

THREE RIVERS JUNIPER MANAGEMENT PROJECT  
ENVIRONMENTAL ASSESSMENT

OR-025-2000-04

BURNS DISTRICT OFFICE  
BURNS, OREGON

FEBRUARY 2000

TABLE OF CONTENTS

- I. Introduction ..... 1
  - A. Purpose and Need ..... 1
- II. Proposed Action and Alternatives ..... 3
  - A. Proposed Action ..... 3
  - B. Alternative 1 - No Action ..... 6
  - C. Alternatives Considered but not Developed ..... 6
- III. Environmental Consequences ..... 7
  - Proposed Action
    - A. Vegetation ..... 7
    - B. Fuels ..... 7
    - C. Soils ..... 7
    - D. Wildlife and Fish ..... 8
    - E. Species of Concern ..... 8
    - F. Cultural Resources ..... 8
    - G. Recreation ..... 9
    - H. Water Quality ..... 9
    - I. Social ..... 9
    - J. Special Management Areas ..... 9
    - K. Cumulative Impacts ..... 9
  - Alternative 1 - No Action
    - A. Vegetation ..... 10
    - B. Fuels ..... 10
    - C. Soils ..... 10
    - D. Wildlife and Fish ..... 10
    - E. Species of Concern ..... 11
    - F. Cultural Resources ..... 11
    - G. Recreation ..... 11
    - H. Water Quality ..... 11
    - I. Social ..... 12
    - J. Special Management Areas ..... 12
    - K. Cumulative Impacts ..... 12
- IV. Consultation with Others ..... 12
- V. Participating Staff ..... 12

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I. INTRODUCTION

Western juniper is a natural component of the Three Rivers Resource Area's rangeland plant communities. However, over the past several decades, juniper has dramatically increased its range, encroaching on and dominating sagebrush/bunchgrass, aspen, and mountain mahogany plant communities (Miller and Wigand, 1994; Miller and Rose, 1999). More than 90 percent of the 8 million acres of western juniper has developed during the past 100 years (USDI BLM, 1990). As the invasion progresses and juniper density and cover increase, management options decrease. This project would reduce juniper cover and density in locations where it is adversely impacting important or critical habitat for sage grouse, mule deer, Rocky Mountain elk, and a variety of other species. Sage grouse, a species of concern in the western United States, is currently being reviewed for additional protection. The Three Rivers Resource Area has three primary areas where juniper encroachment has occurred on a large scale; north of Highway 20 from the east end of the Resource Area to the west end, the Stinkingwater Mountains, and the Riddle Mountain/Kiger Creek Area (see Appendix A).

A. Purpose and Need

The purpose of this project is to:

Enhance or restore sage grouse habitat that has been converted to juniper woodlands or would be converted in the next 10-20 years.



Sage grouse habitat being converted to juniper woodlands. This area is most likely no longer sage grouse habitat.

Maintain, enhance or restore special habitats (aspen, mountain mahogany, and riparian) that are degraded, being overtaken, or lost due to encroachment and competition from western juniper.



Juniper encroachment crowding out aspen stands and riparian vegetation, and negatively impacting upland watershed function.

Improve watershed function by restoring native upland plant communities where juniper influence is adversely affecting watershed functions and processes.

Due to the encroachment of juniper over the past several decades, many plant communities have been severely impacted. Because of the competitive nature of juniper, many aspen and mountain mahogany stands have either been permanently lost or would shortly be converted to juniper woodlands without some form of intervention. These stands are generally small, less than 5 acres in size, and widely scattered across the landscape. Large acreages have been converted from diverse mountain big sagebrush stands to western juniper woodlands. Cover and density of associated shrubs, forbs and grasses is often reduced fivefold in areas converted to western juniper woodlands. Across the Three Rivers Resource Area, thousands of acres of historic sage grouse habitat have been replaced by juniper woodlands (Bates, 1999). Western juniper encroachment has negatively affected habitat quality on many thousand more acres. Commons and others (1999) have found that clearing of all age classes of pinyon-juniper that have spread into shrub-steppe vegetation helped to increase survival, productivity, and recruitment of sage grouse by reducing habitat for predators, especially raptors. With no intervention, thousands of additional acres of sage grouse habitat would be lost.

Juniper encroachment is also having a negative impact on areas that were specifically designated for botanical reasons such as the Dry Mountain Area of Critical Environmental Concern (ACEC) and Designated Old Growth Areas. The gradual conversion to juniper woodlands is reducing the botanical diversity in these areas.

Some upland areas with steeper slopes that are dominated by mature juniper woodlands often experience increased rates of erosion from surface runoff. This is due to the lack of deep-rooted herbaceous and shrub vegetation. Runoff is most severe during summer thunderstorms and in mid to late winter when soils are frozen (Wilcox, 1994). However, increasing herbaceous plant cover by reducing juniper would help to reduce runoff. Recent work by Bates (1996) found that ground cover can be increased by removal (cutting) of juniper. Cover of herbaceous plants increased fivefold following removal of juniper.

Historically, fire played an important role in the development of these shrub-steppe, habitat types (Miller and Rose, 1999). However, fire is not always the appropriate or feasible tool to meet management objectives identified in the purpose of the project.

In dense juniper woodlands, fire does not carry well due to low understory plant density and cover resulting in low tree mortality. Although, cutting treatments are most effective in these kinds of conditions; they are also the most costly. There is a need to find cost-efficient treatments.

## CONFORMANCE TO PLANS

The proposed project is in conformance with the Three Rivers Resource Management Plan (RMP) 1992 and the Standards for Rangeland Health and Guidelines for Livestock Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington.

## II. PROPOSED ACTION AND ALTERNATIVES

### A. Proposed Action

As discussed in the Purpose and Need section, the purpose of the proposed action is to maintain and enhance sage grouse and special habitats. This proposal focuses primarily on cutting or other forms of mechanical treatment to reduce juniper. Cutting would occur in the places and conditions listed below.

The use of fire to reduce juniper is not a primary component of this proposal. Under this proposal, fire would only be used as a research tool to determine if cutting and fire can be combined on the same acre to reduce the per acre cost in dense juniper stands. The areas and conditions where cutting and fire would be combined are listed below.

No burning would be done in existing sage grouse habitat during the project. A separate analysis would be done for any burning in sage grouse habitat in the future. This is a long-term project that would be implemented over the next 5-10 years as financial resources become available.

For the three areas identified in Appendix A, the proposed action would entail the following:

#### Special and Riparian Habitats

Cutting of juniper in and around aspen and mountain mahogany stands.

Cutting of juniper in and adjacent to riparian areas where juniper is inhibiting the growth or establishment of riparian vegetation.

