

**2009 District Weed Treatment Contract  
Environmental Assessment  
EA# OR130-FY09-0002**

*Prepared by:*  
Bureau of Land Management  
Spokane District

April 13, 2009

## **INTRODUCTION**

The Bureau of Land Management (BLM) proposes to hire a contractor to control noxious weeds in certain areas on BLM lands in eastern Washington. The Proposed action will authorize the continuation of an existing weed treatment contract. The areas shown in appendix B have been treated through very similar contracts for more than 10 years. These past treatments have been highly successful at controlling and reducing weeds. The observed results of these past treatments are summarized in Appendix E.

### **Purpose & Need**

Invasive plants and noxious weeds are undesirable plants that infest land or deplete water resources, may cause damage and are a major threat to ecosystems. (Programmatic EIS, Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States, 2007). Left unchecked, they will continue to spread. A recent estimate of weed spread on all western federal lands is 10-15% annually (Asher and Dewey, 2005). Roads and high use areas are major vectors of weed movement and reintroduction. For over a decade, the Spokane District BLM has been treating noxious weeds along roads and high use areas. Although this treatment has been affective in reduction of weeds, there is a need to keep these weeds and new introductions under control through continued treatment.

BLM cooperates with County Weed boards to control noxious weeds in specified areas. Also to be a good neighbor BLM carries out weed control on BLM lands to help prevent the spread of weeds to adjacent land owners.

It is desirable to issue a private contract to spray weeds because there BLM does not have enough employees to dedicate to treating weeds. In addition it would be more efficient to have a qualified contractor apply herbicides to reduce the costs and workload associated with the handling and storage of herbicides, disposal of unused or contaminated chemicals and cleaning and maintenance of herbicide application equipment.

## **ISSUES**

Internal scoping by BLM revealed the following issues related to the proposed action:

1. Water Quality/Aquatic Wildlife: Herbicides could leach into streams and water bodies, diminishing water quality and adversely affecting aquatic wildlife
2. Vegetation: Herbicides could unintentionally affect special status plants, traditional plants, and other native vegetation.
3. Wildlife/Livestock: Herbicides could affect forage for wildlife and livestock.
4. Cultural Sites: Disturbance from delivery vehicles could damage cultural sites.

5. Recreation: Herbicide application could conflict with recreational use and enjoyment.

## **CONFORMANCE WITH LAND USE PLAN AND OTHER POLICIES**

The proposed action is in conformance with the Spokane Resource Management Plan Record of Decision (1987) which states under Noxious Weed Control “Methods of controlling would be proposed and subject to site-specific environmental analyses.

The proposed action is in compliance with the Record of Decision for the Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (DOI 2007),

## **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

### **Alternative 1, Proposed Action**

BLM would hire a contractor to continue to treat invasive noxious weeds using herbicides on BLM lands on approximately 687 acres. Appendix A lists the sites and noxious weeds that would be treated and the herbicides that would be used. Appendix B contains maps showing the location of weeds that would be treated under the contract. Contractor will comply with the Treatment Control Factors identified in Appendix C and with the Standard Operating Procedures found in Appendix D.

### **Alternative 2, No Action**

BLM would not hire a contractor to treat weeds on BLM lands in Eastern Washington.

## **AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

### **Soils and Topography**

#### *Affected Environment*

The soils in the Columbia Basin and in the uplands north and west of the Columbia largely overlay basalt bedrock. These soils are formed from loose soils and by an alluvium and residuum and slope alluvium derived from basalt and welded rhyolitic tuff. These soils are shallow to moderately deep and well drained and have a xeric or xeric bordering aridic soil moisture regime, and a mesic to frigid soil temperature regime.

The diversity in these soils comes from variability in slope, aspect, elevation, climate and vegetative communities. These multiple watersheds are found in the Volcanic Plateaus, Hills

and Plains physiographic region. Elevations range from 700 to 3,500 feet. Soils in these areas occur on nearly level to very steep, dissected sedimentary terraces.

Annual precipitation in the Columbia Basin in Washington ranges from less than 7 inches near the Tri-cities to greater than 12 inches near Waterville, to 20+ inches in the Okanogan highlands.

*Effects from Alternative 1 (Proposed Action):*

Direct and Indirect Effects.

There may be some slight short term disturbance on the soil surface and a disruption in soil crusts as a result of weed spraying activities, which may slightly increase soil erosion.

There may also be a slight short term increase in soil erosion from exposed soil resulting from elimination of individual noxious weed plants. When competition from noxious weed species is reduced, native vegetation will more fully occupy the site and help restore favorable conditions for soil processes that contribute to long-term sustainability of soil productivity. The spread of noxious weeds will be reduced on BLM lands and the spread from BLM lands to adjacent private and public lands will also be reduced.

Cumulative Effects.

Herbicide treatments have occurred, and will likely continue on adjacent private, state, and National Forest lands. Hence the direct and indirect impacts on soils would also occur from non-BLM treatments beyond areas specified in the proposed action.

*Effects from Alternative 2 (No Action):*

Direct and Indirect Effects.

There would be an increase in noxious weeds on BLM lands as a result not treating weeds. There would be a decrease in native vegetation. A decrease in native vegetation may result in an increase in soil erosion and will increase the spreading of noxious weeds to adjacent lands. The spreading of weeds onto adjacent properties may increase erosion on those properties also.

Cumulative Effects.

Invasive and noxious weed infestations occur throughout the state and beyond. Although treatments occur on lands adjacent to BLM, weeds grow uncontrolled in many areas. Thus the impacts from the No Action alternative would also occur in these areas where weed infestations occur.

## **Air Quality**

*Affected Environment*

Under the Clean Air Act (as amended in 1990), BLM-administered lands were given Class 11 air quality classification. This classification allows for moderate deterioration associated with moderate, well-controlled industrial and population growth. Strong winds may carry large amounts of dust from fallow agricultural fields and can cause reduced visibility.

*Effects from Alternative 1 (Proposed Action):*

Direct and Indirect Effects.

As described in BLM's Programmatic EIS (DOI 2007), atmospheric concentrations of herbicides (predicted by particle size) resulting from spray drift from application would be temporary in nature (most predominant at the time and location of treatment) and, as predicted by modeling, would not greatly impact air quality. Also, as described in the soils section, disturbance from treatments could result in temporary soil erosion, which could result in airborne dust.

Cumulative Effects.

Treatments on adjacent lands would have potential for atmospheric concentrations of herbicides. However, it is unlikely that these treatments would occur simultaneously with the proposed action, and the temporary concentrations would dissipate causing no cumulative effect. As stated in the Affected Environment, the primary contributor to air pollution would be dust. The amount of dust from agricultural fields and other actions (mainly motorized travel on unpaved roads) would make any temporary dust from the proposed action inconsequential.

*Effects from Alternative 2 (No Action):*

Direct and Indirect Effects.

As described in the soils section, an increase in noxious weeds would occur which would adversely affect native vegetation, resulting in soil erosion. This erosion could be airborne in the form of dust.

Cumulative Effects.

The amount of dust from agricultural fields and other actions (mainly motorized travel on unpaved roads) would make any temporary dust from the No Action alternative inconsequential.

**Water Quality**

*Affected Environment*

Streams and rivers adjacent to the described action areas include: Packer Creed, Rock Creek (Escure Ranch), Wilson Creek, Similkameen River, and the Yakima River.

*Effects from Alternative 1 (Proposed Action):*

Direct and Indirect Effects.

As described in BLM's Programmatic EIS (DOI 2007), the four primary means of off-site movement of herbicides are runoff, drift, misapplication/spills, and leaching. Surface water could be affected by any of these means, while groundwater potentially would be affected only by leaching. The potential for off-site movement would be extremely low with implementation of the treatment control factors and standard operating procedures in Appendices C and D. Also, Treatments under this alternative would reduce the proliferation of noxious and invasive weeds. This would reduce the competitions for native plants, which could decrease related soil erosion

and sediment in surface waters.

Cumulative Effects.

Use of herbicides by adjacent land owners would cause similar impacts that would cumulatively add to concentrations in surface waters. In addition, most adjacent lands are used for agriculture and use of other chemicals, such as fertilizers, on these lands would also have potential to cumulatively impact water quality through runoff and leaching. Control of weeds on BLM and adjacent lands would promote growth of native vegetation which could decrease related soil erosion and sediment in surface waters. However, this is inconsequential considering the small amount of weeds that would be treated on BLM lands and the contribution of sediment to surface waters from other activities, such as agriculture, motorized vehicle use on unimproved roads, and wildfires, occurring on BLM and adjacent lands.

*Effects from Alternative 2 (No Action):*

Direct and Indirect Effects.

As stated in the effects to soils section, lack of weed treatments would contribute to their proliferation. These weeds would out-compete native plants, which could lead to increased soil erosion and sediment in surface waters. However, none of the effects from herbicides under Alternative 1 would occur.

Cumulative Effects.

Although weed treatments on adjacent lands would continue, uncontrolled infestations would also continue, resulting in some soil erosion and sediment in surface waters. However, this is inconsequential considering the small amount of weeds that would be treated on BLM lands and the contribution of sediment to surface waters from other activities, such as agriculture, motorized vehicle use on unimproved roads, and wildfires, occurring on BLM and adjacent lands.

**Vegetation**

*Affected Environment*

Uplands

The proposed treatment areas include both shrub-steppe and forested plant communities. Shrub-steppe communities are found on deeper soils within the southern and eastern part of the project area. Big sagebrush-bluebunch wheatgrass is the dominant community type, with big sagebrush-Idaho fescue found on north aspects or in areas with the higher range of precipitation. Bitterbrush-bluebunch wheatgrass community type is found on sandier soils.

Perennial grasslands (often created by wildfires that destroy fire-intolerant shrubs) are interspersed with shrub-steppe communities. In areas that have been highly disturbed, annual grasses such as cheatgrass may dominate.

Rigid sagebrush, buckwheats and Sandberg bluegrass are found on areas with shallow soils over

basalt (lithosols). These areas tend to occur on ridge tops. Scattered ponderosa pine and Douglas fir may be interspersed with shrub-steppe at higher elevations or areas of higher precipitation.

Forest types range from nearly pure stands of ponderosa pine to nearly pure stands of Douglas-fir. Most stands, however, contain both ponderosa pine and Douglas-fir, along with western larch at higher elevations. The aspen type is found at the higher east aspects above 3000 feet.

South aspect and lower elevation (<3200 feet) tend to be in the ponderosa pine series, the driest forest types of the plant associations represented here. Mixed ponderosa pine-Douglas-fir types are found on the west aspects or below 3200 feet.

### Riparian

Cottonwood, birch aspen and willows with an understory of sedges and grasses are found along perennial streams. Seasonal creek riparian zones are dominated by serviceberry, mock orange, rose and grasses. Some low areas generally support wetlands, marshes and wet meadows, especially in the eastern portion of the Spokane District.

### Special Status Plant Species

Surveys for Special Status plant species have been completed on the project areas. Two federally listed (Threatened) plant species occur on BLM lands in the general vicinity of the proposed treatment areas. Spalding's catchfly (*Silene spaldingii*) occurs on the Escure Ranch, Fishtrap/Miller Ranch, Goose Butte, and Packer Creek parcels, and water howellia (*Howellia aquatilis*) occurs on the Fishtrap parcel. The areas to be treated will avoid all locations where the listed species occur, with buffer zones as specified in Appendix C.

A Washington threatened and Bureau Sensitive plant species, Washington polemonium, occurs on the Goose Butte and Wilson Creek parcels. To avoid potential damage to this species, areas where the plant is present will be flagged, and spot treatments (Appendix C) will be used. BLM personnel will ensure that contract workers are familiar with the appearance of this plant.

### Invasive Non-Native Plants

There are various noxious weeds listed by the state of Washington, found in the project areas, including diffuse knapweed, Russian knapweed, Dalmatian toadflax, Canada thistle, bull thistle, whitetop and musk thistle. This is especially true in disturbed or degraded areas such as roads, trails, and livestock developments. Noxious weeds threaten native and special status plant species and plant communities important to wildlife and other uses.

### *Effects from Alternative 1 (Proposed Action):*

#### Direct and Indirect Effects.

The Proposed Action would result in damage to, and destruction of, some native and non-native plants, primarily herbaceous broadleaf species. However, the areas being treated are largely dominated by non-native plants, so those species would be most heavily affected. The Proposed Action would not have any direct effects on special status plant species, because locations where listed and Bureau Sensitive species occur would be excluded from treatment by the measures

discussed above. Adherence to specified buffer zones and wind speed limitations for spraying (Appendix C) would prevent effects of spray drift on listed and Bureau Sensitive species. Over the long term, the action would be likely to benefit both native plant communities and special status plant species, as it would be expected to reduce the spread of non-native invasive plants that compete with native species.

#### Cumulative Effects.

Other factors affecting native vegetation and special status species include weed spraying by other agencies and private land owners, habitat loss to agriculture, human habitation and road construction, previous livestock grazing practices, and past introductions of non-native plant species into the area. The proposed action would result in potential long term benefits to native plant communities and special status plant species; while the magnitude of the benefits is small compared to that of the past actions, the proposed action can help to reduce the ongoing effects of those past actions.

#### *Effects from Alternative 2 (No Action):*

#### Direct and Indirect Effects.

If weeds are not controlled, they are likely to spread further into native plant communities, and over time, the quality of those communities would be degraded. Noxious weed populations will expand rapidly without control. A recent estimate of weed spread on all western federal land is 10% to 15% annually (Asher and Dewey 2005). The estimated rate of weed spread on western public lands in 1996 was 2,300 acres per day (USDI BLM 1996). Noxious weed including spotted, diffuse and Russian knapweed, leafy spurge and yellow star thistle can move into excellent condition stands of native vegetation (Harris 1991). Weeds can outcompete native plants and reduce the grazing capacity of weed infested land by up to 75% (Sheley and Petroff 1999). Listed species and Bureau Sensitive species could experience added competition from invasive species, and control measures would be more difficult to apply if invasive species spread within closer proximity to those special status species.

#### Cumulative Effects.

Native plant communities and special status plants have already been adversely affected by loss of habitat to agriculture, human habitation and road construction, previous livestock grazing practices, and past introductions of non-native plant species into the area. Recreational use has, and would continue to contribute to spreading existing noxious weeds on BLM lands through foot, mechanized (bicycle) and stock (horse) traffic, and weed seed attachment to vehicles. Also, eventually recreationists would introduce new varieties of noxious weeds to BLM recreation sites, and take weed seeds with them when they leave. This would contribute to weed spread to the vicinity of where the recreationists live, and potentially to other places they visit, including other BLM lands and other agency public lands. If weeds are not controlled, their spread could further threaten the integrity of native plant communities and special status plant species.

### **Terrestrial Wildlife**

*Affected Environment*

Herbicide treatments will be made in 42 polygons within 20 project areas throughout eastern Washington. The majority of the areas occur in shrub-steppe habitats. These habitats are dominated by grasses with a discontinuous layer of shrub, usually big sagebrush. In Washington, 163 wildlife species (10 amphibians, 88 birds, 50 mammals, and 15 reptiles) are associated with this habitat type. Species occurring commonly include the red-tailed hawk, northern harrier, short-eared owl, raven, black-billed magpie, western meadowlark, vesper sparrow, mule deer, deer mouse, coyote, pocket gopher, great basin pocket mouse, and garter snake. Sensitive species occurring in shrub-steppe are shown in Table W-1.

