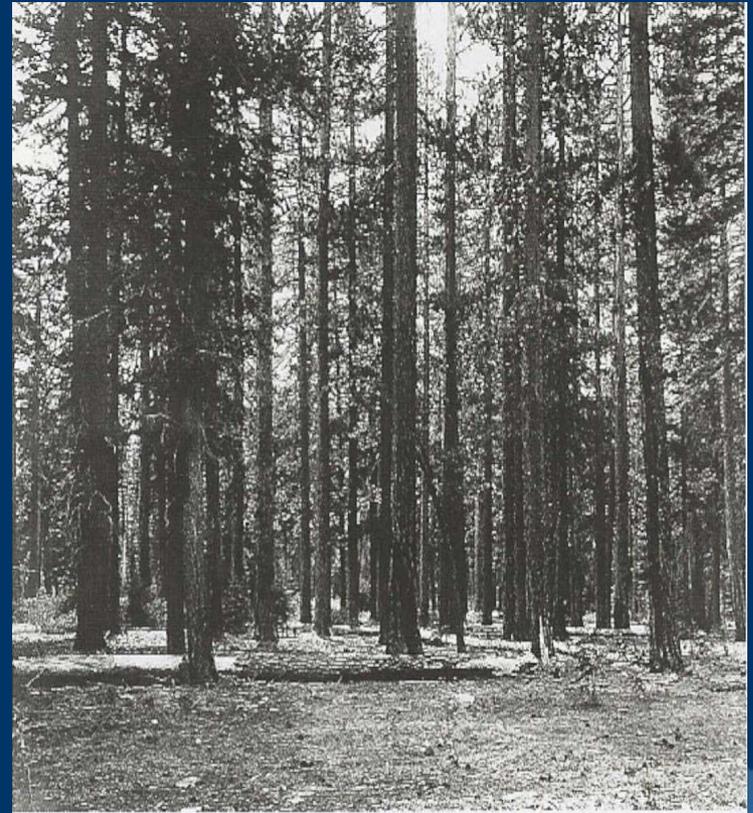


Fuel Reduction and Forest Restoration in Lake Tahoe's Wildland Urban Interface



Funded by the Tahoe Regional Planning Agency

through a grant from
USDI, Bureau of Reclamation

Cooperators:

CalFire
California State Parks
California Tahoe Conservancy
Lake Tahoe Basin Management Unit
Nevada Division Forestry
Nevada State Lands
Nevada Fire Safe Council
Seven Basin Fire Districts



