

ENVIRONMENTAL ASSESSMENT
FOR THE
NEWELL
FOREST HEALTH PROJECT



Bureau of Land Management
Burns District
Three Rivers Resource Area
HC 74-12533 Hwy 20 West
Hines, OR 97738

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EA-OR-025-99-014

I. INTRODUCTION

The Burns District of the Bureau of Land Management proposes to implement forest management actions on the Three Rivers Resource Area. The proposed actions are outlined in this Newell Forest Health Project Environmental Assessment (EA). The project area is located on the east side of the Silvies Valley between U.S. Highway 395 and the Malheur National Forest boundary. The project area includes land in both Harney and Grant Counties.

A. Tiering

The following EA is tiered to the Three Rivers Resource Management Plan/Final Environmental Impact Statement (RMP/FEIS) and Record of Decision (ROD) (1992) and the Vegetation Treatment on BLM Lands in 13 Western States FEIS and ROD for Eastern Oregon and Washington (1991). This EA tiers to and supplements the Description of the Environment and Environmental Consequences sections to the extent that a more site-specific description is needed to analyze expected direct, indirect, and cumulative impacts.

It is the BLM's policy, as outlined in the 1993 BLM Forestry Program Mission Statement, that "BLM will manage the public forests and woodlands to maintain and enhance the health, productivity and biological diversity of these ecosystems. A balance of natural resource benefits will be provided to present and future generations. The management of forest and woodland resources will be consistent with the principles of multiple-use and sustained yield." The proposed action is consistent with this policy.

B. Purpose and Need for the Proposed Action

This EA addresses the site-specific environmental impacts of the proposed action and its alternatives. The purpose of the EA is to assist in planning and decision-making, and to provide the public with information about these specific management proposals. It is also designed to assist the responsible decision-maker in determining if an EIS should be prepared.

As a result of a recent land exchange, the project area was consolidated into a block of mostly public land. Approximately one-half of the area was formerly private land. The planning area contains 9,033 acres of which there are 7,847 acres of BLM land and 1,186 acres of private land. The BLM-administered land includes 1,591 acres of forest land and 6,256 acres of rangeland.

The purpose of this project is to:

- S Improve forest health
- S Reduce hazardous fuels
- S Improve riparian conditions
- S Improve water quality
- S Maintain or enhance special habitats such as aspen and mountain mahogany stands
- S Maintain the transportation system and close unneeded roads
- S Manage stands for sustainable structure and related habitats

Due to the absence of fire and past forest management practices, the ponderosa pine stands in the project area have become overstocked. This overstocking has created conditions that are causing low tree vigor and excessive mortality. These dense stands of smaller trees are at high risk for stand replacing fires and are outside the range of sustainability for this low elevation, dry, forest fringe area. Encroachment of ponderosa pines and junipers into aspen and mountain mahogany stands have caused a steep decline in these habitats. A number of roads are located in riparian areas and are degrading riparian conditions and water quality.

The proposed action was designed to take a holistic approach to address the resource issues identified within the project area. In addition, the proposed treatments are designed to provide variable and sustainable habitats for the project area over the next 20 years.



Example of Existing Situation

C. Conformance with Land Use Plan

Throughout this EA, references will be made to the FEIS of the Three Rivers RMP. The proposed action was designed to be in conformance with the Three Rivers RMP/FEIS which is available for review in the Burns District Office during regular office hours.

D. Interdisciplinary Team Approach

The proposed action was modified with the input and recommendations of the interdisciplinary staff. This proposal was also included in the 1999 and 2000 Burns District Planning Updates.

This EA has considered other available information such as the "Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin"; "Status of the Interior Columbia Basin Summary of Scientific Findings"; and "Ecosystem Health for the Forests of Eastern Oregon, A Proposal by Governor John Kitzhaber."

II. DESCRIPTION OF THE ALTERNATIVES

A. Alternatives Considered but not Developed Further

1. An alternative using a light hand on the land approach, treating only the most critical areas of ongoing resource degradation was considered. It involved the noncommercial thinning of 250 acres and closing 3.5 miles of roads, 2.7 miles of which are in riparian areas. This alternative, while considered, was eliminated because it did not adequately address overstocking for the project area as a whole and the subsequent tree mortality and degradation of aspen, mountain mahogany, and ponderosa pine habitats. It also would not address hazardous fuel levels nor watershed restoration objectives as identified in the purpose and need and nor would it be cost-effective.
2. An alternative that treated the most critical areas of ongoing resource degradation plus began to address a few of the issues identified in the purpose and need of this document was considered. It included the noncommercial thinning of 250 acres, closing 3.5 miles of roads, 2.7 miles of which are in riparian areas, fencing 10 aspen stands, and removing invaded junipers from 200 acres. This alternative, while considered, was eliminated because it did not adequately address overstocking for the project area as a whole and the subsequent tree mortality and degradation of mountain mahogany and ponderosa pine habitats. It would not be cost-effective nor would it allow successful aspen regeneration due to the shading from pines and junipers remaining within the aspen stands. It also would not address hazardous fuel levels nor riparian and watershed restoration objectives as identified in the purpose and need.
3. An alternative that aggressively treated the project area was considered. It included commercial harvest on 1,500 acres, 2 miles new road construction, no road closures or relocation of roads out of riparian areas, and no juniper cutting or aspen projects. This alternative was cost-effective and, while considered, was eliminated because it did not meet the riparian and watershed restoration objectives as identified in the purpose and need of this document. While it treated almost all of the ponderosa pine stands, it would not meet the wildlife objectives of diverse and variable habitats.

B. Proposed Action

Of the 9,033-acre project area, management actions are proposed on 934 acres (10 percent). Of this 934 acres, 96 acres (1 percent of project area) are proposed for juniper cutting and 838 acres (9 percent of project area) are proposed to have stocking level control. Treatments proposed include fencing and/or replanting 32 acres in 24 aspen stands, noncommercial thinning, slash piling and burning, timber harvest, and felling of trees to provide large woody debris in Mountain Creek. Road management proposals include closing 3.5 miles of existing roads, 2.7 miles of which are in riparian areas; relocating 0.8-mile of existing roads away from riparian areas, 1.5 miles of temporary spurs (spurs would be obliterated and revegetated following use); and 0.6-mile of new construction, installing three cattleguards, and maintaining existing roads. The proposed action would result in a net reduction of 2.9 miles of roads in the project area. Three existing rock sources would be used for materials needed for road closures and maintenance. Upon completion of the project, all rock sources unneeded for the future would be closed and rehabilitated.

C. Alternative A - No Action

Under no action, the BLM would not conduct any forest or road management activities in the project area. This alternative would not treat any overstocked stands, reduce fuel loading, treat aspen stands, cut junipers, nor close any roads in riparian areas.

D. Alternative B

Of the 9,033-acre project area, management actions would occur on 657 acres (7 percent). Treatments include noncommercial thinning, slash piling and burning, and stocking level control. Road management proposals include closing 0.8-mile existing roads; relocating and closing 0.8-mile of roads in riparian areas, 1.3 miles of temporary spurs (spurs would be obliterated and revegetated following use); maintaining existing roads; and installing three cattleguards. This alternative would not treat aspen stands, cut junipers, nor the felling of trees to provide large woody debris in Mountain Creek.



Example of Conifer Invasion of Aspen Stand

Vegetative Treatments:

Aspen

Within the project area there are 24 known aspen stands. To maintain and enhance these stands, it is proposed to remove the invaded pines and juniper in and around live and extinct clones (Bartos and Campbell, 1998).

Upon completion of conifer removal, the stands would be fenced to protect aspen suckers from browsing animals. Subject to available funding, the areas of extinct clones would be replanted and fenced.

Mountain Mahogany

Mountain mahogany provides valuable wildlife habitat within the project area and range from vigorous healthy stands to remnant live individual plants being overtopped by pines or junipers. Skeletons of dead plants are common in many stands where they were overtopped by invaded pines. It is the intent of this plan that all live mountain mahogany be retained and, if possible, enhanced. To accomplish this, proposed actions range from avoidance to removing competing pines and junipers from around mountain mahogany plants. To minimize mahogany damage or mortality, trees leaning over them would not be felled.