Numerous treatment areas also occur in coniferous forest habitat, primarily on the east slope of the Cascades. Coniferous forests provide habitat for 323 species of vertebrate wildlife (7 amphibian, 234 birds, 73 mammals, and 9 reptiles). Typical wildlife in the coniferous forest include mule deer, elk, mountain lion, black bear, blue grouse, beaver, long-tailed weasel, striped skunk, raccoon, bobcat, and coyote, and many species of songbirds, woodpeckers and raptors. Sensitive species occurring in coniferous forests are shown in Table W-1.

*Table W-1. Sensitive species occurrence and potential for effect. Circles indicate yes, "x" indicates no. Maximum spray area is the required maximum when applying 2,4-D or Diuron in areas that support, or are likely to support, the species indicated in order to leave 1/2 of their home range unsprayed.*

<b>Species</b>	<b>Within Range</b>	<b>Small Home Range (&lt;270 ac)</b>	<b>Maximum Spray Area (1/2 home range)</b>
AMERICAN PEREGRINE FALCON	●	X	
AMERICAN WHITE PELICAN	●	X	
ASH-THROATED FLYCATCHER	X		
BALD EAGLE	●	X	
BLACK-THROATED SPARROW	X		
BOBOLINK	●	X	
BURROWING OWL	●	X	
CEDAR WAXWING	X		
COMMON LOON	●	X	
EARED GREBE	X		
FERRUGINOUS HAWK	●	X	
GRAY FLYCATCHER	X		
GREAT GRAY OWL	●	X	
GREATER SAGE-GROUSE	X		
GYRFALCON	●	X	

HARLEQUIN DUCK	X		
LONG-BILLED CURLEW	•	• 1	16 ac
PEALE'S PEREGRINE FALCON	X		
SANDHILL CRANE	X		
SHARP-TAILED GROUSE	•	• 2	1 ac
UPLAND SANDPIPER	X		
WHITE-HEADED WOODPECKER	X		
CASCADE TORRENT SALAMANDER	X		
COLUMBIA TORRENT SALAMANDER	X		
LARCH MOUNTAIN SALAMANDER	X		
NIGHT SNAKE	•	• 3	0.5 ac
SAGEBRUSH LIZARD	•	• 4	0.5 ac
SIDE-BLOTCHED LIZARD	•	• 5	0.5 ac
STRIPED WHIPSNAKE	X		
BLACK-TAILED JACKRABBIT	•	• 6	37 ac
KINCAID MEADOW VOLE	X		
MOOSE	X		
MOUNTAIN GOAT	X		
PALLID BAT	•	• 7	24 ac
PYGMY SHREW	X		
RED-TAILED CHIPMUNK	X		
SHAW ISLAND VOLE	X		
SPOTTED BAT	•	X	
TOWNSEND'S BIG-EARED BAT	•	X	
TOWSEND'S GROUND SQUIRREL	•	• 8	0.5 ac
WASHINGTON GROUND SQUIRREL	•	• 8	0.5 ac
WESTERN GRAY SQUIRREL	X		
WESTERNPOCKET GOPHER	X		
WHITE-TAILED JACKRABBIT	•	• 6	37 ac

<sup>1</sup> Average territory size for long-billed curlew is 32 ac (Hill 1998).

<sup>2</sup> Average feeding area for 1 month old sharp-tailed grouse chicks is 2 ac (Hart et al. 1950)

<sup>3</sup> No information, home range presumed to be similar to sagebrush lizard and ground squirrels.

<sup>4</sup> Average home range size for sagebrush lizard is 1 ac (NatureServe 2009).

<sup>5</sup> Average home range size for side-bloched lizard is 1 ac (NatureServe 2009).

<sup>6</sup> Average home range size for white and black-tailed jackrabbits is 74 ac (NatureServe 2009).

<sup>7</sup> Foraging area for pallid bat is 49 ac (Ferguson and Azerrad not dated).

<sup>8</sup> Average home range size for Townsend's and Washington ground squirrels is 1 ac (NatureServe 2009).

*Effects from Alternative 1 (Proposed Action):*

Habitat Change

Herbicide treatments are a disturbance to vegetation that returns all or a portion of the treated areas to an early successional stage, which favors early successional wildlife over other species (USDI 2007). However, in this proposed action, the return to early successional habitat is tempered by the use of selective herbicides (except diuron), including some that are highly selective that target only broadleaved plants, and in some cases only certain taxa of broadleaved plants. Considering the selectivity of herbicides used, there would be only a slight change in habitat structure and function as only one, or a few plant species are reduced in abundance leaving all grasses and most other broadleaved plants unaffected. Areas treated with diuron would become bare ground with early seral vegetation establishing after the residual amounts of herbicide breakdown. Treatment Control Factor #1 (Appendix C), which limits the use of herbicide to spot treatments within the larger treatment areas will minimize the amount of bare ground and habitat change. Treatment Control Factor #18, which restricts herbicide treatments to conditions of slow wind speed will minimize drift and off target effects to habitat.

After treated areas recover from the initial disturbance of controlling weeds, native and beneficial vegetation is expected to increase. Because the weed species targeted for control are of little value to wildlife, habitat conditions will be improved as areas move from weed-dominated to habitat dominated by native and more valuable vegetation. The integrated pest management strategy, rehabilitation techniques and monitoring that BLM uses will ensure that control efforts and habitat improvements are effective and lasting.

Disturbance

Human disturbance, such as driving ATVs and trucks and even walking, during spray operations has the potential to disrupt wildlife behavior. Disruptions during the breeding seasons of wildlife have the highest potential to cause harm because animals are more sensitive during this time, and any effects have the potential to decrease reproductive success. Driving motorized vehicles would be conducted in a slow and methodical manner, thus reducing potential to harm active ground nests. No extraordinary noise would be emitted other than the running of a single truck or ATV motor and spray pump, which is similar to other administrative uses of vehicles on BLM land. A one-time disturbance at such low intensity, even during the breeding season, has almost no potential to affect wildlife especially on a population scale. Treatment Control Factor #8 (Appendix C), which limits the types of vehicles traveling off-road and suggests that paths be cleared on foot prior to entry, will minimize harm to ground nests. Treatment Control Factor #12 will minimize disturbance to raptors.

Herbicide Toxicity

Exposure to herbicide, depending on the taxa of wildlife and herbicide spray rate, could damage internal organs, decrease health and reproduction, and even lead to death. Species that inhabit an area year-round and have small home range sizes would have the greatest chance of being adversely affected. Animals that eat grass that has been sprayed with herbicides have a higher risk of harm than those that eat other vegetation because herbicide residue is higher on grass

(USDI 2007). Of the herbicides proposed for use in this project, those with the least likelihood for affecting wildlife includes chloresulfuron and sulfometuron methyl (metsulfuron) (USDI 2007), and picloram (USDA 2003) and clopyralid (USDA 2004) are relatively non-toxic to terrestrial animals, so these will not be discussed further. The herbicides with the greatest potential for affecting wildlife include 2,4-D and diuron, which pose moderate to high risks to wildlife under one or more exposure scenarios involving the typical application rate (USDI 2007).

- **2,4-D:** The following information is taken from the Forest Service risk assessment for 2,4-D (USDA 2006). 2,4-D amine is slightly to moderately toxic to mammals, practically non-toxic to moderately toxic to birds, and practically non-toxic to honey bees, freshwater fish, amphibians, and invertebrates. The highest exposures for terrestrial vertebrates will occur after the consumption of contaminated vegetation or contaminated insects. The 2,4-D amine application rates used in this proposed action (2 lb a.i./acre), are not likely to have adverse effects on fish, amphibians, and aquatic invertebrates except in the event of an accidental spill. However, adverse effects (weight loss, reproductive impairment) are plausible in mammals that consume contaminated vegetation or insects or other prey after they have been sprayed at the rate of approximately 1 lb a.i./acre. Birds are less susceptible to 2,4-D than mammals, but concern, based on EPA conventions, for special status bird species is triggered at the application rate of approximately 1 lb a.i./ac. Effects of 2,4-D on reptiles are not known. There are no concerns for birds or mammals at the lowest application rates (approximately 0.5 lb a.i./ac).
- **Diuron:** The following information is taken from the US Environmental Protection Agency's risk assessment for the re-registration of diuron (USEPA not dated). Diuron applications involve acute and chronic risk to terrestrial and aquatic non-target organisms. These risks are expected to increase with increasing application rate. There is concern, based on EPA conventions, for special status species especially herbivorous mammals, and herbivorous and insectivorous birds. At an application rate of 4 lbs ai/ac, there are potential acute risks on birds. At an application rate of 12 lbs ai/ac, there is potential acute risk to small mammals feeding in short grass treated with diuron. Effects of Diuron on reptiles are not known. This proposed action would apply Diuron at 6 lbs/ac. Due to persistence, organisms may be exposed to toxic residuals for extended periods of time leading to concerns for acute and chronic risk to birds and mammals (reduced pup body weight).

#### Effects on Sensitive Species

Sensitive species were identified as having their distributional range overlap with the project areas or not (Table W-1). Species with distributional ranges that overlapped with herbicide project areas were brought forward for analysis. Species with home range sizes smaller than twice the largest project area (Palmer Mountain – 135 ac) were identified, and mitigation to spray 2,4-D and Diuron as spot treatments no larger than ½ their home range size was used to refine Treatment Control Factor #1. By leaving areas at least ½ the home range size of sensitive species untreated, effects of eating exclusively contaminated vegetation or insects are eliminated. Table W-2 summarizes the mitigation for each sensitive species by project area.

Table W-2. Potential occurrence of sensitive species and maximum spot treatment sizes for 2,4-D and Diuron by project area.

Project Area	Long-Billed Curlew	Sharp-Tailed Grouse	Night Snake	Sagebrush Lizard	Side-Blotched Lizard	Ground Squirrels <sup>1</sup>	Jackrabbits <sup>2</sup>	Pallid Bat	Max Spot Treatment Size (ac)
Chopaka Lake	•		•				•	•	0.5
Conconully							•	•	24
Eaton/Burbank	•		•	•		•	•	•	0.5
Escure Ranch	•		•	•	•	•	•	•	0.5
Fishtrap/Miller Ranch	•						•	•	24
Goose Butte	•		•	•		•	•	•	0.5
Juniper Dunes	•		•	•	•	•	•	•	0.5
Liberty Recreation Site			•						0.5
North of Beaver Creek									none
Packer Creek	•						•	•	24
Palmer Mountain	•	•	•				•	•	0.5
Ringer Road			•		•			•	0.5
Salmon Creek		•	•	•			•	•	0.5
Similkameen Corridor	•		•				•	•	0.5
South of Loomis			•					•	0.5
South of Nighthawk	•		•				•	•	0.5
Tunk Grade Fire		•	•				•	•	0.5
Whistler Canyon			•				•	•	0.5
Wilson Creek	•		•	•			•	•	0.5
Yakima River Canyon-Recreation Sites	•		•	•	•	•	•	•	0.5

<sup>1</sup> Townsend's and Washington ground squirrels are considered together.

<sup>2</sup> Black-tailed and white-tailed jackrabbits are considered together.

### Effects on Threatened and Endangered Species

No federally threatened or endangered species occur in the project areas.

Grizzly bears are listed as Threatened. The grizzly bear recovery plan (USDI 1993) provides a framework for managing grizzly bears based on "Management Situations." The project areas are in Management Situation 5, which are areas where grizzlies do not occur, or occur only rarely; habitat is unsuitable, unavailable, or suitable and available but unoccupied. These areas lack suitable habitat survival and recovery values, and major federal actions will not affect grizzlies.

Canada lynx are listed as Threatened. The BLM signed the interagency Lynx Conservation

Agreement to manage the lynx under and Lynx Conservation Assessment and Strategy (Ruediger et al. 2000). Under this strategy, the agencies mapped lynx habitat to create Lynx Analysis Units (LAU) where lynx habitat was present and would be managed. The project areas do not occur within an LAU. The closest LAU is 5 miles west of the Chopaka Lake project area on the Okanagan National Forest.

Cumulative Effects.

Weeds have been controlled in these project areas for at least 6 years. In some cases weed treatments began in the late 1980's. Past weed treatments have improved wildlife habitat by removing or decreasing the dominance of the weed species allowing more beneficial habitats to develop. The weed treatment program is expected to continue into the future, which will ensure that past benefits are not lost to re-infestation. Adjacent landowners also treat their weeds, which cumulatively maintain the wildlife habitat values in the region. Grazing and recreation occur on some of the parcels treated. Grazing has an impact on wildlife habitat by removing forage otherwise available to wildlife and reducing cover needed by wildlife for security and predator avoidance. Treating weeds will offset some of the adverse effects of grazing resulting in better habitat overall. Recreation is an impact to wildlife at developed recreation sites and off-road vehicle areas, which some wildlife avoids and other wildlife have become accustomed. Treating weeds in recreation areas will benefit those species that use such sites.

*Effects from Alternative 2 (No Action):*

Direct and Indirect Effects.

If weed infestations go untreated they will increase their dominance of sites. They may start out as isolated or light infestations, but in time can become monocultures and spread to adjacent lands. Not treating weeds will result in habitat degradation on BLM and other lands.

Cumulative Effects.

Weed control is still expected to continue on private and state lands in the region even if BLM takes no action. However, efforts by these other landowners would be hampered by the spread of weeds from untreated BLM lands. The impacts of grazing would be more severe than otherwise since even less forage and valuable habitat would be available to wildlife. Established recreation areas would continue to receive public use, but those wildlife species still using these sites would likely decline.

**Fisheries and Aquatic Wildlife**

*Affected Environment*

In the described action areas, at least Packer Cr, Escure Ranch, Wilson Cr .and the Similkameen Corridor have some intermittent to perennial fish bearing streams. The Yakima Canyon Recreation. Sites, Liberty Campground Recreation Site, and Ringer Road have adjacent perennial fish bearing streams with listed ESA salmon and steelhead.

*Effects from Alternative 1 (Proposed Action):*

Direct and Indirect Effects. As stated in BLM's Programmatic EIS (DOI 2007) Use of

herbicides to control aquatic and riparian vegetation can improve habitat quality for fish and wildlife, improve hydrologic function, and reduce soil erosion. However, most herbicides are non-selective and could cause adverse impacts to non-target wetland and riparian species. Implementation of the treatment control factors and standard operating procedures in Appendices C and D will make potential for this adverse impact extremely low.

There may be some short term disturbance on the soil surface from spraying activities and some additional exposure of the soil surface from eliminated individual noxious weed plants that may lead to a slight temporary increase in soil erosion and sediment in streams, degrading aquatic wildlife habitat. Removal of noxious weed species through herbicide use can help to restore a more complex plant community stabilizing the site and reducing sedimentation and erosion. As mentioned in the water quality section, there is an extremely low potential that herbicides could get into surface waters.