Cutting of juniper in and around meadows concentrating on historically wet meadows.

Cutting of juniper in and around the Douglas-fir stand in the Stinkingwater Mountains.

#### Uplands

Cutting of most juniper within a 2-mile radius of known sage grouse lek sites. Juniper would not be cut in areas where they historically occurred, such as rim rocks, talus slopes, and similar sites that are predominantly rocky.

In mature woodlands, but not on true juniper sites, juniper cutting would occur in blocks from 5-800 acres in size. Cutting would be by chain saw or mechanized equipment such as a feller/buncher or track-mounted equipment with a cutting or shredding head. Cutting would take place in areas that would not have negative impacts on any threatened or endangered species.

## Cutting and Burning

An effort would be made to determine the feasibility and cost-effectiveness of combining cutting and burning in dense juniper woodlands. Toward this goal, in selected areas a varied amount of trees (from 30 to 90 percent) would be cut. Fire would then be introduced to determine if it would kill the remaining trees. Five areas, ranging in size from 100 to 800 acres, would be selected for cut and burn treatments. The following criteria would be used to select those areas.

Areas exhibiting a high potential for sage grouse habitat (relationship to existing habitat, known to have been or most likely was habitat in the past).

Areas in the mountain big sagebrush plant communities having a high likelihood of being reestablished with mountain big sagebrush following burning.

## Other Project Features

Down juniper would be available for firewood gathering where it is easily accessible such as next to existing roads.

Cutting of juniper trees in ACECs would be done in accordance with the management plan for each specific area.

There would be no juniper cutting in any areas designated as Wilderness Study or Wild and Scenic River.

Cutting of juniper trees in designated old growth areas would be in accordance with the RMP or site-specific management plans.

In areas identified as current sage grouse habitat tree cutting would not take place between March 1 and May 31.

A cultural inventory to identify any burnable historic artifacts/structures/features would be completed prior to any burning activities.

Burned sites would be monitored for invasive, nonnative weeds for 3 years following burning.

Areas that are high risk for invasive, nonnative weed infestations would not be burned.

A botanical inventory for Special Status plant species would be conducted prior to any burning activities. If sensitive plants were found in the area, burn projects would be designed so there would be no negative impacts.

The mosaic of cutting large blocks that would create a high-risk fuelbed adjacent to special management areas along the National forest boundary would be designed in consultation with Forest Service personnel.

No juniper trees would be cut in or around known long-term dispersed recreation sites.

B. Alternative 1 - No Action

The no action alternative recommends no changes to the existing management activities currently taking place in the project area.

C. Alternatives Considered but not Developed

Using only fire, a natural tool, to reduce juniper encroachment in the areas identified in the Purpose and Need was not considered for the following reasons:

Fire is not effective in killing juniper in most of the special habitats due to the moister microclimates, such as aspen stands, found in these areas. For fire to be effective in these areas, prescribed fire prescriptions must be severe. Close proximity to forested land makes this option risky because of the severe burning conditions needed.

Many of the areas to be treated are very small; less than 5 acres. Adequate heat could not be generated to achieve the kill objectives for the juniper without the risk of fire escape. Due to the escapement risk, burning preparation (fireline construction) would be cost-prohibitive and require substantial ground disturbance in sensitive areas.

In areas where fire would be cost-effective, there is a risk that existing sage grouse habitat could be reduced. Where fire could be used effectively to treat juniper encroachment or improve sage grouse habitat, a separate EA would be completed.

### III. ENVIRONMENTAL CONSEQUENCES

There would be no impacts to the following because they do not exist in the proposed project area: hazardous materials, prime farmland, floodplains, and wilderness.

#### Proposed Action

##### A. Vegetation

Growth, vigor, and reproductive capacity of aspen and mountain mahogany would be improved, as well as would riparian associated vegetation such as willow, alder, and sedges. The area where these vegetative communities exist would most likely increase due to the additional moisture and nutrients available.

In upland areas currently dominated by juniper, native vegetation plant associations consisting of shrubs, grasses, and forbs would increase following juniper removal. Those areas burned in association with the cutting would initially be occupied by post-fire plant communities consisting primarily of forbs and grasses. Over time, the shrub component would gradually increase and the forb and grass components decrease.

Because this project is nonground-disturbing and sites that are high risk for invasive nonnative species would not be burned, no problems with invasive nonnative species are anticipated.

##### B. Fuels

The cutting of juniper trees in the special habitats would create isolated fuel pockets. These would be small hazards for about 3 years until the needles fall to the ground. In the sage grouse habitat, the cutting of juniper trees would establish additional fuel scattered over a large area. This activity would not substantially change the overall fire hazard currently existing. A greater fire hazard would exist where larger acreages of juniper woodlands are cut. The hazard would be greatest during the first 3 years following cutting.

##### C. Soils

In areas that are dominated by juniper and where active erosion is occurring, erosion would be reduced as herbaceous plants and shrubs reestablish. Increased ground cover would help protect the soil. Additions of higher quality litter from herbaceous plants would help build soil organic matter and increase nutrient cycling. Additional nutrient recycling from the cut vegetation would be the primary effect on soils in other areas of the proposed project.

D. Wildlife and Fish

Aspen provides habitat for a large variety of species. With the enhancement of aspen habitat a wide variety of species (cavity nesters, songbirds, and big game) would benefit.

Improved mountain mahogany stands would provide more and better quality habitat to big game animals and a variety of songbirds, such as rufous-sided towhee.

Cut trees that fall into fishbearing streams would improve fish habitat. These trees would increase habitat diversity and reduce competition for the growth and expansion of riparian vegetation, such as willow, alder, redosier, and dogwood. This would also apply to other riparian plants. The additional riparian vegetation would provide increased shade and bank stability.

The burned areas would provide some additional forage for big game animals and other species that prefer early seral plants.

E. Species of Concern

There would be no adverse impacts to any known threatened or endangered species.

Existing sage grouse habitat would be improved by reducing perches for preying raptors, especially during the strutting and nesting periods when sage grouse are susceptible to predators. Following juniper cutting, additional sage grouse habitat would be created as juniper woodlands that were historically sage grouse habitat revert back to shrub, grass, forb plant communities.

Where cutting occurs along streams with redband trout, fish habitat would improve from improved riparian conditions. As riparian vegetation increases in quantity, diversity, and density, redband trout habitat would benefit from increased hiding cover and shading.

F. Cultural Resources

There would be no impacts to cultural resources.