Ponderosa Pine

While meeting stocking objectives, the intent of the silvicultural prescription and marking guides are to leave a natural appearing forest for the future. A varied tree spacing, as opposed to even spacing would be applied. Overstocked stands would become more open and exhibit characteristics of a ponderosa pine savanna more typical of this low elevation, dry, forest fringe area (Obedzinski and others, 1999). Some tree clumping for stand diversity would be left. Retained basal area would vary within each unit, allowing some areas with higher and other areas with lower basal area to provide different types of wildlife cover. As a whole, the project area contains a high number of forked or otherwise deformed trees. The silvicultural prescription is best summarized as thinning from below and is designed to leave the largest, healthy, best-formed trees in the stand, yet retain the presence of forked and otherwise deformed trees to provide stand and habitat diversity.

Snags exist in virtually every stand. The most common are beetle killed pines from 7 to 18 inches dbh. They range from isolated trees to one-half-acre pockets of heavy mortality (>50 percent) of large diameter trees. A few stands have heavy mortality (>50 percent) of large diameter trees. While large diameter snags exist in all stands, their numbers are less than desired due to the general lack of trees that large (these are primarily second growth or afforested stands). The silvicultural prescription and marking guides as mentioned above would provide future large diameter trees and thus potential large snags should not be a problem in the future (Bull and others, 1997). In the short term, by not harvesting dead trees in the majority of units, and leaving the locally high number of small to medium snags, short-term snag number objectives should be met or exceeded.



Example of a Similar Ponderosa Pine Stand Recently
Treated with Proposed Prescription

E. Project Design Features as Part of the Proposed Action

Project Design Features (PDFs) are specific measures included in the design of a proposed action to minimize adverse impacts on the human environment. These PDFs supplement the standard actions listed in the RMP/FEIS, Appendix 1 "General Forest Management Practices" and Appendix 2, "Recommended Practices for Stream Protection."

1. Open Road Density

To lessen impacts to riparian areas, unnecessary roads in riparian areas are to be closed and if access is still needed, relocated to the uplands where possible. To lessen soil productivity losses due to compaction and/or decrease open road densities to reduce big game disturbance, new temporary roads would be obliterated and seeded upon completion of forest management activities. Refer to Roads map for information on the proposed treatment of specific road segments.

2. Dead Tree Habitat (Snags) and Green Tree Replacements

Within all units, all snags would be left to provide habitat for primary cavity excavators. To provide short-term snag replacement trees and a future source of large woody debris, at least one declining large tree would be retained per acre (where they currently occur).

3. Roads

Road construction, closing, and renovation would be limited to the dry season, May 1 to October 15, or as determined by the Authorized Officer. New road construction would be to the minimum standard to allow forest management activities. Administrative easements exist to cross private land into the project area.

4. Environmental Protection

To limit soil compaction and reduce the amount of soil disturbance and associated erosion potential, portions of all units would be yarded using designated skid trails. Use of existing skid trails would be emphasized with the goal being to limit ground disturbance. To reduce erosion potential, all tractor skid roads would be waterbarred shortly after yarding is completed. Designated drainage crossings are proposed to protect ephemeral drainages. Upon completion of skidding and prior to spring runoff, any debris would be removed from the drainages and the approaches waterbarred and seeded.

Designated skid trails would be utilized on steeper slopes and to avoid aspen stands or other sensitive areas. Best Forest Management Practices and Practices for Stream Protection, as outlined in Appendixes 1 and 2 of the RMP/FEIS, would be implemented to avoid and/or mitigate ground-disturbing impacts.

5. Seasonal Restrictions

All harvesting operations would be conducted while soils are either dry, frozen or snow covered. To meet resource objectives, two units would only be harvested under winter conditions of frozen or snow-covered ground.

6. Slash Disposal

As outlined in the Three Rivers RMP/FEIS, slash accumulations in excess of 10-12 tons per acre would be treated by piling and burning while only selected areas with less than 10 tons per acre would be treated.

All slash within 100 feet of landings would be mechanically piled and burned. Slash resulting from noncommercial thinning would be piled and burned or underburned without piling.

All burning would be done in accordance with standards established by the Oregon Smoke Management Plan.

7. Cultural Resources

If any cultural or archaeological resources are identified on the site during timber harvest, operations would be immediately halted and the Area Field Manager notified. Operations would not resume until the Area Field Manager approved a protection plan.

8. Raptors and Special Status Species

If any Federal candidate, Bureau sensitive, or State listed plant or animal species or active raptor or owl nests are discovered, operations would be immediately halted and the Area Field Manager notified. Operations would not resume until the Area Field Manager approved a plan.

III. AFFECTED ENVIRONMENT

A general description of the existing environment for the area can be found in the Three Rivers RMP/FEIS.

This section describes site-specific affected environmental components not adequately described in the Three Rivers RMP/FEIS. The discussion will be divided into physical resources, biological resources, and human values.

A. Physical Resources

1. Topography

The terrain in the Newell project area varies from flat to drainages with moderate slopes. The elevation ranges from 4,500 to 5,300 feet with all aspects.

2. Soils

There are a number of soil types in the project area. Generally the soils are gravelly, stony or cobbly loams and are well-drained. They range from 11 to 40 inches deep with a clay content from 18 to 45 percent. Generally, the soil compaction hazard is low due to the coarseness of the soils and low clay content. Overall, within the project area, soil compaction from past management actions is minor and is limited to a few major skid trails and landings. The soil erosivity factors (K) range from 0.05 to 0.17, and indicate low water erosion potential.

3. Water Quality

The Newell Forest Health Project area is within the Newell Creek and Mountain Creek watersheds, both of which drain into the Silvies River. Within the project area, Newell Creek is 2.7 miles long and contains perennial water but no fish. Mountain Creek is 2.5 miles long and provides perennial fish bearing water. Mountain Creek enters the Silvies River about 1-mile downstream of the project boundary. The streams' physical condition were assessed in 1998 using the Properly Functioning Condition (PFC) method. Both streams were rated at PFC but neither stream has reached its riparian area's capability or site potential. Both Newell and Mountain Creeks have roads within the stream or the riparian zones. Segments of the roads have negatively impacted the sinuosity of the streams and are actively eroding and contributing excessive sediments into the streams.

4. Air Quality

Air quality of the project area is typical of the Blue Mountains. Due to the long distance from large metropolitan areas, ambient air quality is generally good with few particulates or other pollutants.

B. Biological Resources

1. Vegetation

a. Stand Structure and Forest Health

A general description of the stands is that they all have been logged in the past and are primarily characterized as second growth with scattered larger trees. These stands are typical of the low elevation, dry, forest fringe that transitions into the sagebrush-steppe. Some units are in afforested stands, with trees having taken over sagebrush/bunchgrass and created forest with the historic lack of wildfire (Hansen and others, 1995). Some stands were recently acquired in a land exchange and can best be described as having been high-graded a number of years ago with primarily poorly formed trees remaining. Within the project area, the stands now consist of ponderosa pine with a lightly to locally heavily stocked overstory of trees ranging in diameter (dbh) from 11 to 21 plus inches with 10 to 80 percent canopy cover.

The understory varies from lightly stocked ponderosa pine to locally dense pockets with 0 to 11 inches dbh with 10 to 100 percent canopy cover. Refer to Photos 1 and 5. The 6 to 11- inch understory is suffering pockets of heavy mortality due to the pine engraver and mountain pine beetle (Obedzinski and others, 1999). Locally heavy mortality (>50 percent) of large pines in the overstory is occurring in some stands due to the pine engraver and western pine beetle.



Example of Typical Overstocked Ponderosa Pine Stand

Aspen stands are limited in the project area (Wall and others, 2000). They provide a rare habitat of deciduous tree boles which are valuable for cavity-nesting animals. Within the project area there are 24 known aspen stands. Only ten of these clones are still alive and the vast majority of these are barely clinging to life with minimal reproduction (three stands have one live tree left). The other 14 clones are extinct with no live stems. Refer to Photo 2.