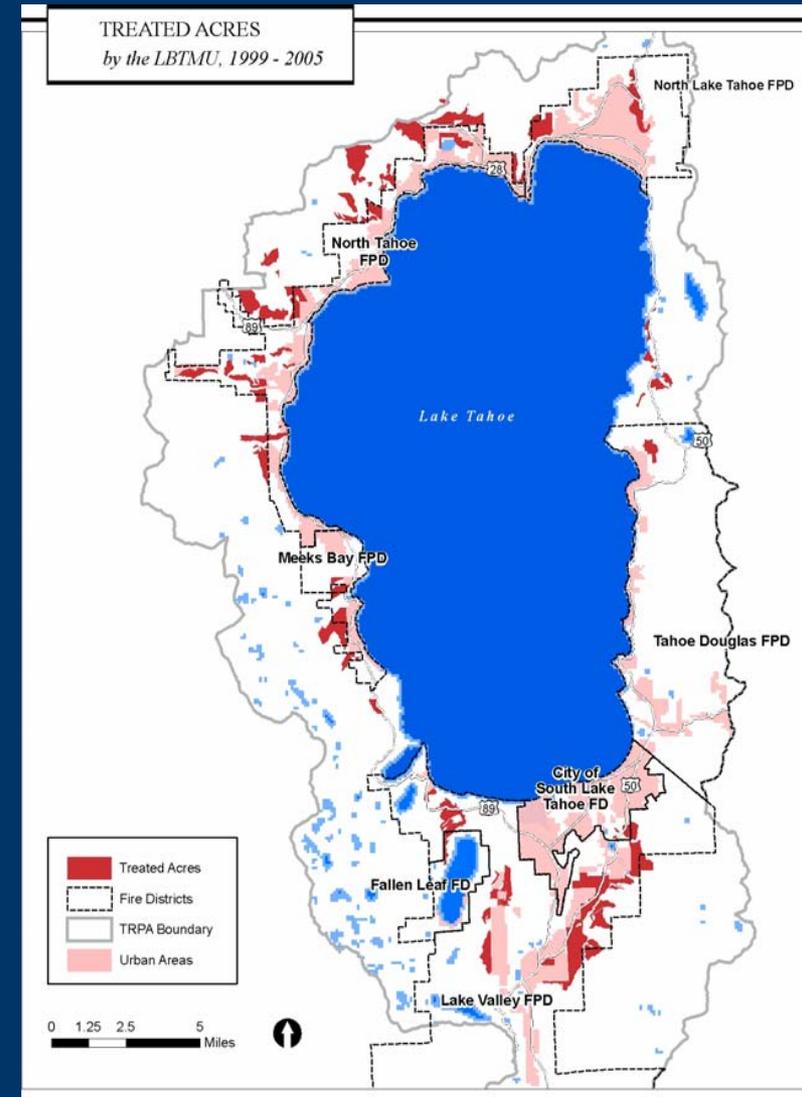
A Burning Issue

- ◆ Number of acres burned has increased every decade since 1956.
- ◆ 76% of sample plots (n = 60) would result in a crown fire.
- ◆ \$14-\$15 billion assessed real estate values.
- ◆ Protect water quality: Manage the forests rather than let them burn and devastate Lake Tahoe's clarity, *C. Goldman, limnologist.*



Recent Progress

- ◆ 13,000 acres treated since 2000
- ◆ Local and state agencies approved 3 CWPPs
- ◆ LTBMU drafted Stewardship and Fireshed Assessment



CWPP Program Goals

- ◆ Protect values-at-risk
 - ◆ Reduce fuel hazards and restore ecosystem health
 - ◆ Mimic results of historic disturbance regimes
 - ◆ Use cost effective treatments
- 

**PROTECTING VAULES-AT-RISK
RESTORING FOREST HEALTH
&
MIMICKING HISTORIC
DISTURBANCE REGIME**



- ◆ Healthy Forest Restoration Act allows communities to identify the wildland urban interface (WUI).
- ◆ Sierra Nevada Framework recognizes 3 components in WUI: urban core, defense zone, and threat zone.