#### Cumulative Effects.

Aquatic and riparian habitats have been and will continue to be affected by numerous activities such as urban development, agriculture, and timber harvesting. The tremendous affect of these activities, such as removal of riparian vegetation, draining of wetlands, sediment contribution, etc. makes the low potential for adverse effect from the proposed action inconsequential at almost any scale. Due to the small areas proposed for treatments that would beneficially affect aquatic and riparian habitats, the off-set to the effects of these other actions is not measurable beyond the specific site where treatment would occur.

#### *Effects from Alternative 2 (No Action):*

#### Direct and Indirect Effects.

The No action alternative can result in increased infestations of knapweed, Canada thistle, whitetop, and other invasives within the riparian zone. There may be an increase in sedimentation due to the increase of noxious weeds within the riparian zones.

#### Cumulative Effects.

As described under the cumulative impacts from Alternative 1, The tremendous affect of these activities, such as removal of riparian vegetation, draining of wetlands, sediment contribution, etc. makes the low potential for adverse effect from the proposed action inconsequential at almost any scale.

## **Recreation**

### *Affected Environment*

A wide variety of recreation occurs throughout the project area. Recreation use takes place at both developed and undeveloped areas and includes scenery viewing, birding, camping, hiking, off-highway vehicle riding, horseback riding, hunting, fishing, target shooting, and mountain bicycling. Most visitors are from nearby communities, although several areas (such as Palmer Mountain, Yakima River Canyon, Juniper Dunes, and Fishtrap) attract visitors from other states and countries. The BLM use estimates indicate that public use of BLM areas is continuing to

grow as areas become better known and the state's population increases. The BLM's long-term goal is to provide opportunities to the public for environmentally responsible recreation.

Most BLM lands are managed as Extensive Recreation Management Areas (ERMAs), where management consists primarily of providing basic information and access. Dispersed recreation occurs in ERMAs, and visitors have the freedom of recreational choice with minimal regulatory constraints. Significant public recreation issues or management concerns are limited in these areas, and nominal management suffices.

Special Recreation Management Areas (SRMAs) are places where special or intensive recreation management is needed. SRMAs include congressionally recognized areas, such as WSRs, parts of the National Trail System, National Recreation Areas, and Wilderness Areas. In addition, administratively recognized areas where issues or management concerns may require special or intensive management are also designated. Areas where visitor use may cause user conflicts, visitor safety problems, or resource damage are also included. These more intensively used areas require direct supervision of recreational activities and of commercial and BLM-regulated recreation operations. Most SRMAs require selective vegetation treatments to protect visitors from hazards and/or adverse effects associated with certain plants, and replanting of vegetation in highly disturbed areas to improve appearance. (USDI 2007):

The project area does not extend into any SRMA's, although there are special management rules applied at the Juniper Forest site to manage motorized recreational use, whereby part of the area is designated as OPEN to Off-Highway Vehicle (OHV) use, OHV use is LIMITED to designated trails in an Area of Critical Environmental Concern (ACEC), and OHV use is PROHIBITED in the Juniper Dunes Wilderness.

*Effects from Alternative 1 (Proposed Action):*

Direct and Indirect Effects.

Vegetation treatments would have short-term adverse impacts and long-term beneficial impacts on recreation. During treatments, there would be some scenic degradation, as well as distractions to users (e.g., noise from machinery). In addition, there would be some human health risks to recreationists associated with exposure to herbicides, including from inadvertent spray drift. (USDI 2007) Finally, some areas would be temporarily off-limits to recreation activities as a result of treatments. In most cases, recreationists would be able to find alternative sites outside of the treatment area but in the same BLM site, or on adjacent non-BLM public lands, offering the same amenities or recreational opportunities. Site closures would generally last for a short time period following herbicide application, depending on the recommendations on the herbicide label. Usually the recommended closure periods would not exceed 24 hours.

Recreationists facing the greatest health risks due to chemical treatments are those users engaging in activities such as ingesting berries or fish. Health risks also arise from aerial herbicide spraying, but none is proposed. Because focus of herbicide treatments are more likely with increasing distance away from high-use visitor areas hikers, hunters, campers, horsemen, livestock owners, and users of plant resources for cultural, social, and economic purposes would

be at the greatest risk of coming into contact with herbicide treatment areas. (USDI 2007)

Chemical treatments would generally result in long-term benefits to recreationists by controlling noxious weeds and other unwanted vegetation and improving plant species diversity. Over the long term, recreationists in dispersed recreation areas would likely benefit from a reduction in invasive plants, especially thorny or poisonous noxious weeds, provided by herbicide treatments. In addition, herbicide treatments that reduce the risk of wildfire would reduce the likelihood of recreationists being displaced from favorite hunting, fishing, and camping sites by wildfires. (USDI 2007)

For much of the project area, herbicide application will occur in management areas where a very low rate of dispersed recreational use occurs, and these areas would not require mitigations.

A significant enough level of recreation might occur in proximity to some of the proposed Treatment Areas within the project area, to require instituting signing/notification procedures at those locations to reduce potential health hazards to recreational users to a negligible impact.

As mitigation and as identified in Appendix C, the contractor will work with BLM to identify treatment areas that encroach into developed or undeveloped recreation sites where BLM determines a significant enough level of recreation use might occur to warrant temporarily restricting public access. As required via BLM input for those sites, spraying timeframes will be defined, and signs will be posted identifying exclusion areas and stating the duration of exclusion for the recommended restricted entry interval, as well as the chemical used, the date of application, and a contact number for more information that would remain in place past the end of the exclusion period.

Standard Operating Procedures for Applying Herbicides (SOPs) cited from the BLM Land Use Planning Handbook have been identified in Appendix D as part of the proposed action, and all treatments near developed and undeveloped recreation sites would be done using appropriate SOPs with coordination between BLM and the contractor, thereby reducing potential for health hazards to recreational visitors to a negligible negative impact.

Appendix D SOPs listed in the appendix as relevant to Recreation are:

- Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species.
- Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas.
- Adhere to entry restrictions identified on the herbicide label for public and worker access.
- Post signs noting exclusion areas and the duration of exclusion, if necessary.
- Use herbicides during periods of low human use, where feasible.

Implementing all other SOPs listed in Appendix D would also serve to further reduce potential for health hazards to recreational users to the point of negligible negative impact, including focus on the following SOPs in all areas, especially those determined to receive moderate to high levels of recreational use:

- Consider surrounding land uses before aerial spraying.

- Apply the least amount of herbicide needed to achieve the desired result.
- Post treated areas and specify reentry or rest times, if appropriate.
- Have licensed applicators apply herbicides.
- Use only USEPA-approved herbicides and follow product label directions and “advisory” statements.
- Use drift control agents and low volatile formulations.

### **Public Health Risks**

Public health risks from herbicides to be used in the project area, as identified in Chapter 4 of the BLM Final Programmatic EIS “BLM Vegetation Treatments Using Herbicides” (USDI 2007):

#### **2,4-D**

The general public faces low to moderate risk at the typical and maximum application rates. There should not be unacceptable risks to the general public associated with exposure to 2,4-D. Accidental exposure poses a higher risk.

#### **Chlorsulfuron**

For the general public, most exposures to Chlorsulfuron at the typical or maximum application rate would not pose a risk

#### **Clopyralid**

There are no risks to public associated with most of the anticipated typical and accidental exposures for Clopyralid evaluated in the Forest Service risk assessment. Irritation and damage to the skin and eyes can result from direct exposure to relatively high levels of clopyralid; this is likely to be the only overt effect as a consequence of mishandling clopyralid (SERA 2004b). Children face low risk from consumption of water contaminated by an accidental spill.

#### **Diuron**

According to the 1991 13-State EIS, there are risks to the general public associated with both routine and accidental exposures to Diuron. Aerial application poses a risk to most evaluated public receptors for systemic effects from worst-case exposures (e.g., direct exposure of hikers, berry pickers, anglers, and nearby residents; spray drift to skin; vegetation contact by berry pickers; consumption of contaminated drinking water and fish). Berry pickers also face a risk for systemic effects from worst-case direct exposure and contact with vegetation scenarios. There are also risks to the public for systemic and reproductive effects associated with accidental exposures of spill to skin (herbicide concentrate and mixture), direct spray, drinking or eating fish from a directly sprayed water body, or immediate reentry into a sprayed area by a berry picker.

#### **Metsulfuron Methyl**

Typical exposures to metsulfuron methyl at the typical or maximum application rates do not present a risk to the general public.

#### **Picloram**

Typical exposures to picloram at either the typical or maximum application rates present few risks to the general public. For members of the general public, no risks were predicted except for

the consumption of water by a child following an accidental spill of a large amount of picloram into a very small pond, which presents a low risk. Based on the standard assumptions used in this and other Forest Service risk assessments, the contamination of picloram with hexachlorobenzene does not appear to present a substantial cancer risk, even at the upper ranges of plausible exposure.

Cumulative Effects.

The resource affected by the action is recreation, in terms of ability for visitors to engage in their preferred recreation activities without fear of adverse health impacts from herbicide treatments, and also in terms of improved quality of recreation experience due to weeds eradication. The extent of the area of concern for impacted resources extends to each entire BLM site within which a treatment area exists and in some cases to adjacent non-BLM public lands.

Other past, present and reasonably foreseeable actions and activities affecting the same resource includes land acquisitions over the past 25 years, which have increased the total acreage of some of the BLM sites where herbicide treatments are planned. Due to these acquisitions, recreationists now can avoid treated areas during exclusion periods and have increased acreage at the same BLM site providing an alternate space within which to recreate. Adverse impacts from herbicidal spray drift during treatments on adjacent public or private lands would be negligible, and almost exclusively due to aerial application which is rare. However, recreationists could also be impacted by herbicidal treatments on adjacent non-BLM public lands if those treatment areas were unmarked, and the recreationists traveled from BLM lands onto these adjacent treatment areas during a restricted entry interval period, but this impact would be minimal.

Primary effects would be caused due to implementing the proposed action, rather than from other cumulative effects.

*Effects from Alternative 2 (No Action):*

Direct and Indirect Effects.

Depending on the amount of recreational use in each of the Treatment Areas, effects from the No Action alternative would range from negligible to moderate. If herbicide treatments were neglected over a long period of time, an increase of invasive plants and reduction of plant diversity would reduce the quality of recreational experience especially by the presence of thorny or poisonous noxious weeds.

The negative impact to recreation of an increase in the likelihood of wildland fire due to weed spread, that could potentially burn areas favored for such activities as hiking, camping, and hunting, would not occur in the project year.

Cumulative Effects.

The resource affected by the action is recreation, in terms of ability for visitors to engage in their preferred recreation activities without fear of adverse health impacts from herbicide treatments, and also in terms of reduced quality of recreation experience due to weeds proliferation. The extent of the area of concern for impacted resources extends to each entire BLM site within

which a treatment area exists and in some cases to adjacent non-BLM public lands.

All cumulative effects to recreation that would occur would be the same as those cumulative effects identified for Alternative 1, except for those effects contributed by the proposed action. If the No Action alternative was selected, an additional effect of reduced quality of recreation experience on adjacent non-BLM public lands that offer public recreation opportunities would occur by weeds spread there from BLM lands, and subsequent increased likelihood of wild land fire that could damage favorite recreation sites on adjacent non-BLM public lands.

Primary effects would be caused by weeds proliferation due to implementing the No Action alternative, rather than from other cumulative effects.

### **Cultural Resources, Native American Values, and Paleontological Resources**

#### *Affected Environment*

The proposed treatment areas are located near the center of the territory that twentieth century ethnographers have defined as the “Plateau Culture Area.” Numerous bands of Native Americans comprised this culture area in the Columbia Plateau. At the time of first contact with European cultures, these Native American societies shared many cultural traits. Among these was a heavy emphasis on use of the salmon whose annual runs in the major rivers were an important source of storable food. Human settlement patterns in the Plateau featured movement to fishing locations during the spring and summer runs, late summer and fall relocation to upland berry harvesting and hunting areas, winters spent in sheltered areas near carefully stored supplies of dried salmon and other foods, and springtime trips to the open, rocky areas that produced edible roots. These traditional subsistence activities remain important in the lives of many modern Native American people.

Evidence of the long Native American presence in the Columbia Basin is widespread and includes sites and features such as hunting camps, villages, lithic scatters, rock art, and other cultural features.

The proposed weed treatment areas are located within the traditional territories of the tribes and bands affiliated with the following Native American tribes: Confederated Tribes of the Colville Reservation, the Spokane Tribe of Indians, the Wanapum Band of Indians, the Yakama Indian Nation, and the Confederated Tribes of the Umatilla Indian Reservation.

Many plant species occurring within the sagebrush-steppe restoration area have been used as traditional sources of food, medicine, fibers, and continue to be used by Native American communities. Ethnobotanically and culturally significant plants common to the area include: balsamroot (*Balsamorhiza sagittata*), biscuit roots (*Lomatium spp.*), serviceberry (*Amelanchier alnifolia*), choke cherry (*Prunus virginiana*), wax currant (*Ribes cereum*), western virgin’s bauer (*Clematis ligusticifolia*), wild rose (*Rosa spp.*), willow (*Salix spp.*), sumac (*Rhus glabra*), red-osier dogwood (*Cornus stolonifera*), horsetail (*Equisetum sp.*), Oregon grape (*Berberis spp.*), death camas (*Zigadenus venosus*), common yarrow (*Achillea millefolium*) stoncrop (*Sedum sp.*)

sagebrush mariposa (*Calochortus lyallii*), heartleaf arnica (*Arnica cordifolia*), brodiaea (*Brodiaea sp.*), miners lettuce (*Montia perfoliata*), hoary chaenactis (*Chaenactis douglasii*), sumac (*Rhus glabra*), blue elderberry, salsify (*Tragopogon dubius*), giant wildrye, star tulip (*Calochortus lyallii*), and alum root (*Heuchera cylindrica*), and Great Basin wildrye (*Elymus cinereus*).

Euro-Americans arrived in the Columbia Basin by the early 1800s. These were primarily trappers, traders, explorers and missionaries. By the mid-1800s, an influx of ranchers, miners, farmers and homesteaders occurred in the area. Evidence of their activities can still be seen across the landscape in the form of historical trails and wagon roads, fences and rock walls, railroads, camps, trash scatters, structures, foundations, and other cultural resources.

As a natural heritage resource, fossil localities must be considered in developing land use management decisions. Many of the fossil deposits in the region contain specimens of national and international importance. Fossil localities extending as far back as the Paleogene /Neogene (65 million to 1.8 million years ago) have been identified in the region. Exposures of datable geologic sequences offer unique opportunities for scientists to study and understand changing ecology, geologic structure and mammalian evolution.

*Effects from Alternative 1 (Proposed Action):*

Direct and Indirect Effects.

The potential effects of herbicide application to cultural and paleontological resources are analyzed in the Programmatic Environmental Impact Statement Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States (PEIS), Chapter 4, pages 146 – 152.

The effects of herbicide treatments vary with the methods used to apply the herbicide and the formulations used. Some chemical applications can result in direct and indirect effects on cultural and paleontological resources by increasing soil acidity which can advance artifact or fossil deterioration and impact surfaces of masonry structures, pictographs or petroglyphs if not removed soon after exposure (PEIS 2007:4-184). However, exposure of artifacts or other archaeological or paleontological resources to herbicides is expected to be minimal.

