In a Dense Wood:
Forest Restoration in New Mexico

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New Mexico Watershed Forum
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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

Activity Areas

Why do we need restoration?

Why do we need restoration?

1. Grazing removed fine fuels
2. Wildfire suppression allowed growth

Why do we need restoration?

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 other ecological processes by reintroduction of an historic fire regime.

Economics as an ultimate driver

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

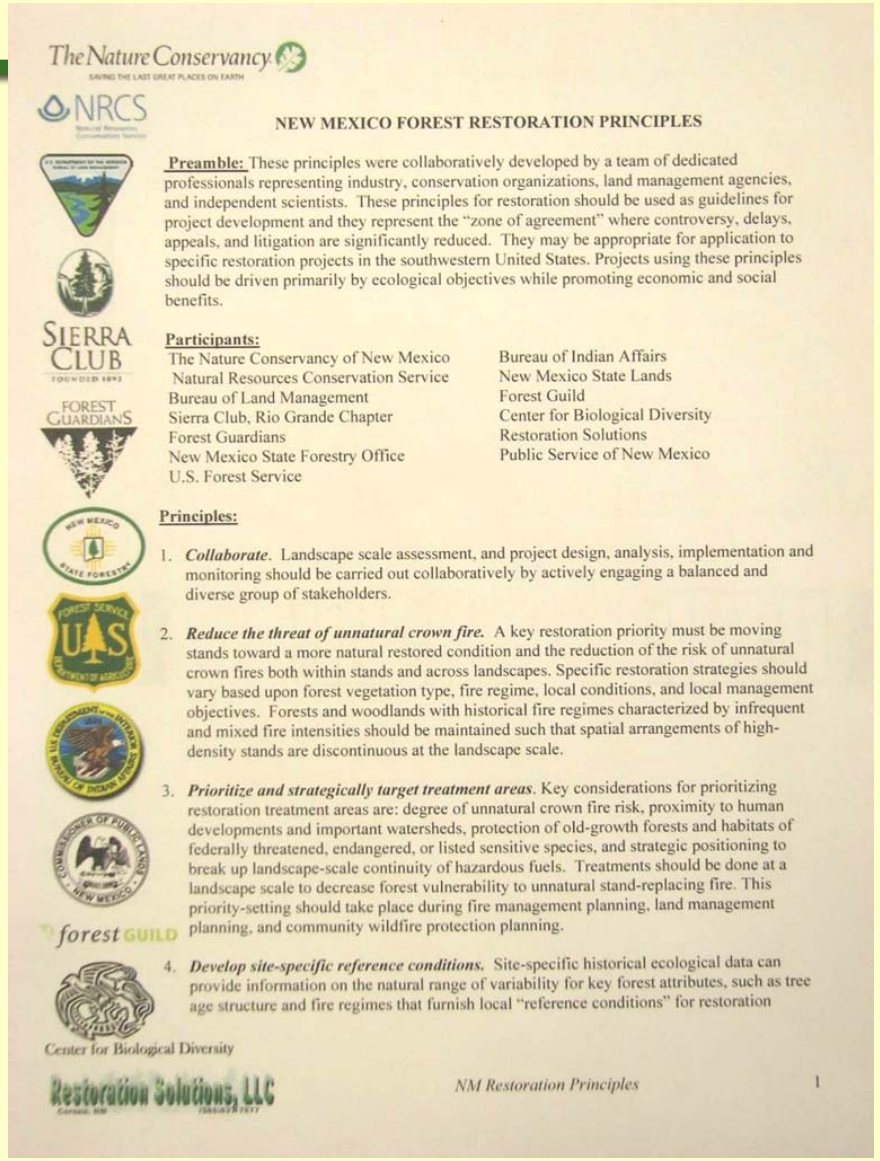
- *Las Vegas flooring prod*ucer

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

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.

SIERRA CLUB
FOUNDED 1892

FOREST GUARDIANS

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.

forest GUILD

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

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

NM FOREST RESTORATION PRINCIPLES

1. ***Collaborate***
2. ***Reduce the threat of unnatural crown fire***
3. ***Prioritize and strategically target treatment areas***
4. ***Develop site-specific reference conditions***
5. ***Use low-impact techniques***
6. ***Utilize existing forest structure***
7. ***Restore ecosystem composition***
8. ***Protect and maintain watershed and soil integrity***
9. ***Preserve old or large trees while maintaining structural diversity and resilience***
10. ***Manage to restore historic tree species composition***

NM FOREST RESTORATION PRINCIPLES

(cont.)