Urban Core, Defense Zone, and CWPP projects

Fig. 1-1 STUDY AREA

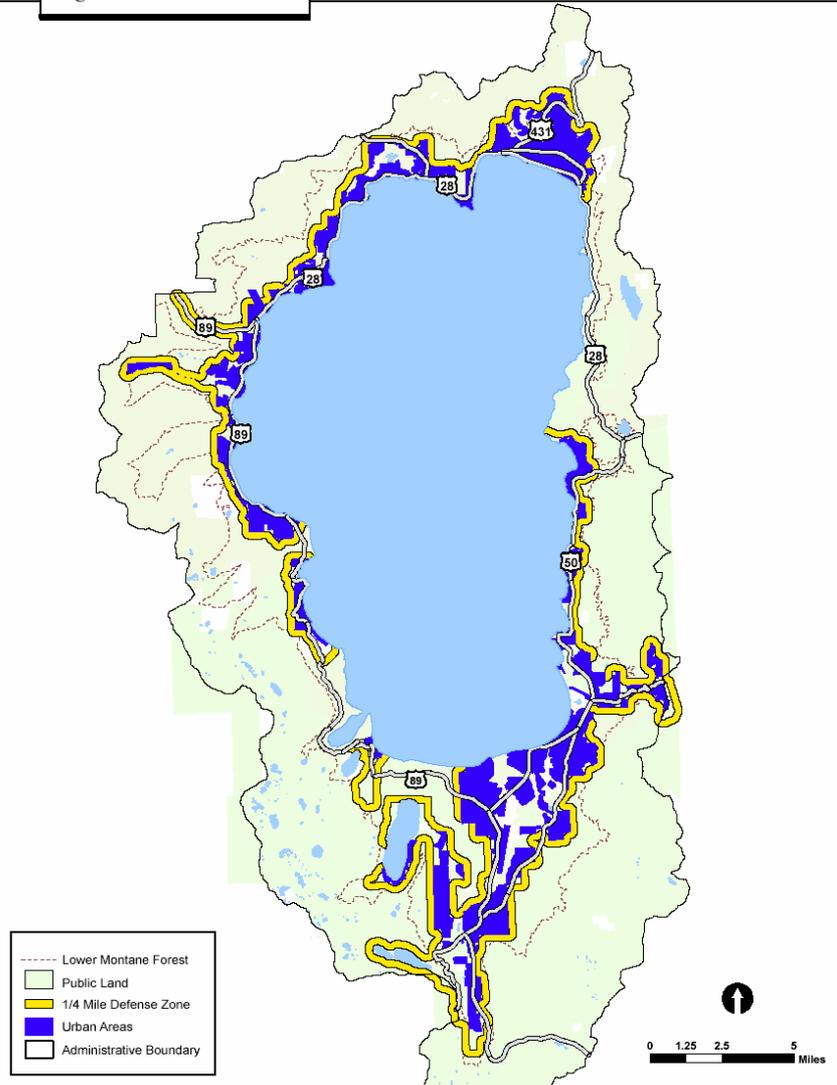
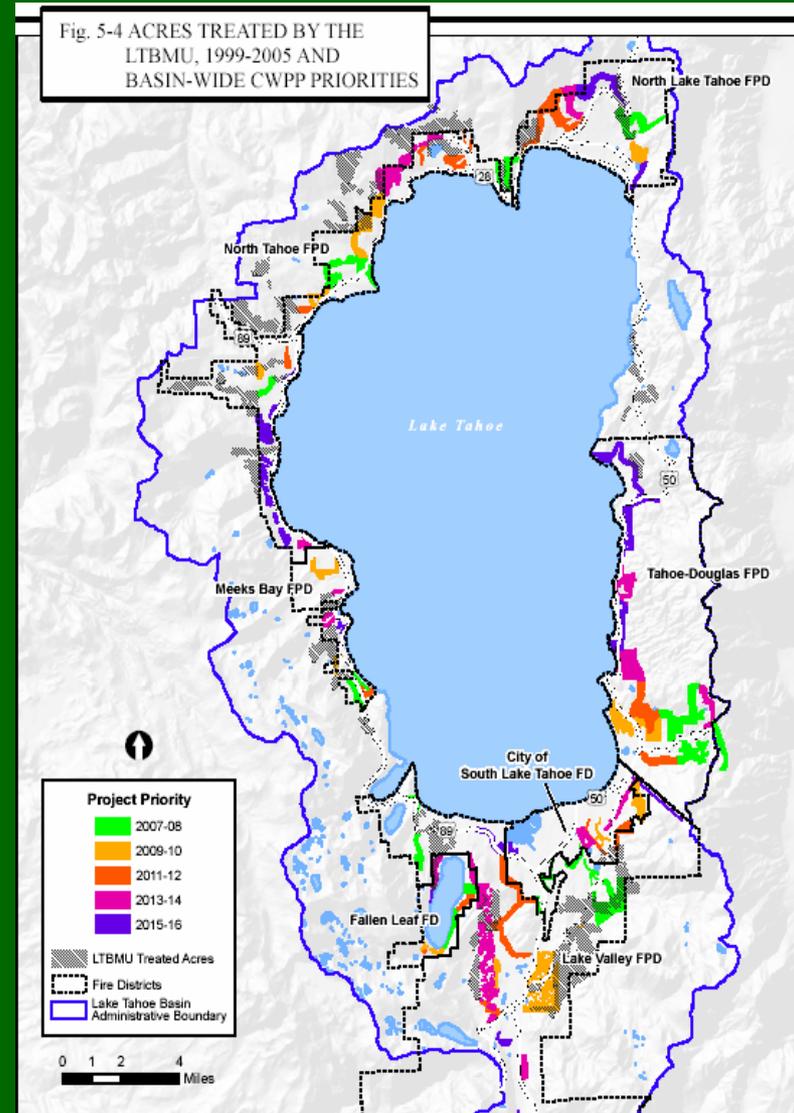
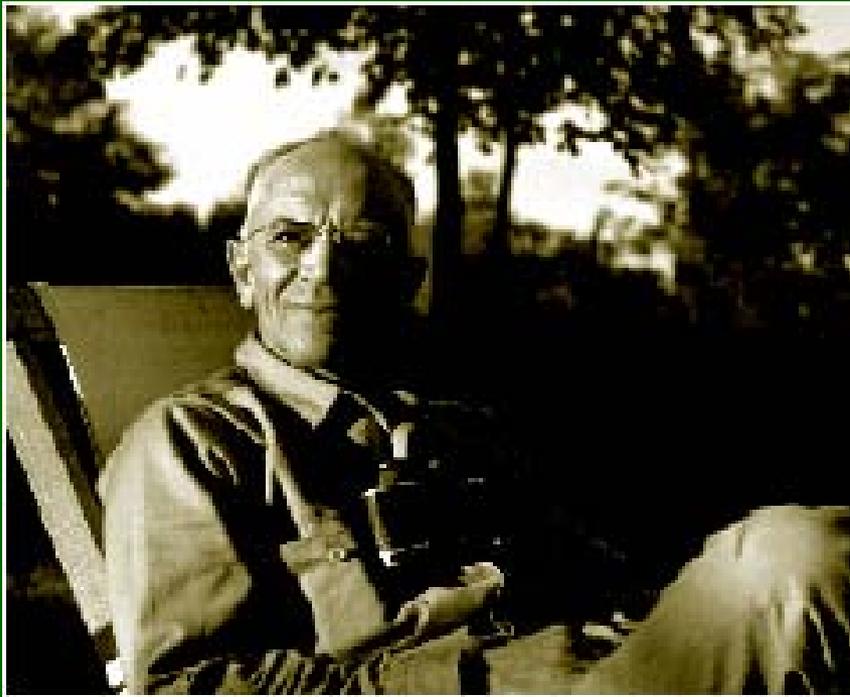