Damage to cultural or paleontological materials, if present, could result if wheeled equipment used to apply herbicides impacts the site directly, exposing it by causing erosion, or creating tracks or other access that later would be traveled by recreational OHVs. The degree of those effects to archaeological or paleontological resources would depend on the attributes of the material, whether buried or exposed, and the method of herbicide application. Application methods involving the use of off-road vehicles could crush material exposed on the surface or increase erosion in the site or fossil localities. Sediments and associated subsurface archaeological or fossil materials in some instances may become compacted.

In the Proposed Action (Alternative 1), areas proposed for treatment with off road applications would be treated with ATV or 4x4 with a boom sprayer and spot treatments would be applied

with a backpack sprayer. Areas identified for herbicide application from roads would be treated using an ATV or 4x4 on existing roads and spot treatments off road would be applied by backpack sprayer. Ground disturbance may occur from off road applications by ATV or 4x4, however, impacts from the weed treatments as proposed are expected to be negligible.

Impacts to traditional cultural practices of plant gathering for food or other resource use by Native Americans could be affected by proposed herbicide treatments. Herbicides can harm plants used by Native Americans and can affect the health of the people who gather, handle or ingest recently treated plants, fish or other animals contaminated by the herbicides. Since traditionally gathered plants and animals may occur near vegetation treatment areas, drift from herbicide treatments may occur in nearby areas utilized by Native Americans (PEIS 2007:4-146). Implementation of the Standard Operating Procedures should reduce potential impacts to traditional subsistence resources and activities.

Neither alternative would change, restrict or abrogate treaty reserved or Executive Order rights. However, implementation of the Proposed Action may affect natural resources on which the tribes depend. Closure of weed treatment areas following applications of herbicides would have short term adverse impacts to groups using those areas for subsistence activities but treatments would result in long term benefits to habitats and plant resources in those areas.

#### Cumulative Effects.

Cultural and paleontological resources including archaeological and historic sites and properties of traditional cultural and religious importance are vulnerable to cumulative effects from a variety of factors. Archaeological or paleontological sites can be impacted by erosion, construction, looting, excavation and activities that alter or destroy features or remove artifacts or fossils from their depositional context. Cultural properties may lose their integrity and cultural significance when they are degraded as a result of natural or human caused disturbance processes. In addition, a property's traditional importance may be lost when access to the property is denied so that the people who value the property can no longer access it resulting in the loss of people's connection to the places or activities over time.

Disturbances largely from grazing, timber harvest and mineral exploration and extraction resulted in wide scale impact to and loss of cultural properties and life ways. In recent years recreational activities including OHV and other recreational pursuits also have contributed to loss of both cultural and paleontological resources on and off of BLM administered lands. Ground disturbance resulting from application of herbicides would likely disturb only the upper few inches of sediments and in many cases would be confined to roads, trails or access routes. Treatment methods causing soil disturbance could cause direct or indirect impacts to cultural and paleontological resources but these effects are expected to be minimal. Potential effects would be reduced by pre-disturbance review and consultation with concerned Native American Tribes regarding the treatment areas. Consequently, cumulative loss of cultural resources on public lands due to the proposed weed treatment is expected to be negligible.

Effective herbicide treatments on BLM lands augmented by treatments on adjacent nonfederal

lands would result in beneficial effects on traditional subsistence resources by controlling weeds and improving the condition of habitats for plant and animal species that are critical for traditional Native American subsistence practices. In addition, negative impacts from erosion and wildfire would be reduced by maintaining native plant communities.

*Effects from Alternative 2 (No Action):*

Direct and Indirect Effects.

The No Action alternative would not authorize herbicide use to control the expansion of invasive weed species on the proposed weed treatment areas. Failure to authorize the use of herbicides to control weeds on the BLM lands would result in continued establishment and expansion of weed species.

Direct effects on cultural and paleontological resources resulting from application of herbicides authorized by BLM would be eliminated however; herbicide applications on adjacent lands may drift onto BLM lands. Increased expansion of weed species into sensitive habitats would degrade habitats and crowd out native plant species used for cultural purposes. Gathering areas for cultural plants, first foods and medicinal plants would be adversely impacted. Increased populations of weed species would threaten cultural and paleontological resources by increasing likelihood for erosion.

Cumulative Effects.

Unchecked growth and expansion of weeds would result in effects to cultural and paleontological resources on BLM administered lands and adjacent land. Without effective measures for weed control on BLM land, increased efforts for weed control would be required by neighboring land owners to prevent weeds from invading their lands. Absent effective control measures, weed infestations would continue to increase in those areas. Cultural features, historical and traditional use areas would be impacted forcing traditional users to seek other, nontraditional areas. Increasing agricultural development and urbanization of adjacent lands further impacts cultural and paleontological resources and reduces opportunities for maintaining and accessing traditional cultural resources outside of BLM administered lands.

**Livestock Grazing**

*Affected Environment:*

The proposed treatment areas are within or adjacent to 25 BLM livestock grazing allotments. No grazing is authorized in the Ringer Road, Yakima River Recreation, Sites, Chopaka Lake Campground, Salmon Creek and Wilson Creek treatment sites. Treatment has occurred in all of the allotments in the past. Livestock use is administered through the issuance of leases. The terms and conditions of the leases include the kind and number of livestock and the season of grazing use. With the exception of two allotments, the authorized grazing use is made by cattle. Horse grazing is authorized in one allotment within the Similkameen corridor and sheep grazing is authorized within the Liberty Recreation site treatment areas. The majority of cattle use is from March to October. The horse grazing is authorized in October and November. Sheep

briefly graze (no more than 3 days) the Liberty Recreation site in June and September before they go on and after they come off the National Forest.

Grazing occurs primarily in sage steppe and open forest rangelands. The plant communities within the treatment areas are generally in mid to late seral condition and provide suitable forage for livestock. The noxious weeds proposed for treatment are generally not palatable. Hounds tongue, and St. Johnswort are toxic to livestock. Russian knapweed and yellow star thistle are toxic to horses. Some weeds such as a kochia may be toxic depending on growing conditions. In addition, many of the weeds species may deter grazing by spines or bristles. Some weed species are palatable during certain growth periods. Sheep and cattle, as well as deer and elk, will graze diffuse knapweed at least through the bolting stage. Livestock will graze yellow star thistle before it has spines.

The grazing allotments provide an important source of forage for the grazing lessees whose ranching operations are dependent on the BLM lands for a portion or most of the growing season.

*Effects from Alternative 1 (Proposed Action):*

Direct and Indirect Effects:

The potential effects of herbicide application to livestock are analyzed in the Programmatic Environmental Impact Statement Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States (PEIS) chapter 4, pages 124-136. As stated in the PEIS, the extent of direct and indirect impacts to livestock would vary by the effectiveness of herbicide treatments in controlling target plants (that are not used as forage) and promoting the growth of native vegetation (that is used as forage), the extent and method of treatment (e.g., aerial vs. ground) and chemical used (e.g., toxic vs. non-toxic, selective vs. non-selective), the physical features of the terrain (e.g., soil type, slope), and the weather conditions (e.g., wind speed) at the time of application. The degree of exposure is determined in part by actual size of the area to which herbicides are applied and the amount of treated material consumed.

Direct spray impacts to livestock are not likely to occur. The proposed treatment methods apply herbicides within 3 feet of the ground. Label restriction and SOP will minimize drift.

The actual areas to which herbicide will be applied are small. Treatment within grazing allotments generally involves spot treatment of individual plants and treatment of patches less than 0.25 acres. According to the PEIS, four of the six herbicides to be applied are not likely to negatively affect livestock if applied at the label rates. These herbicides are picloram, clopyralid, chlorsulfuron, and metsulfuron. Diuron is a non selective herbicide and will eliminate most vegetation from the treated area hence chronic post treatment grazing is not likely. Livestock are at some risk due to 2,4-D ingestion according to the PEIS. The risk assessment performed for the PEIS suggests that large livestock eating large quantities of grass and other vegetation are at risk from routine exposure to 2,4-D, therefore 2,4-D should not be applied over large application areas where livestock would only consume contaminated food. As noted earlier, the actual areas to which the herbicide will be applied are small and the potential portion of contaminated forage consumed would be insignificant. Domestic livestock avoid weeds, especially cattle which avoid

weeds due to toxins, spines and/or distasteful compounds (BLM PEIS 2007)

According to the PEIS, there are no label restrictions for grazing for diuron, clopyralid, and chlorsulfuron. However, livestock should not be transferred from clopyralid treated areas to sensitive broadleaf crop areas without grazing on untreated areas for at least 7 days. Meat animals grazing picloram and 2,4-D treated areas should be removed 3 days prior to slaughter. There are no label restrictions for metsulfuron at application rates less than 1.66 active ingredient (a.i.) ounces per acre. The rate to be applied is 1.2 ounces a.i. per acre. *The above paragraph is for informational purposes, herbicide applicators should refer to product labels for specific formulation restrictions.* Generally, livestock are not slaughtered within 3 days of removal from the public lands because prior to slaughter they would be gathered, trailed or shipped back to home ranch and fed prior to slaughter.

In general, the proposed action would positively affect livestock operations by reducing the spread of noxious weeds which can displace more palatable forage. Proper herbicide use would benefit livestock by controlling toxic and/or unpalatable noxious weeds and promoting the establishment and growth of plants that are more desirable for forage. The proposed action is an important part of the Spokane District's successful program to reduce, control and contain noxious weed infestations. Invasive plants typically increase at about 14% per year if unchecked (Asher and Harmon 1996).

#### Cumulative Effects.

Other factors affecting livestock operations and livestock grazing capacity increased rural home development, road construction, conversion of rangelands to crop agriculture, and noxious weed infestations on adjacent lands. The proposed action would result in potential long term benefits to livestock operations and livestock grazing capacity while the magnitude of the benefits is small compared to that of the past actions, the proposed action can help to reduce the ongoing effects of those past actions.

While livestock in allotments with mixed ownership may be exposed to herbicides applied adjacent lands, additional exposure while on BLM lands will be minimal because the actual areas to which the herbicide will be applied are small and the potential portion of total diet of contaminated forage consumed would be insignificant. Domestic livestock, especially cattle, avoid weeds due to toxins, spines and/or distasteful compounds (BLM PEIS 2007)

#### *Alternative 2 No Action:*

#### Direct and Indirect Effects :

This action would negatively affect livestock operations by allowing the spread of noxious weeds which can displace more palatable forage. Toxic and/or unpalatable noxious weed infestations would increase in size and number. Noxious weed populations will expand rapidly without control. As mention in the vegetation section, a recent estimate of weed spread on all western federal land is 10% to 15% annually (Asher and Dewey 2005). The estimated rate of weed spread on western public lands in 1996 was 2,300 acres per day (USDI BLM 1996). Noxious weed including spotted, diffuse and Russian knapweed, leafy spurge and yellow star thistle can move into excellent condition stands of native vegetation (Harris 1991). Weeds can

outcompete native plants and reduce the grazing capacity of weed infested land by up to 75% (Sheley and Petroff 1999). Grazing capacity of knapweed infested land in Montana for cattle have been reduced by 63% (Olson 1999).

Under Alternative 2, livestock would not be directly affected by contractor applied herbicides on BLM lands in Washington.

#### Cumulative Effects.

Livestock operations and livestock grazing capacity particularly in rangeland settings have been negatively affected by increased rural development and the associated road development, conversion of pasture lands and hay fields to crop agriculture and weed infestations on adjacent lands. If weeds are not controlled, their spread could further negatively impact livestock grazing operations and reduce forage production at the local level. Forage production on BLM lands may not be important at the state scale. There are within Washington there are 5,861,000 acres of non federal rangelands used for grazing within Washington State (USDA NRCS 2007). There are roughly 314,000 acres of BLM lands within 372 grazing allotments, BLM rangelands represent are roughly 5% of rangelands used for grazing within Washington State. The twenty five allotments represent a small subset of the BLM allotments.

### **LIST OF PREPARERS**

Rick McComas, Spokane District Weed Coordinator  
Rich Bailey, District Archaeologist  
Madilane Perry, Archaeologist  
Barb Benner, Border Resource Area Botanist  
Dana Peterson, Wenatchee Resource Area Range Specialist  
Joe Kelly, Wenatchee Resource Area Riparian and Fisheries Specialist  
Jason Lowe, Spokane District Wildlife Biologist  
Scott Pavey, Spokane District Planning & Environmental Coordinator  
Steve A. Smith, Spokane District Outdoor Recreation Planner

### **CONSULTATION**

Consultation was initiated with:  
Confederated Tribes of the Colville Reservation, (3-17-2009)  
Confederated Tribes of the Umatilla Indian Reservation, (3-17-2009)  
Department of Archaeology and Historic Preservation, (3-17-2009)  
Spokane Tribe of Indians, (3-17-2009)  
Wanapum Band of Indians, (3-17-2009)  
Yakama Indian Nation, (3-17-2009)

### **REFERENCES CITED**

Asher, J.E., and S.A. Dewey. 2005. Estimated Annual Rates of Weed Spread on Western Federal Wildlands. Draft White Paper. Federal Interagency Committee for Management of Noxious and Exotic Weeds (FICMNEW). Washington, D.C.

