Pinto Horse Emergency Stabilization and Rehabilitation (ESR) Plan (N237)
Environmental Assessment
EA No. OR-030-02-032

I. PURPOSE AND NEED

A. Background

On July 7, 2002 a lightning storm ignited the Pinto Horse Fire (N237) ten miles South of Arock, Oregon in T.32 S., R.43 E., sec 4 (see map 1) in the Owyhee River Canyon Wilderness Study Area (WSA). The Pinto Horse fire burned approximately 9,655 acres in the Jordan Resource Area in the Vale District. The burn consisted of 7,628 acres of public land administered by the Bureau of Land Management (BLM) and 2,027 acres of land administered by the State of Oregon. About 4,446 acres within the Owyhee River Canyon WSA burned, both above and below the rim. Below the rim of the Owyhee River Canyon, within the Owyhee Wild and Scenic River Corridor, about 928 acres were burned. Above the rim within the Arock Allotment, some 5,430 acres of public land burned and about 1,270 acres in the Rattlesnake Individual FFR Allotment (see map 2). The Pinto Horse Fire was contained on July 8, 2002 and out on July 9, 2002.

The area burned by the fire was dominated by heavy sagebrush prior to the fire with various densities of bunchgrasses and/or cheatgrass understories. The rate of spread was high resulting from erratic winds, low relative humidity, and dry fuel conditions. Within the fire perimeter about 5% of the vegetation remains in unburned islands. Fire suppression activities on the Pinto Horse Fire consisted of two type 3 helicopters, one single engine air tanker (SEAT), two heavy air tankers, one lead plane, 3 water tenders, one type 6 dozer, seven type 4 engines, nine type 6 engines, one fuel tender, one type 2 crew.

The area burned by the Pinto Horse Fire was fairly uniform heavy sagebrush with native bunchgrass and/or cheatgrass dominated understories. The exception to this is the Monument Seeding Pasture of the Arock Allotment which is predominately crested wheatgrass (*Agropyron cristatum*). The preburn vegetation community, with the exception of the Monument Seeding Pasture, contained Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*), bluebunch wheatgrass (*Pseudorogneria spicata*), cheatgrass, squirreltail (*Elymus elymoides*), and Sandberg bluegrass (*Poa secunda*). In the gentler sloping areas and areas close to water, the bluebunch wheatgrass was at a lower density than historically found. Cheatgrass was dispersed throughout the area burned, occupying the interspaces between the native vegetation. The cheatgrass is in a greater concentration in the vegetation communities where the bluebunch wheatgrass was less dense than historically found. Overall, the west side of the burned area, which is dryer and lower in elevation than the eastern side of the burned

area, contained the densest concentrations of cheatgrass. Rubber rabbitbrush (*Ericameria nauseosa*), was at a higher density than historically found on the eastern side of the burned area. The areas with steep slopes, abundant surface rock, and those that are a considerable distance to water tend to have a higher density of bluebunch wheatgrass and a lower density of cheatgrass.

B. Purpose and Need

The purpose and need of the ESR effort is to establish adapted perennial plant species in order to: stabilize soils, prevent re-invasion of cheatgrass, reduce fire frequency and future fire hazards, maintain and/or restore ecological integrity and function, re-establish a shrub cover for multiple rooting depth and wildlife habitat, and establish a perennial forage base for wildlife and livestock.

The ESR effort needs to be protected by closing the burned areas within all of the pastures to livestock grazing for a minimum of two growing seasons or until plants are well established and able to withstand grazing in the long-term. It is standard practice to close burned areas and seeded areas to livestock grazing for a time, to facilitate recovery, through protective fencing and/or grazing closures.

ESR Objectives to address purpose and need:

1. Stabilize soils from wind and water erosion by augmenting native range with adapted, perennial plant species.

2. Reduce the probability of the establishment and site dominance of annual grasses and weeds through seeding adapted, perennial plant species.

3. Reduce future fire hazards in cheatgrass dominated areas by seeding adapted, perennial plant species.

4. Maintain or restore ecological integrity and function to the ESR area.

5. Restore vegetative structure, in order to capture and hold snow during the winter months and manage moisture on site more effectively.

6. Protect the ESR area by excluding livestock grazing, in the seeded and burned areas, for at least two growing seasons (i.e. first full year and until seed ripe the second year) or until plants are sufficiently established to withstand grazing.

7. Conduct ESR treatments within the WSA in a manner so as not to impair the suitability of the area for preservation as wilderness, but to preserve and/or restore its naturalness.

II. CONSISTENCY WITH LAND USE PLANS

The proposed ESR effort is consistent with the preferred Land Use Alternative for the Southern Malheur Management Framework Plan (MFP) (1983), the Southern Malheur Rangeland Program Summary (RPS) (1984), the Proposed Southeastern Oregon Resource Management Plan (RMP) and Final EIS (2001).

III. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

A. Proposed Action

1. Seed approximately 3,800 acres of the Pinto Horse Fire with an adapted perennial seed mix using rangeland drills for the grass and forb seed and broadcast application for the brush seed. The 3,800 acres to be drilled (1,800 acres within the Owyhee River Canyon WSA and 2,000 outside the WSA) are those acres on which equipment can be used and have lower pre-burn densities of bunchgrass. The remaining acres on which equipment cannot be used would be protected from grazing but not seeded. These untreated areas are expected to rehabilitate on their own because the tend to have higher pre burn densities of bunchgrass. The proposed seed mix is listed below in pure live seed (PLS):

Table 1 Proposed Seed Mix

Species*	**lbs/acre (PLS)**
Bluebunch Wheatgrass	5
Sandberg Bluegrass	2
Wyoming Big Sagebrush	.25
Scarlet Glob mallow	.25
Apar, Lewis Flax	0.5
TOTAL	**7.75**

* Species type and mixture is subject to seed availability. If the species listed above are not available they would not be replaced by other species.

2. Drill seeding of 2,000 acres outside of the WSA would be used in the typical manner of a single pass over the area, possibly resulting in row appearance of seeded vegetation. Use of drills on the 1,800 acres in the WSA (see map 3) would be done in such a manner as to not produce a row appearance of seeded species or have lasting surface disturbance evidence. The passing of the drills over the land "erases" the tracks made by the machinery pulling the drills. A manufactured multi-positional harrow drag would be pulled behind the drills to obscure the visual appearance of their passing as well as to displace seed over an area beyond

the furrow created by the drills. Chains with a six inch ring would be attached to and pulled behind each disc arm to obscure any furrow created by the drill. The harrow drag would be tested on a small area outside the WSA to ensure it doesn't turn up stones with white precipitates. If the harrow drag turns up stones with white precipitates, the harrow would not be used. Instead, the drills would be pulled in two passes, roughly perpendicular to each other, across the WSA acreage to obscure the appearance of rows.

3. Seed the dozer lines (created during fire suppression) in the Monument Seeding Pasture of the Arock Allotment with 7 lbs/ac crested wheatgrass with a rangeland drill. The Monument Seeding is an existing crested wheatgrass seeding outside the WSA boundary. All other dozer lines would be seeded with the native seed mixture in conjunction with drilling the burned areas.

4. No treatment of the burn area would take place in the Monument South Seeding Pasture, with the exception of the action described in item 3.

5. Construct 12.5 miles of temporary electric fence to exclude livestock grazing in the burned and seeded areas in the Pinto Horse, Field 5, Monument Native, South Little Grassey, and Noon pastures of the Arock Allotment (see map 4). These areas would remain closed to grazing for at least two growing seasons or until sufficient establishment has occurred to allow grazing to resume. The fencing would be constructed outside the WSA with the exception of about 250 feet in field 5. The fence within the WSA would start at the canyon rim and proceed northward, out of the WSA, and on around the burned area in this pasture. All fences would be built to BLM specifications. The permanent fence would be built with steel fence posts at 16.5 foot centers with the three wires spaced at 16", 26" and 38" above the ground. The bottom wire would be smooth and the top two wires would be barbed. The temporary electric fence would be built with steel and possibly fiberglass fence posts at about 30 foot centers. The top wire would be barbed to hold flagging for warning people, wildlife and livestock of the presence of a fence. The bottom two wires would be smooth. The three wires would be spaced at 20", 30", 42" from the ground. Every quarter of a mile either a easy panel brace or rock crib would be placed for stretching wires.