Fig. 5-4 ACRES TREATED BY THE LTBMU, 1999-2005 AND BASIN-WIDE CWPP PRIORITIES



Principles of Ecological Restoration

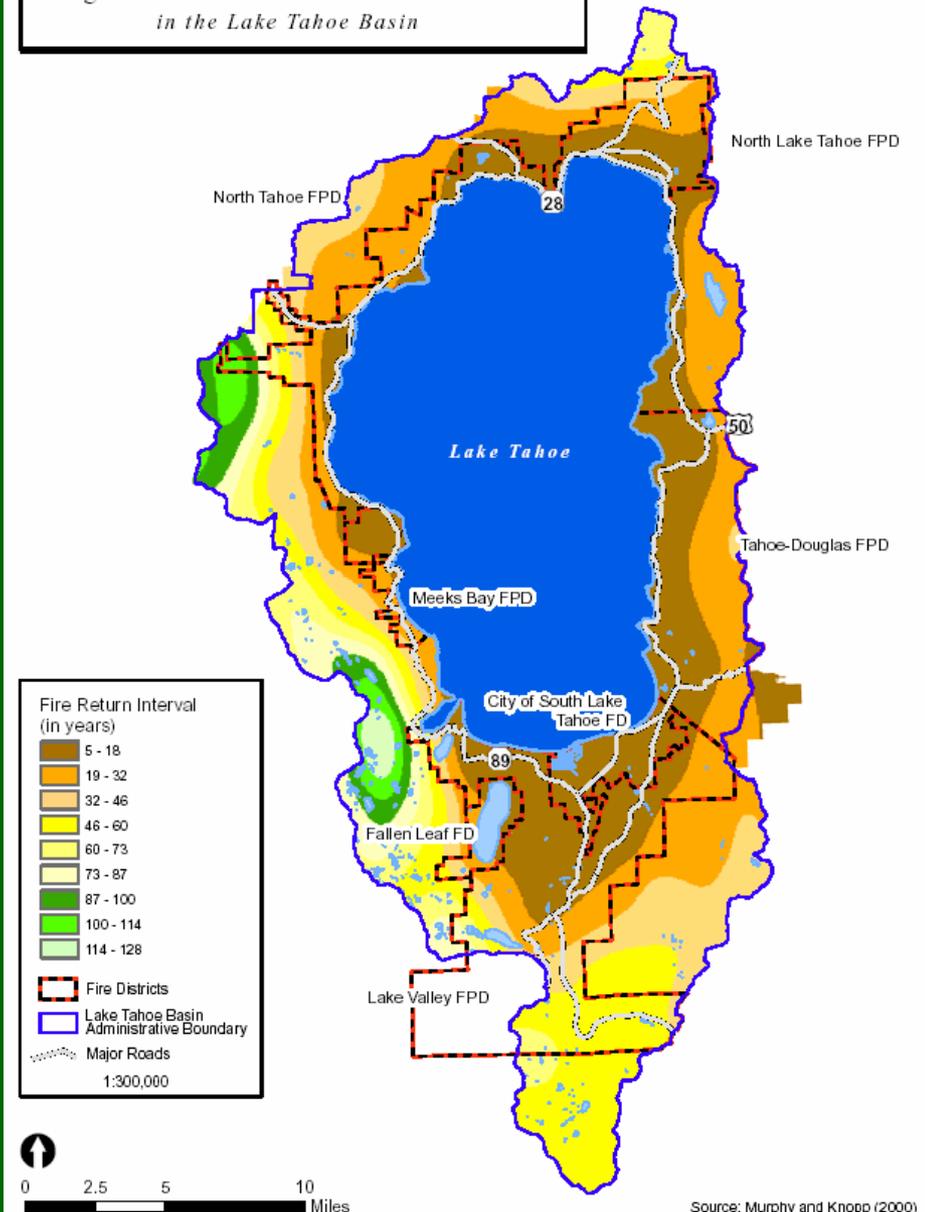


“The first step is to reconstruct a sample of what we had to begin with.”

A. Leopold

Prior to European settlement fire return intervals varied throughout the Lake Tahoe Basin.

Fig. 2-2 HISTORIC FIRE RETURN INTERVAL
in the Lake Tahoe Basin



Source: Murphy and Knopp (2000)

Relationship of CWPP projects to historical fire return intervals

	5-18 year FRI	19-32 year FRI	>32 year FRI
Land Use	Percent of Land Use		
Urban Core	79	18	3
CWPP Projects	63	33	1



Frequent low intensity fires burned 2,000-8,000 acres annually, resulting in:

- ◆ Low density stands of large conifer trees
- ◆ Poorly developed understory vegetation
- ◆ Variable age classes of woody riparian vegetation



CWPP Treatments

- ◆ Reduce the number of trees to remove ladder fuels and reduce competition for nutrients in the residual stand.
- ◆ Remove surface fuels to obtain flame lengths < 4 feet and < 2 feet wherever possible (Sierra Nevada Framework).