11. ***Integrate process and structure***
12. ***Control and avoid using exotic species***
13. ***Foster regional heterogeneity***
14. ***Protect sensitive communities***
15. ***Plan for restoration using a landscape perspective that recognizes cumulative effects***
16. ***Manage grazing***
17. ***Establish monitoring and research programs and implement adaptive management***
18. ***Exercise caution and use site-specific knowledge in managing grasslands and piñon-juniper savannas, woodlands and forests***

Prescription Guidelines

Historic Structure

Studies show for Southwest ponderosa pine:

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

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

Take-Home Message

Clumps

and

Openings

Northern Goshawk – *Accipiter gentilis*

Northern Goshawk guidelines

Management is aimed at increasing habitat for about eight prey species of the NGH.

A group or clump consists of trees that are close enough together that a squirrel can travel from one to the other without having to go to the ground. True for all sets of guidelines.

Northern Goshawk guidelines

Reynolds, Richard T.; Graham, Russell T.; Reiser, M. Hildegard; and others.

1992.

Management recommendations for the northern goshawk in the southwestern United States.

Gen. Tech. Rep. RM-217, Ft. Collins, CO:

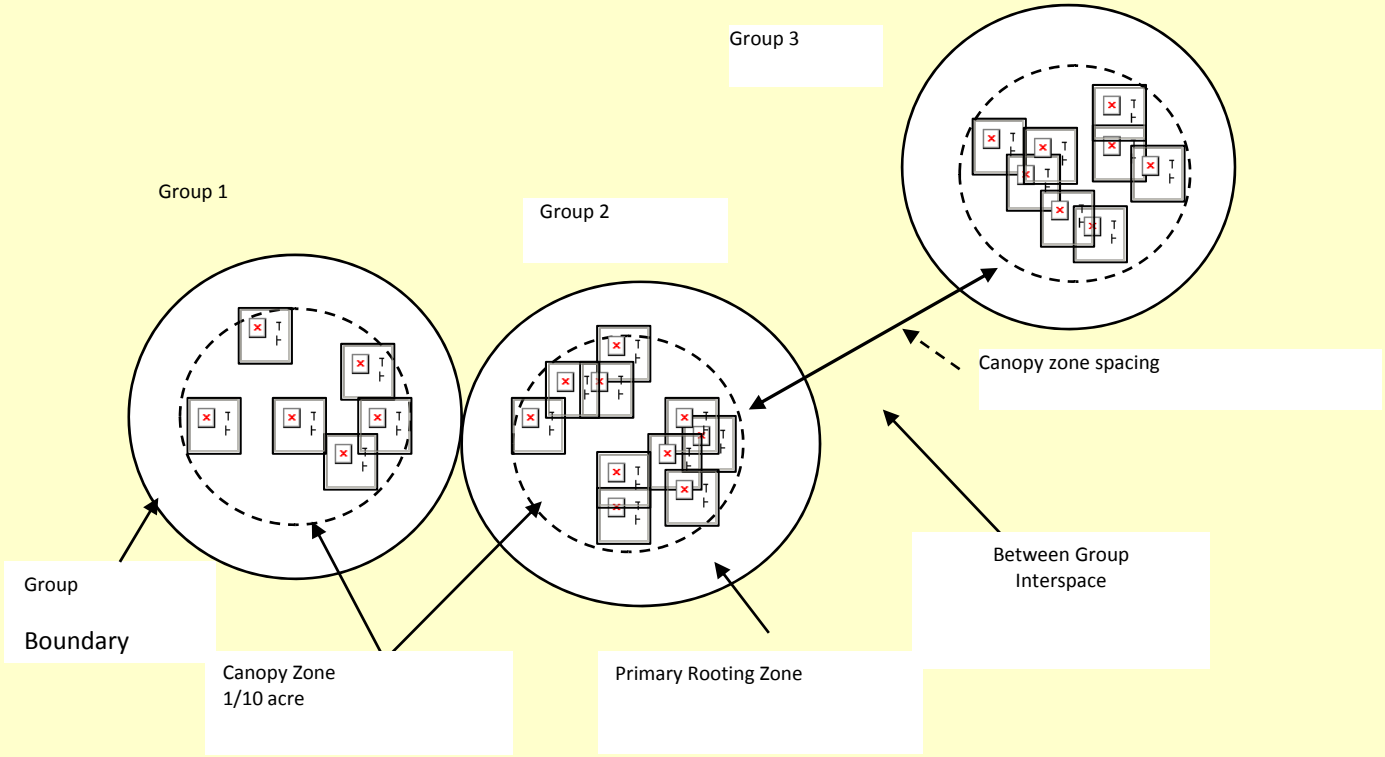
U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 90 p.

