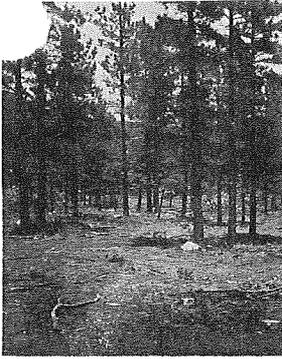
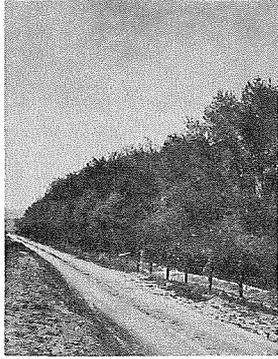


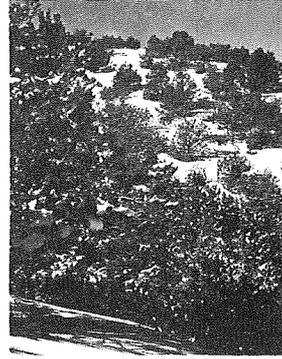
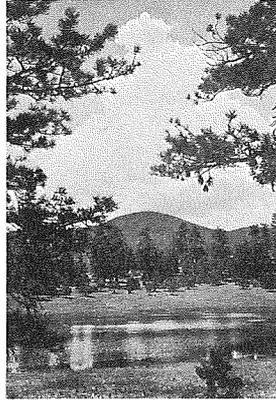
# Technical Notes Woodland Conservation



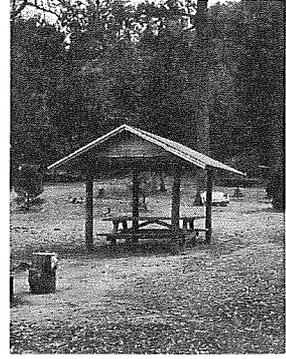
FOREST MANAGEMENT



WINDBREAKS



WATERSHEDS



FOREST RECREATION

U. S. DEPARTMENT OF AGRICULTURE NEW MEXICO SOIL CONSERVATION SERVICE

October 22, 1971

## WOODLAND TECHNICAL NOTE NO. 21

SUBJECT: Juniper Control - Individual Tree Burning

Control of juniper in the transition zone between rangeland and woodland has been a problem in some areas of the state. Historically, many techniques such as cabling, chaining, dozing, chemical treatment and burning have been used.

In 1966 Donald A. Jameson of the Rocky Mountain Forest and Range Experiment Station published R.M. Report No. 71 stating that 60 percent crown scorch on individual trees, using a butane torch, resulted in 100 percent kill.

The following preliminary cost data comes from a study carried out at Springerville, Arizona in the spring of 1971 using the individual tree burning method.

AO  
RTSC

Plot A (Small Trees)

Size of plot - 5 acres  
 Total number of trees burned - 266  
 Average size of trees - 6 to 8 feet tall  
 Average number of trees per acre - 53  
 Date burned - February 11, 1971  
 Temperature at time of burning - 54° - 57°  
 Humidity at time of burn - 22% - 26%  
 Labor charge: \$4.00 per hour  
 Total fuel used - 55 gallons @ .16 per gal. - \$ 8.80  
 Labor - 5¼ hours @ \$4.00 per hour----- 21.00  
 Pickup expenses (gas, oil and depreciation)-- 3.20  
  
 Total cost on five acres----- \$33.00  
 Cost per acre----- 6.60  
 Cost per tree----- .08

Percent control - 97%

Plot B (Tall mature trees)

These trees could not be ignited within a reasonable period of time using the equipment that was available. It appears, however, that burning large mature trees with sparse foliage is not feasible.

This burning was done using a propane torch equipped with two 0.0935-inch orifices and a smaller orifice for a pilot flame. A 275-gallon propane tank was pulled behind a pickup. One man drove the pickup while one man operated the torch.

There was a 50-foot hose from the tank to the torch. Pressure on the tank was 110-125 lbs. per square inch. Time to burn a tree ranged from a few seconds on the smallest trees to 15 minutes on large, sparsely foliated trees.

Plot C (Intermediate Trees)

Size of plot - 5 acres  
 Total number of trees burned - 148  
 Tree sizes - 0 to 2 feet high - 4  
               2 to 4 " " 26  
               4 to 6 " " 27  
               6 to 8 " " 27

|                   |   |    |
|-------------------|---|----|
| 8 to 10 feet high | - | 32 |
| 10 to 12 " "      |   | 18 |
| 12 to 14 " "      |   | 7  |
| 14 to 16 " "      |   | 5  |
| 16 to 18 " "      |   | 1  |
| 18 to 20 " "      |   | 1  |

Date burned - January 28, 1971

Temperature at time of burn - 50° to 64°

Humidity at time of burn - 20° - 31°

Total time used including travel - 9.5 hours

Average time to burn each tree - 3.8 minutes

Labor charge - \$4.00 per hour (9.5 hours)-----\$38.00

Total fuel used was 88 gal. @ .16----- 14.08

Pickup expenses (gas, oil, etc.)----- 6.00

Total cost on five acres-----\$58.08

Cost per acre----- 11.61

Cost per tree----- .25

Percent control - 94%