6. The burned area of the North Little Grassey Pasture in the Arock Allotment and the Rattlesnake Individual FFR Allotment would be seeded but not fenced for protection. These areas would be rested from grazing use for at least two growing seasons or until sufficient establishment has occurred to allow grazing to resume

7. Excluding livestock grazing in the ESR areas in the Arock Allotment would cause a reduction of 642 AUMs in the allotment's carrying capacity. These AUMs would be proportionally deducted from each operator, based on the operator's permitted AUMs for the duration of the closure. Excluding livestock grazing in the Rattlesnake Individual FFR Allotment will cause a reduction of all 335 AUMs for the duration of the closure.

8. Repair 7 miles of existing pasture fences burned by the fire to facilitate ESR protection and

management (see map 4).

9. The areas proposed for seed drilling and temporary fence construction would be inventoried for cultural and paleontologic resources prior to ground disturbing activities. Class III survey methods would be used in areas with a high probability for yielding cultural resources. Cultural resources discovered during the survey, and those previously recorded, would be flagged, recorded and avoided as appropriate. If fossil floral or faunal resources are located during the survey, depending on the nature and extent of the fossil locality, the area would either be flagged and avoided during plan implementation activities or the fossils would be recovered prior to ESR activities.

10. Chemically treat the medusahead (*Taeniatherum caput-medusae*) and Scotch thistle (*Onopordum acumthium*) within and adjacent to the Pinto Horse burned area. The areas identified for treatment total about 1,800 acres, (see map 5) but the actual treatment acreage is expected to be only a subset of that. Medusahead would be treated at the labeled rate of Glyposate and the Scotch thistle would be treated with the labeled rate of either 2,4-D & Dicamba or Picloram, depending on the season of application. Treatment would be done in accordance with the Vale District Integrated Weed Control Plan and Environmental Assessment (OR-030-89-19).

11. Vehicle travel in the WSA for the treatment identified in item 10 would be done in a manner to minimize the use of the application vehicles as much as possible. Application would be made by truck, ATV, and backpack sprayer. Vehicle applications would avoid repeated travel over the same tracks, where such use could create a more noticeable route which might also attract further use by other visitors. Applicators would avoid straight line exits/approaches to the main road, to minimize the visibility of their tracks when viewed from the road. Applicators would leave the road at reverse angles to normal roadway traffic, so that tracks would be less visible to people driving along the road. While traveling over or through unburned areas the applicator would avoid driving over higher brush as much as possible, in order to minimize breakage of woody stems and branches. Applicators would not drive off the roads if wet, soil conditions exist that would create ruts.

12. Post implementation monitoring of the ESR area would be conducted over at least two years. On site monitoring would take place while treatment efforts are underway in the WSA to ensure adherence to proposed action. Additional post application monitoring would also take place that would include livestock use supervision, weed monitoring, and vegetation monitoring.

B. Alternative 1

No Action

No ESR would be done, except for temporary protection from grazing by way of temporary fence construction and/or closure to grazing.

C. Other Alternatives Considered But Eliminated From Further Analysis

1. Same as the proposed action except the use of non-native perennial plant species within the Owyhee River Canyon WSA.

This alternative was determined to be unreasonable because introduction of non-native species into the WSA might impair the suitability of the area for preservation as wilderness.

2. Same as the proposed action except aerially apply the seed within the WSA.

The alternative was determined to be unreasonable because of the low precipitation level of the area burned by this wildfire. Broadcast grass seed generally will not take hold below 12 inches of annual precipitation (Ppt). Below 12 inches Ppt seed must be physically buried in the soil. An aerial application of the seed would not ensure adequate seed to soil contact for seedling establishment at the low precipitation level which is normal for the area.

3. Same as the proposed action except the Pinto Horse and Monument Native Pastures would be totally closed to livestock grazing, rather than fenced, until seeded and native plant health has been restored.

This alternative was determined to be unreasonable since there are approximately 1,928 acres of unburned rangeland within the Pinto Horse Pasture and approximately 2,029 acres of unburned rangeland within the Monument Native Pasture that could be grazed if protection measures are implemented for the rehabilitated burned areas. Temporary fencing to protect the burned and seeded areas would allow grazing use of the unburned rangeland.

4. Same as the proposed action except no protective fence would be erected and livestock use would not be excluded.

This alternative was determined to be unreasonable because the success of the seeding is, among other things, dependent on getting rest from livestock grazing. If grazed to soon, the seedlings could be plucked entirely from the ground because plants have not had enough time to establish a strong root system. Normally, two growing seasons rest is necessary in this area.

5. Same as the proposed action except no seeding would be done.

This alternative was determined to be unreasonable because the existence of undesirable, unwanted, or noxious weeds in the area would have a more than reasonable opportunity to establish in the burned area, especially in the areas of gentle slopes and immediate proximity to water developments.

IV. AFFECTED ENVIRONMENT

A. Vegetation

The area burned by the Pinto Horse Fire was fairly uniform heavy sagebrush with native bunchgrass and/or cheatgrass dominated understories. The exception to this is the Monument Seeding Pasture of the Arock Allotment which is predominately crested wheatgrass. The preburn vegetation community, with the exception of the Monument Seeding Pasture, contained Wyoming big sagebrush, bluebunch wheatgrass, cheatgrass, squirreltail, and Sandberg bluegrass. In the gentler sloping areas and areas close to water, the bluebunch wheatgrass was at a lower density than historically found. Cheatgrass was dispersed throughout the area burned, occupying the interspaces between the native vegetation. The cheatgrass is in a greater concentration in the vegetation communities where the bluebunch wheatgrass was less dense than historically found. Overall, the west side of the burned area, which is dryer and lower in elevation than the eastern side of the burned area, contained the densest concentrations of cheatgrass. Rubber rabbitbrush, was at a higher density than historically found on the eastern side of the burned area. The areas with steep slopes, abundant surface rock, and those that are a considerable distance to water tend to have a higher density of bluebunch wheatgrass and a lower density of cheatgrass.

B. Noxious Weeds

The southwestern side of the burned area in the North Little Grassey Pasture and South Little Grassey Pasture in the Arock Allotment and the Rattlesnake Individual FFR Allotment had medusahead in the vegetation composition prior to the fire. The Pinto Horse Pasture and Field V of the Arock Allotment had scotch thistle in the vegetation composition prior to the fire. Cheatgrass occurs in various densities over the whole burned area. The cheatgrass is most dense in the west end of the burned area. All three plants are listed noxious weeds on the Malheur County weed list.

C. Livestock Grazing

The Pinto Horse Fire burned in the Arock Allotment (#21001) and the Rattlesnake Individual FFR Allotment (#21003). The Arock Allotment is a common use allotment with 5 permittees with a total of 10,133 AUMs. The permittees are Andre, Martin; Tom Davis Livestock, Inc; Fretwell, Robert; Larrusea Cattle Co; and Boyle, Bruce. The Rattlesnake Individual FFR Allotment is a single user private allotment with a total

of 335 AUMs. Bruce Boyle is the permittee in the Rattlesnake Individual FFR Allotment.

The Pinto Horse Fire burned 5,430 acres of public land within the Arock Allotment, which is 7.9% of the allotment and 1,270 acres of public land (all but about 190 acres) of the Rattlesnake Individual FFR Allotment.

D. Soils

The soils found in the burned area were surveyed and described in Oregon's Long Range Requirements for Water 1969, Appendix I-11, Owyhee Drainage Basin. The burned area consists of four soil mapping units from this fourth-order soil survey. The four units incorporate four classification units that occur in various percentages within each unit and have slope groups that range between 3-60+ percent.

Soils within the burned area consist of shallow, well drained soils with surface textures from gravelly loam to extremely stony silty loam, subsurface textures from stony silty clay to extremely stony clay subsoils and some with cemented pans. Typically, these soils occur on gently sloping to moderately steep old fans and high terrace remnants, on gently undulating to rolling lava plateaus, and some very steep faulted and dissected terrain (3-60+ percent slopes). The effect rooting depth on these soils is shallow (10-18 inches) and limited primarily by depth to cemented pans and parent material.

Unit 56/2-3 CU 56 soils, about 80 percent, 3-12 percent slopes.
Unit 76/4 CU 76 soils about 80 percent, 12-20 percent slopes.
Unit S76/4 CU S76 soils about 80 percent, 12-20 percent slopes.
Unit 96/5-6 CU 96 soils, 20-60 percent slopes.