- Asher, J.E., and D. W. Harmon. May 1996. Invasive Exotic Plants are Destroying the Naturalness of U.S. Wilderness Areas, *International Journal of Wilderness* Volume 2 (6-87)
- Ferguson, H and J. Azerrad. Not dated. Management recommendations for Washington's priority species: pallid bat (*Antrozous pallidus*). 10 p. Available <http://wdfw.wa.gov/hab/phs/vol5/anpa.pdf>
- Harris, G. A. 1991. Grazing Lands of Washington State. *Rangelands*, 13:222-227
- Hart, C.M., O.S. Lee, and J.B. Low. 1950. The sharp-tailed grouse in Utah. Utah Department of Fish and Game Publication 3.
- Haug, E. A., and A. B. Didiuk. 1991. Updated status report on the burrowing owl *Athene cunicularia hyugaea* in Canada. Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 29 pp.
- Hill, D. P. 1998. Status of the Long-billed Curlew (*Numenius americanus*) in Alberta. Alberta Environment, Fisheries & Wildlife Management Division, and Alberta Conservation Association, Wildlife Status Report No. 16, Edmonton, AB. 20 pp.
- NatureServe. 2009. Nature Serve Explorer: An online encyclopedia of life [web application]. Version 7.1. Nature Serve, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: March 15, 2009).
- Olson, B.E. 1999. Grazing and Weeds. Page 13 in *Biology and Management of Noxious Rangeland Weeds* (R.L. Sheley and J.K. Petroff, eds.). Oregon State University Press. Corvallis, Oregon
- Ruediger, B., J. Claar, S. Gniadek, B. Holt, L. Lewis, S. Mighton, B. Naney, G. Patton, T. Rinaldi, J. Trick, A. Vandehey, F. Wahl, N. Warren, D. Wenger, and A. Williamson. 2000.
- Canada Lynx Conservation Assessment and Strategy. USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Forest Service Publication #R1-00-53, Missoula, MT. 142 pp.
- Sheley R. L., J.K. Petroff, M. M. Borman 1999a. Pages 1 in *Biology and Management of Noxious Rangeland Weeds* (R.L. Sheley and J.K. Petroff, eds.). Oregon State University Press. Corvallis, Oregon.
- USDA. 2003. Picloram human health and ecological risk assessment final report. United States Department of Agriculture (USDA), Forest Service, Forest Health Protection, Arlington, VA. Unpaginated. Available <http://www.fs.fed.us/foresthealth/pesticide/risk.shtml>
- USDA. 2004. Clopyralid human health and ecological risk assessment final report. United States

- Department of Agriculture (USDA), Forest Service, Forest Health Protection, Arlington, VA. Unpaginated. Available <http://www.fs.fed.us/foresthealth/pesticide/risk.shtml>
- USDA. 2006. 2,4-D human health and ecological risk assessment final report. United States Department of Agriculture (USDA), Forest Service, Forest Health Protection, Arlington, VA. Unpaginated. Available <http://www.fs.fed.us/foresthealth/pesticide/risk.shtml>
- USEPA. Not dated. Environmental Risk Assessment for the Reregistration of Diuron. United States Environmental Protection Agency, Office of Prevention, Pesticide and Toxic Substances. Washington D.C. Unpaginated. Available [http://www.epa.gov/espp/litstatus/effects/diuron\\_efed\\_chapter.pdf](http://www.epa.gov/espp/litstatus/effects/diuron_efed_chapter.pdf)
- USDA NRCS 2007. National Resources Inventory 2003 Annual NRI Non Federal Grazing Land. Available page 6.  
<http://www.nrcs.usda.gov/technical/NRI/2003/statereports/table1.html>
- USDI, 1985. Spokane Resource Management Plan/EIS. Spokane District Office, Spokane Valley, Washington. 202 pp.
- USDI. 1993. Grizzly bear recovery plan. Missoula, MT. 181 pp.
- USDI. 2007. Vegetation treatments on Bureau of Land Management lands in 17 western states programmatic environmental assessment. United States Department of Interior Bureau of Land Management, Nevada State Office, Reno, NV. Unpaginated. Available [http://www.blm.gov/wo/st/en/prog/more/veg\\_eis.html](http://www.blm.gov/wo/st/en/prog/more/veg_eis.html)
- U.S. Department of the Interior Bureau of Land Management (USDI BLM). 2007. Final Programmatic Environmental Impact Statement Vegetation Treatment using Herbicides on Bureau of Land Management Lands in 17 Western States. BLM Washington Office, Washington D.C.
- USDI BLM 1996. Partners Against Weeds: An Action Plan for the Bureau of Land Management. Washington, D.C.
- Whitson, T.D. (ed.) 1996. Weeds of the West. The Western Society of Weed Science. Jackson, Wyoming.

## **APPENDICES**

- Appendix A: List of Weeds and Pesticides
- Appendix B: Maps of Treatment Locations
- Appendix C: Document Treatment Control Factors
- Appendix D: Standard Operating Procedures
- Appendix E: 2003-2008 Noxious Weed Site Observations-Spokane District

## Appendix A

### Proposed Contract Work for Noxious Weed Control-Spokane District

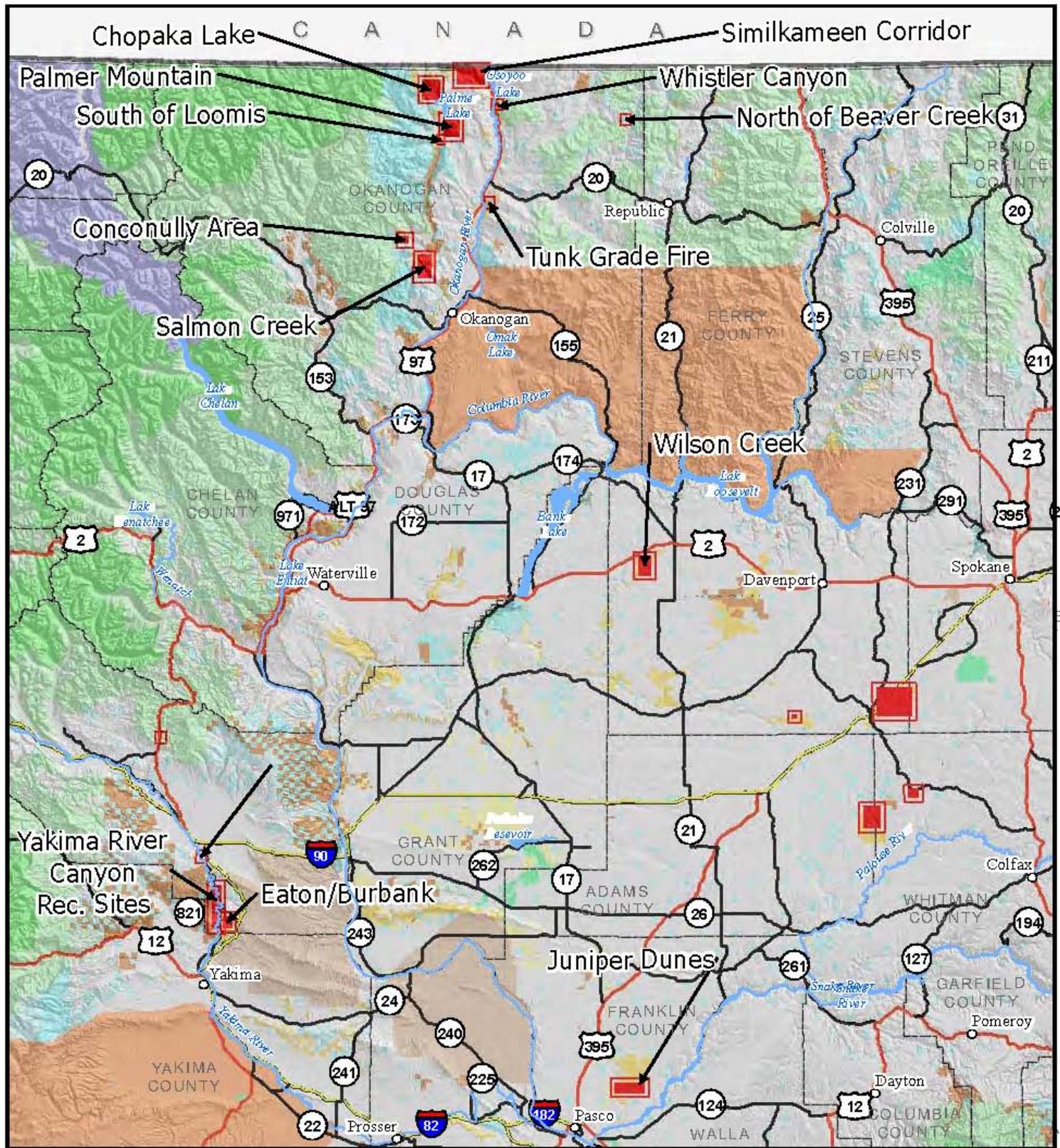
Project Area	County/Legal	Target Weed Species	Herbicides	Maximum Application Rate	Application Method	Treatment Acres	Treatment Times	Land Designation
Packer Creek	Whitman T. 19N., R. 40 E Sec. 29Sec. 31	-Rush Skeletonweed -St. Johnswort -Canada Thistle	Picloram  2, 4-D Amine	1.0# a.i./acre  2.0# a.i./acre	-4x4 Truck & ATV w/ boom -Backpack Sprayer	60	Fall	Rangeland/Riparian
Escure Ranch	Whitman/Adams T. 18N R. 38E Sec. 12-14 T. 18N R. 39E Sec. 17-19, 30, 31	-Scotch Thistle -Whitetop -Russian Knapweed -Rush Skeletonweed -Canada Thistle	Picloram  2, 4-D Amine  Clopyralid  Chlorsulfuron	1.0# a.i./acre  2.0# a.i./acre  0.5# a.i./acre  0.05# a.i./acre	-4x4 Truck & ATV w/ boom -Backpack Sprayer	70	Spring/Fall	Rangeland/Riparian
Fishtrap/Miller Ranch	Lincoln/Spokane T. 22N R. 40E Sec. 19, 30 T. 22N R. 39E Sec. 24, 35 T. 21n R. 39E Sec. 7,8,17	-Dalmation Toadflax -Rush Skeletonweed -Canada Thistle	Picloram  2, 4-D Amine  Clopyralid  Chlorsulfuron	1.0# a.i./acre  2.0# a.i./acre  0.5# a.i./acre  0.047# a.i./acre	-4x4 Truck & ATV w/ boom -Backpack Sprayer	70	Fall	Rangeland/Timber
Goose Butte	Lincoln T. 21N R. 36 E Se. 15, 22	-Rush Skeletonweed	Picloram  Clopyralid	1.0# a.i./acre  0.5# a.i./acre	-4x4 Truck w/ boom	20	Fall	Rangelend
Wilson Creek	Lincoln T. 26N R. 32 E Sec. 29-32 T. 25N R. 31 E Sec. 12	-Whitetop -Canada Thistle -Dalmation Toadflax	2, 4-D Amine  Chlorsulfuron	2.0# a.i./acre  0.05# a.i./acre	-4x4 Truck & ATV w/ boom -Backpack Sprayer	55	Spring	Rangeland/Riparian
Juniper Dunes	Franklin T. 10N R. 32E Sec. 18, 20 T. 10N R. 31E Sec. 13, 16, 24	-Scotch Thistle -Diffuse Knapweed -Yellow Starthistle	Picloram  2, 4-D Amine	1.0# a.i./acre  2.0# a.i./acre	-4x4 Truck & ATV w/ boom	40	Spring	Rangeland
Palmer Mountain	Okanogan T. 38N R. 26E Sec. 4-5 T. 39N R. 26E Sec. 16-21, 27-33	-Diffuse Knapweed -Canada Thistle -Kochia -Houndstongue -St. Johnswort	Picloram  Clopyralid  Metsulfuron	1.0# a.i./acre  0.5# a.i./acre  0.075# a.i./acre	-4x4 Truck & ATV w/ boom -Backpack Sprayer	135	Spring/Fall	Rangeland/Roads/Timber

Project Area	County/Legal	Target Weed Species	Herbicides	Maximum Application Rate	Application Method	Treatment Acres	Treatment Times	Land Designation
			Diuron	6.0# a.i./acre				
Liberty Recreation Site	Kittitas T. 20N R. 17E Sec 10, 11	-Diffuse Knapweed -Meadow Knapweed -Canada Thistle	Picloram 2, 4-D Amine Clopyralid	1.0# a.i./acre 2.0# a.i./acre 0.5# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	10	Fall	Timber/Riparian
Ringer Road	Kittitas T. 17N R. 18E Sec. 25	-Diffuse Knapweed -Houndstongue -Perennial Pepperweed -Canada Thistle -St. Johnswort -Dalmation Toadflax	Picloram 2, 4-D Amine Clopyralid Metsulfuron	1.0# a.i./acre 2.0# a.i./acre 0.5# a.i./acre 0.075# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	20	Spring/Fall	Riparian/Timber
Eaton/Burbank	Kittitas T. 15N R. 19E Sec. 22, 26	-Kochia -Whitetop -Russian Knapweed -Perennial Pepperweed -Canada Thistle	Picloram 2, 4-D Amine Clopyralid Chlorsulfuron Diuron	1.0# a.i./acre 2.0# a.i./acre 0.5# a.i./acre 0.05# a.i./acre 6.0# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	30	Spring/Fall	Rangeland
Yakima River Canyon- Recreation Sites	Kittitas T. 15N R. 19E Sec. 4, 28, 33 T. 16N R. 19E Sec. 20	-Kochia -Russian Knapweed -Diffuse Knapweed -Canada Thistle -Perennial Pepperweed -Puncturevine	Picloram 2, 4-D Amine Clopyralid Chlorsulfuron	1.0# a.i./acre 2.0# a.i./acre 0.5# a.i./acre 0.05# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	10	Spring/Fall	Riparian/Timber
Whistler Canyon	Okanogan T. 39N R. 27E Sec. 3, 10	-Diffuse Knapweed	Picloram 2, 4-D Amine	1.0# a.i./acre 2.0# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	3	Spring	Roads

Project Area	County/Legal	Target Weed Species	Herbicides	Maximum Application Rate	Application Method	Treatment Acres	Treatment Times	Land Designation
			Clopyralid	0.5# a.i./acre				
Similkameen Corridor	Okanogan T. 40N R. 26E Sec. 1-4, 9-11 T. 40N R. 27E Sec. 6-8, 17-19	- Diffuse Knapweed -Russian Knapweed -Dalmation Toadflax -Canada Thistle -Houndstongue	Picloram 2, 4-D Amine Clopyralid Chlorsulfuron	1.0# a.i./acre 2.0# a.i./acre 0.5# a.i./acre 0.05# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	120	Spring/Fall	Roads/Rangeland
Chopaka Lake	Okanogan T. 40N R. 25E Sec. 14,15,22,33	- Diffuse Knapweed -Canada Thistle -Houndstongue	Picloram 2, 4-D Amine Clopyralid	1.0# a.i./acre 2.0# a.i./acre 0.5# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	15	Spring	Roads/Timber
North of Beaver Creek	Okanogan T. 39N R. 31E Sec. 21	-Canada Thistle -Musk Thistle - Diffuse Knapweed	Picloram 2, 4-D Amine Clopyralid	1.0# a.i./acre 2.0# a.i./acre 0.5# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	3	Spring	Roads/Timber
Salmon Creek	Okanogan T. 34N R. 25E Sec. 15 T. 35N R. 25E Sec. 21, 28, 29, 32,33	- Diffuse Knapweed -Canada Thistle -St. Johnswort	Picloram 2, 4-D Amine Clopyralid	1.0# a.i./acre 2.0# a.i./acre 0.5# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	7	Spring	Roads
Tunk Grade Fire	Okanogan T. 36N R. 27E Sec. 3	-Russian Knapweed	Picloram Clopyralid 2, 4-D Amine	1.0# a.i./acre 0.5# a.i./acre 2.0# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	5	Fall	Roads/Timber
South of Nighthawk	Okanogan T. 40N R. 25E Sec. 13, 14, 23, 24	-Diffuse Knapweed	Picloram Clopyralid 2, 4-D Amine	1.0# a.i./acre 0.5# a.i./acre 2.0# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	2	Spring	Roads/Range/Timber

Project Area	County/Legal	Target Weed Species	Herbicides	Maximum Application Rate	Application Method	Treatment Acres	Treatment Times	Land Designation
South of Loomis	Okanogan T. 38N R. 25 E Sec. 12	- Diffuse Knapweed	Picloram 2, 4-D Amine Clopyralid	1.0# a.i./acre 2.0# a.i./acre 0.5# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	1	Spring	Roads/Timber
Conconully	Okanogan T. 35N R. 24E Sec. 1, 2, 13	-Diffuse Knapweed -Canada Thistle -St. Johnswort	Picloram Clopyralid 2, 4-D Amine	1.0# a.i./acre 0.5# a.i./acre 2.0# a.i./acre	-4x4 Truck w/ boom -Backpack sprayer	20	Spring/Fall	Roads/Timber