Northern Goshawk guidelines

Vegetation Structural Stages

- VSS1 – grass/ forb/ shrub, 0-1” dbh
- VSS2 – seedling/ sapling, 1-4.9” dbh
- VSS3 – young, 5-11.9” dbh
- VSS4 – mid-age, 12-17.9” dbh
- VSS5 – mature, 18-23.9” dbh
- VSS6 – old, 24+” dbh

Northern Goshawk guidelines



Northern Goshawk guidelines

Proportion of clumps on the landscape

- VSS1 – 10%
- VSS2 – 10%
- VSS3 – 20%
- VSS4 – 20%
- VSS5 – 20%
- VSS6 – 20%

Northern Goshawk guidelines

ERI "Evidence" guidelines

- Retain all "big" trees
- Replace all evidence with 3 trees (< 16-in dbh)
- Replacement trees are best and closest to evidence

See

www.eri.nau.edu/en/restoration-treatments/presettlement-model

ERI "Evidence" guidelines

"Clumpy 40" guidelines

- Basal area = 40 sq ft / acre
- Residual stand with trees in clumps
  and openings between the clumps
- Poorest trees are cut

Phenotype "Lean Wolf" guidelines

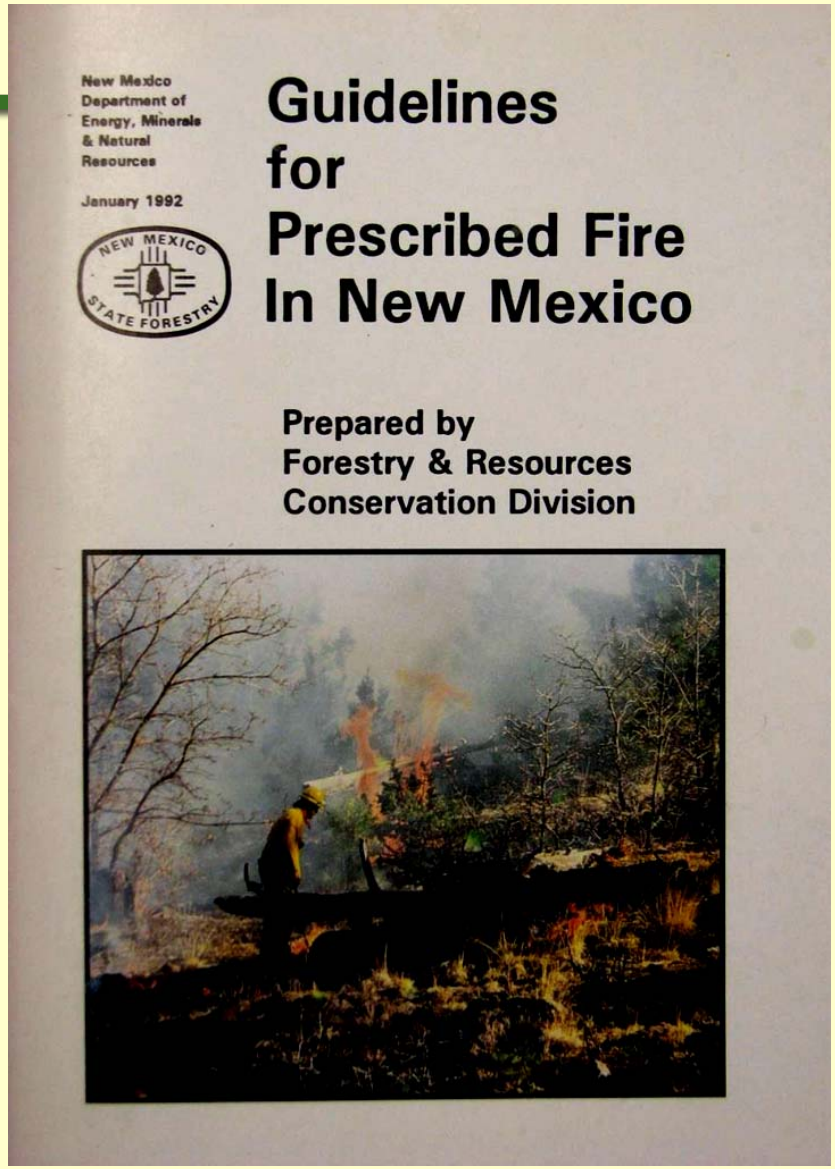
- Lean - Leaner
- Wolf - Wolfy/ undesirable branch structure
- 2 - Two or split topped
- Low - Low vigor/ sickly
- D - Diseased/ unhealthy
- O - Overtopped/ suppressed
- C - Crooked/ sweep