1 & 2 Foot Flame Lengths

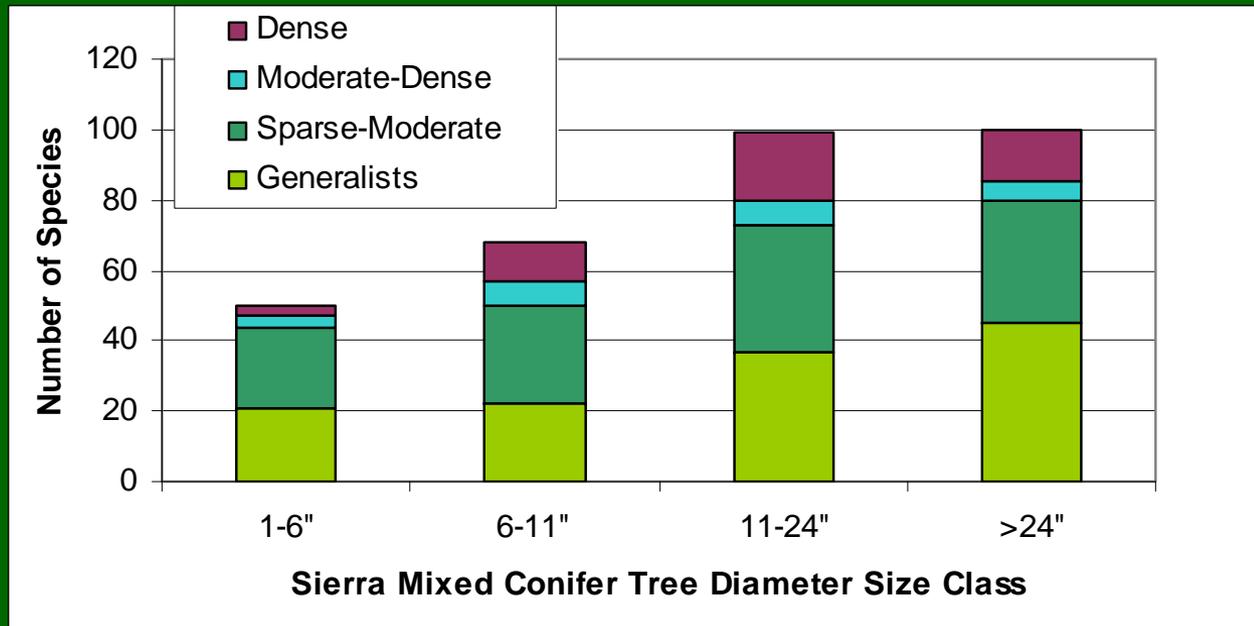




Effects of Fuel Treatments on Wildlife

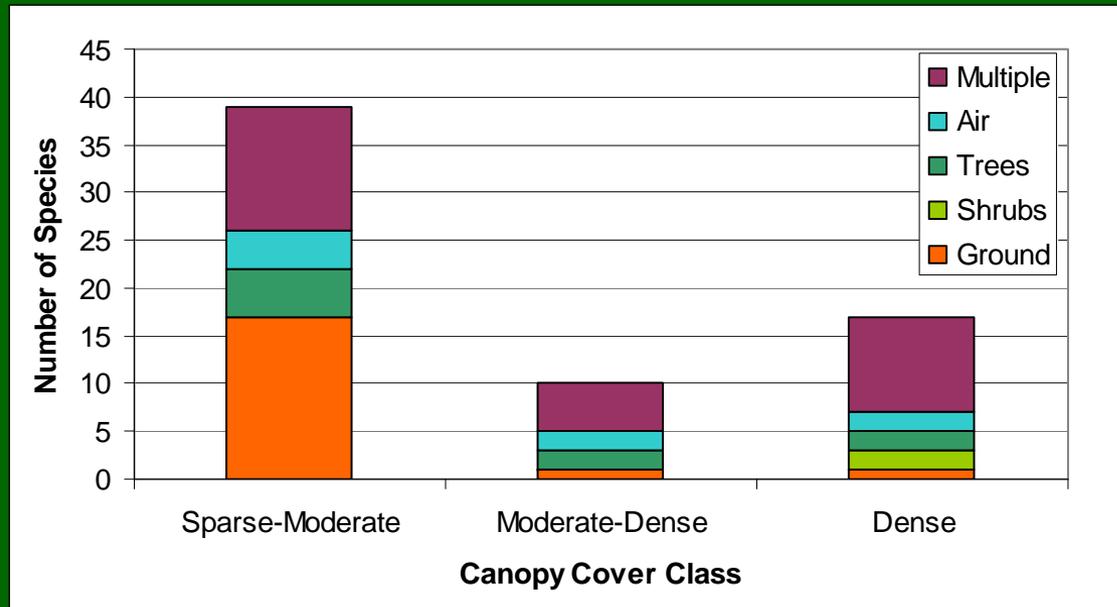


Canopy Cover and Species Richness



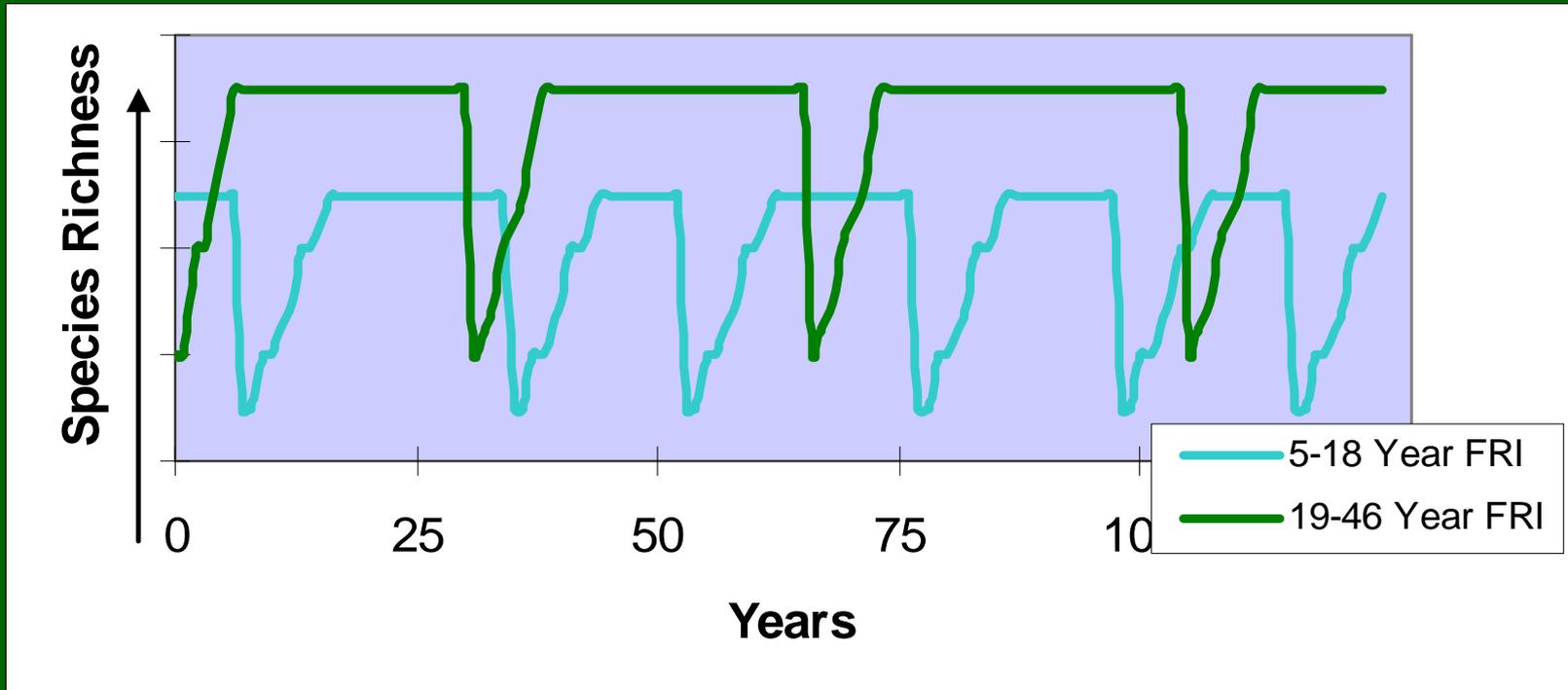
- ◆ Dense canopy forests have the lowest species richness.
- ◆ Reducing canopy cover increases species richness because additional sunlight stimulates growth of surface resources.

Effects of Reducing Surface Fuels on Species Richness



- ◆ 32 species in sparse-moderate canopied forests rely on surface resources for foraging.
- ◆ Removing surface fuels will reduce species richness.