G. Recreation

People hiking cross-country may be inconvenienced by having to go around or over felled trees in areas where juniper have been cut. Some areas where juniper have been cut may appear unsightly to some recreational users especially in the first 3 years. However, a flush of perennial and annual forbs, common after cutting, may enhance wild flower viewing in the cut areas. Burned areas may appear unsightly until the first growing season when new growth reestablishes the site.

H. Water Quality

Water quality would gradually improve in certain locations and remain unchanged in others after juniper is reduced by cutting or burning. This is due to increased ground cover, increased infiltration, and improved riparian and channel structure. Improved conditions would occur in areas where erosion is occurring along streambanks or uplands as vegetation reoccupies the sites previously dominated by juniper.

Bare soil would be exposed immediately following burning into the first growing season. Due to the distance of burned sites from water courses (and their wide distribution) it is anticipated that water quality would not be reduced by a measurable amount during the first year following burning.

I. Social

There would be no impacts to minorities or American Indian groups or economically disadvantaged groups (E.O. 12898).

J. Special Management Areas

Cutting of juniper would benefit the Dry Mountain ACEC and the Designated Old Growth Areas by increasing the health and vigor of the special habitat components within these designated areas. Even though the special habitats are minor components of the plant communities in these areas they provide important diversity and were identified as key vegetation types in making the designations.

K. Cumulative Impacts

No negative cumulative impacts were identified. The desired cumulative impact is an increase in sage grouse habitat quality and quantity across the project area, improved and expanded special habitats (aspen, mountain mahogany), and a decrease in the number of acres dominated by juniper.

## Alternative 1 - No Action

### A. Vegetation

Growth, vigor, and reproductive capacity would continue to decline in aspen and mountain mahogany stands that are experiencing juniper encroachment. Without some form of intervention, many of these special habitat sites would be permanently lost at some time in the future. Riparian areas currently undergoing a conversion to a juniper woodland would exhibit a decline in riparian vegetation, channel functionality, and water quality as juniper increasingly occupy the site. In riparian areas that are totally dominated by juniper, riparian vegetation would not be able to recover or increase without some intervention that removes a majority of the juniper. As time goes by, dormant root stock and soil seed banks would be depleted. Delaying treatment may require additional cultural practices (seeding, planting) to occur following cutting or burning.

Under this alternative juniper would continue to thrive and continue its encroachment on additional range sites. Shrub and grass rangelands would continue to decline over time.

There would be no change from the current conditions that would increase or decrease the likelihood of infestations from invasive nonnative weeds.

### B. Fuels

In the short term there would be no change in the areas existing fuel loading or fire hazard. In the long term as more acres of rangeland are converted to juniper woodlands the overall fire hazard would be reduced.

### C. Soils

Accelerated erosion would continue in those upland and riparian areas currently dominated by juniper and have active erosion. It is anticipated that the rate of erosion would increase over time as more acres become dominated by juniper woodlands.

### D. Wildlife and Fish

The habitat for species that commonly use aspen and mountain mahogany would continue to decline over time. This decline would be in quantity (number of acres in the project area) and in quality. These species would move to other places where their habitat exists adding additional use or they would reduce in numbers.

In the short term there would be no change in fish habitat along fish bearing streams in the project area (this assumes no other major changes such as a large wildfire). In the long term fish habitat quality could decline along stream segments where juniper is encroaching and replacing riparian vegetation.

E. Species of Concern

There would be no impacts to any known threatened or endangered species.

Sage grouse habitat would continue to decline in quality and quantity. In sage grouse habitat where the juniper trees are small and/or few in number, the quality of the habitat would decline over time as the trees grow larger and increase in number. At some point as the trees mature and reach a certain density, sage grouse no longer use the woodland habitat. Continued unchecked juniper encroachment in sage grouse habitat, combined with habitat losses from wildfires and increased conversion of shrub communities to intensive agriculture, is a substantial component of the cumulative impacts that can affect sage grouse habitat and the bird's long-term survival in the project area.

Redband trout habitat would remain unchanged or decline over time as juniper trees increase in density and reduce or eliminate existing riparian vegetation. Increasing numbers of juniper trees would reduce bank stability and hiding cover for fish.

F. Cultural Resources

There would be no impacts to cultural resources.

G. Recreation

There would be no change to most current recreational experiences or activities. As juniper increases, there may be reductions in songbirds and wild flowers thereby reducing the opportunity to observe these resources.

H. Water Quality

In the short term there would be no changes in water quality. Over time as more uplands and riparian zones become dominated by juniper woodlands there is a greater likelihood for increased soil erosion which would degrade water quality. Riparian zones, with a high component of juniper, are susceptible to excessive bank erosion, higher water temperatures, lower dissolved oxygen, and increased turbidity.

I. Social

There would be no impacts to minorities or American Indian groups or economically disadvantaged groups (E.O. 12898).

J. Special Management Areas

The quality of the special management areas would decline as the special habitat components become minimal or nonexistent reducing the diversity and complexity of the plant communities.

K. Cumulative Impacts

Continued unabated juniper encroachment would continue the steady permanent loss of aspen and mountain mahogany stands.