C. Other Vegetation

Predominant species are those typical of the ponderosa pine/bluebunch wheatgrass and ponderosa pine/mountain mahogany/elk sedge plant associations. Other common species include Idaho fescue and Ross sedge and less common are western juniper, bitterbrush, mountain brome, and numerous forbs.

Mountain mahogany provides valuable wildlife habitat within the project area. Mountain mahogany stands range from vigorous healthy stands to remnant live individual plants being overtopped by pines or junipers. Skeletons of dead plants are common in many stands where they were overtopped by invaded pine trees.

1. Wildlife

The proposed project is within year-round Rocky Mountain elk range and mule deer summer range. Many species that inhabit the ponderosa pine habitats of eastern Oregon are found in the project area. Some of these species include common flicker, grosbeak, deer mouse, coyote, porcupine, finches, and numerous other songbirds and nongame mammal species.

2. Fisheries

All streams within the project area were electrofish sampled in 1998. The sampling found speckled dace (*Rhinichthys Osculus*) throughout Mountain Creek and no fish were located in Newell Creek. In the past, rainbow trout have been observed in Mountain Creek downstream from the project area.

3. Special Status or Threatened or Endangered Species

a. Plants

There are no known sites of Special Status plants in the project area. There is potential for habitat of four species that have been found in the general vicinity of Silvies Valley. Two of these are found in riparian areas. Two-stemmed onion, *Allium bisceptrum*, is a Bureau tracking species and on the Oregon Heritage Program's List 4. Peck's mariposa lily, *Calochortus longebarbatus* var. *peckii*, is a Bureau sensitive species. It is a Federal species of concern and a State candidate. The other two possible sensitive species are known to occur in the uplands in forested areas. Long-flowered lousewort, *Pedicularis centranthera*, is a Bureau tracking species and is on the heritage program's List 3. Silvies Valley desert combleaf, *Polycatenium fremontii* var. *bisulcatum*, is a Bureau tracking species on the heritage program's List 3.

A site-specific inventory of the project area was conducted in the spring and summer of 1999 and no Special Status plants were found.

b. Animals

During late June and early July of 1998 and 1999, inventories for northern goshawk and woodpeckers were conducted in the project area. The goshawk inventory was conducted as described under U.S. Forest Service goshawk inventory protocol. No goshawk nests were found and no goshawk flew in to the project area in response to a tape recorded call. A sighting of a goshawk was reported to the biologist, however, after investigation with the taped call response, the presence of goshawks could not be confirmed. There were red-tailed hawk nests located in three units. Other species documented in the area were northern flickers, hairy woodpecker, and other unidentified woodpeckers. No other Special Status species are known or expected to occur in the project area.

4. Rangeland Management

The project area lies within the Silvies grazing allotment. Livestock grazing in the area is managed under the recently approved Silvies Allotment Management Plan (AMP). The grazing treatments prescribed in this AMP are designed to improve riparian habitat and allows grazing every year only from mid-April to the end of May.

5. Noxious Weeds

No noxious weeds were found within the project area. However, noxious weeds do occur on private, BLM, and National Forest lands in the Silvies Valley.

D. Human Values

1. Recreation

The primary recreation activities of the project area are deer and elk hunting and driving for pleasure. Deer and elk hunting pressure is low to moderate and pleasure driving use is low.

2. Visual Resource Management

Some of the project area is within the Visual Resource Management (VRM) Class II zone as portions of the area can be seen from U.S. Highway 395. This class allows management activities that may be seen but do not attract the attention of the casual observer or can be mitigated to not attract the attention of the casual observer. Most of the area is in the VRM Class III zone and is not visible from the highway.

3. Cultural Resources

Cultural inventories were conducted in this area in the 1980's and in 1999. One hundred percent of the project area has been inventoried to current standards. A number of prehistoric and historic sites, including lithic scatters, isolated artifacts, cabins and other historic structures, log troughs, several portions of the Canyon City-Fort Harney Wagon Road and blazed trees are found in the project area. No paleontological resources were discovered. Specific American Indian use of the area is assumed to have occurred in pre-European American times. Umatilla and Warm Springs Indians occasionally visited the area but the Northern Paiute Tribe used the area as part of their seasonal round especially to exploit obsidian resources in the area.

4. Economic and Social

Ranching and lumber industries are the primary sources of employment in eastern Oregon communities. While no single timber sale significantly affects employment or the social standards of a community, the combined effects of timber sales and forest management programs on Federal and private lands have a long-term, stabilizing influence on local employment and standards of living.

IV. ENVIRONMENTAL IMPACTS

In keeping with the directives of the National Environmental Policy Act (NEPA), the discussion of impacts focuses on impacts considered potentially significant. The detail and depth of impact analysis is generally limited to that necessary to determine if significant environmental impacts are anticipated.

The following resource values have not been identified within the project area: Threatened or Endangered species, wilderness, floodplains and wetlands, prime and unique farmland, Areas of Critical Environmental Concern (ACECs), American Indian religious concerns, Wild and Scenic Rivers, wastes and hazardous solids. Site-specific impacts from the proposed actions or any alternatives upon the following resources are considered to be inconsequential and have been adequately addressed in the Three Rivers RMP/FEIS: climate, terrestrial vegetation composition, aquatic vegetation composition, noise, human health, socioeconomics, and mining. The impacts of the alternatives upon the physical and biological resources and human values have been assessed and are described below.

A. Impacts of Proposed Action

1. Physical Resources

a. Soils

Minor increases in sediments could be expected for up to 2 years from new construction, upgrading of haul roads, utilization of skid trails, and piling and burning of slash. A decrease in erosion and sedimentation can be expected to occur by the relocation of 0.8-mile of roads away from riparian areas and the closing and rehabilitation of 2.7 miles of roads in riparian areas (Amaranthus and others, 1999). Because the soils are subject to erosion if cover is removed from the soil surface, all tractor skid trails would be waterbarred and seeded shortly after yarding is completed to reduce the potential for erosion. Some soil compaction would occur during yarding and around landings. Ripping of soils in these areas would ameliorate compaction. With the "General Best Forest Management Practices" listed in the RMP/FEIS and the Project Design Features (PDFs), no significant impacts are expected and the cumulative impacts on soils would be minimal.

b. Water Quality

The cumulative impacts of the proposed action, when added to the past, present, and reasonable foreseeable activity, have been assessed for the effects on the watersheds. Removal of forest vegetation reduces interception and transpiration, allowing more water to enter the soil and move downslope to stream channels.

The proposed action could result in an increase in runoff; however, any increase would be minimal due to the topography, soils, and project design. By utilizing the RMP/FEIS buffer widths for springs, streams, and wet areas, and considering the large amount of no action areas, no impacts outside those covered in the RMP/FEIS are expected.

Nonpoint source pollution is expected to be negligible if the proposed action is implemented. Implementing the "Summary of Recommended Practices for Stream Protection" from the RMP/FEIS and the PDFs would reduce the probability of sediment reaching any channels. Due to the limited nature of the project, gentle slopes, stable soils, limited timing, and prompt rehabilitation of disturbed areas, there would be no cumulative effects on water quality.

c. Air Quality

The proposed project would have minimal impacts on air quality. Smoke from burning slash piles would occur for approximately 1-week in the fall. With no communities or Class I areas nearby and standard burning prescriptions requiring unstable air, the impact of burning would be minimal. Equipment exhaust and dust from truck traffic is extremely short term and short distance. There would be no cumulative impact on air quality.

d. Fire Management

There will be a short-term increase in fire danger (3-5 years) since only those areas of heavy concentration (generally an excess of 12 tons/acre) will be piled and burned (Torgersen and Bull, 1995). This increase would be reduced when the dead needles drop from the branches of the slash. There may be some scorched trees resulting from the burning of slash piles. With the fuels treatments as specified in the proposed action, there would be some positive cumulative impacts on fire management primarily due to the lowered wildfire danger in the project area. Wildfire suppression efforts would become easier and safer for firefighters. The risk of a catastrophic wildfire would be greatly reduced.