# Spokane District Weed Treatment Areas



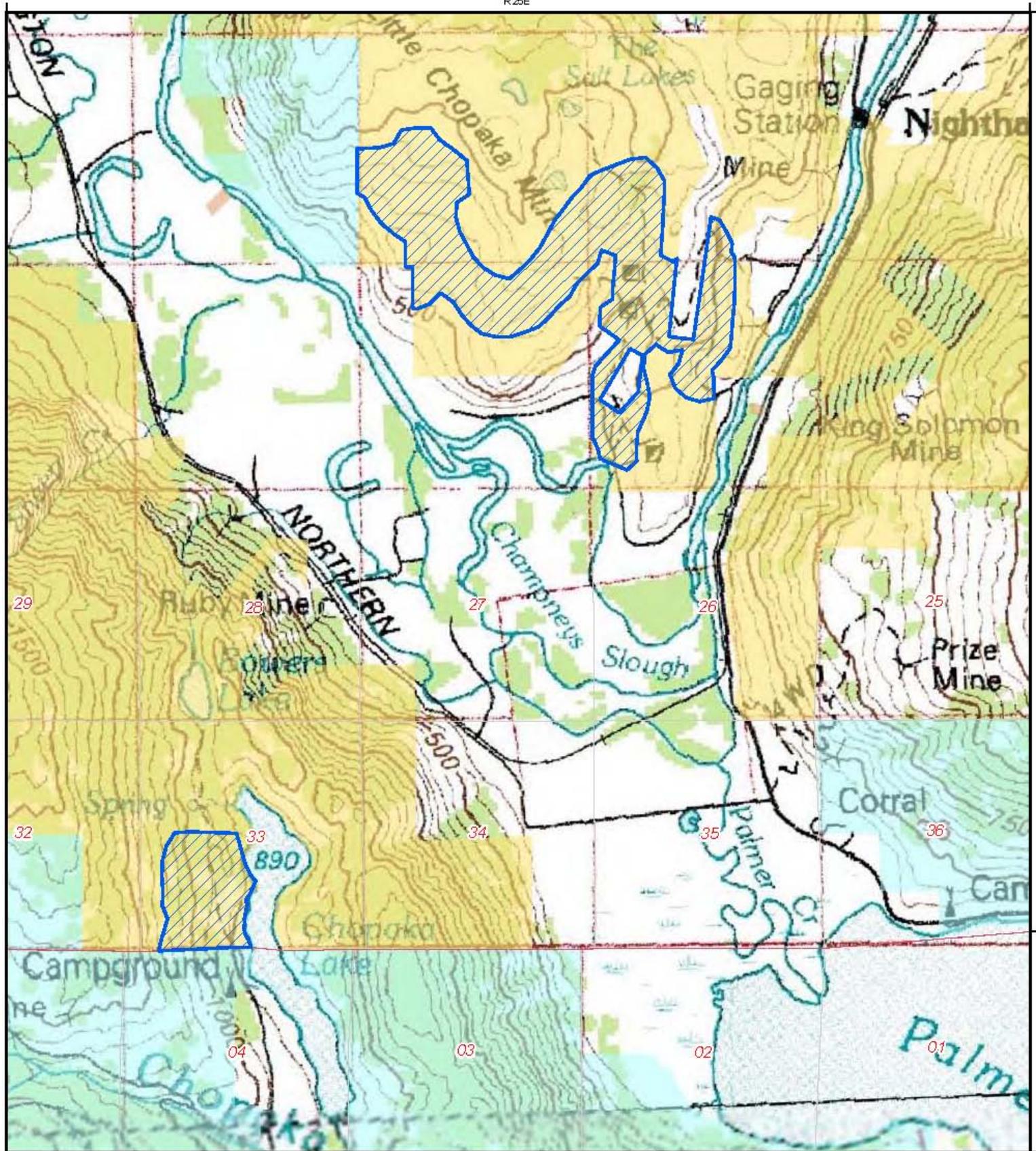
- |  |                                |  |                               |
|--|--------------------------------|--|-------------------------------|
|  | General Treatment Location     |  | Indian Reservation            |
|  | Bureau of Land Management      |  | Bureau of Reclamation         |
|  | Withdrawn Lands                |  | Forest Service                |
|  | DNR Lands                      |  | Forest Service Wilderness     |
|  | National Parks Service         |  | County or City Government     |
|  | U.S. Fish and Wildlife Service |  | Other Federal                 |
|  | WA Dept. of Fish and Wildlife  |  | WA State Parks and Recreation |



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were accepted from various sources and may be updated without new issuance.

# Chopaka Lake Treatment Area

R25E



-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands

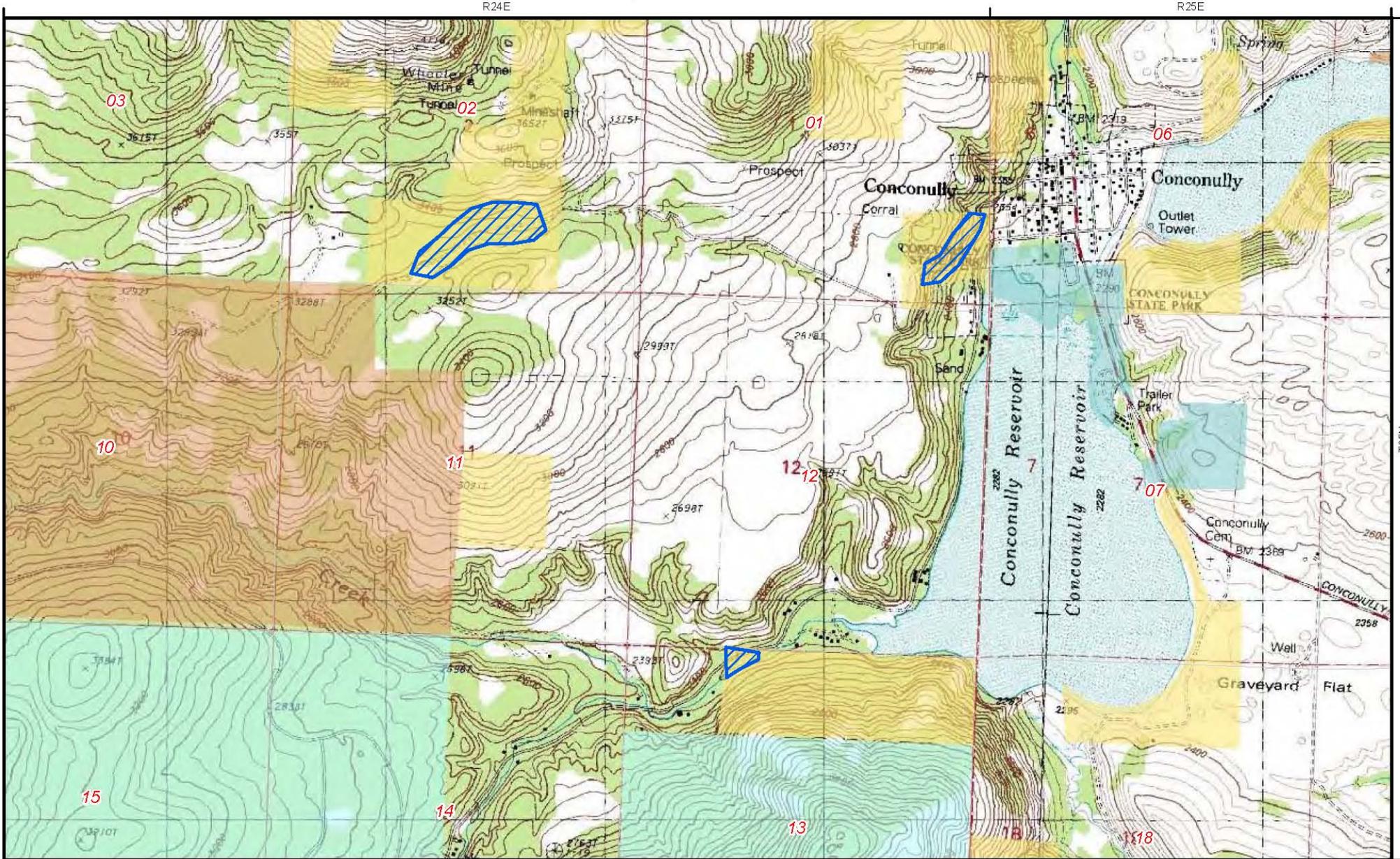


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

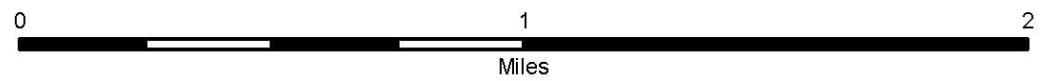


WASHINGTON

# Conconully Treatment Area



-  Application from Road
-  Bureau of Land Management
-  WA Dept. of Fish and Wildlife
-  DNR Lands
-  WA State Parks and Recreation

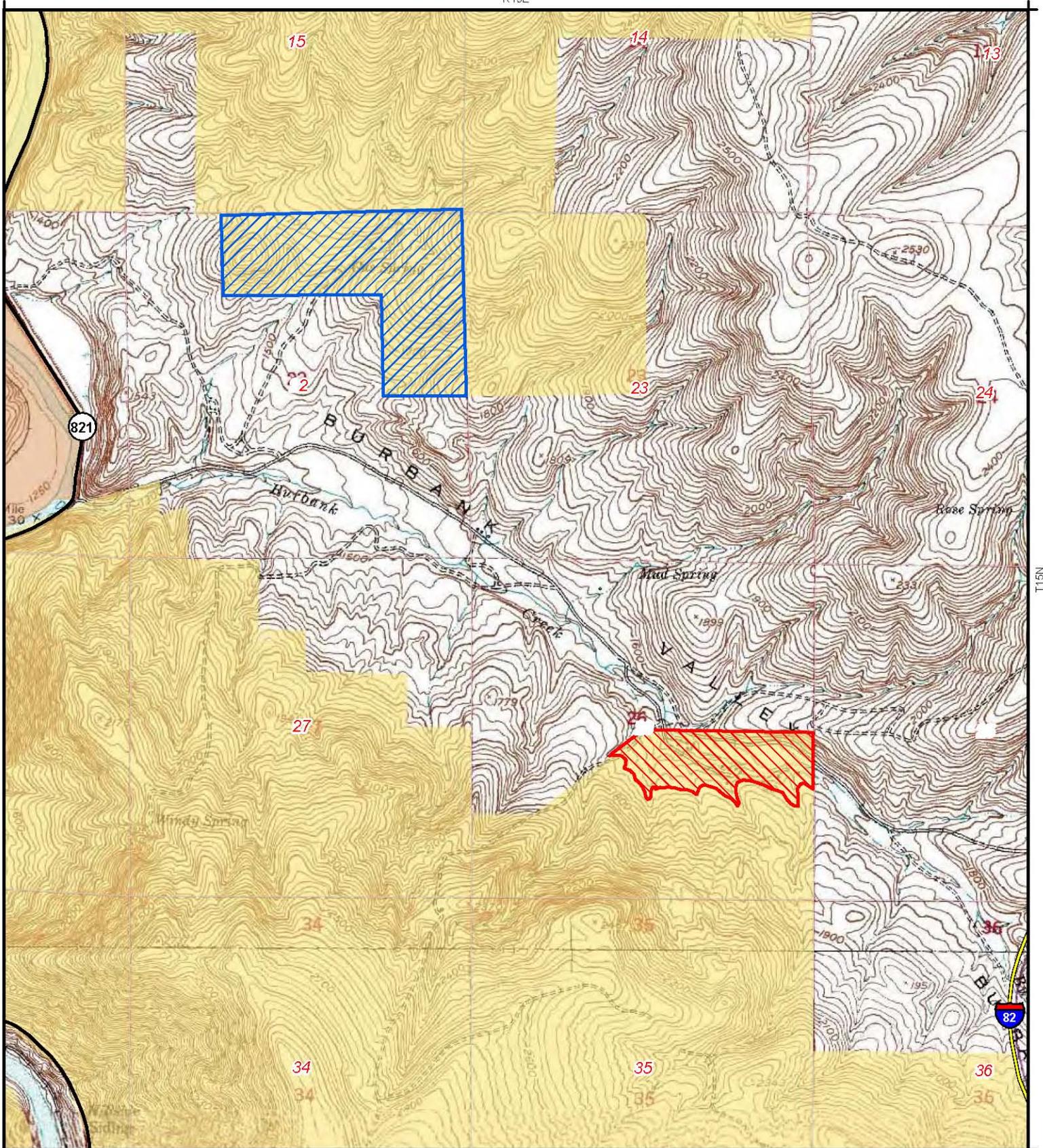


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

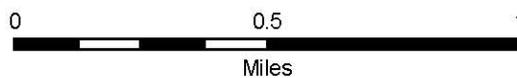


# Eaton / Burbank Creek Treatment Area

R 19E



-  Application from Road Spot Treatment
-  Off Road Application
-  Bureau of Land Management
-  DNR Lands
-  WA Dept. of Fish and Wildlife