IV. CONSULTATION WITH OTHERS

Oregon Department of Fish and Wildlife

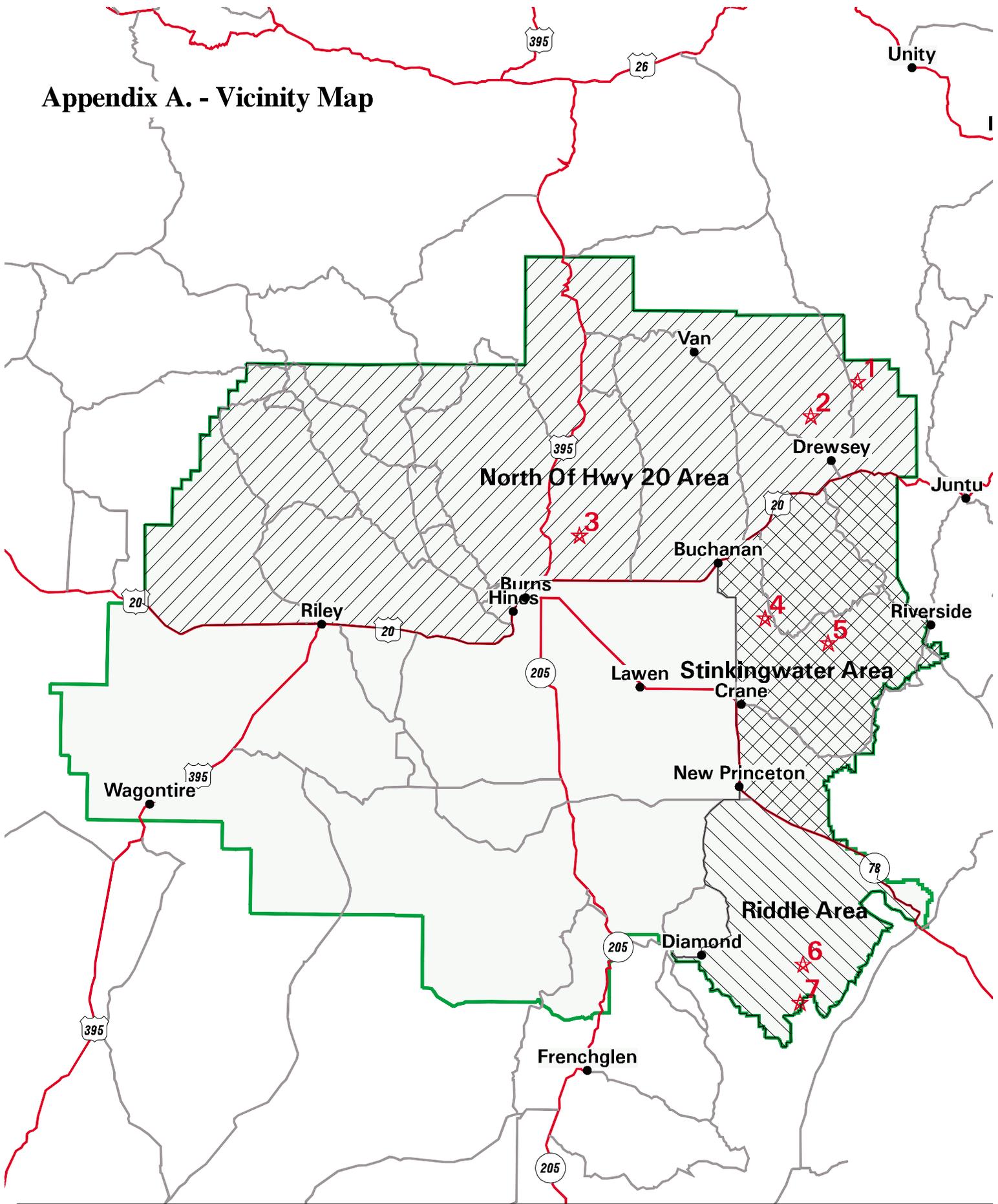
V. PARTICIPATING STAFF

Bill Andersen, Range Management Specialist  
Jim King, Range Management Specialist  
Brian Lampman, Fish Biologist  
Gene Mackey, Fuels Management Specialist  
Jon Reponen, Natural Resource Specialist  
Leslie Richman, Range Management Specialist  
Jeff Rose, Fire Ecologist  
Ellie Sippel, Hydrologist  
James Sippel, Weed Coordinator  
Willie Street, Range Management Specialist  
Fred Taylor, Wildlife Biologist  
Nora Taylor, Botanist  
Scott Thomas, Archaeologist

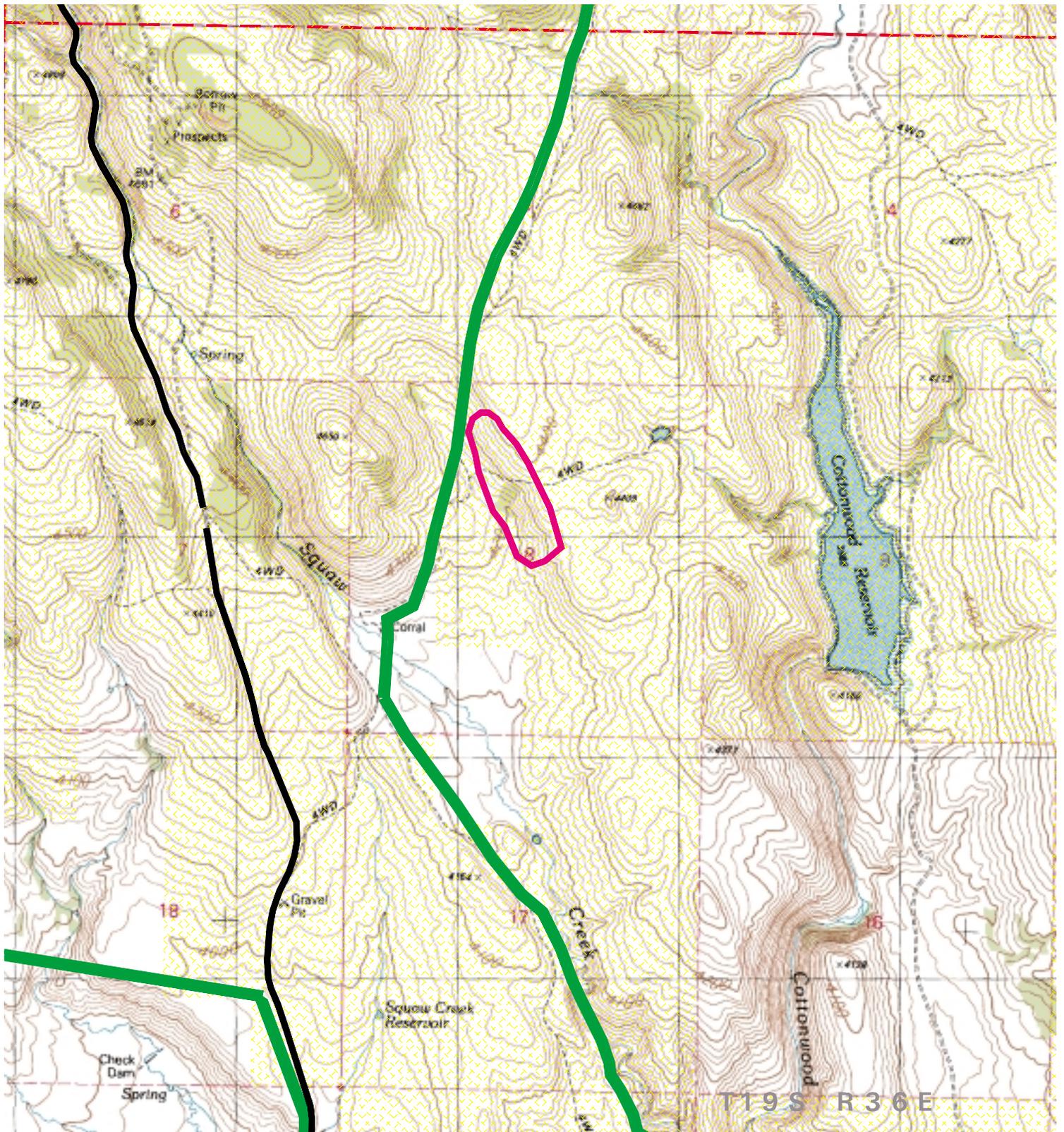
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- Wilcox, B.P. 1994. Runoff and erosion in Inter Zones of Pinyon-Juniper Woodlands. *Journal of Range Management*, 47:265-295.