2. Biological Resources

a. Vegetation

(1) Stand Structure and Forest Health

Implementation of the proposed action would not substantially alter the general character of the overstory. These stands would consist of ponderosa pine with a moderately stocked overstory of 11 to 21 plus inches dbh trees. Tree density would be reduced to a level more in line with site carrying capacity (Cochran, 1994). The trees would become healthier, more vigorous, and faster growing. The stands would be able to withstand insect and disease attacks better and become less susceptible to fire and drought (Obedzinski and others, 1999). The residual larger diameter ponderosa pine trees would be more vigorous and better able to survive into the foreseeable future. Reduced competition in the understory would speed up the growth rate of replacement large diameter ponderosa pine trees.



Expected Stand Character a Number of Years after Treatment

The aspen stands would reproduce or be replanted and would be enabled to grow into viable, thriving stands that would provide unique wildlife habitats (Wall and others, 2000).

(2) Other Vegetation

Aspen and mountain mahogany stands would be maintained and would regenerate. Other species that prefer full sunlight, such as Idaho fescue would benefit from a less dense canopy cover. Those species that prefer more shade, such as elk sedge, would exhibit a decrease in abundance. Overall herbaceous understory production would increase in the short term of about 10 years. At that point, canopy cover would begin to shade the understory and retard herbaceous production. Juniper abundance would approximate historic population levels.

b. Wildlife

Impacts to wildlife and their habitat in these stands would be minimal due to the type of actions proposed. After treatment, these stands would exhibit an open, savanna-like character. No harvest treatment is proposed for 41 percent of the forested land within the project area. The juxtaposition of these untreated areas would provide cover for wildlife near the more open, savanna-like ponderosa pine. There would be a beneficial impact to those species that require or prefer more open forest habitat (Illg, 1994). Habitat for species requiring dense cover would be reduced. There would be a short-term negative impact to wildlife due to disturbance during operations in the project area. In units with proposed aspen projects, species that utilize aspen habitat would benefit with the maintenance and regeneration of aspen. Habitat diversity would be increased and would be sustainable for a longer time period. Based on the specifics above and the limited nature of the project, there would be no cumulative impacts to wildlife.

c. Special Status Species - Animals

This alternative would maintain existing snag and green replacement trees at 100 percent of the potential population levels of primary cavity excavators. This translates into approximately 2.5 snags per acre. Down woody debris would be maintained at three to six pieces per acre (Bull and others, 1995). Disturbance during the early summer months would have a negative impact on any birds using the project area as a feeding area. Following treatment, the resultant savanna-like stand character would be more beneficial to goshawks than the no action alternative which would likely result in mostly dead trees and likely wildfire. Due to the magnitude and nature of the proposed treatments, there are no cumulative impacts.

d. Rangeland Management

There may be a disruption of cattle grazing if the cattle cross fences damaged during logging. Grass and forb production would increase with the increased grass density and decreased tree canopy cover. Cattle movement may be locally impeded by local concentrations of slash.

e. Noxious Weeds

Soil disturbance during logging operations may expose bare mineral soil and provide a seedbed for noxious weeds. Heavy equipment and vehicles could provide a potential seed source for noxious weeds. Prompt seeding of disturbed areas as prescribed in the PDFs followed by post-sale monitoring would lower the hazard of noxious weeds establishment.

f. Human Values

(1) Recreation

The project area has low to moderate hunting pressure and forest management activities may disturb the hunter. Forest management activities would disturb big game during the day which may increase or decrease hunter success. Closing 2.7 miles of roads in riparian areas would limit vehicular access in those areas.

(2) Visual Resource Management

Logging operations and the burning of slash would create a short-term visual detraction. Long-term impacts to VRM would be positive by the retention of a vigorous and healthy large diameter ponderosa pine forest. There would be no cumulative impacts to VRM.

(3) Cultural Resources

Impacts to significant cultural resources would be mitigated through one of the following methods: site avoidance, site padding, photographic recording, surface collection and mapping, and testing and excavation.

(4) Economic and Social

An opportunity to provide some commercial timber to local economies would be provided and the local communities may experience a minor positive impact. Each stand with proposed timber harvest was given an estimated volume associated with the stand specific silvicultural prescription and marking guides. The overall estimated sale volume is approximately 1,650,000 board feet. It is estimated that 250 acres will be noncommercially thinned. There would be no impacts to minorities or American Indian groups (E.O.12898).

B. Impacts of Alternative A - No Action

1. Physical Resources

a. Soils

Under this alternative, no additional soil compaction, disturbance or erosion would occur from human activity. Soil erosion would continue from existing roads in riparian areas. The risk of soil damage and heavy erosion following a catastrophic wildfire would increase.

b. Water Quality

There would be no change to current water quality under this alternative. Erosion and excess sedimentation from 2.7 miles of roads in riparian areas would continue to degrade water quality. The risk of increased turbidity, sedimentation, and degradation of water quality exists with the increased risk of a catastrophic wildfire.

c. Air Quality

This alternative would cause no degradation to air quality due to human activity. Significant quantities of particulates and gases would be released into the air in the event of a catastrophic wildfire.

d. Fire Management

Under this alternative, the fuel loading in the stands would continue to increase due to the past and ongoing tree mortality. Refer to Photos 1 and 4 for examples of existing condition. The tonnage would continue to exceed the maximum 12 tons per acre permitted by the Three Rivers RMP/FEIS. Wildfire suppression efforts would become increasingly difficult and hazardous in the project area. The risk of a catastrophic wildfire would be greatly increased.

3. Biological Resources

a. Vegetation

(1) Stand Structure and Forest Health

Implementation of the no action alternative would have a continued negative impact on the stands. The large diameter ponderosa pine trees in the overstory would continue to die from western pine beetle and pine engraver attack and not be replaced by other medium to large trees (Cochran, 1994). The ponderosa pine understory would remain stagnant with a slow growth rate while continuing to suffer pockets of heavy mortality from mountain pine beetle and pine engraver (Obedzinski and others, 1999).

Overall, tree vigor would remain low, mortality high, and the large diameter ponderosa pine component would be diminished and not replaced for decades, assuming the project area does not experience a catastrophic wildfire.

The remnant aspen stands would continue to suffer mortality from being overtopped by invaded ponderosa pines and junipers (Wall and others, 2000). The few aspen suckers would continue to be heavily browsed and the aspen clones would face eventual stand death.

(2) Other Vegetation

Mountain mahogany would continue to decrease in abundance and stands would die from being overtopped by invaded ponderosa pines and junipers. Those species that prefer less sunlight, such as elk sedge, would benefit from a continued dense canopy cover. Overall, herbaceous understory production would remain low except in the areas of heavy tree mortality. In those areas of heavy mortality, production would increase yet be generally unavailable to ungulates due to the slash barriers. Invaded junipers would continue to thrive at unprecedented population levels.

b. Wildlife

Under this alternative, wildlife would be negatively affected by the continued degradation of thermal and hiding cover due to the death of trees from mountain pine beetle and other insects. However, in the short term, beneficial pockets of dense hiding and thermal cover would remain unless lost to a catastrophic wildfire. Those species utilizing aspen and mountain mahogany habitats would continue to be negatively affected by the degradation and continual loss of those habitats.

c. Fisheries

Under this alternative, approximately 2.7 miles of road would remain in the riparian areas of Newell Creek and an unnamed tributary of Mountain Creek.

Continued sedimentation from these roads and the risk from catastrophic wildfire have negative effects on fish populations both within the project area and downstream.

d. Special Status Species - Animals

In the short term, this alternative would provide snag levels at substantially above 100 percent of the potential population levels of primary cavity excavators. Down woody debris would exceed three to six pieces per acre and heavy tonnage would violate the standards in the Three Rivers RMP/FEIS. In the long term, there would be a deficit in the snag levels due to the lack of replacement large trees (Bull and others, 1997). This deficit would result in a population level of primary cavity excavators well below potential until additional snags are created decades in the future. The degradation of potential habitat due to ongoing mortality and the possible total loss of habitat from a catastrophic wildfire would reduce the amount of potential goshawk habitat.

e. Rangeland Management

There would be a minor impact to cattle grazing. Grass and forb production would remain low with the dense tree canopy cover. Production would increase in pockets of heavy tree mortality but would be mostly unavailable due to fallen dead trees. Damage to fences would increase when dead trees fall across them.

f. Noxious Weeds

Noxious weeds may remain at a low level due to the lack of surface disturbance. The project area would remain at the same risk of invasion as adjacent areas outside the project area.

g. Human Values

(1) Recreation

Vehicle travel would continue on roads within riparian areas. Hunters would not be disturbed by management actions but travel in the area may be negatively impacted due to the fallen dead trees. Hunter success may increase or decrease due to degraded cover and hampered access.

