In a Dense Wood:
Forest Restoration in New Mexico

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Sacramento Mountains Desired Conditions Workshops

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PL 108-317

SOUTHWEST FOREST HEALTH AND WILDFIRE PREVENTION ACT OF 2004

An Act to establish Institutes to demonstrate and promote the use of adaptive ecosystem management to reduce the risk of wildfires, and restore the health of fire-adapted forest and woodland ecosystems of the interior West.

Three sister Institutes make up SWERI

New Mexico Forest & Watershed Restoration Institute at New Mexico Highlands University

Why should we be worried?

Crownfires are the latest in a long series of symptoms of declining ecosystem health.

- Population irruptions and population crashes
- Spread of invasive exotic plants
- Decreasing diversity, increasing homogeneity at all levels of the ecosystem
- Loss of herbaceous cover
- Increased erosion
- Watershed degradation
- Unnatural insect and disease epidemics
- Destruction of human and wildlife habitats

If things don't change . . .

We anticipate disasters in the frequent fire landscapes of the West including increased fuel accumulations, lengthened fire seasons, and intensified burning conditions, all contributing to larger and more catastrophic fires.

Las Conchas fire, Peralta – Plot 1 photo W

Track Fire

How did we get here?

- Overgrazing
- Fire exclusion
- Overcutting of more mature trees
- Failure to control density of young trees

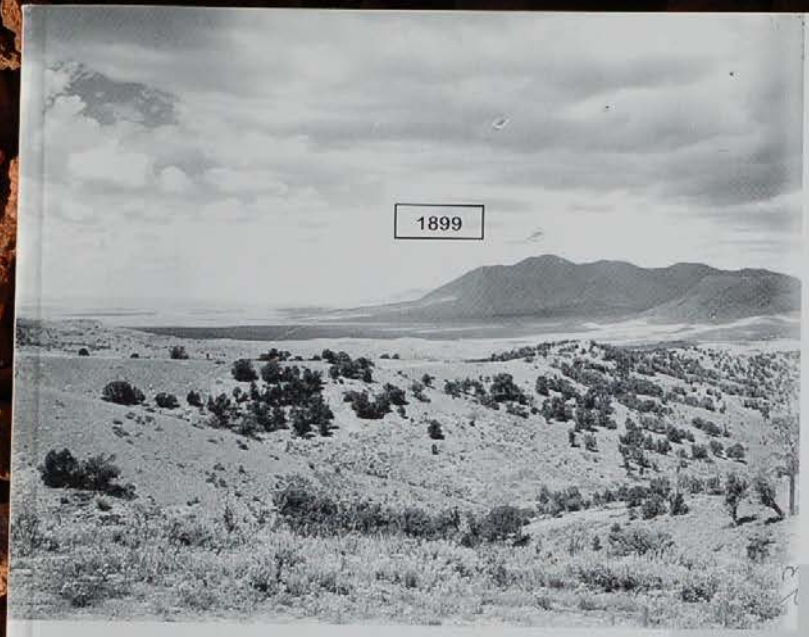
How did we get here?

Grazing removed fine fuels

Wildfire suppression allowed growth of woody plants

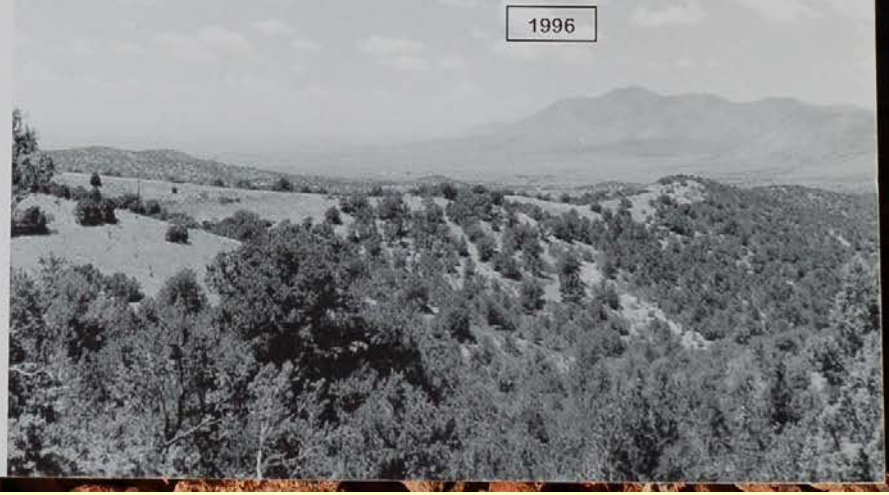
Why do we need restoration?