Classification Unit 56

Soils are shallow, well drained with clayey subsoils and cemented pans on very extensive, gently sloping to moderately steep old fans and high terrace remnants. Soils occur usually at elevations of 3,000 to 5,500 feet and have potential for range seeding limited by hardpan and slope. Average annual precipitation ranges from 8-11 inches and mean annual air temperature centers around 47 degrees F. The soil profile by depth consist of brownish gray gravelly loam, to light brown gravelly clay loam, to brown gravelly heavy clay loam, to silica cemented gravelly pan 6 to 20 inches thick over stratified loamy sand and gravel. Native vegetation consists of big sagebrush, low sagebrush (*Artemesia arbuscula*), rubber rabbitbrush, bud sagebrush (*Picrothamnus desertorum*), *Atriplex* sp., needlegrass (*Achnatherum sp.*), and squirreltail.

Classification Unit 76

Soils are shallow, clayey, very stony, well drained soils over basalt, rhyolite, or welded tuff. They occur on gently undulating to rolling lava plateaus and some very steep faulted and dissected terrain. Soils occur at elevations from 3,500 to 6,500 feet and

stones limit potential for range seeding. Average annual precipitation ranges from 8 to 11 inches, and mean annual air temperature centers around 47 degrees F. The soil profile by depth consist of gray very stony silt loam, brown stony silty clay, to brown stony and channery heavy silty clay loams over fractured bedrock at 18+ inches. Native vegetation consists of low sagebrush, Sandberg bluegrass, and bluebunch wheatgrass.

Classification Unit S76

Soils are shallow, extremely stony, well drained soils over basalt, rhyolite, or welded tuff. They occur on gently undulating to steep plateaus. Soils occur at elevations from 4,000 to 6,000 feet and have little potential for range seeding due to an excess of rock in the surface. Average annual precipitation ranges from 8 to 11 inches, and mean annual air temperature centers around 45 degrees F. The soil profile by depth consist of light grayish brown extremely stony loam, light grayish brown extremely stony clay loam, dark yellowish brown extremely stony clay over fractured bedrock at 11+ inches.

Classification Unit 96

Unit 96 is a miscellaneous land unit consisting of rough, steeply sloping areas that are predominantly shallow, very stony soils interspersed with rock outcroppings.

E. Watershed

The burnt area is located within and adjacent to the Owyhee River canyon. Areas within the burn drain directly from the canyon rim to the Owyhee River from small lateral channels, from two small unnamed watersheds, and indirectly from Dry Creek that flows into Jordan Creek that flows into the Owyhee River approximately twelve miles downstream of the fire. There are no perennial flowing streams, springs nor reservoirs within the burn. All drainage channels and reservoirs within the burn are seasonal with most channels going dry by July and reservoirs following shortly after each year. A major portion of the livestock water in the area is supplied by a well-pipeline system.

The Pinto Horse Fire burned areas lies within the 8-11 inch precipitation zone yet could receive wide variation in precipitation from drought to wet years.

F. Wildlife

The proposed treatment area is year-long and winter habitat for a number of wildlife species, including mule deer, pronghorn antelope, sage grouse, and other sagebrush dependent species. Sage grouse are known to be present both in the treatment area and in adjacent areas. There are two sage grouse leks less than one mile northeast of the Pinto Horse Fire and one less than one mile to the south of the fire. It is likely that sage grouse used the treatment areas for nesting and wintering prior to the fire. Both pronghorn antelope and mule deer use the proposed treatment areas year-long.

The areas surrounding the treatment area are severely fragmented due to past vegetation treatments and fires that have occurred over the years. Brush control and previous wildfires in the area have eliminated much of the shrub cover, leading to a dominance by annual and weedy species and the loss of winter cover and browse. Limited recovery of shrub and other native perennial species has occurred.

G Wilderness Study Area

About 4,446 acres of the Owyhee River Canyon Wilderness Study Area (WSA) burned in the Pinto Horse Fire (see map 2). This is about 2.3% of the WSA.

The preburn vegetation community in the portion of the WSA burned by the Pinto Horse Fire contained Wyoming big sagebrush, bluebunch wheatgrass, cheatgrass, squirreltail, and Sandberg bluegrass. In the gentler sloping areas and areas close to water, the bluebunch wheatgrass was at a lower density than historically found. Cheatgrass was dispersed throughout the area burned, occupying the interspaces between the native vegetation. The cheatgrass is in a greater concentration in the vegetation communities where the bluebunch wheatgrass was less dense than historically found. Overall, the west side of the burned area, which is dryer and lower in elevation than the eastern side of the burned area, contained the densest concentrations of cheatgrass. Rubber rabbitbrush, was at a higher density than historically found on the eastern side of the burned area. The areas with steep slopes, abundant surface rock, and those that are a considerable distance to water tend to have a higher density of bluebunch wheatgrass and a lower density of cheatgrass.

The 190,700-acre Owyhee River Canyon Wilderness Study Area (WSA) is located in Owyhee County, Idaho, and Malheur County, Oregon, about 90 miles southwest of Boise, Idaho.

The WSA (#OR-3-195) consists of flat-to-gently rolling sagebrush, bitterbrush and bunchgrass-covered plateau dissected by 126 miles of canyons including 74 miles of the Owyhee River, ten miles of the South Fork Owyhee River and 37 miles of the West Little Owyhee River. The canyons are 500 to 1,000 feet deep, narrow and meandering. Portions of the canyons that are not sheer-walled are covered with sagebrush and bunchgrasses while the riparian areas consists of narrow bands of lush grasses, rushes and sedges. The dramatic diversity in landforms create spectacular scenery. The subdued green and yellow sagebrush and grass covered plateau gives way to sheer cliffs of reddish brown or steep grass covered talus slopes. Trickling streams and rushing rivers snake through the canyons.

The canyons of the Owyhee River system are of exceptionally high scenic quality. The combination of moving water, colorful sheer cliffs, grass-covered talus slopes and blue sky create a very dramatic, and beautiful panorama. An abundance of wildlife are

found within the WSA including California bighorn sheep, mule deer, pronghorn, mountain lion, bobcat, coyote, river otter, raptors, waterfowl and chukkars. Trout and largemouth bass are found in the Owyhee River.

The seclusion of the canyon lands and vastness of the undisturbed desert plateau lands provide outstanding opportunities for solitude. Hunting, river running, sightseeing, outdoor photography, wildlife viewing, botanical studies and fishing are some of the recreation opportunities available in the WSA.

Additional, more detailed information on the Owyhee River Canyon WSA can be found in Oregon BLM's statewide Wilderness Study Report, Vol. 1 (October 1991).

H. Recreation

Major recreation activities and opportunities within the immediate area of the Pinto Horse Fire include river-running, bird and upland game hunting, fishing, sightseeing, camping, hiking, wildlife viewing and (along routes outside of the river canyon) driving for pleasure. Estimated annual visitation for recreational pursuits within the fire area is between 150 and 200 people, averaging about one or two days per visit.

I. Visual Resources

Within the proposed Southeast Oregon Resource Management Plan (SEORMP), BLM has classified lands within the WSA portion of the Pinto Horse Fire as VRM class I. The objective of this classification is to preserve the existing character of the landscape. This class provides for natural ecological changes and allows limited management activity. The level of change should be very low and must not attract attention.

Lands within the Pinto Horse Fire area outside of the WSA are VRM class III and class IV in the proposed SEORMP. Class III allows moderate levels of change to the landscape character. Management activities may attract attention but should not dominate the view of the casual observer. Changes should conform to the basic elements of the predominant natural features of the characteristic landscape. VRM class IV allows management activities to dominate the view and become the focus of viewer attention. However, every effort should be made to minimize impacts by carefully locating activities, minimizing disturbance, and designing the projects to conform to the characteristic landscape.

J. Cultural Resources

Pre-European contact Native American peoples living in southeastern Oregon were entirely dependent upon the locally available food resources. As climatic fluctuations

created population and habitat changes in the plant and animal communities, humans adjusted their hunting and gathering areas and their technology accordingly. The Native people of the Great Basin, who practiced the ancestral lifeways into the 19th century, were heirs to an extremely ancient cultural tradition with a technology both effective and efficient, with many multi-functional, light-weight and expendable tools. Prehistoric occupation of the area is represented by rock art, camping sites, toolstone quarry sites, lithic scatters, rockshelters and rock alignments and cairns.

Exploration into this area during the Historic period began with the expeditions of John Jacob Aster, after he heard the stories from the Lewis and Clark Expedition of 1804-1806. The first written observations of southeastern Oregon can be found in journals kept by men involved in the expansion of fir trapping territory. Trapping occurred along the major and minor tributaries of the Owyhee River. The era of the fur trade provided the basis for American families to travel west. Historic occupation of the area is represented by the presence of wagon routes, rock fences and alignments, trash dumps, and homesteads.