(2) Visual Resource Management

Impacts to scenic qualities would be negative in the short term as the large number of dead trees would remain visible until they fall down. In the long term, impacts would be negative due to the lower number of large ponderosa pine trees and the increased risk of losing all the trees from a catastrophic wildfire.

(3) Cultural Resources

Some wagon road portions may be degraded by continued use and others may be obscured by the growth of young stands of ponderosa pine trees. Many of the historic resources in the project area are constructed of or carved into perishable materials (logs, lumber, and live trees). Some historic structures/features could be lost to wildfire if fuel loads are not reduced.

(4) Economic and Social

Opportunities to provide some commercial timber to local economies would be foregone and the local communities may experience a minor negative impact. There would be no impacts to minorities or American Indian groups (E.O. 12898).

C. Impacts of Alternative B

1. Physical Resources

a. Soils

Minor increases in sediments could be expected for up to 2 years from new construction, upgrading of haul roads, utilization of skid trails, and piling and burning of slash. A decrease in erosion can be expected to occur by the relocation and rehabilitation of 0.8-mile of road in riparian areas. However, erosion and sedimentation would continue to occur on 2.7 miles of roads in riparian areas. Because soils are subject to erosion if cover is removed from the soil surface, all tractor skid trails would be waterbarred and seeded shortly after yarding is completed to reduce the potential for erosion. Some soil compaction would occur during yarding and around landings. Ripping of soils in these areas would ameliorate compaction.

b. Water Quality

The cumulative impacts of this alternative, when added to the past, present, and reasonable foreseeable activity, have been assessed for the effects on the watersheds. A beneficial impact to water quality would result from the relocation and closing of 0.8-mile of road in riparian areas. However, 2.7 miles of roads in riparian areas would continue to erode and degrade water quality. Removal of forest vegetation would reduce interception and transpiration, allowing more water to enter soil and move downslope to stream channels. This alternative could result in an increase in runoff, but any increase would be minimal and not significant due to the topography, soils, and project design. By utilizing the RMP/FEIS buffer widths for springs, streams, and wet areas, and considering the large amount of no action areas, no impacts outside those covered in the RMP/FEIS would occur.

Nonpoint source pollution is expected to be unmeasurable if this alternative is implemented. Implementing the "Summary of Recommended Practices for Stream Protection" from the RMP/FEIS and the PDFs would reduce the amount of sediment reaching any channels. Due to the limited nature of the project, gentle slopes, stable soils, limited timing, and prompt rehabilitation of disturbed areas, there would be no cumulative effects on water quality resulting from this alternative.

c. Air Quality

This alternative would have a minor impact on air quality. Smoke from burning slash piles would occur for approximately 2 weeks in the fall. With no communities or Class I areas nearby and the standard burning prescriptions requiring unstable air, the impact from burning would be minor. Equipment exhaust and dust from truck traffic is extremely short term and short distance. There would be no cumulative impact on air quality.

d. Fire Management

There will be a short-term increase in fire danger (3-5 years) since only those areas of heavy concentration (generally an excess of 12 tons/acre) would be piled and burned (Torgersen and Bull, 1995). This increase would be reduced when the dead needles drop from the branches of the slash. There may be some scorched trees resulting from the burning of slash piles. With the fuels treatments specified in this alternative, there would be some positive cumulative impacts on fire management primarily due to the lowered wildfire danger in the project area.

However, in the no action Units, 3, 4, and 7, the fuel loading would continue to increase due to the past and ongoing tree mortality (Bull 1983). The tonnage would exceed the maximum 12 tons per acre permitted by the Three Rivers RMP/FEIS. Wildfire suppression efforts would become extremely difficult and hazardous in the project area. The risk of a catastrophic wildfire would be higher within these units. However, the risk would be partially mitigated by the lower fire danger resulting from treatment of the rest of the project area.

2. Biological Resources

a. Vegetation

(1) Stand Structure and Forest Health

The general character of the overstory of stands treated under this alternative would not be substantially altered. These stands would consist of ponderosa pine with a moderately stocked overstory of 11 to 21 plus inches dbh trees. Tree density would be reduced to a level in line with site carrying capacity (Cochran, 1994). In general, the trees will become healthier, more vigorous, and faster growing. The stands will be able to withstand insect and disease attacks better and become less susceptible to fire and drought (Obiedzinski and others, 1999). The residual larger diameter ponderosa pine trees would be more vigorous and better able to survive into the foreseeable future. Reduced competition in the understory would speed up the growth rate of replacement large diameter trees. Refer to Photos 3 and 5.

Untreated stands in Units 3, 4, and 7 would exhibit the same negative effects as described in Alternative A. Large diameter ponderosa pine trees in the overstory would continue to die from bark beetles and not be replaced by other medium to large trees. Overall, tree vigor would remain low, mortality high, and the large diameter ponderosa pine component would be diminished and not replaced for decades, assuming the areas do not experience a catastrophic wildfire.

The remnant aspen stands would continue to suffer mortality from being overtopped by invaded ponderosa pines. The few aspen suckers would continue to be heavily browsed and the aspen clones would face eventual stand death (Wall and others, 2000).

(2) Other Vegetation

In the treated units, the aspen and mountain mahogany stands would be maintained and would regenerate. Other species that prefer full sunlight, such as Idaho fescue would benefit from a less dense canopy cover. Those species that prefer more shade, such as elk sedge, would exhibit a decrease in abundance. Overall herbaceous understory production would increase in the short term of about 10 years. At that point, canopy cover will begin to shade the understory and retard herbaceous production. Invaded junipers would continue to thrive at unprecedented population levels.

In untreated stands in Units 3, 4, and 7, mountain mahogany would continue to decrease in abundance and stands would die from being overtopped by invaded ponderosa pines and junipers. Those species that prefer less sunlight, such as elk sedge, would benefit from a continued dense canopy cover. Overall, herbaceous understory production would remain low except in the areas of heavy tree mortality. In those areas of heavy mortality, production would increase yet be generally unavailable to ungulates due to slash barriers.

b. Wildlife

Impacts to wildlife and their habitat in the treated stands would be minimal due to the type of actions proposed. After treatment, these stands would exhibit an open, savanna-like character. Refer to Photo 3. No treatment is proposed for 41 percent of the forested land within the project area. The juxtaposition of these untreated areas will provide cover for wildlife near the more open, savanna-like ponderosa pine. There would be a beneficial impact to those species that require or prefer more open forest habitat (Illg, 1994). Habitat for species requiring dense cover would be reduced. There would be a short-term negative impact to wildlife due to disturbance during operations in the project area. In units with proposed aspen projects, species that utilize aspen habitat would benefit with the maintenance and regeneration of aspen. Based on the specifics above and the limited nature of the project, no cumulative impacts were identified.

In the untreated stands in Units 3, 4, and 7 wildlife would be negatively affected by the continued degradation of thermal and hiding cover due to the death of trees from bark beetles. However, in the short term, beneficial pockets of hiding and thermal cover would remain unless lost to a catastrophic wildfire. Those species utilizing aspen and mountain mahogany habitats would be adversely affected by the degradation and eventual loss of those habitats.

c. Fisheries

Under this alternative, approximately 2.7 miles of road would remain in the riparian areas of Newell Creek and an unnamed tributary of Mountain Creek. Erosion and sedimentation from these roads and the risk from catastrophic wildfire have negative effects on fish populations both within the project area and downstream.

d. Special Status Species - Animals

In the treated units, this alternative would maintain existing snag and green replacement trees at 100 percent of the potential population levels of primary cavity excavators. This translates into approximately 2.5 snags per acre. Down woody debris would be maintained at three to six pieces per acre (Busse, 1999).