One size does not fit all

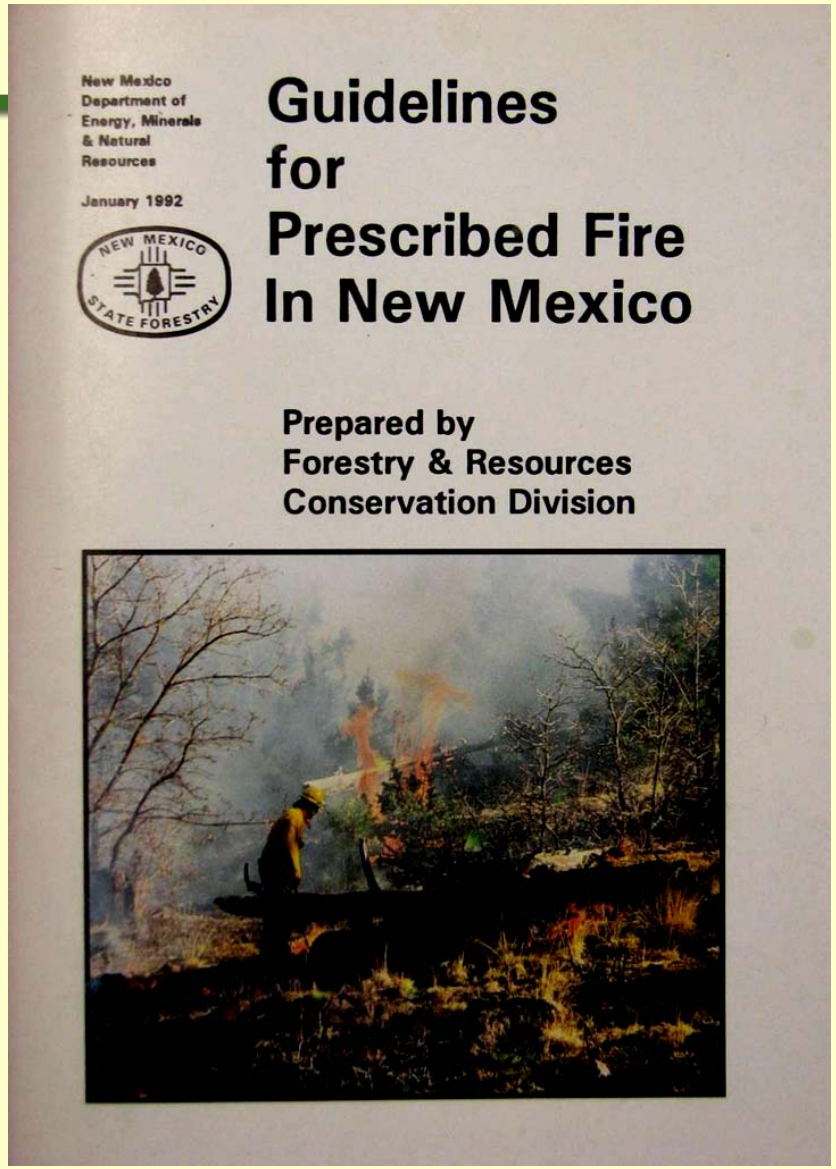
Consult your local professional

Prescribed Fire

Prescribed Fire



Prescribed Fire



New Mexico Prescribed Fire Council will hold its first general membership meeting at 9am on Thursday 21 October at the Albuquerque Fire Department Academy Auditorium

Prescribed Fire