Prehistoric and historic use of southeastern Oregon is documented by the archaeological record. Several archaeological excavations have generated information that establishes long-term human occupation in Malheur and Harney Counties. Excavations at five stratified spring sites indicate that prehistoric people occupied southeast Oregon from about 11,000 to 150 years ago. An excavation at the Dirty Shame rockshelter, on a tributary of the Owyhee River, documented occupation of the shelter from 9500 to 400 years ago.

Within 5 miles of the Pinto Horse fire area, three surveys for cultural resources have been conducted covering approximately 30 acres. The surveys of cultural resources were conducted in association with pipeline projects designed to provide water for livestock. Prehistoric sites in the area are adjacent to the Owyhee River. There are no historic trails or wagon roads though these project areas.

K. Paleontology

At present, there are no known floral or faunal fossil localities in the areas of this fire.

L. Threatened and Endangered (T&E) Species

No federally listed threatened and endangered or BLM special status plant species are known or suspected in burned area.

There are no wildlife species federally listed as threatened or endangered within the proposed treatment area, therefore, consultation with the U.S. Fish and Wildlife Service regarding Section 7 of the Endangered Species Act is not required.

M. Wild and Scenic River

The Pinto Horse Fire burned about 928 acres in the canyon of the Owyhee Wild and Scenic River (W&SR). The fire burned in a fingered manner down into the canyon into pristine native rangeland. There is no treatment proposed within the W&SR corridor due to the health and quality of the vegetation in the W&SR corridor. The vegetative resources are expected to come back to pre-burn condition on their own. There is no livestock access to the burned portion of the W&SR corridor and protective fencing for the corridor is not warranted.

N. Other Mandatory Elements

The following mandatory elements are either not present or would not be affected by the proposed action or alternatives:

1. Air Quality
2. Native American Religious Concerns
3. Hazardous wastes
4. Prime or unique farmlands
5. Areas of Critical Environmental Concern
6. Wetlands/Riparian, Flood Plains
7. Environmental Justice
8. Water Quality
9. Adverse Energy Impact

V. ENVIRONMENTAL CONSEQUENCES

A. Proposed Action

1. Vegetation

Seeding would provide an opportunity to establish a more stable perennial vegetative cover consisting of adapted perennial plant species seed mixes and Wyoming big sagebrush. Site specifically adapted perennial grasses would compete against annual species, stabilize watersheds, reduce the potential for noxious weed invasion and create habitat diversity. Most importantly, the adapted perennial plant species seed mix would replace more flammable annuals thereby reducing the spread of wildfire, frequency of wildfire and the size of future burns. The areas not treated but also protected from grazing by the temporary fences tend to be in better ecological condition and are expected to rehabilitate to their pre-burn condition over time.

The reestablishment of sagebrush on the ESR sites would provide vegetative diversity and structure to the community that has been lost to the fire. Additionally, sagebrush would establish a deep-rooted shrub component in the vegetation community that

would provide woody above ground biomass that would increase effective precipitation by capturing/holding snow during the winter months.

Moreover, establishing an adapted perennial vegetative community would restore and/or maintain nutrient cycling, ecological stability, and resiliency, thereby rehabilitating rangeland function and ecological integrity.

Cattle trails may develop along the temporary electric fences. These trails are expected to have minimal impact as the fences is expected to be removed after a couple of years, before the trails become deeply established.

2. Noxious weeds

Treatment of existing weeds and the establishment of perennial species would help prevent the spread and takeover of the site by noxious weeds. Establishment of a shrub component would occupy the niche (deep rooted shrubs) in the plant community that perennial grasses alone cannot fill. This would help prevent or minimize the invasion of noxious weed species which tend to readily invade and fill this niche. Future monitoring would be conducted to insure that no new infestations of noxious weeds would become established. Newly discovered weeds would be treated.

3. Livestock Grazing

Livestock would be excluded from the burned and seeded portions of the Pinto Horse, Field 5, Monument Native, Noon, South Little Grassey, and North Little Grassy pastures of the Arock Allotment and all of the Rattlesnake Individual FFR Allotment for at least two growing seasons, or until sufficient establishment has occurred to allow grazing to resume, by the use of a temporary electric fence. The areas excluded from livestock grazing in the Arock Allotment reduce the allotment carrying capacity by 642 AUMs (see table 2 below).

Table 2 Arock Allotment

Pasture Name	5 year average AUMs	% of pasture closed	AUMs reduced
Field V	536	4	21.44
Pinto Horse	543	72	390.96
Monument Native	426	35	149.1
Little Grassey North	1150	7	80.5
		Total AUMs Reduced	642

The short term impact to livestock permittees would be a temporary loss of permitted AUMs.

The long term impact to the livestock permittees without the successful implementation of the proposed action would be more cheatgrass dominated rangeland. More cheatgrass means more fires more frequently. It also means a volatile/inconsistent forage base, one tied directly to annual precipitation.

The long term impacts to livestock permittees with the successful implementation of the proposed action is less cheatgrass and more native grasses. This would lead toward a more normal frequency of occurrence of fire which means less interruption in their grazing operation. Successful implementation would also result in a more stable and reliable forage base.

4. Soils/Microbiotic Crusts

Soils within the burned areas contain silt loam to loam soil surfaces. The loss of vegetation and vegetative matter in the surface horizon from the fire would subject the soils to enhanced wind and water erosion. Because this area receives limited precipitation, soils that were subject to the fire with insufficient soil moisture could cause the loss of some soil microorganisms and crusts, vegetative matter, soil nutrients and some remnant desirable grass and shrub species. The greatest remaining impacts to soils are from the removal of vegetation and the resultant wind and water erosion. Impacts to the soil resources are expected to be the greatest from the fire after the first year. Moderate soil impacts would be expected during the drilling phase of the ESR project. However, the effects are not expected to be significant because of minimal slopes and relatively low precipitation within the project area. In addition, wind and water erosion rates would decrease after the seeding becomes established. The fire effects on existing annual species would not cause great changes in surface soil physical and chemical properties because of the low fuel loading (1 hr fuels) and rapid rates of spread. The greatest effect would be the short term loss of soil productivity due to a temporary change in vegetative cover, surface organic matter and soil organisms in the upper few inches of the surface. Soil surface characteristics should return to preburn conditions within three growing seasons, maybe longer for microbiotic crusts. The impact of rangeland drilling equipment would loosen and displace the top two to three inches of the soil within the furrows which are usually twelve inches apart. This would be temporary, however, as the furrows act as moisture traps and the new plants would begin to stabilize the soil within the first year of drilling. Soils in CU 56 located in the middle one-third of the burnt area (east to west) have potential for rangeland seeding but are limited by depth to hardpan, permeability, and slope percentage on the steeper areas where this soil is found. Drilling in soils located in CU 76 and S76 may be limited by steeper slopes and stones especially in CU S76 which is extremely stony both in the soil surface and throughout the profile. Depth to bedrock (11+ inches) in CU S76 may

also limit the acreage available for rangeland drilling. Rangeland drilling would not occur in CU 96 due to extremely steep slopes and rock outcrop.

Depletion of soil nutrients and effects to the reestablishment of microbiotic crust formation from water erosion would be short-term until revegetation has occurred. The potential for wind erosion effects on crust and nutrients once vegetation is reestablished would also be reduced. In addition, water erosion in this area is low due to relatively flat to rolling terrain in most of the areas to receive rangeland drilling. Recovery of all types of microbiotic crust components is faster in fine-textured soils than in course-textured soils, as fine-textured soils are often stabilized by chemical and rain crusts and retain soil surface moisture longer (as reviewed in Harper and Marble 1988, Johansen 1993; Ladyman and Muldavin 1996). Recovery of some site's wind resistance is also more rapid in fine-textured soils, probably due to physical or rain crust formation after rainfall. Silty soils show a 50% recovery of wind resistance after a single large rain event. This physical or rain crust layer is often harder than the rest of the soil because compounds such as salts, lime, and silica are deposited at the surface as water evaporates.