Disturbance during the early summer months may have a negative impact on those birds that may use the project area as a feeding area. Following treatment, the resultant savanna-like stand character would be more beneficial to species such as goshawks than the no action alternative which would most likely result in mostly dead trees and likely wildfire. Due to the magnitude and nature of the proposed treatments, no cumulative impacts were identified.

In untreated Units 3, 4, and 7, for the short term, this alternative would provide snag levels at more than 100 percent of the potential population levels of primary cavity excavators. Down woody debris would exceed three to six pieces per acre and the heavy tonnage would violate the guidelines in the Three Rivers RMP/FEIS. In the long term, there would be a deficit in snag levels due to the lack of replacement large trees (Bull and others, 1997). This deficit would result in a population level of primary cavity excavators well below potential until additional snags are created decades in the future. The degradation of habitat due to ongoing mortality and the potential total loss of habitat from a catastrophic wildfire could be a negative impact to goshawks.

e. Rangeland Management

In treated units, there may be a disruption of cattle grazing if the cattle cross fences damaged during logging. Grass and forb production would increase with the increased grass density and decreased tree canopy cover. Cattle movement may be locally impeded by local concentrations of slash.

In the untreated Units 3, 4, and 7, there would be a minor negative impact to cattle grazing. Grass and forb production would remain low with the dense tree canopy cover. Production would increase in pockets of heavy tree mortality but would be mostly unavailable due to fallen dead trees. Damage to fences would increase when dead trees fall across them.

f. Noxious Weeds

In treated units, soil disturbance during logging operations may expose bare mineral soil and provide a seedbed for noxious weeds.

Heavy equipment and vehicles could provide a potential seed source for noxious weeds. Prompt seeding of disturbed areas as described in the PDFs followed by post-sale monitoring would lower the hazard of noxious weeds establishment.

In the untreated units, noxious weeds would remain at a low level due to the lack of surface disturbance. These units would remain at risk of invasion as would adjacent areas outside of the project area.

g. Human Values

(1) Recreation

In the treated units, forest management activities may disturb hunters and big game, which may increase or decrease hunter success. Under this alternative, vehicle travel would continue on roads within riparian areas. In the untreated units, hunters would not be disturbed by management actions but travel outside of the riparian areas may be negatively impacted due to the fallen dead trees.

(2) Visual Resource Management

In the treated units, logging operations and the burning of slash would create a short-term visual distraction. Long-term impacts to VRM would be positive by the retention of a vigorous and healthy large diameter ponderosa pine forest. In the untreated units the impacts to scenic qualities would be negative in the short term as the large number of dead trees would remain visible until they fall down. In the long term, impacts would be negative due to the lower number of large ponderosa pine trees and the increased risk of losing all the trees from a catastrophic wildfire.

(3) Cultural Resources

Potential impacts to significant cultural resources would be mitigated through one of the following methods: site avoidance, site padding, photographic recording, surface collection and mapping, and testing and excavation.

In the untreated units, some wagon road portions may be degraded by existing uses and others may be obscured by the growth of young stands of ponderosa pine trees. Many of the historic resources are constructed of wood and could be lost to wildfire if fuel loads are not reduced.

(4) Economic and Social

An opportunity to provide some commercial timber to local economies would be experienced and the local communities may experience a minor positive impact. It is estimated that 250 acres will be noncommercially thinned. There would be no impacts to minorities or American Indian groups (E.O. 12898).

V. MITIGATING MEASURES

No separate mitigating measures were proposed. Implementation of the PDFs was considered in the analysis of the proposed action and associated alternatives.

VI. LIST OF PREPARERS, AGENCIES, GROUPS, AND PERSONS CONSULTED

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Lesley Richman, Range Management Specialist
Jeff Rose, Fire Ecologist
Fred Taylor, Wildlife Biologist
Nora Taylor, Botanist/Ecologist
Scott Thomas, Archaeologist

B. List of Agencies, Groups, and Persons Consulted

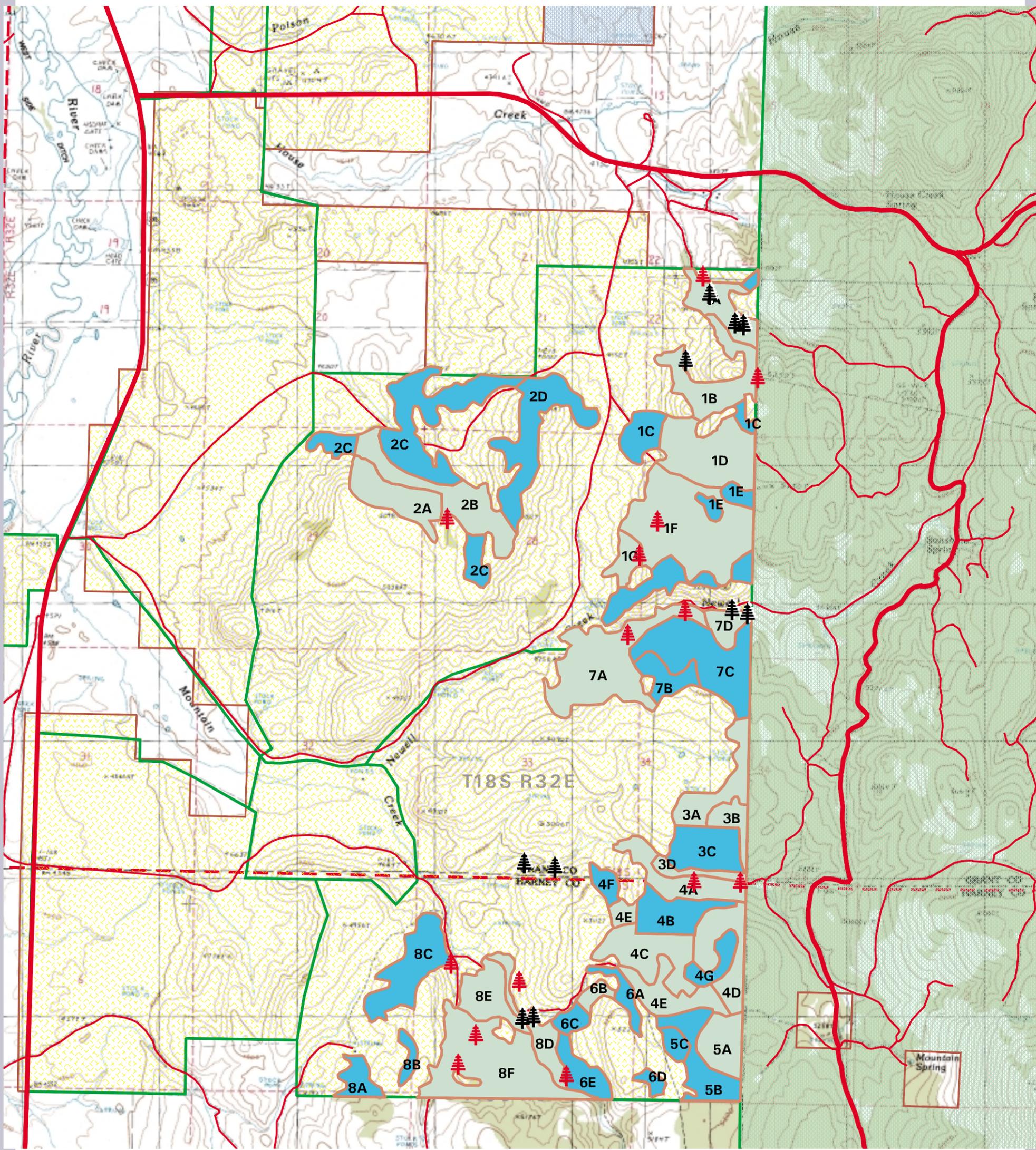
Adjacent landowners:
 Jack Young
 Ponderosa Ranch
Malheur National Forest
Oregon Department of Fish and Wildlife