Why do we need restoration?



Historic Increases in Woody Vegetation in Lincoln County New Mexico

E. Hollis Fuchs



This is a big problem--but we can solve it

- Restoration based approaches are proven at a small scale (≈500 ac)
- They must be tested and refined as we apply them at large scales (100,000+ ac) in an adaptive management approach
- Multi-scaled collaborative approaches
- Apply a combination of experience and best available science

What can be done?

- Support collaborative prioritization of restoration treatments with best available science
- Insist on comprehensive landscape scale restoration solutions
- Use scientifically rigorous, operational adaptive management approach—learning by doing
- Act at a pace and scale consistent with the current forest landscape health crisis

What can be done?

Comprehensive landscape restoration can simultaneously reduce unnatural crownfire while restoring the ecologic and economic health of frequent fire landscapes.

In short, restoration can change landscapes that have become a liability into assets for present and future generations.

What is watershed restoration?

The recreation of historic structure (principally through the removal of small-diameter trees) in forests and woodlands,

and maintenance of the structure and ecological processes by reintroduction of an historic fire regime.

Economics as an ultimate driver

"We can't grant our way to forest health."

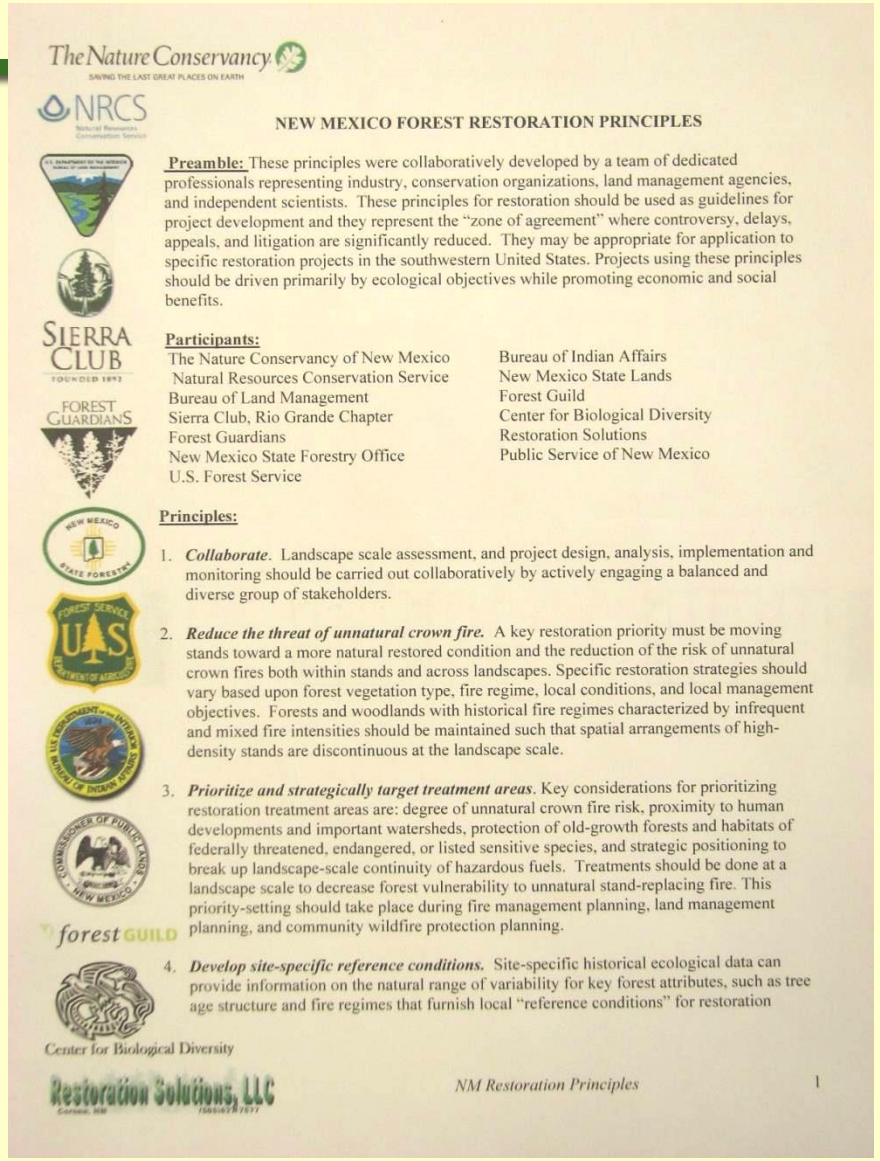
- *Las Vegas flooring prod*ucer

Behind every restored forest

is a restored forest industry.