# Appendix A. - Vicinity Map



Three Rivers Resource Area	North Of Hwy 20 Area	US Dept. of the INTERIOR Bureau of Land Management Burns District, Oregon Date: 05-APR-2000 \$KEL/vicjuncut.aml Burns BLM GIS, Kelly Hazen	No warranty made by the BLM for use of the data for purposes not intended by the BLM.
Major Roads	Stinkingwater Area		
Minor Roads	Riddle Area		
Units			Scale: 1 inch = 13.7 miles



### Juniper Cut/Burn Site 1

US Dept. of the INTERIOR  
Bureau of Land Management  
Burns District, Oregon

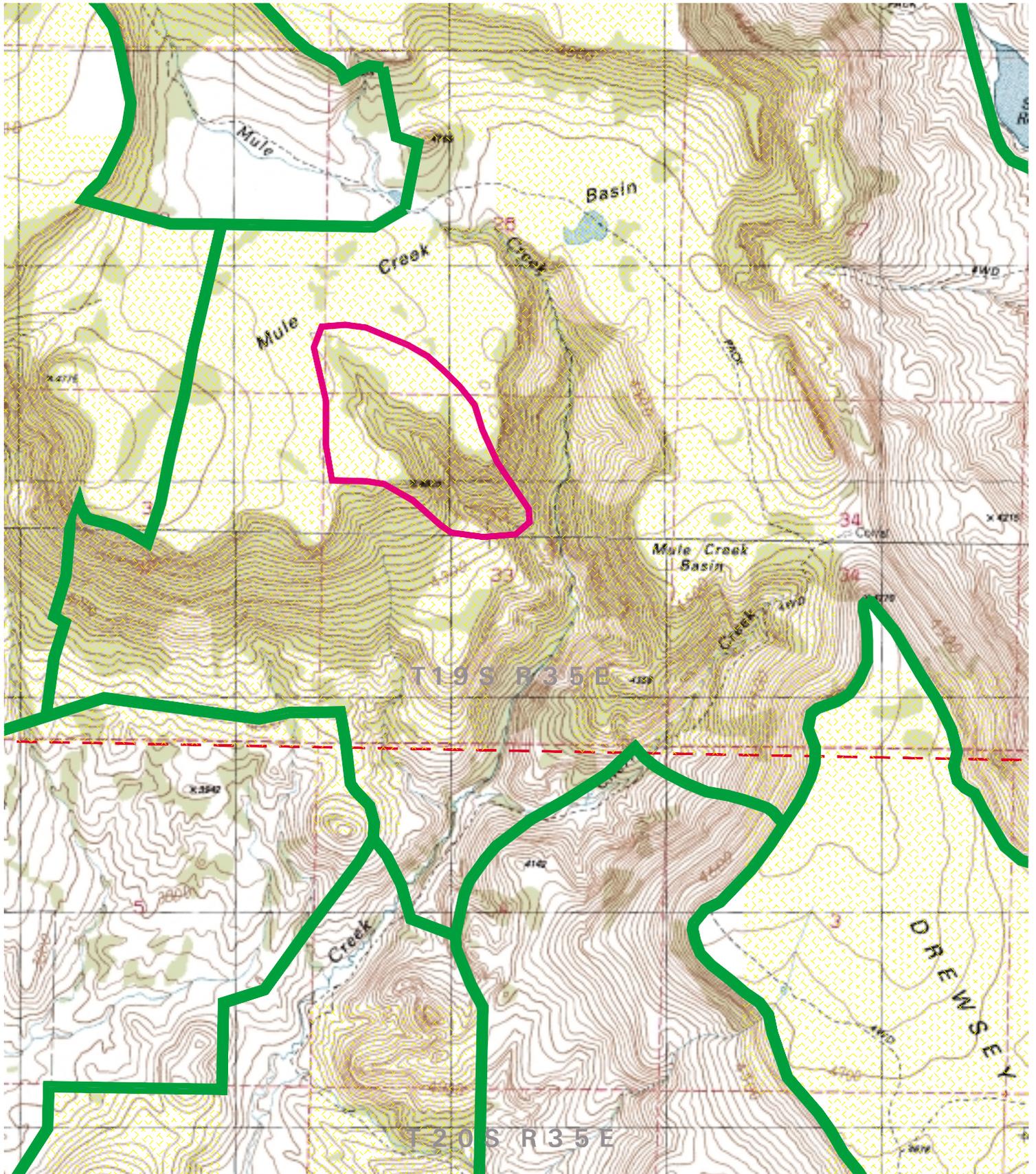
Scale: 1 inch = 0.4 miles

- Range and Townships
- Allotment Boundaries
- Major Roads
- Unit Boundary
- BLM Surface Jurisdiction
- Private Land - not shaded

Date: 09-MAY-2000  
\$KEL/juniper-cut-topweb.aml  
Burns BLM GIS, Kelly Hazen

Note: No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.