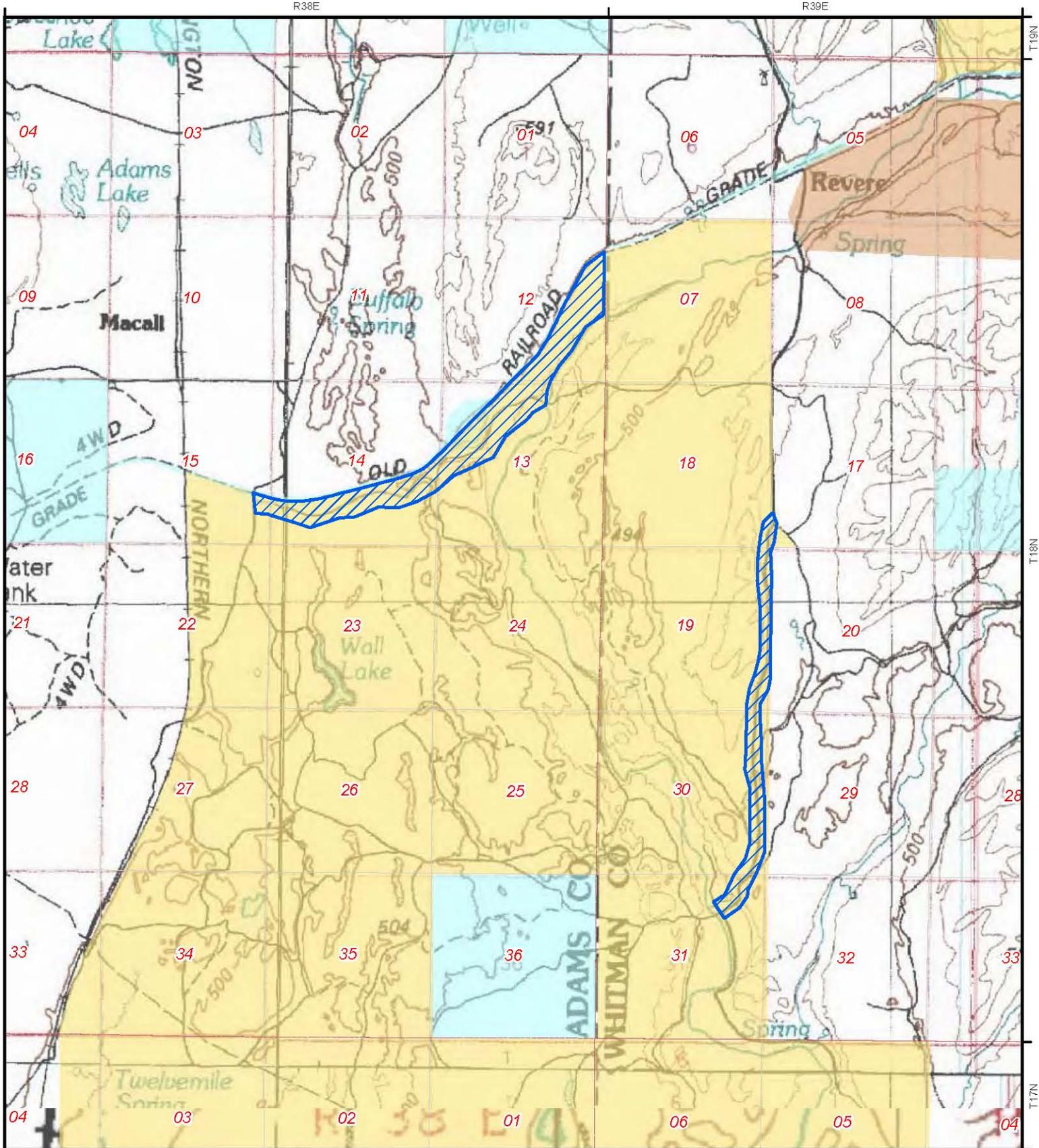


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

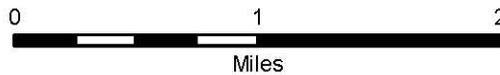


WASHINGTON

# Escure Ranch Treatment Area



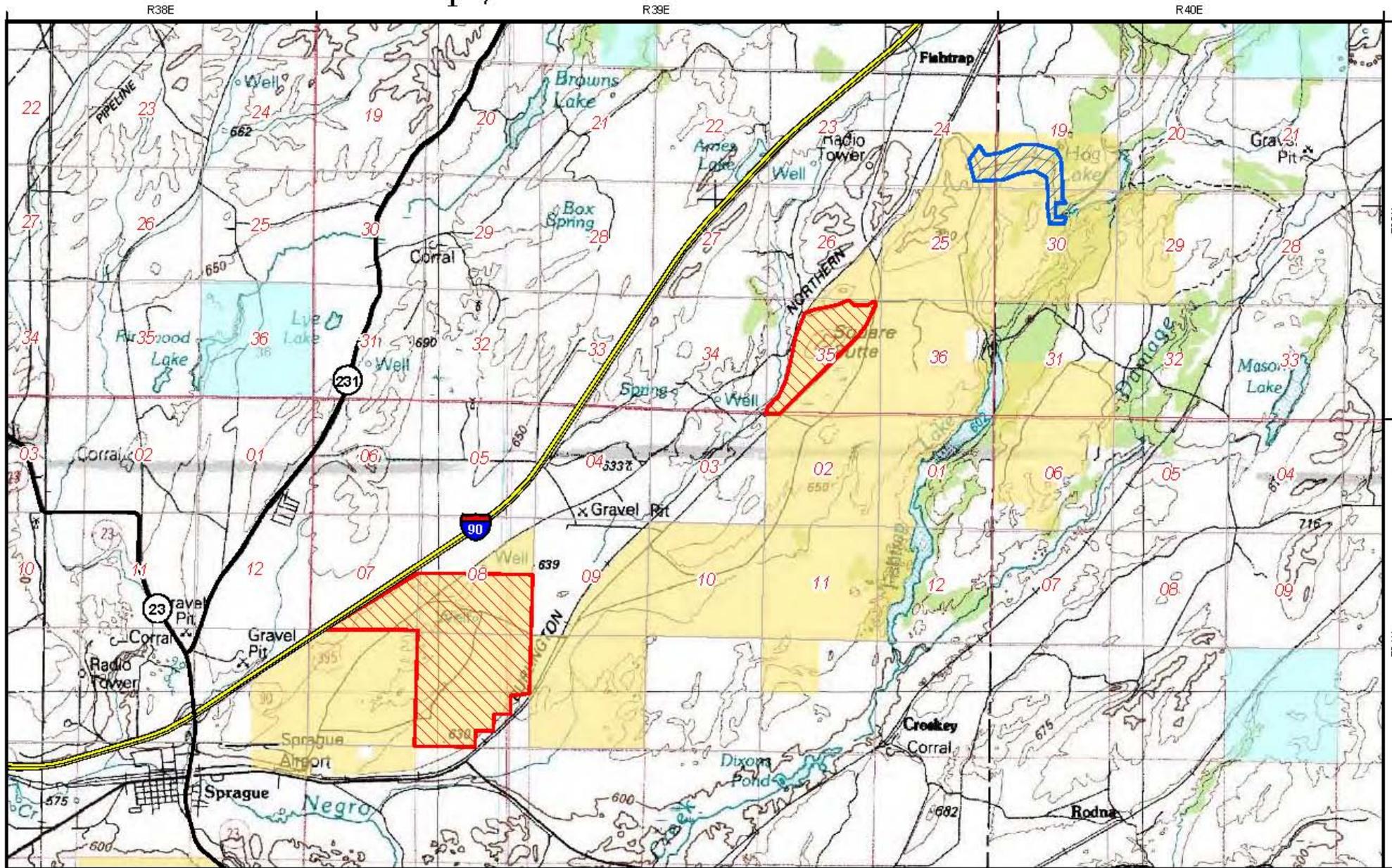
-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands
-  WA Dept. of Fish and Wildlife



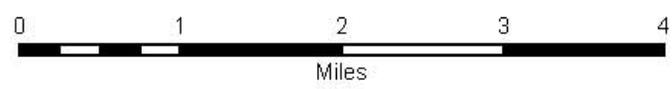
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



# Fishtrap / Miller Ranch Treatment Area



-  Off Road Application
-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands

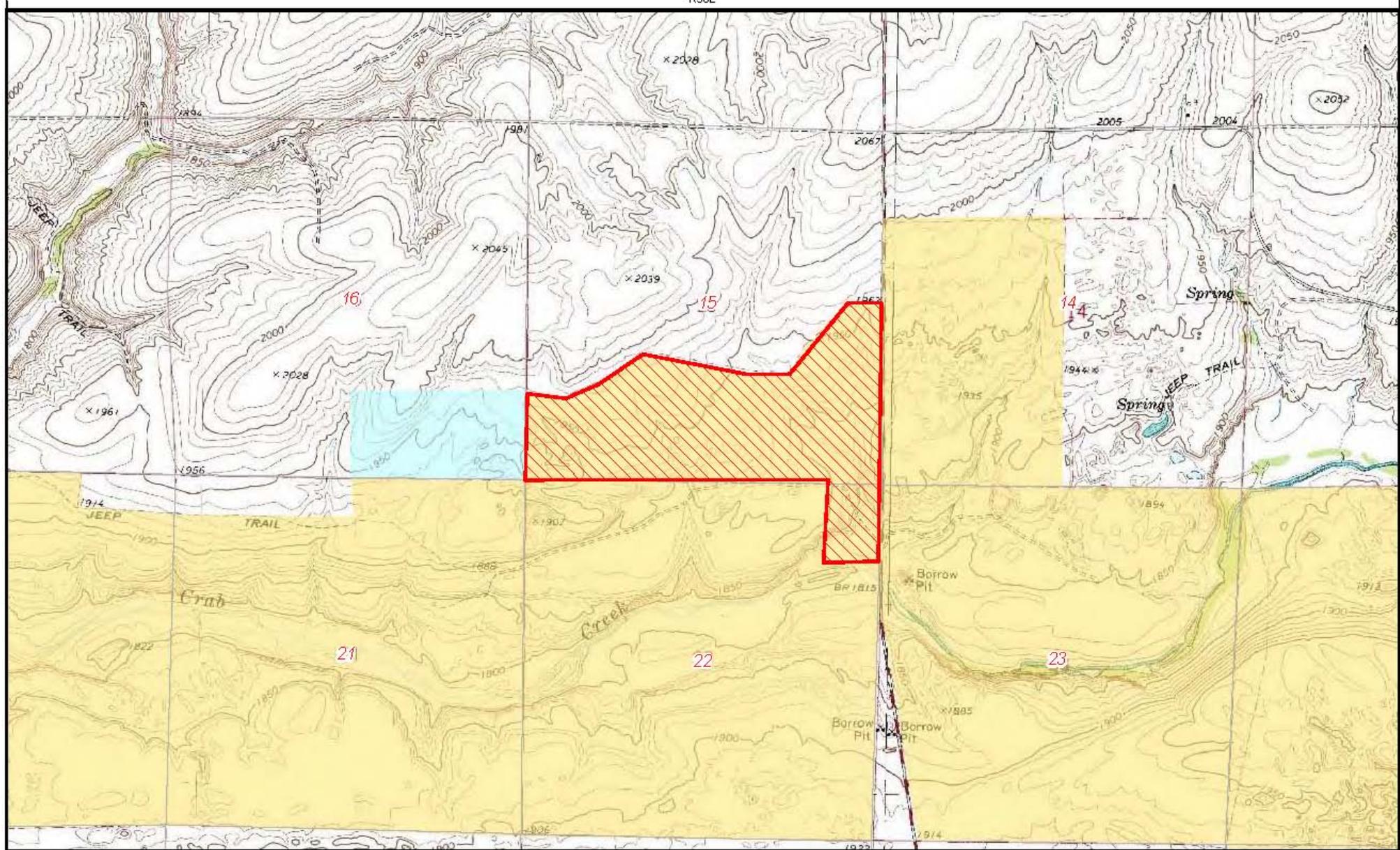


No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use without that data. Original data were compiled from various sources and may be updated without notification.

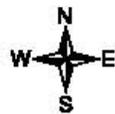
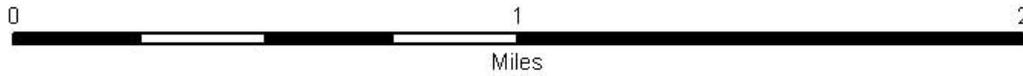


# Goose Butte Treatment Area

R36E



-  Off Road Application
-  Bureau of Land Management
-  DNR Lands

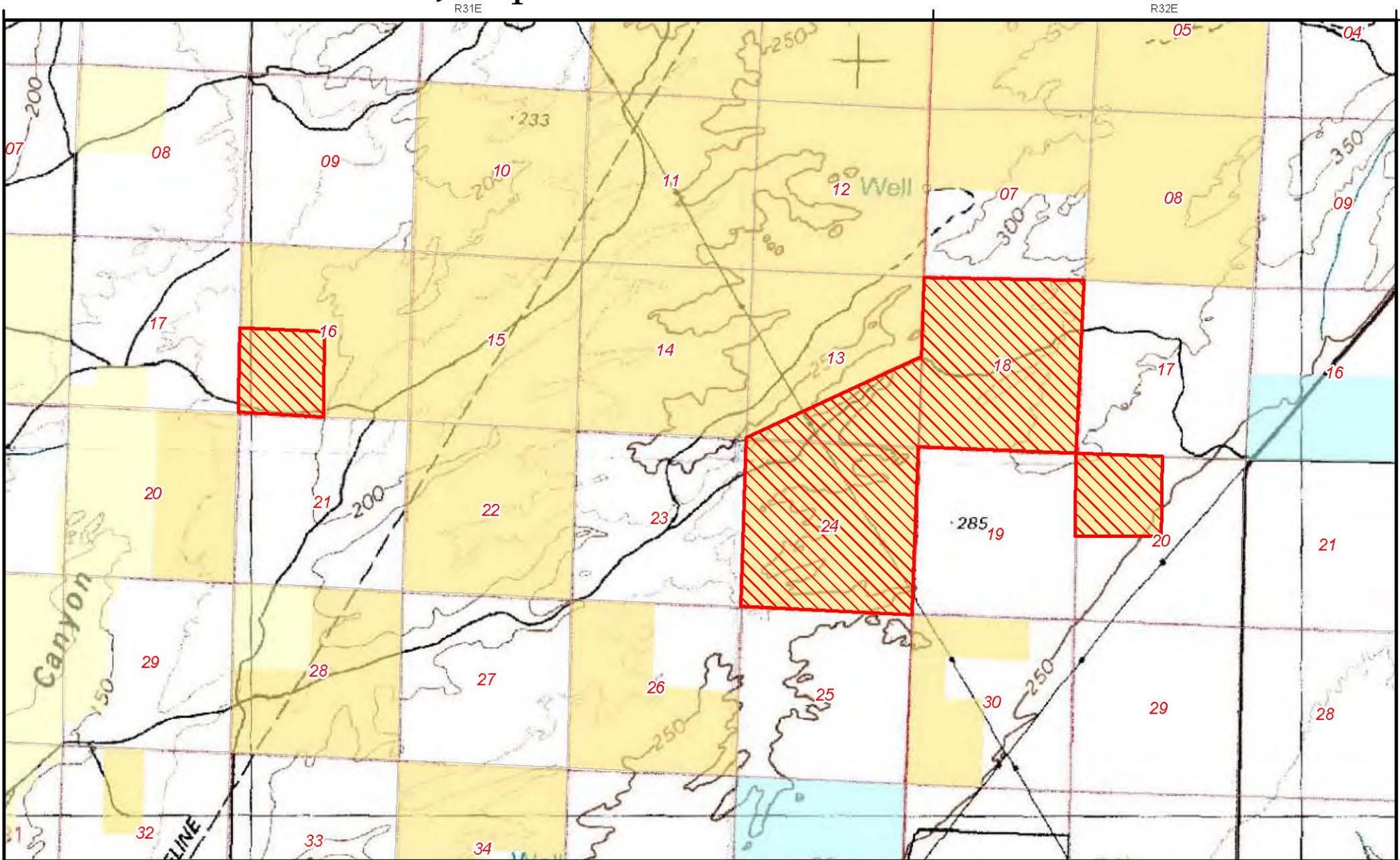


No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use without their data. Original data were compiled from various sources and may be updated without notice.