- after an idea of the former head of NMFIA

NM FOREST RESTORATION PRINCIPLES



The Nature Conservancy
SAVING THE LAST GREAT PLACES ON EARTH

NRCS
Natural Resources Conservation Service

NEW MEXICO FOREST RESTORATION PRINCIPLES

Preamble: These principles were collaboratively developed by a team of dedicated professionals representing industry, conservation organizations, land management agencies, and independent scientists. These principles for restoration should be used as guidelines for project development and they represent the "zone of agreement" where controversy, delays, appeals, and litigation are significantly reduced. They may be appropriate for application to specific restoration projects in the southwestern United States. Projects using these principles should be driven primarily by ecological objectives while promoting economic and social benefits.

Participants:

The Nature Conservancy of New Mexico
Natural Resources Conservation Service
Bureau of Land Management
Sierra Club, Rio Grande Chapter
Forest Guardians
New Mexico State Forestry Office
U.S. Forest Service
Bureau of Indian Affairs
New Mexico State Lands
Forest Guild
Center for Biological Diversity
Restoration Solutions
Public Service of New Mexico

Principles:

1. ***Collaborate***. Landscape scale assessment, and project design, analysis, implementation and monitoring should be carried out collaboratively by actively engaging a balanced and diverse group of stakeholders.

2. ***Reduce the threat of unnatural crown fire.*** A key restoration priority must be moving stands toward a more natural restored condition and the reduction of the risk of unnatural crown fires both within stands and across landscapes. Specific restoration strategies should vary based upon forest vegetation type, fire regime, local conditions, and local management objectives. Forests and woodlands with historical fire regimes characterized by infrequent and mixed fire intensities should be maintained such that spatial arrangements of high-density stands are discontinuous at the landscape scale.

3. ***Prioritize and strategically target treatment areas***. Key considerations for prioritizing restoration treatment areas are: degree of unnatural crown fire risk, proximity to human developments and important watersheds, protection of old-growth forests and habitats of federally threatened, endangered, or listed sensitive species, and strategic positioning to break up landscape-scale continuity of hazardous fuels. Treatments should be done at a landscape scale to decrease forest vulnerability to unnatural stand-replacing fire. This priority-setting should take place during fire management planning, land management planning, and community wildfire protection planning.

4. ***Develop site-specific reference conditions.*** Site-specific historical ecological data can provide information on the natural range of variability for key forest attributes, such as tree age structure and fire regimes that furnish local "reference conditions" for restoration

Center for Biological Diversity

Restoration Solutions, LLC

NM Restoration Principles 1

www.fs.fed.us/r3/spf/nm-restor-principles-122006

Prescription Guidelines

Historic Structure

Studies show for Southwest ponderosa pine:

- Trees were in groups
- Groups were 0.1-0.7 acre in size
- Space without trees separated groups
- All sizes and ages were in the landscape

See
www.eri.nau.edu/en/the-ecological-restoration-process/establishing-reference-conditions

Take-Home Message

1) Take Enough

2) Leave Groups and Openings

3) Burn It

Consult your local professional

Role of Fire

Pyne

- All of North America has been shaped for 10,000 years by man using fire.
- In 1910, 3,000,000 acres burned in two days; six towns burned, 85 people died.
- In 1911, Congress and the new Forest Service said this will not happen again.
- New factors are homes in the forest, and a belief that current conditions are “natural”.

Covington

- 1n 1994, predicted 15 to 20 years to correct overcrowding before forests began to see large-area crown fires, insect outbreaks, or overcrowding.
- Too many trees are like too many straws in the same punchbowl.
- Putting fire on the ground in existing forests is like forcing an obese man to run fast.

Swetnam

- Low intensity fires recorded in tree rings.
- In ponderosa pine, fires every 4 to 7 years.
- Fires usually stopped when the railroad arrived, sometimes sooner, and almost always by about 1914.
- Tree rings also record drought; we are due for another dry period.