Remaining microbiotic crusts would not be affected by the proposed action except during the short-term disturbance from drilling seed into the soil surface. Over the long-term because microbiotic crust expand very slowly over sites limited by moisture, the recovery rate of crusts that exist after fire and in some of the same areas that have burned over the last 30 years would be limited. Microbiotic crustal organisms are metabolically active only when wet; thus, recovery is faster in regions and microsites with greater effective precipitation (Johansen et al. 1993; Harper and Marble 1988). Crusts on north and east slopes, as well as at higher elevations, are expected to recover more quickly than crusts on south and west slopes and at lower elevations.

Herbicide studies on microbiotic crust have shown that crustal species are differentially affected, depending on the compound and the species tested (Metting 1981). One study addressed herbicide effects on intact biological soil crusts. Direct application of two glyphosate herbicides (Roundup and Accord) on moss-dominated biological soil crust had no short-term negative impact on bryophyte cover. In fact, Bryophyte cover decreased significantly in control plots due to litter buildup from exotic annual grasses that had invaded the site. There is little information on the effects of repeated application or long-term effects of glyphosate and other herbicides on crustal species.

5. Watershed

Water quantity in the form of overland flow is expected to slightly increase into intermittent and ephemeral streams over the short-term (one-three years) until vegetation in treated areas recover and provide interception and cover protection from high-intensity thunderstorms. Once regrowth of vegetation occurs in these areas

overland flows would decrease from increased vegetative litter and infiltration of water into the soil profile thereby the possibility of sediment transport to streams would be reduced.

Soil erosion could increase in the short term as a result of loss of vegetative cover from the fire although overall erosion hazard is low due to slopes and low annual precipitation. Soil erosion rates would decrease as perennial species establish on the site over a two year period. The annual species which currently inhabit the area provide much less protection of the soil surface than would perennial species. Under this alternative, erosion rates would decrease further than under the no action alternative due to establishment of perennial species. Perennial vegetation would reduce soil erosion by providing improved protection of the soil surface, and by reducing the frequency of wildfire.

6. Wildlife

The proposed action would result in the reestablishment of year-long and winter forage, browse and cover for mule deer, pronghorn antelope, and other wildlife species. The establishment of sagebrush and perennial grass and forb species would result in habitat and sagebrush cover capable of supporting the life history requirements of sagebrush dependent species. Structural habitat for sagebrush dependent species would be restored in the long term with reestablishment of desirable shrub species.

The proposed action would also provide wildlife with the much needed forb and grass component that is considered lacking in many areas throughout the Vale District. Forage and habitat values provided by perennial herbaceous species would be improved with the implementation of the proposed action.

7. Wilderness Study Area

The Interim Management Policy for Lands Under Wilderness Review (i.e., IMP) states that watershed rehabilitation work required by emergency conditions caused by fire, flood, storms, biological phenomena, or landslide may involve any treatments needed, but must be conducted in a manner that will not impair wilderness suitability. Reseeding and planting under emergency conditions should utilize native species and should minimize cross-country use of motorized equipment. The IMP further states that seedings and plantings should be staggered or irregular so as to avoid a straight-line plantation appearance.

The proposed seeding operations would create short-term noise and visual intrusions for any WSA visitors during the actual seeding process. Impacts would be limited to areas above the Owyhee River canyon rim and out side the Owyhee Wild and Scenic River Corridor, since none of the burned area below the rim is proposed for seeding.

There would also be a short-term remnant visual impact from the surface disruption caused by seeding equipment. All visual evidence of seeding would be gone by the third year post treatment, under normal precipitation. The seeding operations would be closely monitored and supervised to ensure that unacceptable impacts (e.g., parallel furrowing, vehicle tire tracks, linear seeding patterns, etc.) are avoided. Natural weather effects and gradual revegetation of the burn area would soon obliterate any readily visible evidence of the seeding operation within a few weeks or months. The proposed action would be conducted in a manner which would not impair the suitability of the area for preservation as wilderness. Equipment tests first conducted outside the WSA would ensure protection from undue disturbance.

If seeding operations are successful, naturalness of the WSA would be enhanced by re-establishing native plant communities and alleviating the spread of cheatgrass and the possible invasion of noxious weeds. Maintaining or enhancing the native plant community (and, as a result, the associated wildlife component as well) would enhance visitors' wilderness experience. If seeding operations fail or are not undertaken WSA values would be degraded from the pre-burn conditions by invasion of undesirable annual species and noxious weeds.

8. Recreation

The proposed action would have minimal effects on recreation activities and experiences within the burn area. As noted previously, very few people recreate there during an average year. Most of the recreation activity occurs as whitewater boating and fishing along the river channel during spring and early summer. This activity is fairly well screened from the proposed project site by topography and vegetation. Noise, dust, possible crowding and visual intrusion would temporarily impact the few recreationists in immediate vicinity of the site during actual seeding operations. Those impacts would be short-term, probably lasting only a few hours

9. Visual Resources

As noted above, certain temporary visual impacts would result from the actual seeding operation. These would consist of the personnel and equipment conducting that process. After seeding, there would be some visual evidence of the surface ground tracking from vehicle and equipment tracks. These marks should soon fade into an essentially hard-to-detect impact due to: (1) measures taken to alter and/or hide unnatural linear seeding patterns and equipment tracks, and (2) natural precipitation and weathering of the site. Over the longer term, re-establishment of the native plant community would maintain a more natural-appearing visual setting, which would enhance wilderness values.

10. Cultural and Paleontological Resources

A single pass with a rangeland drill through the area would be permitted to avoid "islands" without vegetation which could draw unwanted attention. Drilling activities proposed would have no adverse impacts to cultural resources located within the top 10 cm of sediment, which is considered the zone of disturbance.

11. T&E Species

Special Status plant species are not known to be present in the burned area and thus would not be affected.

B. No Action

1. Vegetation

Of the areas not seeded, annual species are expected to dominate the site or at least dominate the interspaces between remaining perennial bunch grasses. The establishment of a annual species dominated or co-dominated site tend to create a large fine, flashy fuel source that would put the site at risk for a more frequent fire cycle. This type of site conversion also tends to create higher fire intensity due to the volatility of this kind of fuel type, which leads to larger and more frequent fires. This increased fire cycle and increased fire intensity not only means more fires, more frequently, but with more intensity. This cycle means more acres of perennial vegetation lost, more monies spent on suppression, and more risk to health and well being of individuals attempting to suppress future fire.

Peters and Bunting point out ". . . fire helped determine the physiognomy and species composition of many communities." They also point out that, since the introduction of cheatgrass, fuel loads and fuel distribution has been altered, and fire frequency has increased. The fire cycle being changed perpetuates itself without intervention (Peters, Bunting, 1992).

Conversion of native rangeland to annual species dominated rangelands alters the vegetative diversity, structure and ecological integrity of those lands. Annual species dominated rangelands also lack the snow capturing ability of woody species such as sagebrush. These rangelands are not as efficient at holding moisture on the site as native rangelands. Annual species rangelands tend to be drier than native rangelands, thereby skewing the competitive advantage toward annual species production. Annual species are inconsistent, year to year, on their production and therefore inconsistent in their ability to cycle nutrients.

2. Noxious weeds

If no treatment took place on the areas proposed for seeding, and they became dominated by annual species, they would be more susceptible to domination by noxious weeds found in and adjacent to the site as compared to its pre burn condition. Perennial species of grass, forbs, and shrubs provide a plant community of multiple rooting depth, and season long consumption of soil moisture, which provide maximum competition against unwanted plant species. Site conversion to annual species offers only single shallow rooting, and early season soil moisture consumption which offers limited competition against aggressive deep rooted or later season growing noxious plants.

3. Livestock Grazing

If no treatment took place on this site, and it became dominated by annual species, forage production would change from a more stable/consistent forage base to less consistent or reliable forage base. Forage production on an annual species site tend to be extremely variable based on early season growing conditions. On years in which the growing conditions are most favorable, annual forage production may be excessive, resulting in a build up of flammable fine fuels. On years with less favorable growing conditions, forage production may fall well short of demand. The variability of forage production hampers the stability of a livestock production operation.

4. Soils/Watershed

Soil erosion could increase in the short term as a result of loss of vegetative cover from the fire although erosion hazards are low in the flatter areas and low annual precipitation. Soil erosion rates would decrease as annual species establish and increase on the site. The increase in annual species within the burned area would provide much less protection of the soil surface than would perennial species. Under this alternative, erosion rates would be higher than under the preferred alternative due to establishment of annual species. Annual vegetation would increase soil erosion by not providing adequate protection of the soil surface. In addition, an increase in annual vegetation would increase the frequency of wildfire which would expose watersheds to more frequent periods of bare ground.