Historical Effects of Fire on Species Richness



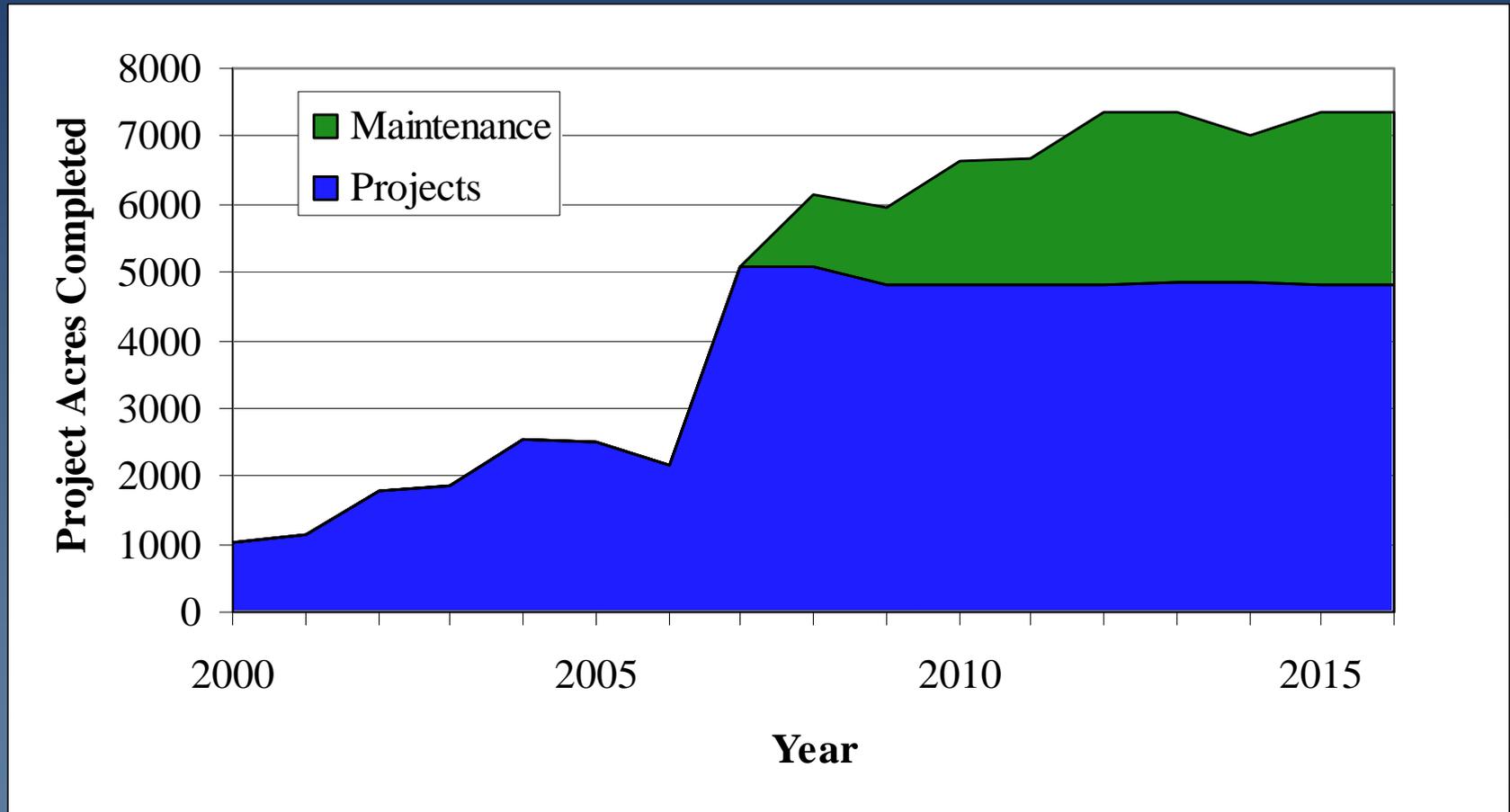
- ◆ Minimize the width of the defense zone.
- ◆ Implement more variable treatments outside of the defense zone.



PROJECT IMPLEMENTATION



Projected Change in Acres Treated



10-Year Objectives and Costs

Program	Ownership	Acres	Cost (MM)
CWPP	Federal	6,552	\$25.3
	Local	1,150	\$4.4
	Private	2,408	\$9.3
	NV	75	\$0.2
	CA	2,293	\$78.8
Subtotal		12,478	\$48.1
Community Defense			\$10.0
LTBMU		33,260	\$96.9
NV		3,100	\$9.0
Maintenance		18,100	\$10.3
Program Administration			\$34.1
Total		66,938	\$217.5

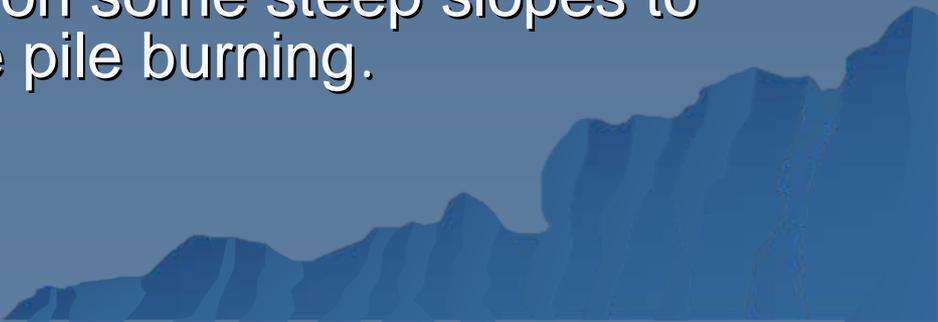
Projected average annual treatment acres

	Mechanical Thin	Hand Thin	Pile & Burn	Broadcast Burn	Chip/Masticate
CWPP	550	690	475	485	300
LTBMU & NV	1,490	1,380	1,455	690	
Maintenance				1,810	
Total	2,040	2,070	1,930	2,985	300