1890
1996
1950
1900
1800
1750
1700
1650
1600
1584
1642
1823
1801
1777
1760
1744
1735
1724
1631
1601
Rocky Mountain Research Station

Ponderosa pine fire history

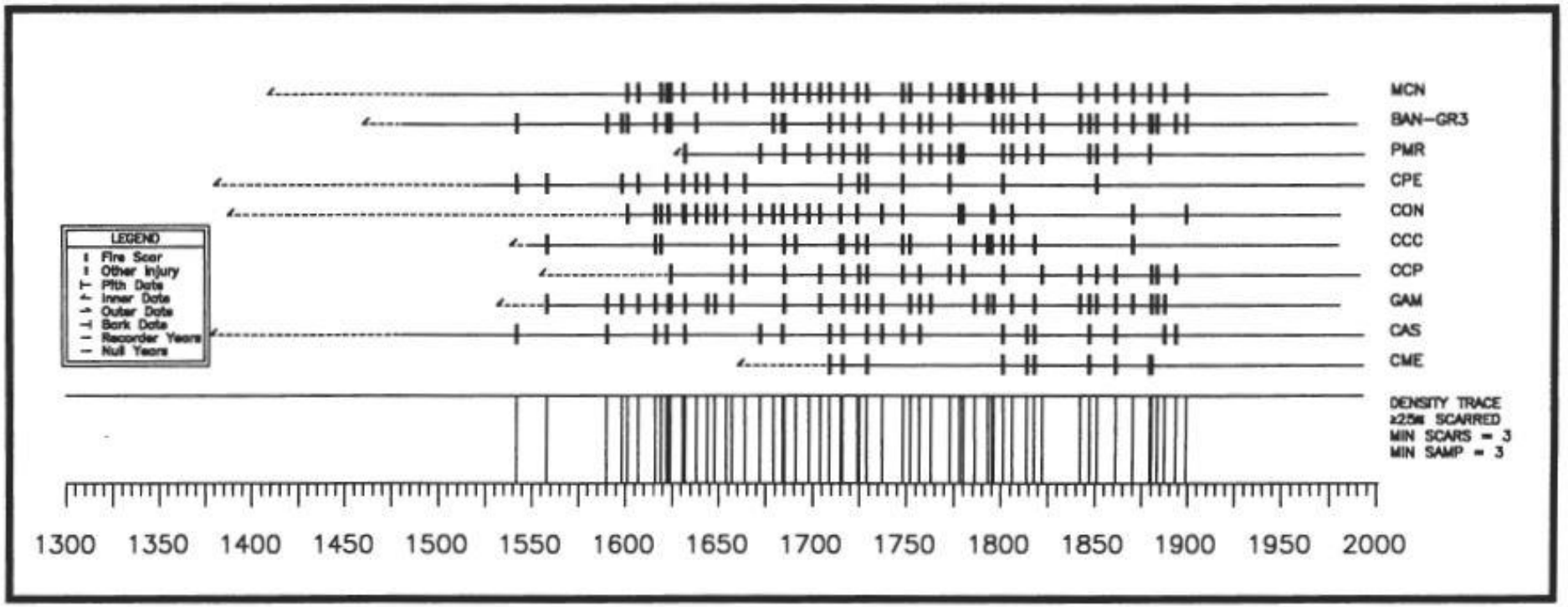


Figure 2. Composite of all fire chronologies for the ponderosa pine and transitional forests. Horizontal lines are maximum life span of trees within each site. Vertical lines are composite fire dates recorded by 25% or more of the trees within each site.