The fire return interval for this area has been increased by the number and occurrence of fire in the last 30-50 years. Fire is a natural determinant of the sagebrush-steppe potential vegetation types. Historical fire patterns helped create mosaics of successional stages in both vascular plant and biological soil crust. More productive sites generally have fire-return intervals of less than 30 years (Burkhardt and Tisdale 1976; Arno and Gruell 1983; Fisher et al. 1987). Fifty to 100 years has often been cited as the average return interval in shrub-steppe regions (Wright et al.1979; Peters and Bunting 1994) and is adequate to restore biological soil crust components. Failure

to treat sites after fire can result in irreversible dominance by annual species (such as cheatgrass), which prevents the return of well-developed biological soil crust (Kaltenecker 1997, Kaltenecker et al. 1999a). With fire reoccurring at a quicker rate of return and burning some of the same sites, the potential for undesirable annual plant invasion has increased. This rate of return increases the potential for soil erosion, soil nutrient loss, and the effects to and loss of microbiotic crust.

5. Wildlife

Benefits from reestablishing sagebrush would not be attained. The lack of shrub cover would negatively impact sagebrush dependent species due to the slow natural recovery of Wyoming big sagebrush following fire. Benefits from increased forb and grass availability would also not be attained.

6. WSA

With no action, the Owyhee River Canyon WSA would be left to revegetate by natural processes, but with greater potential for invasion by cheatgrass and, possibly, some noxious weed species. Cheatgrass cover could be expected to take over much of the burned ground, leading to more frequent and larger and larger wildfires. Such results would detract from wilderness values visually, as well as negatively impact species diversity, which would further degrade those values.

7. Recreation

Under the No Action Alternative, recreation values would be minimally impacted in the short term. Visitors would not be impacted by noise and visual intrusion during the ESR process. Those few visitors passing near the burn area proposed for seeding would not see any evidence of vehicles or seeding treatment initially, but would likely notice greater expanses of cheatgrass monoculture with each passing year. These vegetation changes would translate to less wildlife species diversity, creating adverse impacts regarding naturalness of the WSA. More and larger wildfires in an expanding cheatgrass cover-type would exclude entry by people during the fires themselves, and would further degrade the area's species diversity and naturalness. Long term recreation values could be degraded.

8. Visual Resources

As mentioned above, the No Action Alternative would prevent the immediate visual impact created by the seeding process itself. Also, there would be no short term visual evidence of any tracking by vehicles or dragged equipment. However, over the longer term, there would be visual contrasts in line, color, texture and form, as cheatgrass and other invading weeds displace native plant species. With ever-increasing fire frequencies and intensities, these contrasts would likely increase in magnitude. Overall

negative visual impacts would be greater than if native vegetation were restored to the site.

9. Cultural and Paleontological Resources

There would be no effect to cultural or fossil resources as a result of the no action alternative. However, surface disturbance may be greater from livestock trampling and erosional factors without vegetation to provide surface stability.

10. T & E Plant Species

Special Status plant species would not be affected. Special Status animal species would be affected as described in item 5 (wildlife).

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Oregon Natural Resources Council
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U.S. Environmental Protection Agency
The Wilderness Society
John E. Barry
High Desert Wilderness Committee
Wilderness Watch - Portland
Sierra Club
Oregon Department of Fish & Game

VII. MONITORING

A. Noxious Weeds

Intensive monitoring of the burned area for two years would be required to locate and control noxious weeds which are known to have existed in the burned area.

B. Vegetation

The burned area would be monitored to determine degree and extent of establishment of seeded species as well as success of natural recovery. Monitoring would be done in representative areas during the first two years of the project. Monitoring would include photo plots, line intercept and/or toe point transects to determine species occurrence, composition and vigor. This would determine the success of the individual species seeded.

Once studies are completed, the information learned would be disseminated through ESR meetings and seminars that we attend. In addition, we would disseminate findings through applicable web sites including the Vale District Internet web site. The results of our ESR monitoring would be coordinated with the WO-220, ESR Coordinator.

C. Livestock

Periodic use supervision would be conducted in the project area to ensure livestock are excluded from the pasture during establishment and recovery vegetation on the burned area.

VIII. SUMMARY

The ESR effort, as proposed, is expected to augment native range with adapted perennials and would: stabilize soils from wind and water erosion, reduce the probability of the establishment and site dominance of annual species and weeds, reduce future fire hazards, maintain or restore ecological integrity and function to the ESR area, restore vegetative structure in order to capture and hold snow during the winter months managing moisture on site more effectively, and establish a perennial forage base for wildlife and livestock.

The ESR effort would be protected by closing the burned areas within all of the pastures to livestock grazing for a minimum of two growing seasons or until plants are well established and able to withstand grazing in the long-term. It is standard practice to close burned areas and seeded areas to livestock grazing for a time, to facilitate recovery, through protective fencing and/or grazing closures.

The ESR treatments would be conducted within the WSA in a manner so as not to impair the suitability of the area for preservation as wilderness, but to preserve and/or restore its naturalness.

