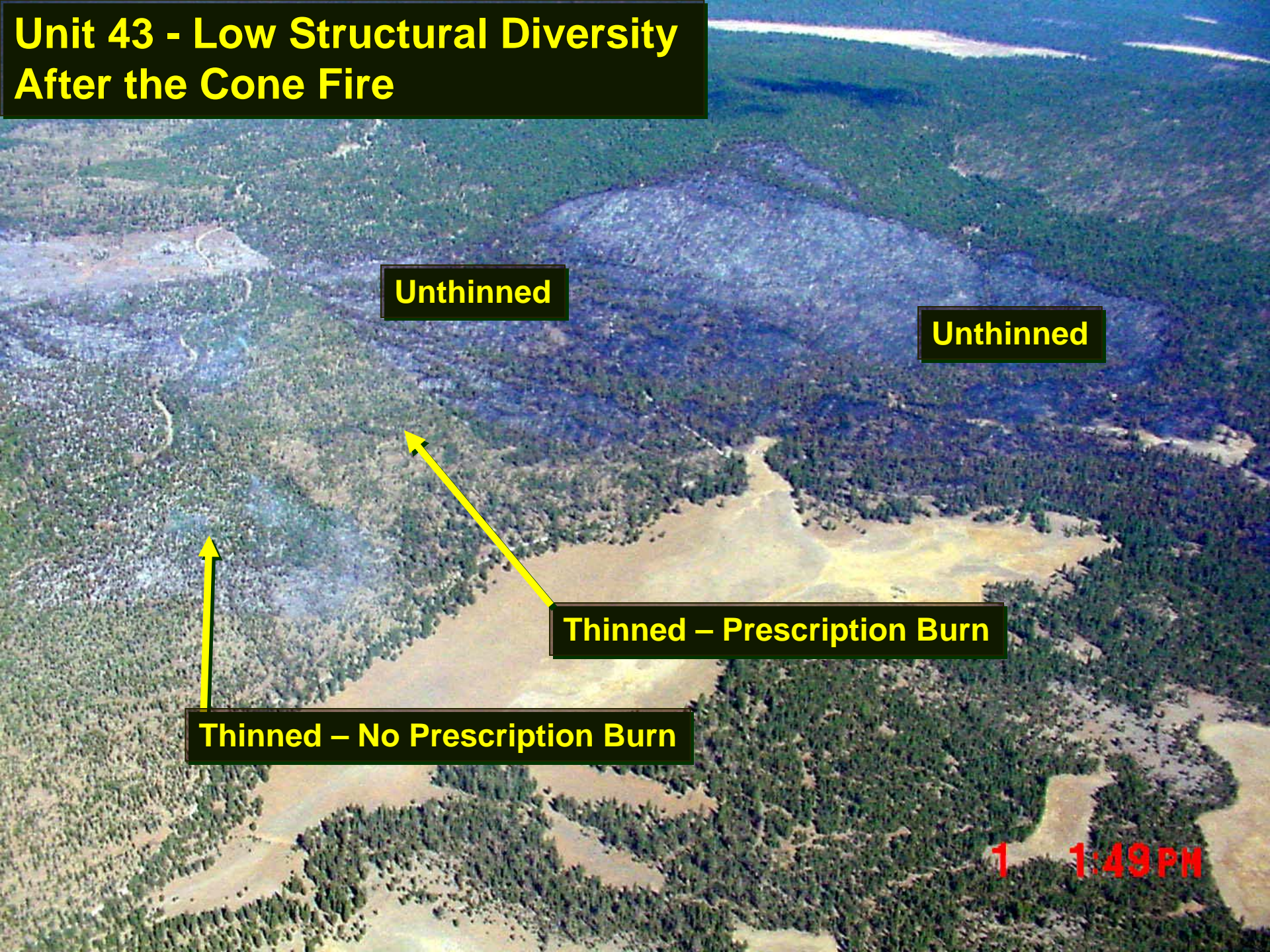
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**Unit 41 – High Structural Diversity**



“Unthinned”

# Unit 43 - Low Structural Diversity After the Cone Fire



**Unthinned**

**Unthinned**

**Thinned - Prescription Burn**

**Thinned - No Prescription Burn**

**1 1:49 PM**

# Unit 43 Low Structural Diversity - After the Cone Fire



Low Diversity Thin 1996 – No Prescribed Fire

# Unit 43 – Untreated



# After Cone Fire



**Un-Thinned**



**Thinned  
And Burned**



**Thinned**



I have a question for you as a reader:

The Forest Reserve Act of 1891 was justified as a way to preserve forests for the future. The legislation was introduced as new material in a conference committee<sup>1</sup> (which is illegal; it was effectively snuck through Congress with few knowing they were voting for an unconstitutional expansion of Federal land use control<sup>2</sup>). For over 100 years, the taxpayer has thus subsidized the timber industry with free R&D, paying for everything from tree ring studies, entomology, aerial photographs, soils testing, road engineering, and goodness knows how many reports. In latter years, by far the biggest expense has been in legal costs, fighting environmental lawsuits effectively directed to prevent the Forest Service from doing anything to manage a forest.

As far as actual field expenses are concerned, by far the largest is firefighting. The Forest Service has been fighting fires for over 100 years. In 2007 alone, the Forest Service spent some \$2 billion fighting fires.

Here's the question:

Don't you think that after managing forests for 120 years, after spending all that money on research, and after all that firefighting experience, the scientists at the Pacific Southwest Research Station knew very well what was likely to happen if a fire came to Blacks Mountain? Don't you think that they knew that if they thinned the forest it would have a better chance of surviving a fire?

Sure they did.

I'll bet a good many Forest Service employees are just as disgusted with this mess as anybody, (although there are an increasing number who just want to let it burn and start over).

So, what if we just let the National Forests burn?

For the most part, that is the current policy, per the preferences of the Sierra Club, the Wilderness Society, and others. Since this policy, an average of over 6 million acres burns every year.

Sometimes it works.

A lot more of the time, the policy is a disaster, as you will see.

Now, here's the question to ponder:

Guess who gets to log while the US Forest Service wastes its budget in court and burns its inventory? Who pays for the consequences in higher prices for wood products and the ecological consequences of catastrophic fire? The latter are serious, as you will soon see.

## Notes:

1. Steen, Harold K.; *The US Forest Service, A History*, University of Washington Press, Seattle, 1976, pp26-27.
2. Constitution for the United States of America, Article I (describing powers of Congress), Section 8, Paragraph 16, “To exercise exclusive Legislation in all Cases whatsoever, over such District (not exceeding ten Miles square) as may, by Cession of particular States, and the Acceptance of Congress, become the Seat of the Government of the United States, **and to exercise like Authority over all Places purchased by the Consent of the Legislature of the State in which the Same shall be**, for the Erection of Forts, Magazines, Arsenals, dock-Yards, and other needful Buildings;”

In other words, it doesn't authorize 'parks, forests, swamps, rivers, deserts, beaches, rock formations, habitat, and other forms of entertainment legislated by dark of night or by executive order.'

The founders wanted land to be private, held in families from generation to generation.

<http://www.fs.fed.us/rm/main/pubs/electronic.html>

# General Technical Report RMRS-GTR-120

Will be available from the  
Rocky Mountain  
Research Station, Fort  
Collins, CO

**USDA** United States  
Department  
of Agriculture  
Forest Service  
**Rocky Mountain  
Research Station**  
General Technical  
Report RMRS-GTR-120  
January 2004



## Science Basis for Changing Forest Structure to Modify Wildfire Behavior and Severity

U.S. Department of Agriculture Forest Service

January 2004

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