VII. LITERATURE CITED

- Amaranthus, Michael P.; Cazares, Efren; Perry, David A. 1999. The role of soil organisms in restoration. In: Proceedings, Pacific Northwest forest and rangeland soil organism symposium. Gen. Tech. Rep. PNW-461. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 215 p.
- Bartos, Dale L. and Campbell, Robert B. Jr. 1998. Decline of quaking aspen in the interior west-examples from Utah. *Rangelands* 20(1), February, 1998, Pages 17-24.
- Bull, Evelyn L. 1983. Longevity of snags and their use by woodpeckers. Paper presented at the Snag Habitat Management Symposium, Flagstaff, Arizona, 7-9 June 1983. 4 p.
- Bull, Evelyn L.; Parks, Catherine G.; Torgersen, Torolf R. 1997. Trees and logs important to wildlife in the interior Columbia River basin. Gen. Tech. Rep. PNW-GTR-391. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 55 p.
- Bull, Evelyn L.; Torgersen, Torolf R.; Blumton, Arlene K.; McKenzie, Carol M.; Wyland, Dave S. 1995. Treatment of an old-growth stand and its effects on birds, ants, and large woody debris: a case study. Gen. Tech. Rep. PNW-GTR-353. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 12 p.
- Busse, Matt D. 1999. Out of sight, but not out of mind: soil organisms in moisture limited forests. In: Proceedings: Pacific Northwest forest and rangeland soil organism symposium. Gen. Tech. Rep. PNW-461. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 215 p.
- Cochran, P.H.; Geist, J.M., Clemens, D. L., Clausnitzer, Rodrick R.; Powell, David C. 1994. Suggested stocking levels for forest stands in northeastern Oregon and southeastern Washington. Res. Note PNW-RN-513. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 21 p.
- Hansen, Kathy; Wycoff, William; Banfield, Jeff. April 1995. Shifting Forests: historical grazing and forest invasion in southwestern Montana. *Forest and Conservation History*, 39 (2) Pages 66-76.
- Illg, Cathy and Gordon. 1994. The ponderosa and the Flammulated. *American Forests*, March/April 1994, Pages 36, 37, and 58.

Torgersen, Torolf R.; Bull, Evelyn L. 1995. Down logs as habitat for forest-dwelling ants - the primary prey of Pileated woodpeckers in northeastern Oregon. *Northwest Science* 69:294-303.

Wall, Travis; Miller, Rick; Svejcar, Tony. 2000 (In Press). Western juniper encroachment into aspen communities in the northwest Great Basin. *Society for Range Management* (In Press).



**Proposed Action
Treatment Units**



BLM Surface Jurisdiction



U.S. Forest Service Jurisdiction



State Land



Private Land - not shaded



8E Newell Forest Health Project Units



**5B Stands dropped from proposed action.
Leave for wildlife cover.**

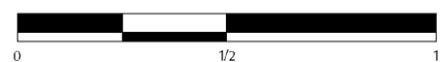
- Range and Township
- Allotment and Pastures
- Minor Roads
- Major Roads

- Extinct Aspen
- Live Aspen

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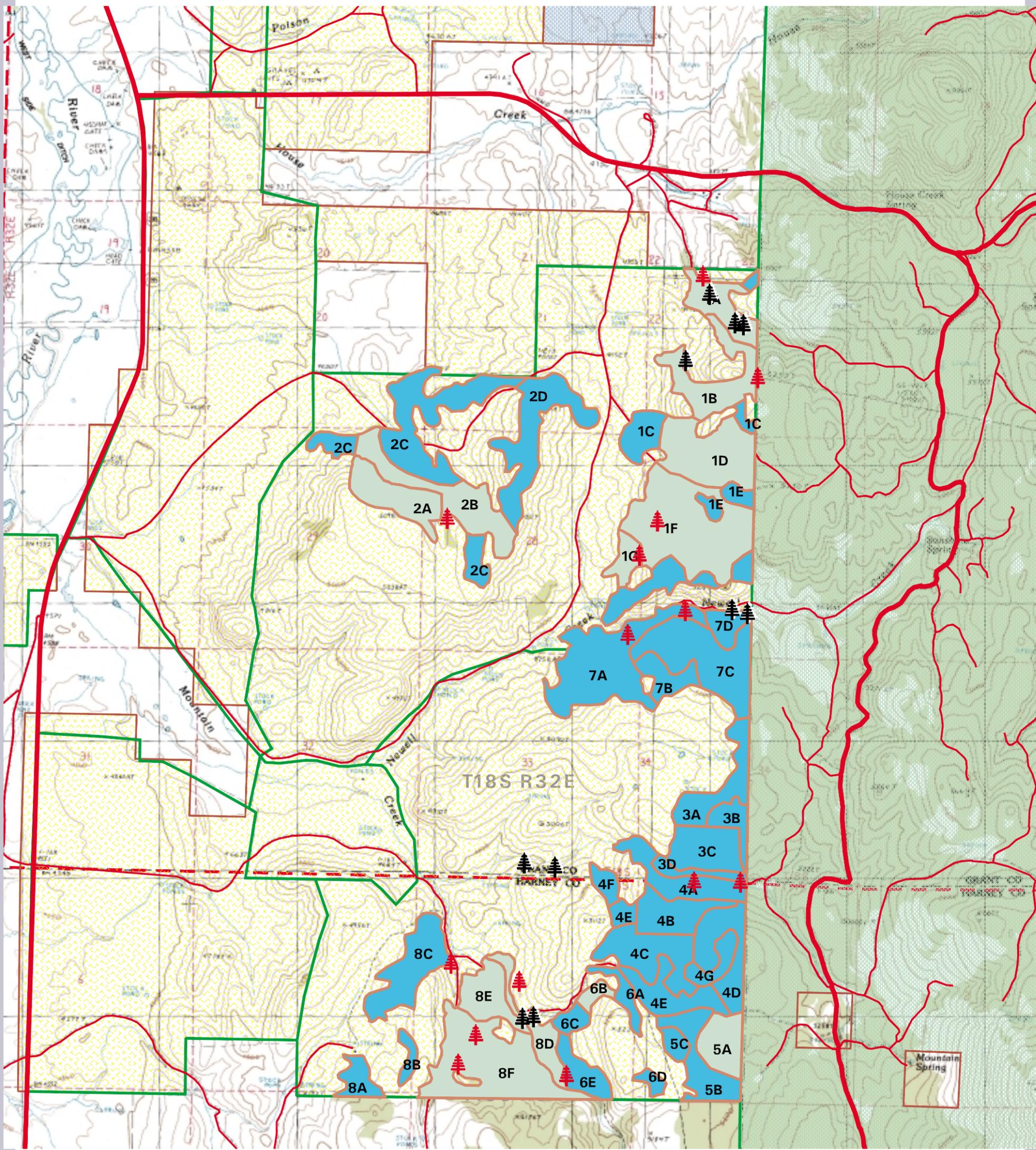
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Scale: 1 inch = 0.4 miles





**Alternative B
Treatment Units**

-  **BLM Surface Jurisdiction**
-  **U.S. Forest Service Jurisdiction**
-  **State Land**
-  **Private Land - not shaded**
-  **8E Newell Forest Health Project Units**
-  **5B Stands dropped from proposed action. Leave for wildlife cover.**

-  **Range and Township**
-  **Allotment and Pastures**
-  **Minor Roads**
-  **Major Roads**
-  **Extinct Aspen**
-  **Live Aspen**