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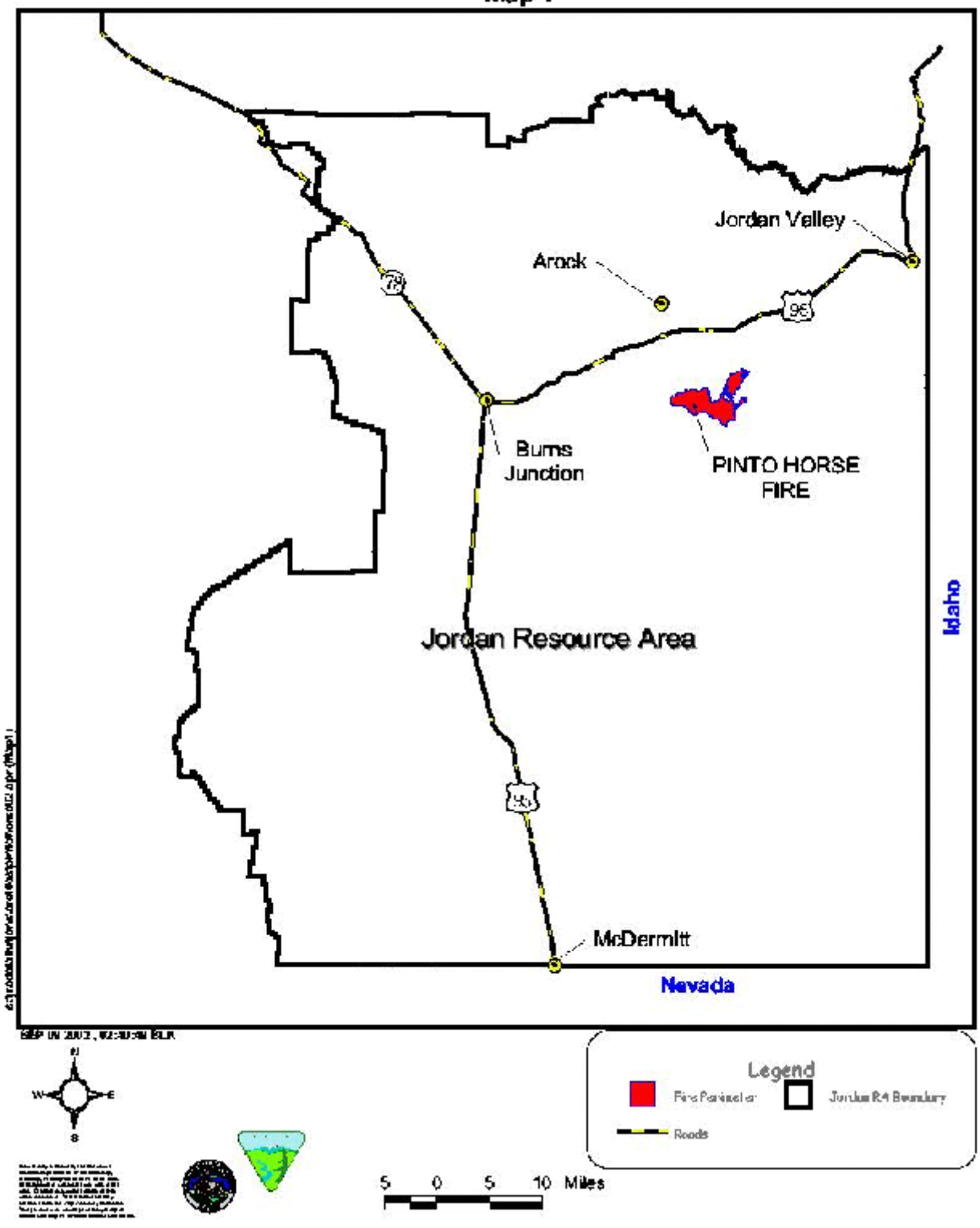
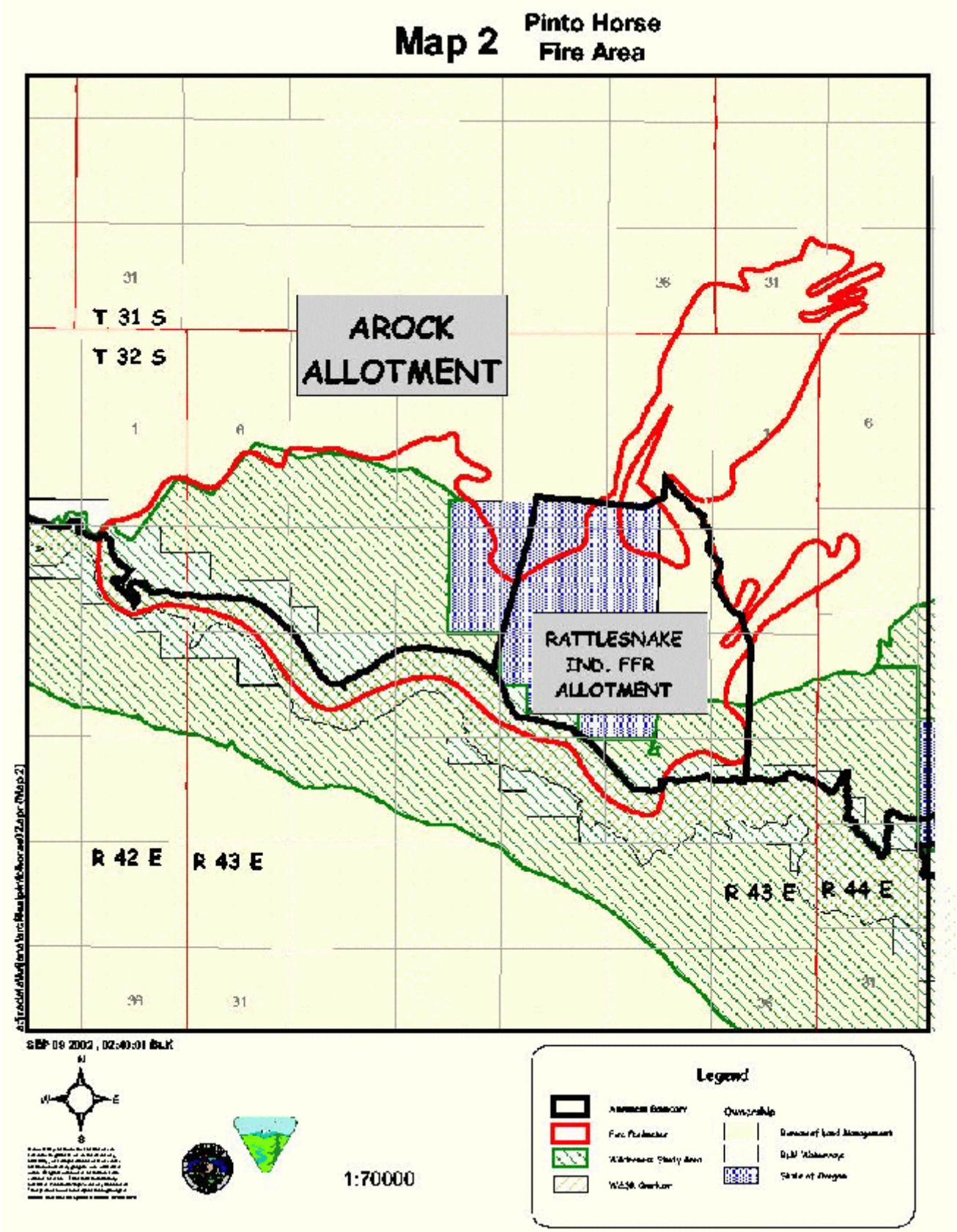
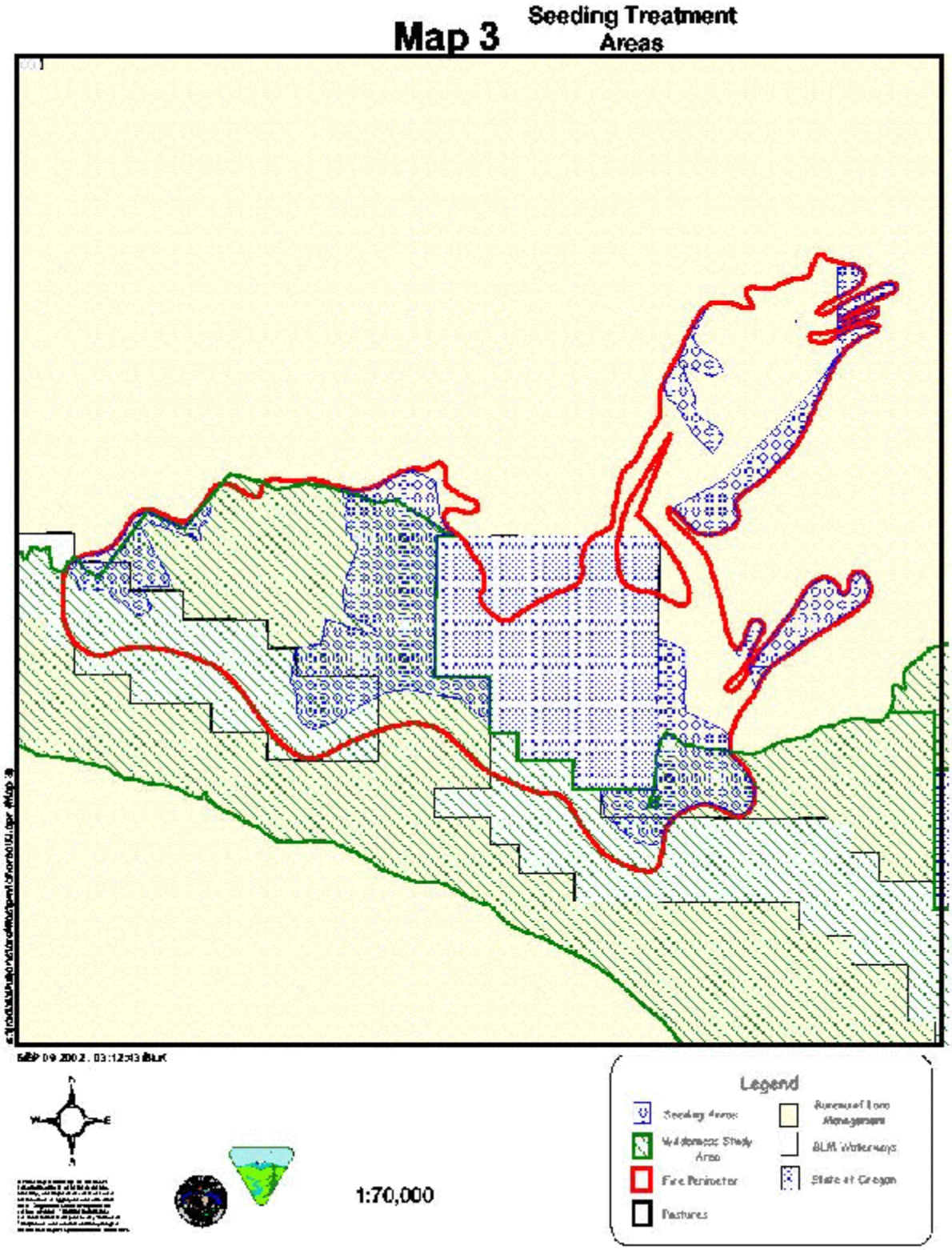
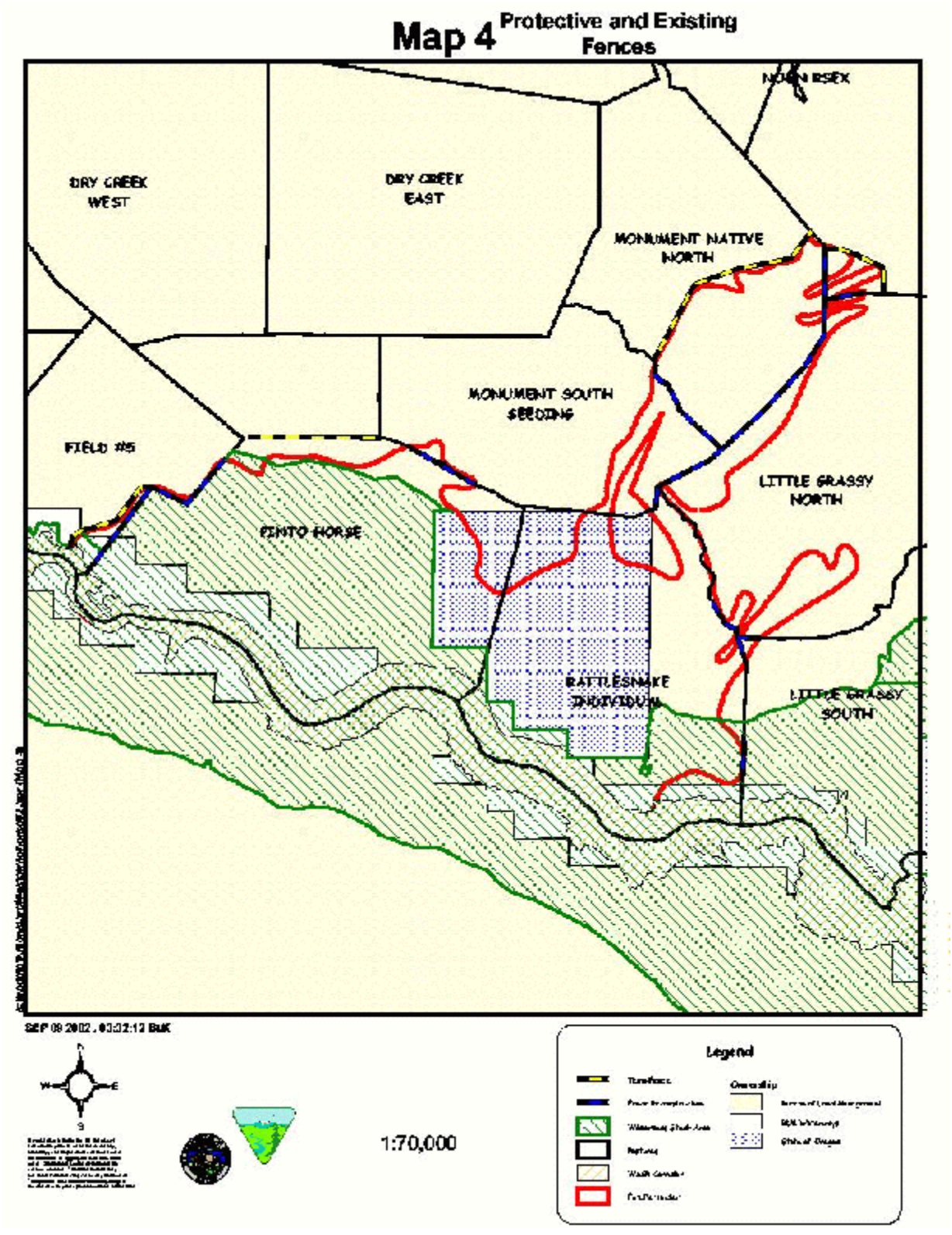
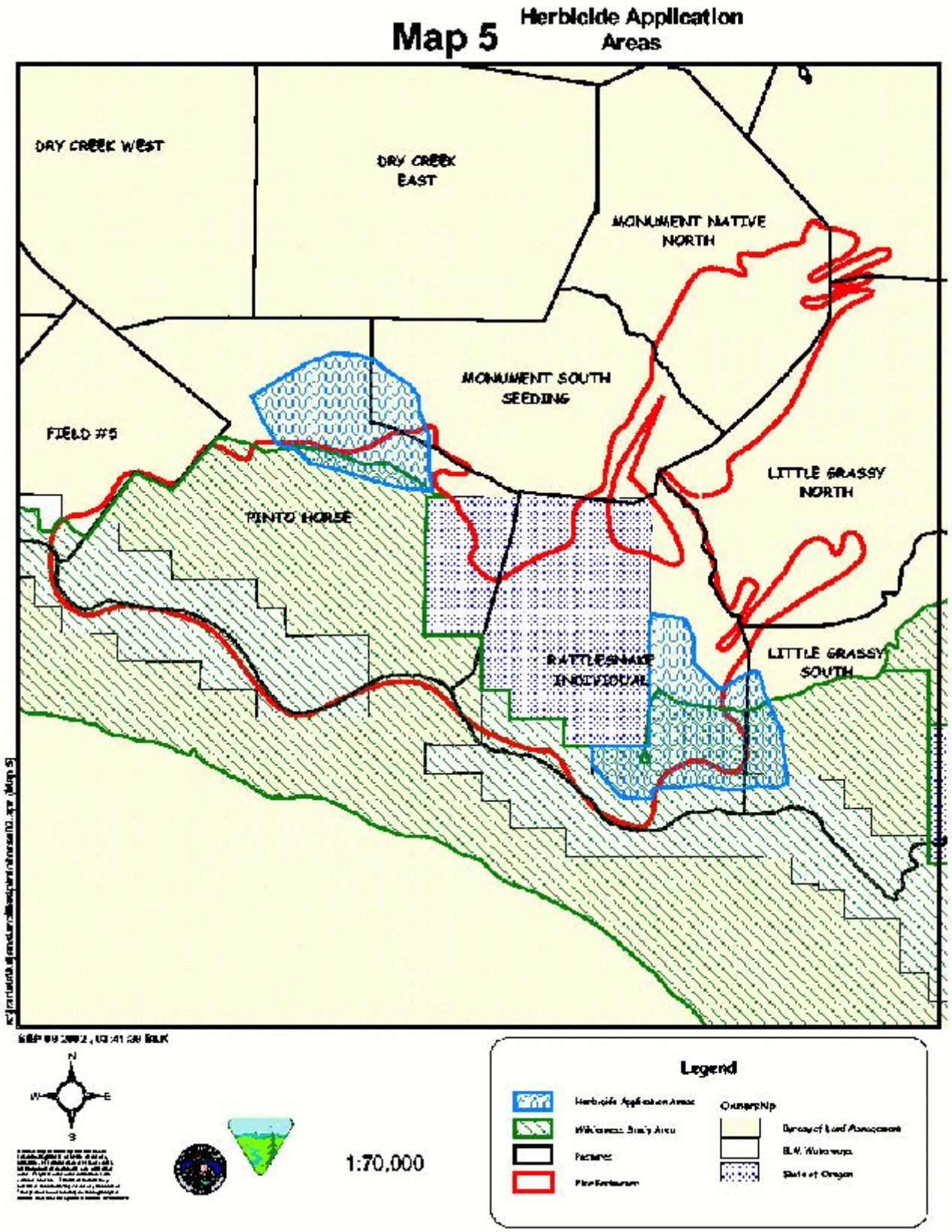
General Fire Location
Map 1




