

# Juniper Impacts and Control in Northeastern California

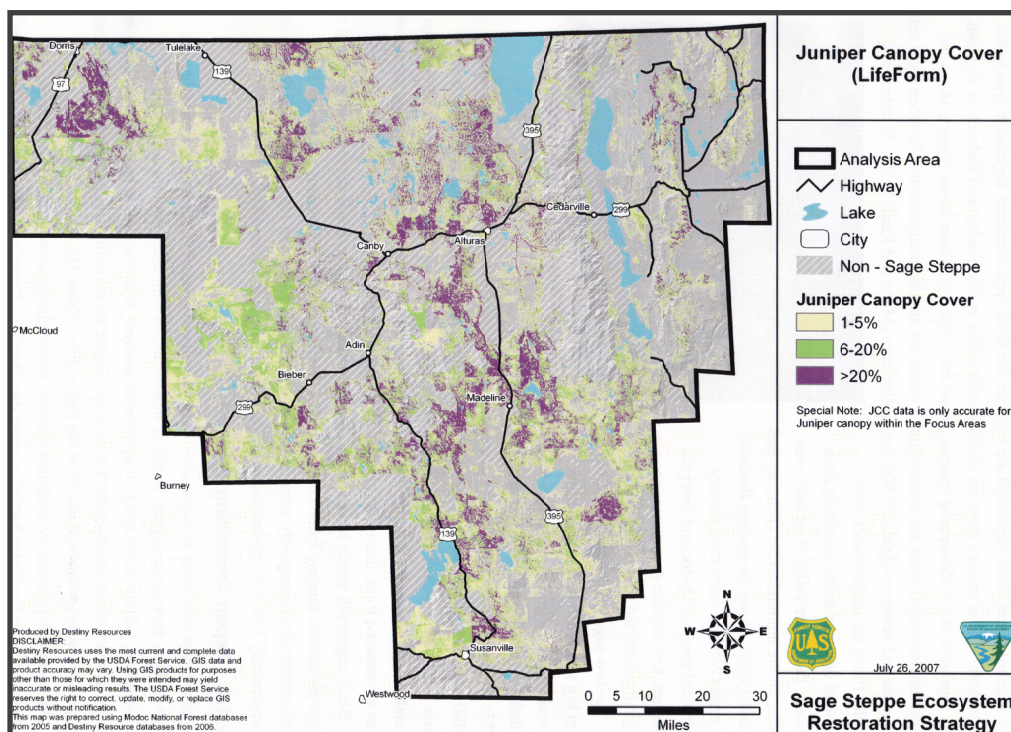
## Background

Western juniper is a native but invasive species that has negative ecological and economic impacts—including loss of forage and browse, reduced biodiversity, and loss of sagebrush habitat across northeastern California. There are approximately 2.2 million acres with at least 1% juniper canopy cover, and 433,000 acres over 20% canopy cover. Although juniper can live for more than 1000 years, approximately 95% of existing juniper trees are less than 150 years old.

## Key Management Issues and Research Needs

- Assess short and long-term juniper removal effectiveness by site characteristics, type of treatment method, and time since treatment. Document potential economic and ecological effectiveness of treatments to enhance sage grouse habitat, non-target species, hydrologic function and water availability, and forage production.
- Increase capacity to treat larger number of acres. There is a need for additional funding opportunities for juniper control (such as the Sage Grouse Initiative) as well as development of increased markets and outlets for juniper products, which have historically been limited to chips for energy production.
- Develop novel control methods to use targeted prescribed fire in juniper stands.
- Develop strategies to identify and prioritize areas for treatment to optimize acreage of juniper control across the landscape.
- Develop and document effectiveness of selective single tree treatments to control new juniper invasions, as well as small trees missed by mechanical treatment.

*Addressing these issues and needs will support adaptive management and enable large scale control efforts.*



## Selective single tree treatments

Selective single tree treatments offer potentially cost-efficient removal of new invasions, as well as recruiting trees missed by mechanical treatment. This approach allows managers to maintain current understory vegetation and limit site disturbance.

We evaluated mechanical (loppers and saws), fire (propane burner), and chemical (soil, hack & squirt, and foliar treatments) treatments for effectiveness, cost, and ease of application.

Treatment Method	Trees treated per minute
Velpar Concentrate**	4.0
Hack & Squirt	2.1
EZ-Ject Lance	1.8
Backpack Propane Burner	1.6
Loppers*	1.5

*\*Loppers are the most fatiguing method, and we have concerns about potential re-sprouting of stumps.*

*\*\* Velpar concentrate is the least fatiguing method, and has shown 95% effective in prior studies.*



Fresh cut juniper that apparently sprouted following a previous cut.



Backpack propane burner.



Juniper treated with Velpar® L herbicide.

### Data Sources:

Sage Steppe Ecosystem Restoration Strategy  
Final Environmental Impact Statement. Modoc  
NF and Alturas BLM, 2008.

UCCE Lassen and Modoc Counties.