## Juniper Cut/Burn Site 2

US Dept. of the INTERIOR  
Bureau of Land Management  
Burns District, Oregon

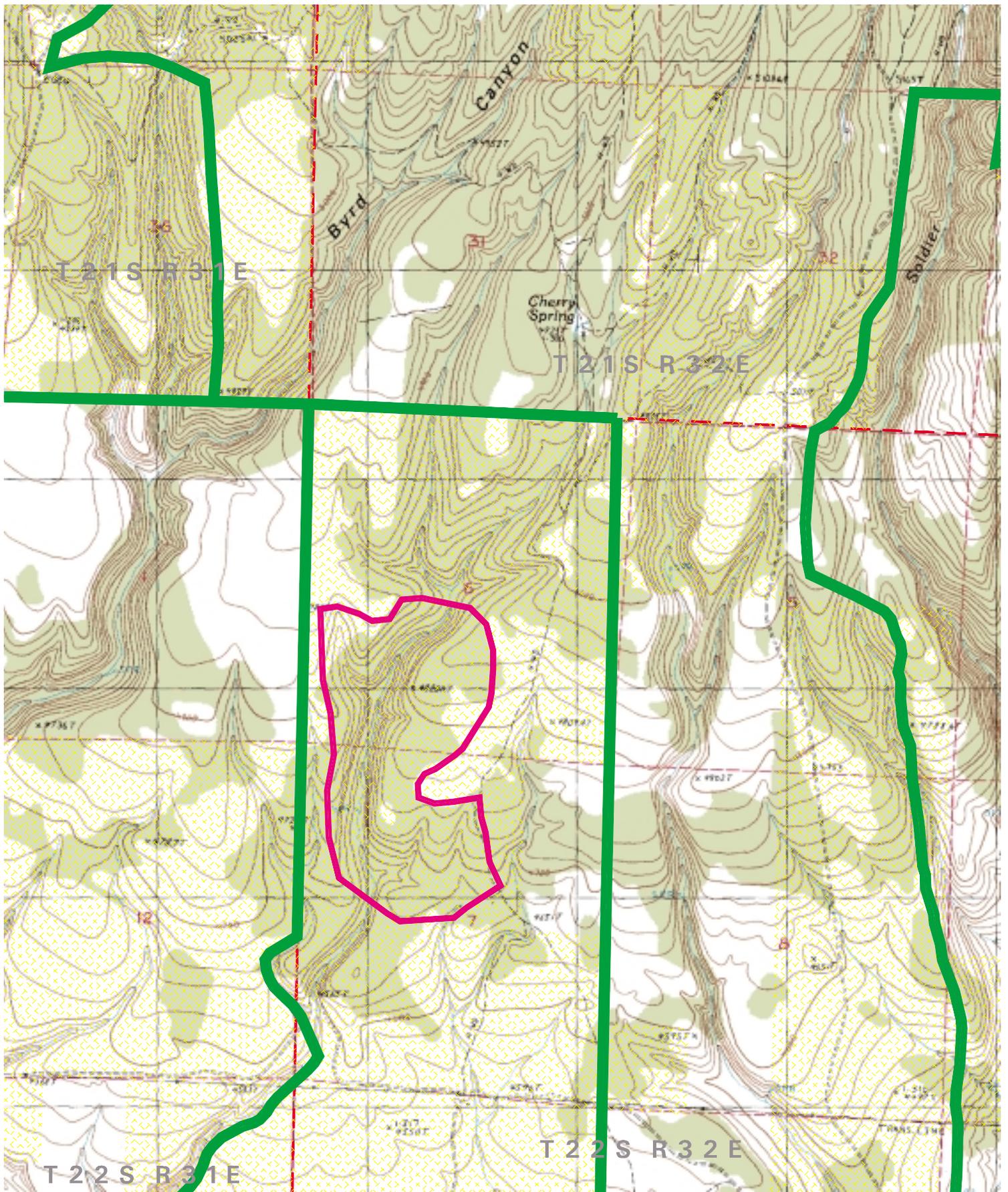
Scale: 1 inch = 0.4 miles

-  Range and Townships
-  Allotment Boundaries
-  Major Roads
-  Unit Boundary
-  BLM Surface Jurisdiction
-  Private Land - not shaded

Date: 09-MAY-2000  
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### Juniper Cut/Burn Site 3

US Dept. of the INTERIOR  
Bureau of Land Management  
Burns District, Oregon

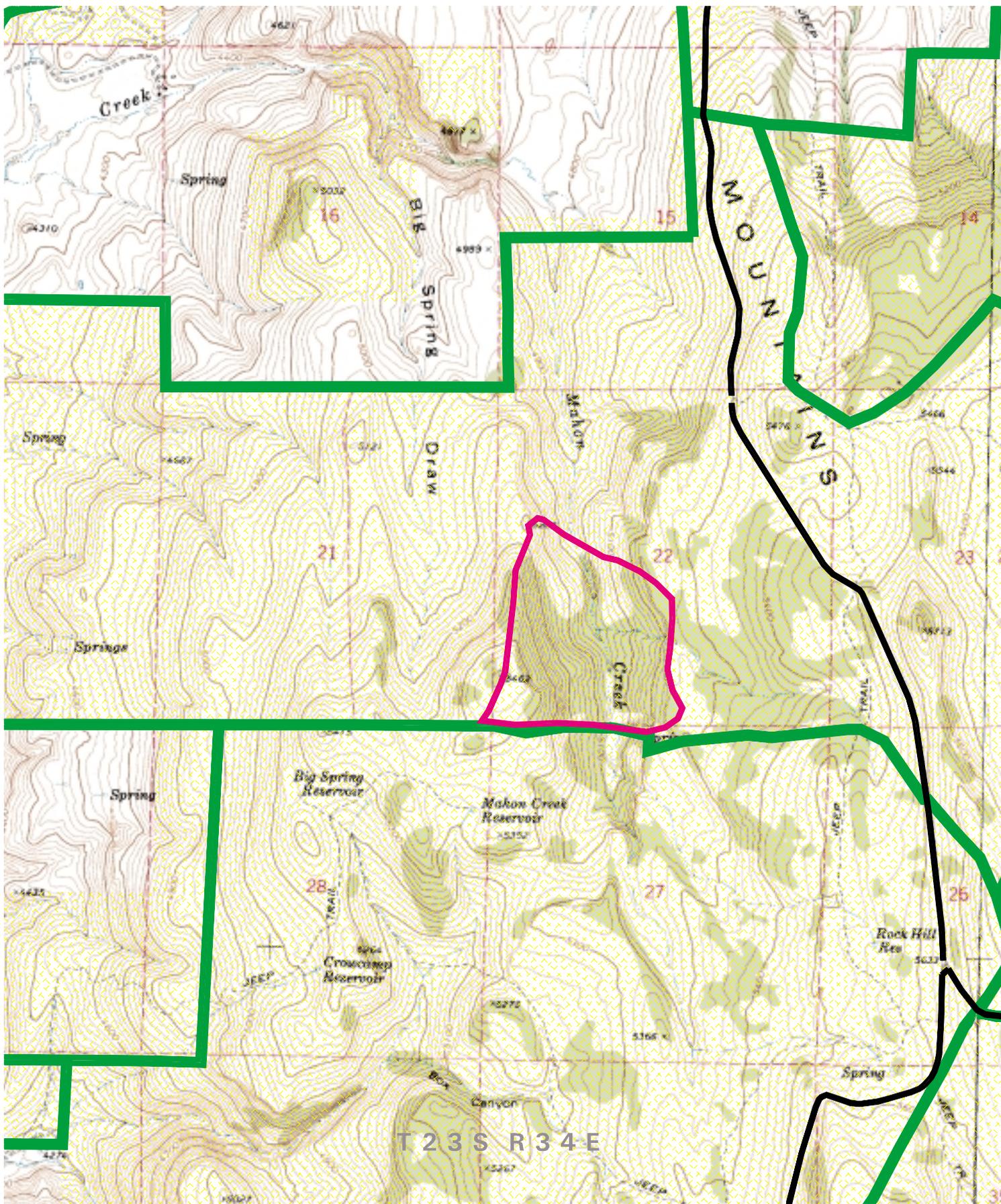
Scale: 1 inch = 0.4 miles

-  Range and Townships
-  Allotment Boundaries
-  Major Roads
-  Unit Boundary
-  BLM Surface Jurisdiction
-  Private Land - not shaded