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 Burns BLM GIS, Kelly Hazen

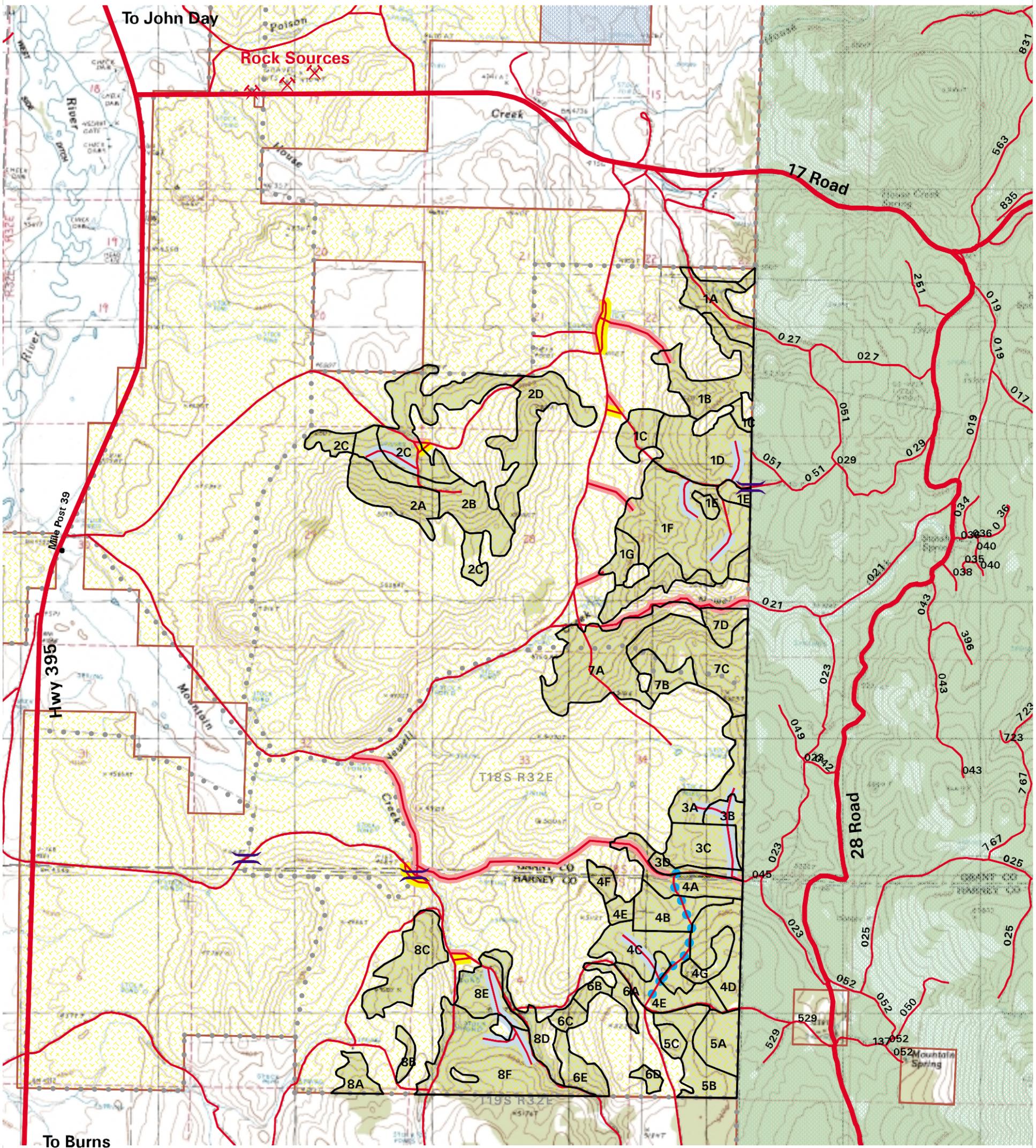
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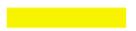


Scale: 1 inch = 0.4 miles





Proposed Action Roads

- | | | | |
|--|----------------------------------|---|------------------------|
|  | BLM Surface Jurisdiction |  | Range and Township |
|  | U.S. Forest Service Jurisdiction |  | Allotment and Pastures |
|  | State Land |  | Minor Roads |
|  | Private Land - not shaded |  | Major Roads |
| | |  | Close Existing Road |
| | |  | Temporary Road |
| | |  | Relocated Roads |
| | |  | New Road Construction |
| | |  | Cattle Guards (3) |
| | |  | Rock Sources (3) |

Date: 12-MAY-2000
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 Burns BLM GIS, Kelly Hazen

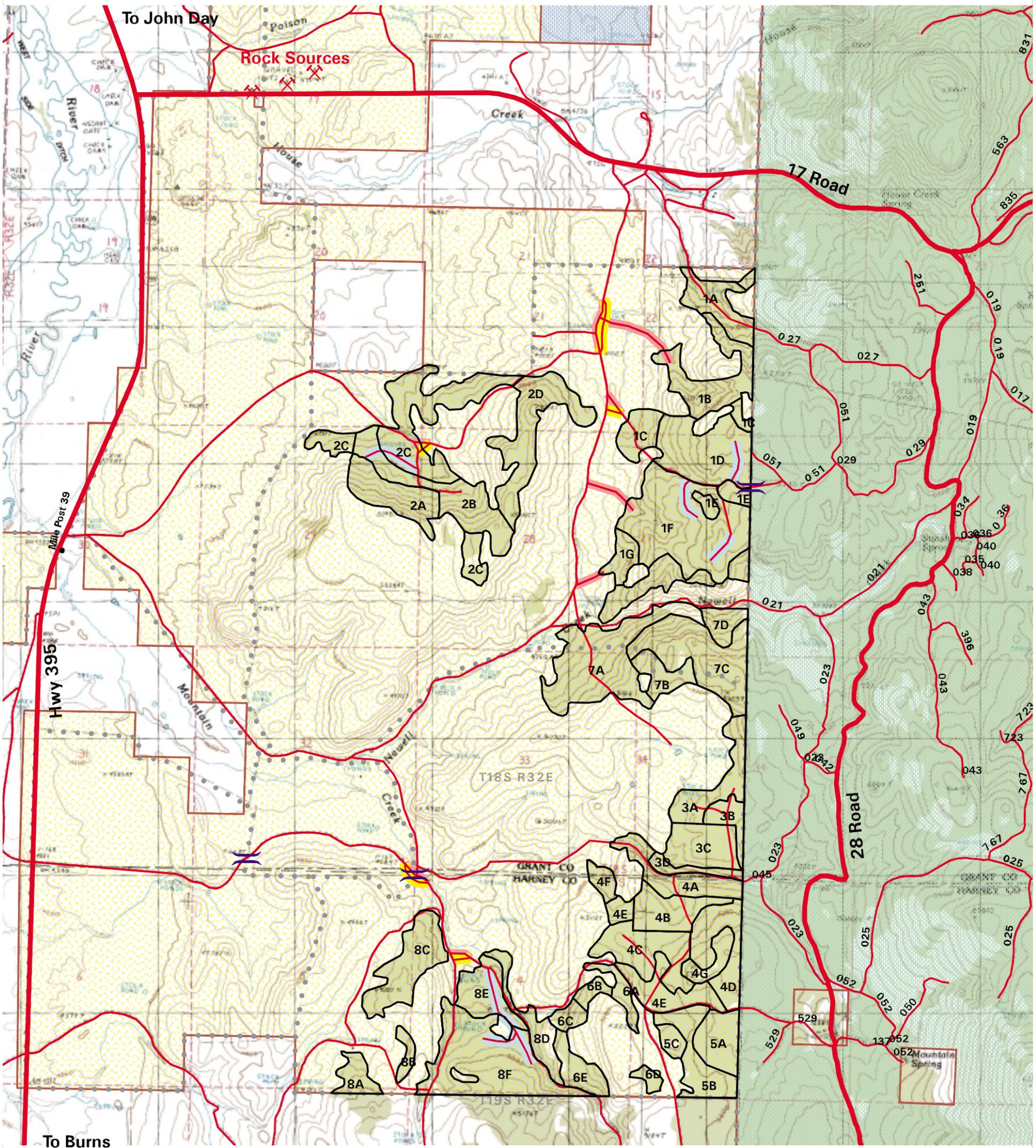
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Scale: 1 inch = 0.4 miles





Alternative B Roads

- | | | | |
|--|----------------------------------|---|------------------------|
|  | BLM Surface Jurisdiction |  | Range and Township |
|  | U.S. Forest Service Jurisdiction |  | Allotment and Pastures |
|  | State Land |  | Minor Roads |
|  | Private Land - not shaded |  | Major Roads |
| | |  | Close Existing Road |
| | |  | Temporary Road |
| | |  | Relocated Roads |
| | |  | Cattle Guards (3) |
| | |  | Rock Sources (3) |

Date: 12-MAY-2000
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