Map 2
Pinto Horse
Fire Area
T 31 S
T 32 S
AROCK
ALLOTMENT
RATTLESNAKE
IND. FFR
ALLOTMENT
R 42 E
R 43 E
R 43 E
R 44 E
1:70000
Legend


Map 3
Seeding Treatment Areas
1:70,000
Legend
Seeding Areas
Wilderness Study Area
Fire Perimeter
Pastures
Bureau of Land Management
BLM Waterways
State of Oregon


Map 4 Protective and Existing Fences
DRY CREEK WEST
DRY CREEK EAST
MONUMENT NATIVE NORTH
MONUMENT SOUTH SEEDING
FIELD #5
PINTO HORSE
LITTLE GRASSY NORTH
RATTLESNAKE
LITTLE GRASSY SOUTH
1:70,000
Legend


Map 5
Herbicide Application Areas
DRY CREEK WEST
DRY CREEK EAST
MONUMENT NATIVE NORTH
MONUMENT SOUTH SEEDING
FIELD #5
PINTO HORSE
LITTLE GRASSY NORTH
RATTLESNAKE INDIVIDUAL
LITTLE GRASSY SOUTH
N
W
E
S
1:70,000
Legend
Herbicide Application Areas
Wilderness Study Area
Pastures
Fire Perimeters
Ownership
Bureau of Land Management
BLM Waterways
State of Oregon