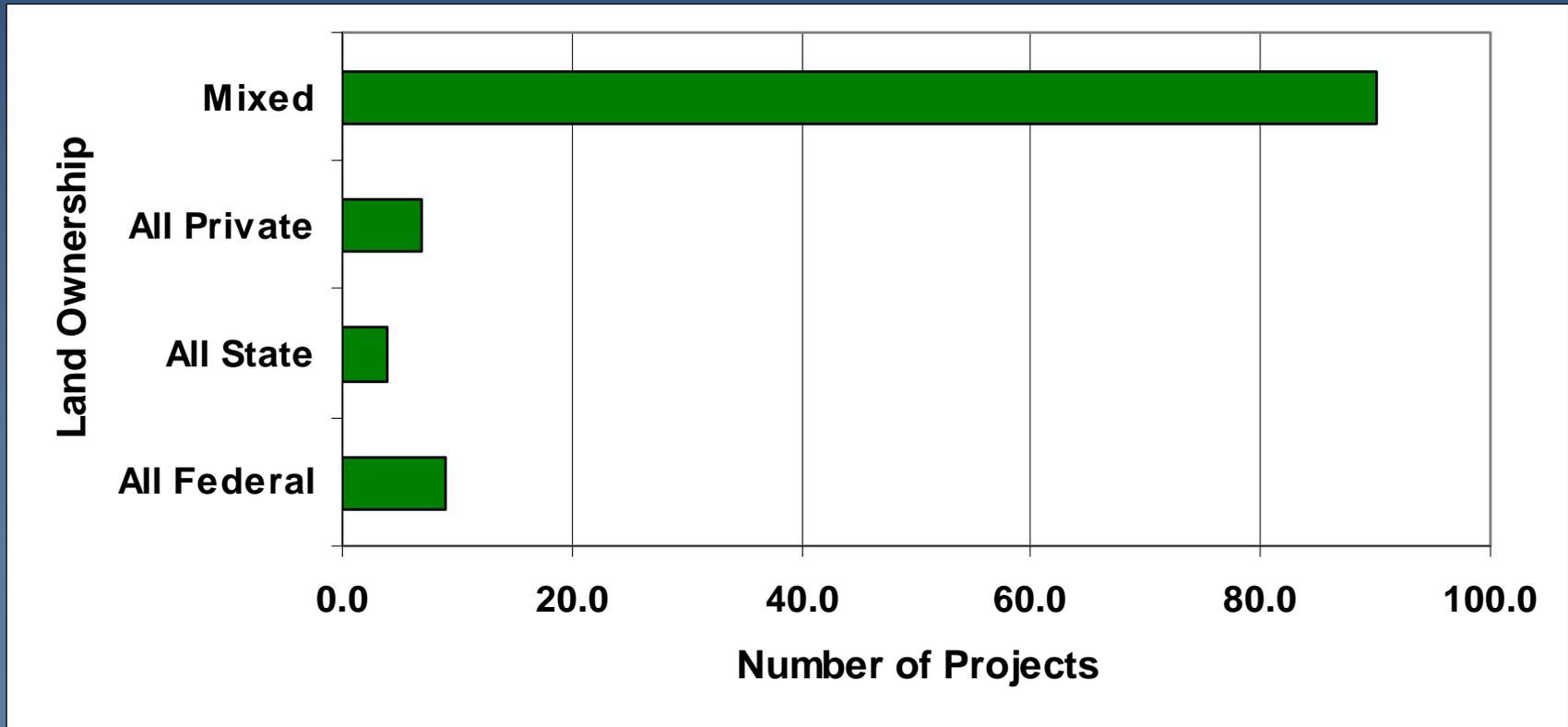
Operational Challenges

- ◆ 2,300 acres of mechanical treatments.
 - Encourage and develop additional mechanical operators.
 - Increase the types of machinery available for operation.
- ◆ 2,070 acres of hand thinning.
 - Add 6, 10-person hand crews
- ◆ 4,900 acres prescribed burning.
 - 1,930 acres pile burning
 - 1,175 acres broadcast burning
 - 1,810 acres broadcast burning for maintenance
- ◆ Strategically evaluate and identify critical projects.

Develop a Biomass Facility

- ◆ Consistent with federal and state energy policies supporting alternative energy sources.
 - ◆ 25% reduction in number of acres burned annually.
 - ◆ Reduce emissions from traditional burning.
 - ◆ Provide approximately 12,000 green tons of material annually.
 - ◆ Allow mechanical treatment on some steep slopes to provide biomass and reduce pile burning.
- 

Complicated land ownership of CWPP projects will affect contracting



Administrative Challenges

- ◆ Determine if a single organization will be responsible for implementing CWPP projects with mixed ownership.
 - ◆ Agree on a strategy to comply with NEPA, CEQA, TRPA, and other regulatory issues.
- 

Implementing CWPP projects will:

- ◆ Contribute to the protection of valuable assets.
- ◆ Mimic the historical disturbance regime.
- ◆ Put low elevation forests on a trajectory toward restoration.
- ◆ Require extensive coordination and cooperation.

Plan and Appendices
are available at:

www.TRPA.org



“The fuel problem will take care of itself, one way or the other.” *Elwood Miller, Ph.D., Nevada Fire Safe Council*