Touchan et al 1996

Mixed conifer fire history

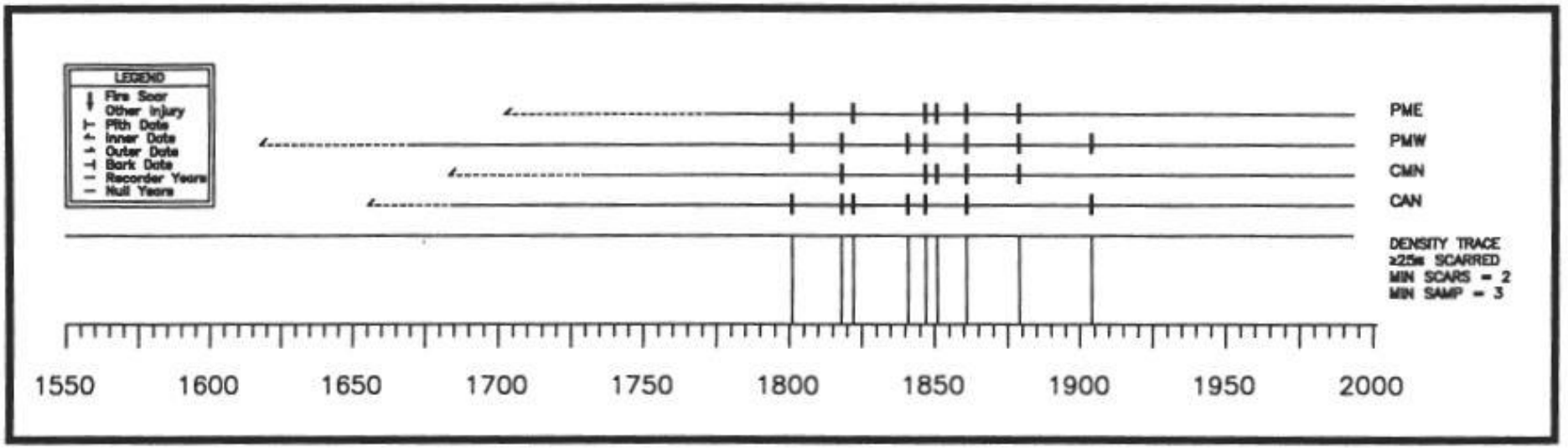


Figure 3. Composite of all fire chronologies from the mixed-conifer forests. Horizontal lines are maximum life span of trees within each site. Vertical lines are composite fire dates recorded by 25% or more of the trees within each site.

Touchan et al 1996

All the ingredients are here

- **It is not a matter of <u>if</u> a fire happens, but <u>when</u>**

Rx Fire

- Prescribed Fire is the application of fire as an ecological process, under specified conditions, in a designated area to achieve land management objectives.
- A written approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescribed Fire

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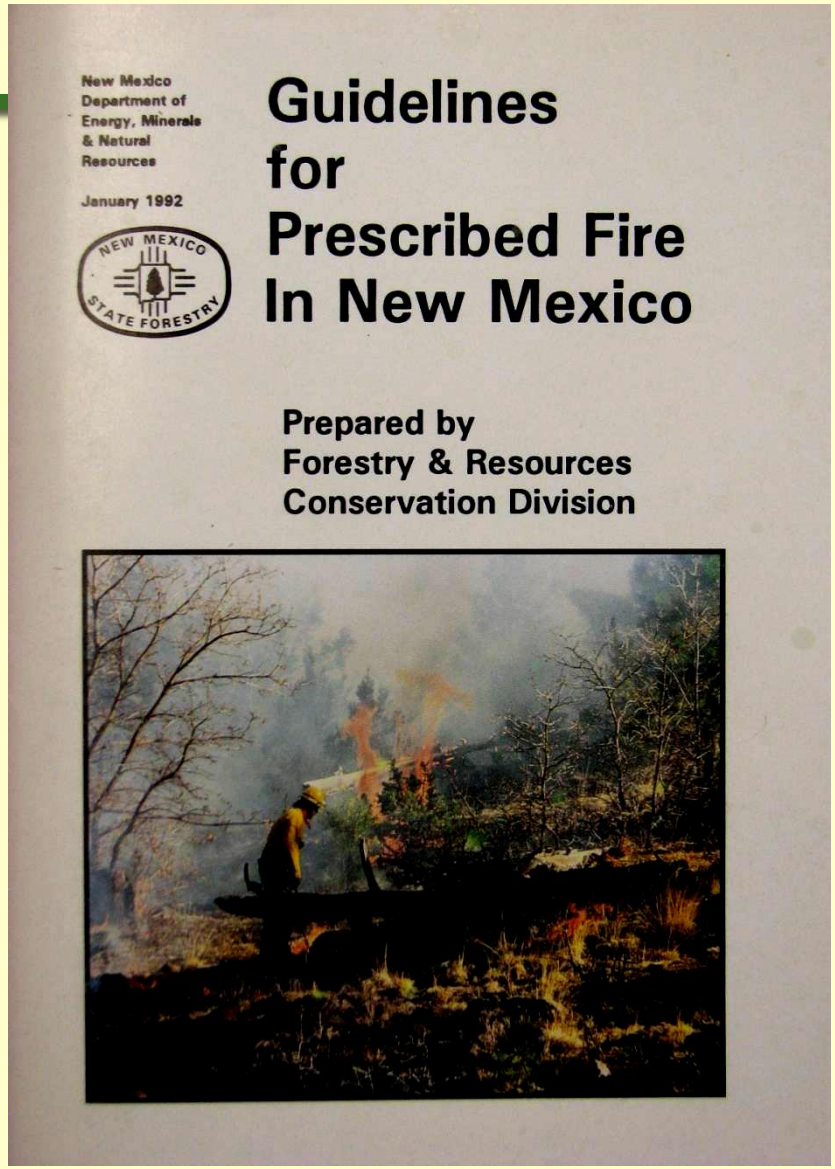
Prescribed Fire



Prescribed Fire

Prescribed Fire

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