Date: 09-MAY-2000  
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### Juniper Cut/Burn Site 4

US Dept. of the INTERIOR  
Bureau of Land Management  
Burns District, Oregon

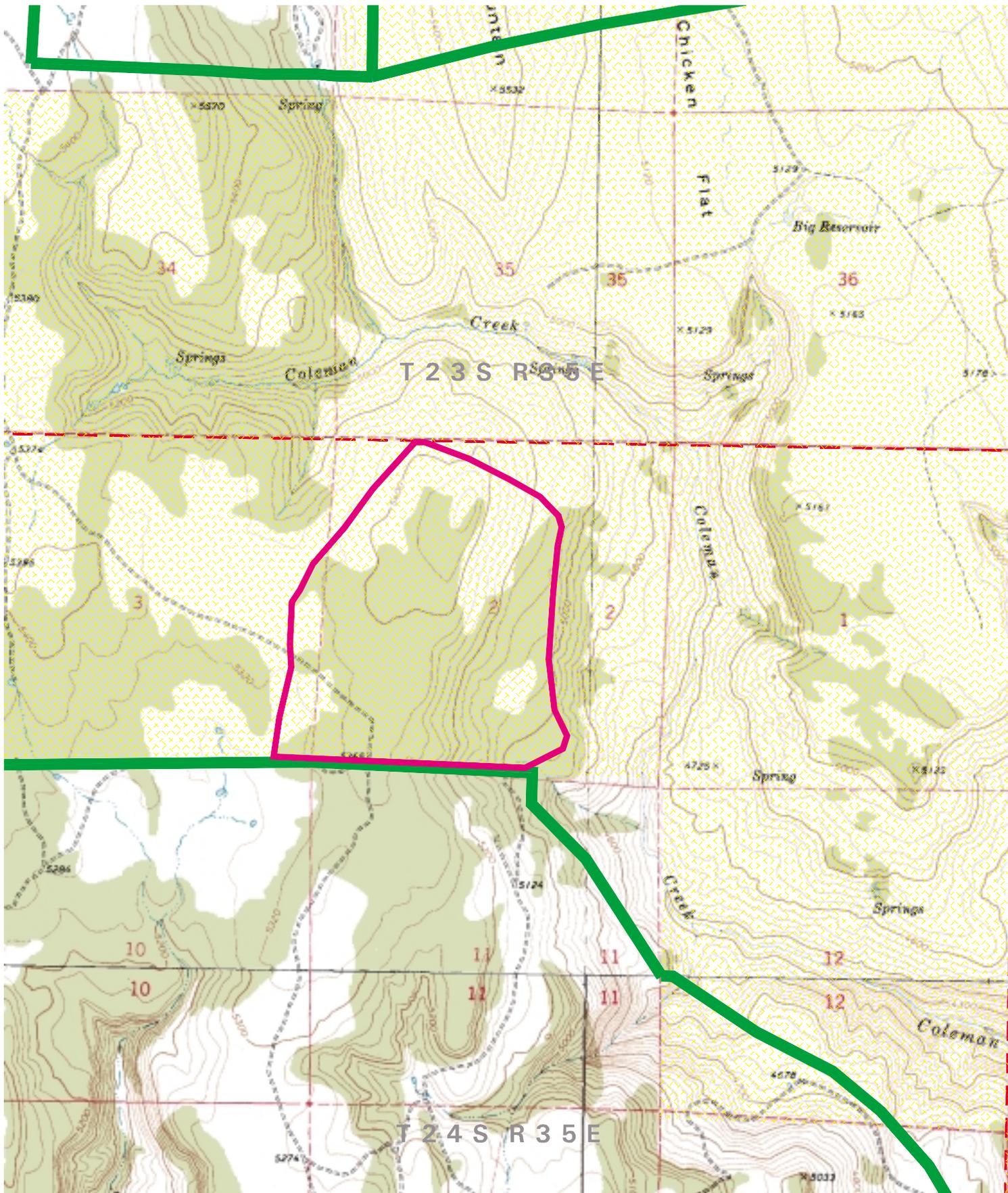
Scale: 1 inch = 0.4 miles

-  Range and Townships
-  Allotment Boundaries
-  Major Roads
-  Unit Boundary
-  BLM Surface Jurisdiction
-  Private Land - not shaded

Date: 09-MAY-2000  
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### Juniper Cut/Burn Site 5

US Dept. of the INTERIOR  
Bureau of Land Management  
Burns District, Oregon

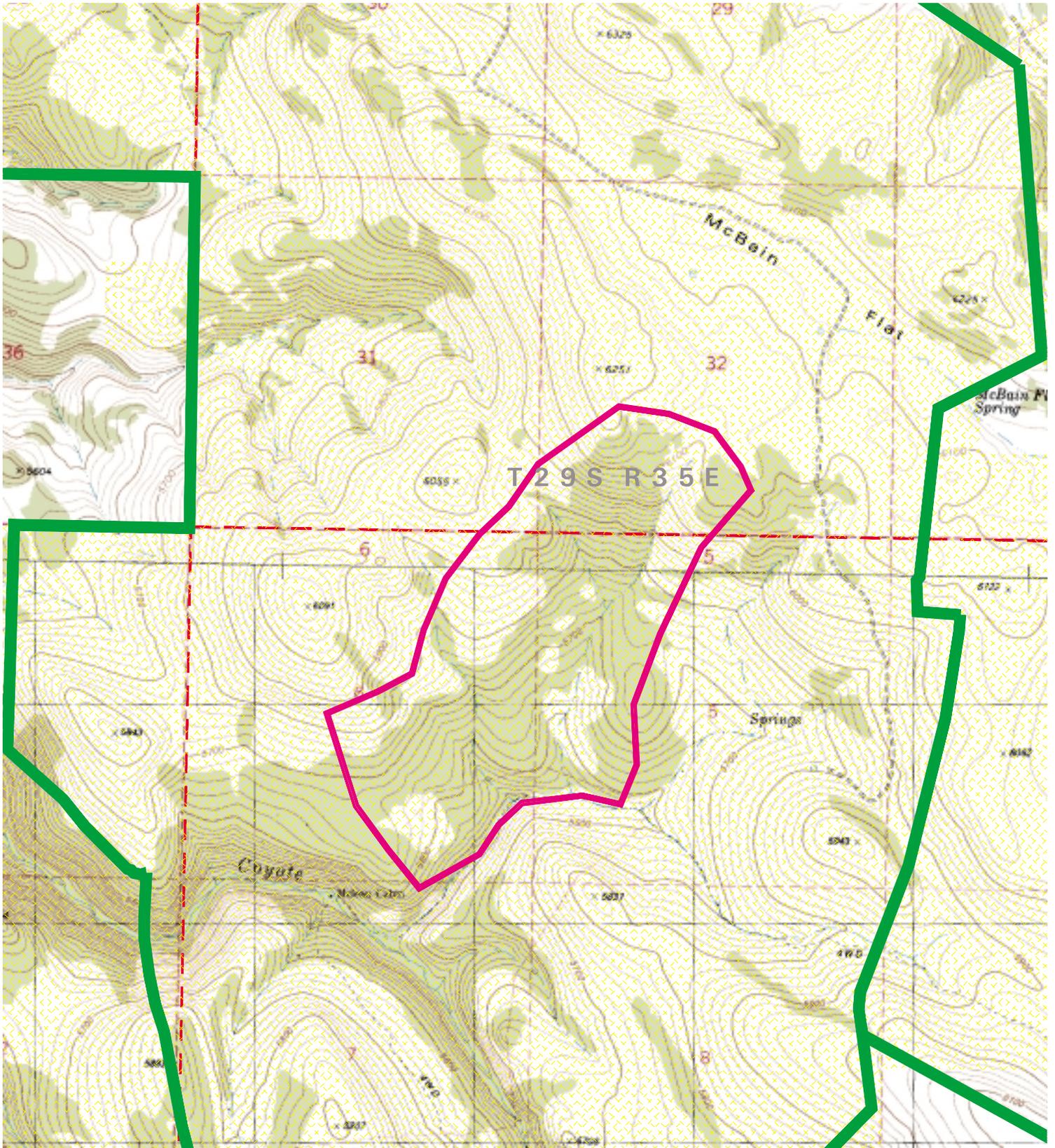
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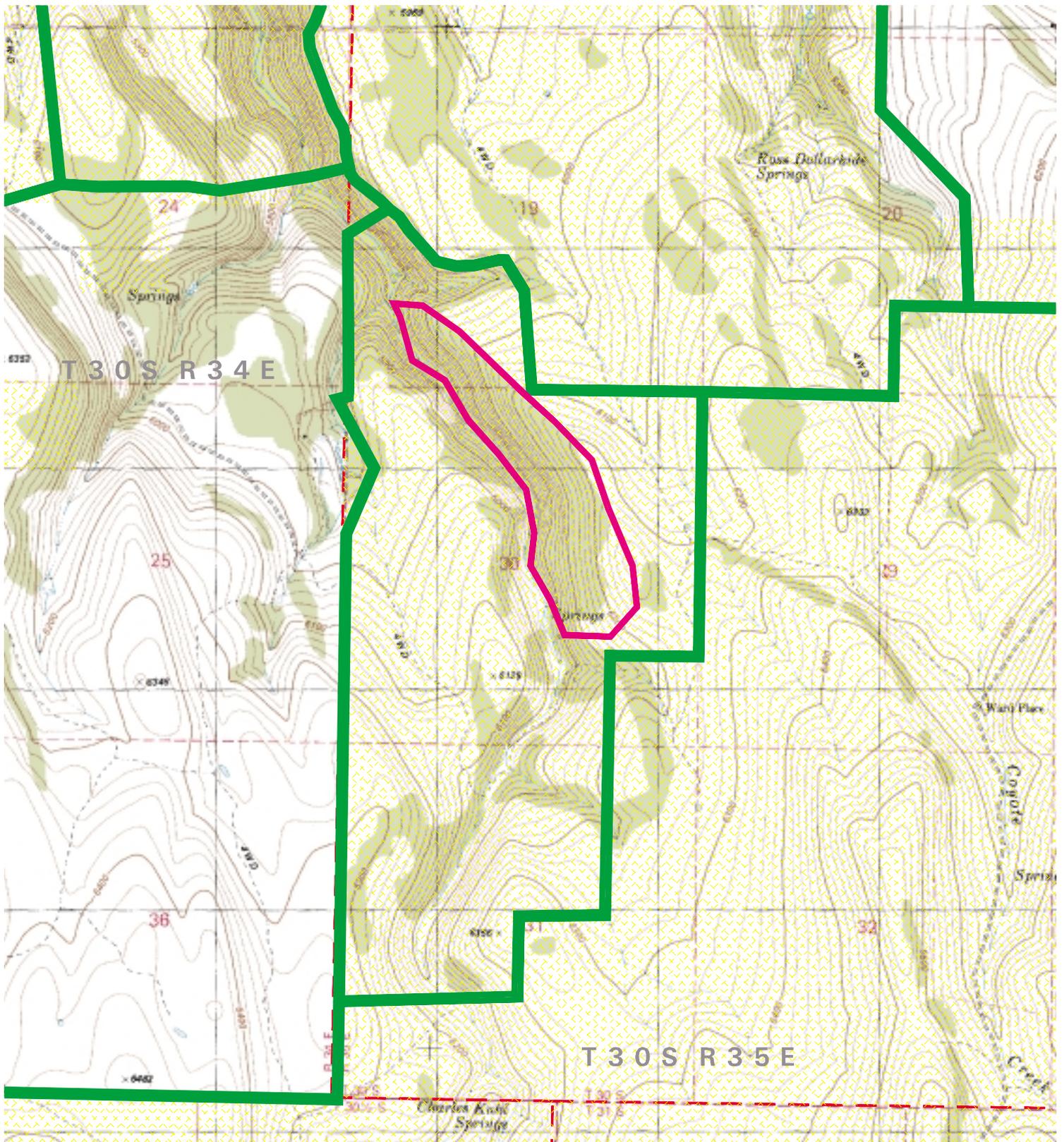
- - - Range and Townships
- Allotment Boundaries
- Major Roads
- Unit Boundary
- BLM Surface Jurisdiction
- Private Land - not shaded

Date: 09-MAY-2000  
\$KEL/junipercutopweb.aml  
Burns BLM GIS, Kelly Hazen

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## Juniper Cut/Burn Site 7

US Dept. of the INTERIOR  
Bureau of Land Management  
Burns District, Oregon

Scale: 1 inch = 0.4 miles

- - - Range and Townships
- Allotment Boundaries
- Major Roads
- Unit Boundary
- BLM Surface Jurisdiction
- Private Land - not shaded

Date: 09-MAY-2000  
\$KEL/junipercutopweb.aml  
Burns BLM GIS, Kelly Hazen

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