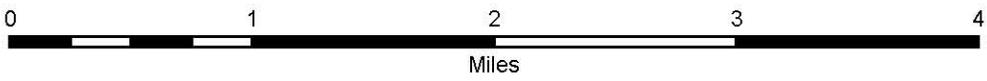


T21N

# Juniper Dunes Treatment Area



-  Off Road Application
-  Bureau of Land Management
-  DNR Lands
-  Bureau of Reclamation



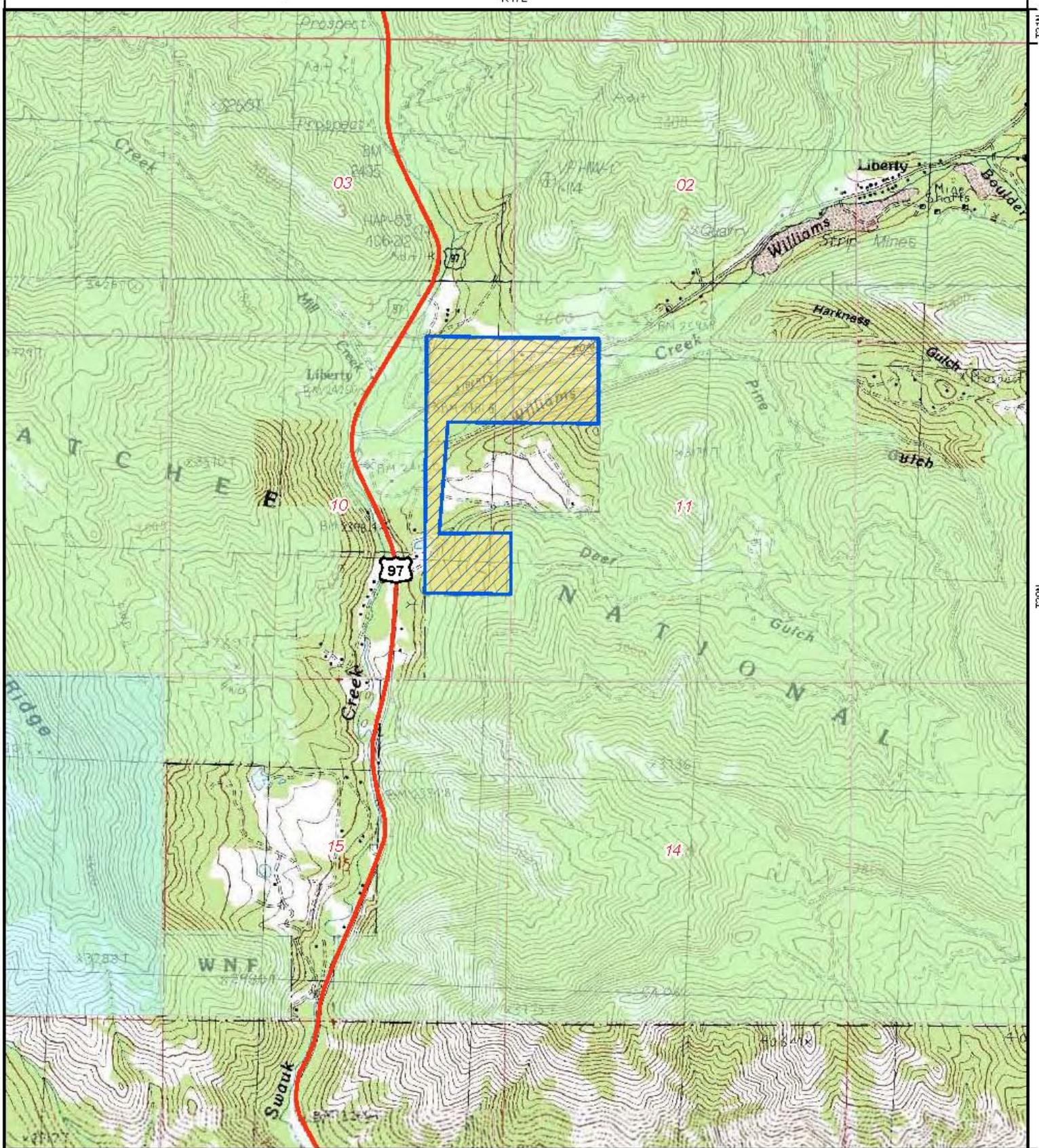
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



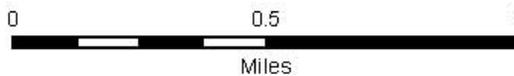
# Liberty Recreation Site Treatment Area

R17E

T21N



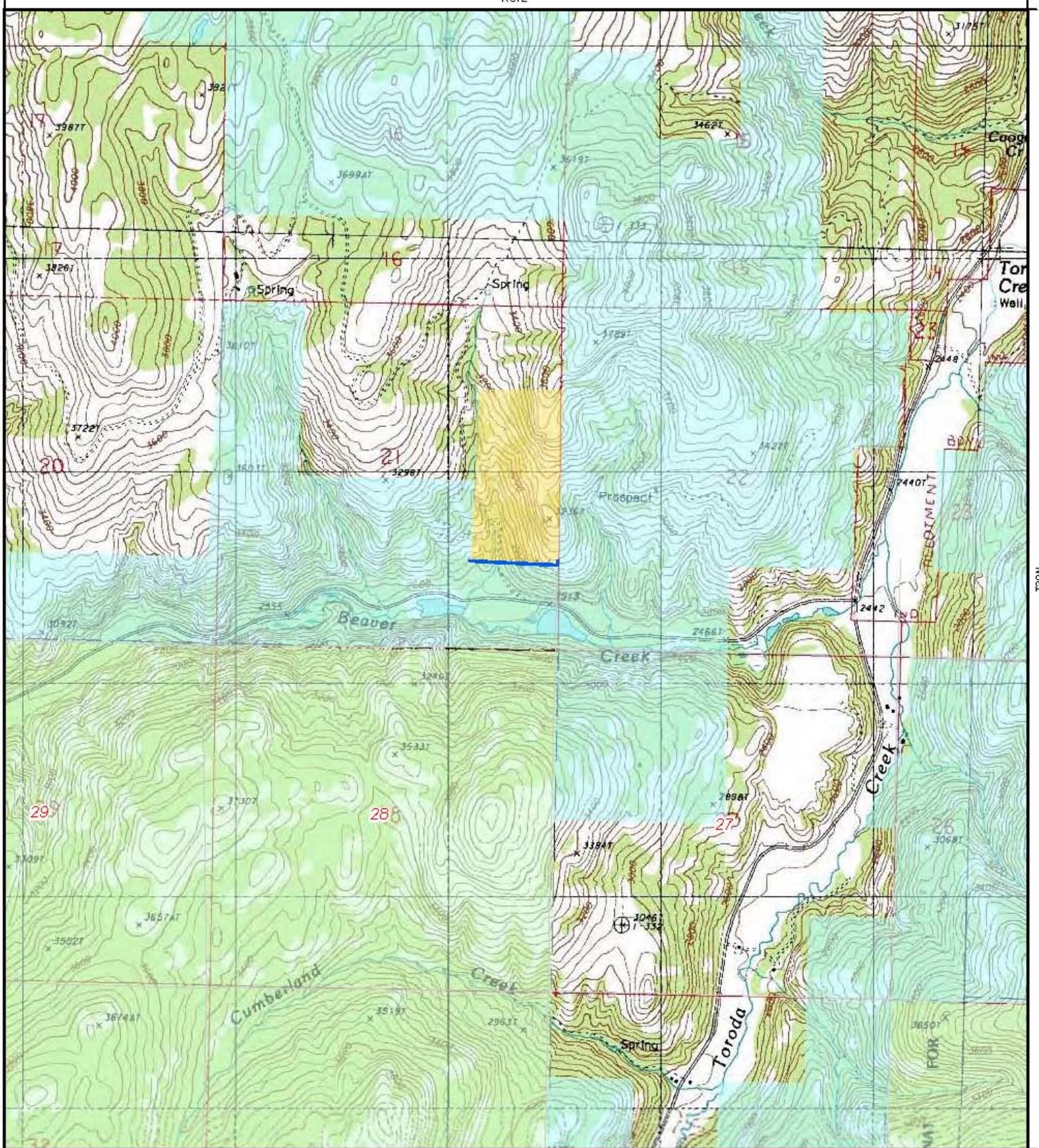
-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands
-  Forest Service



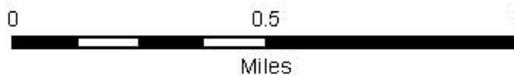
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use without the data. Original data were compiled from various sources and may be updated without notification.

# North of Beaver Creek Treatment Area

R31E



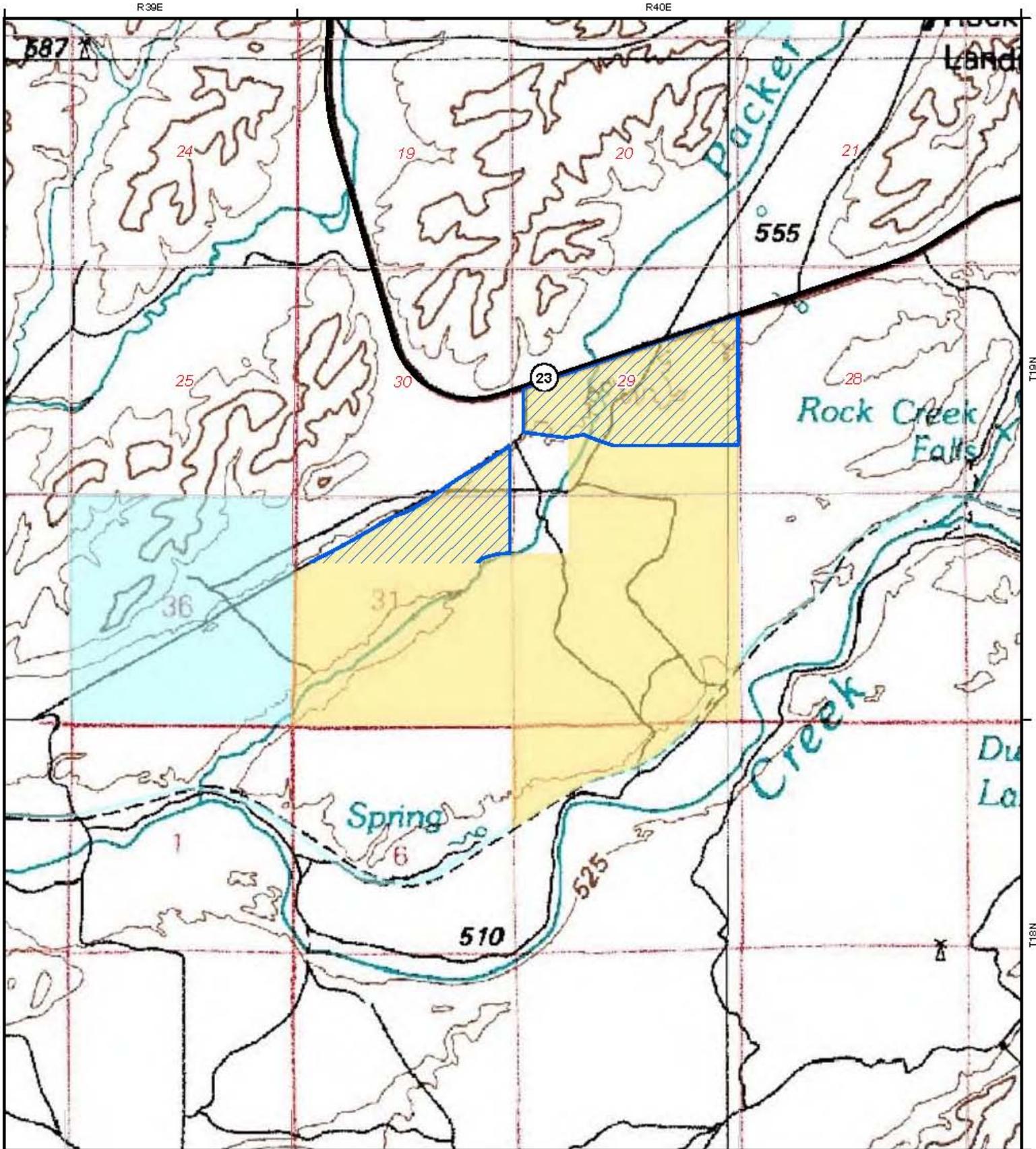
-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands
-  Forest Service



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were accepted from various sources and may be updated without notification.

WASHINGTON

# Packer Creek Treatment Area

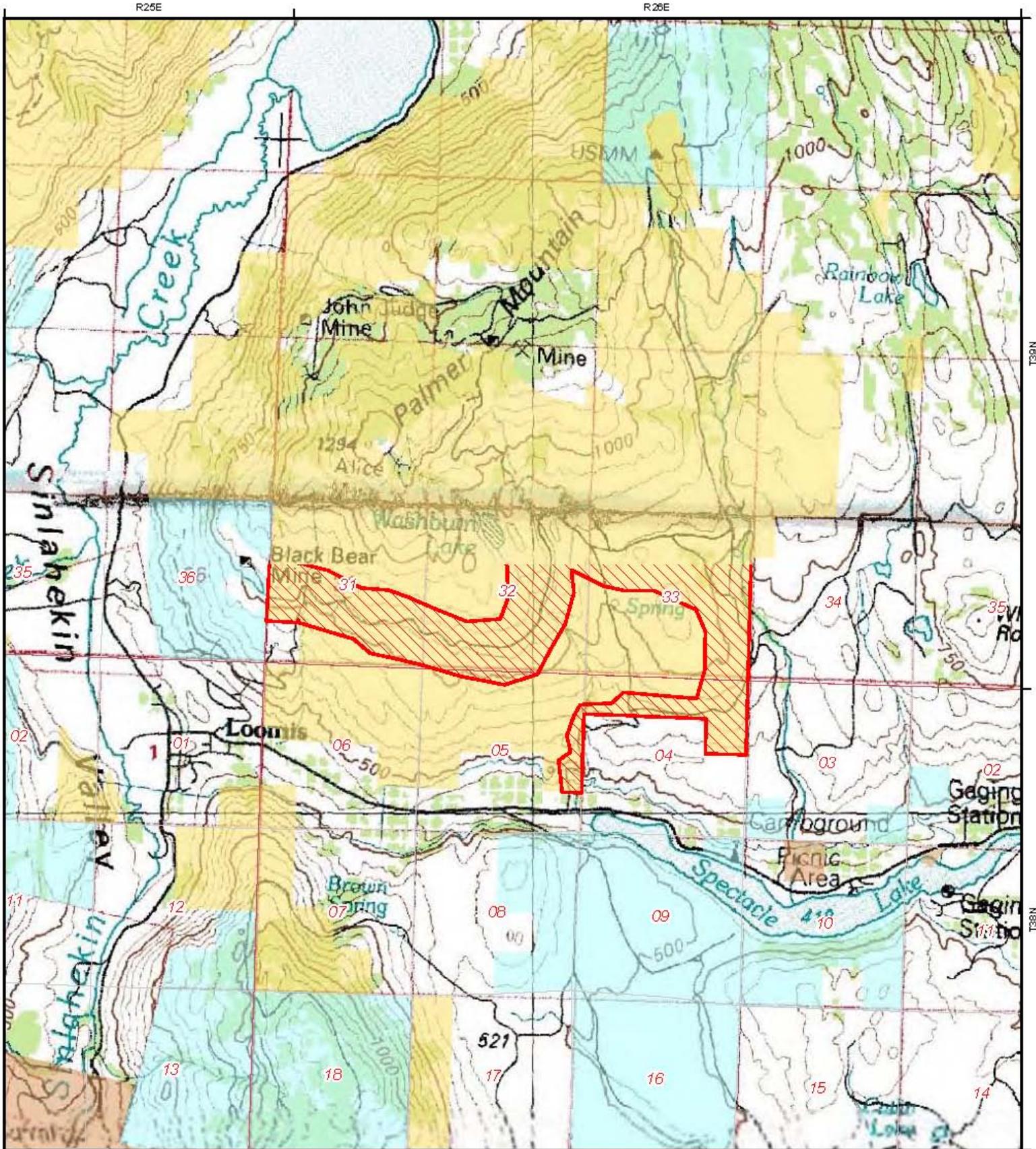


-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

# Palmer Mountain Treatment Area



-  Off Road Application
-  Bureau of Land Management
-  DNR Lands
-  WA Dept. of Fish and Wildlife

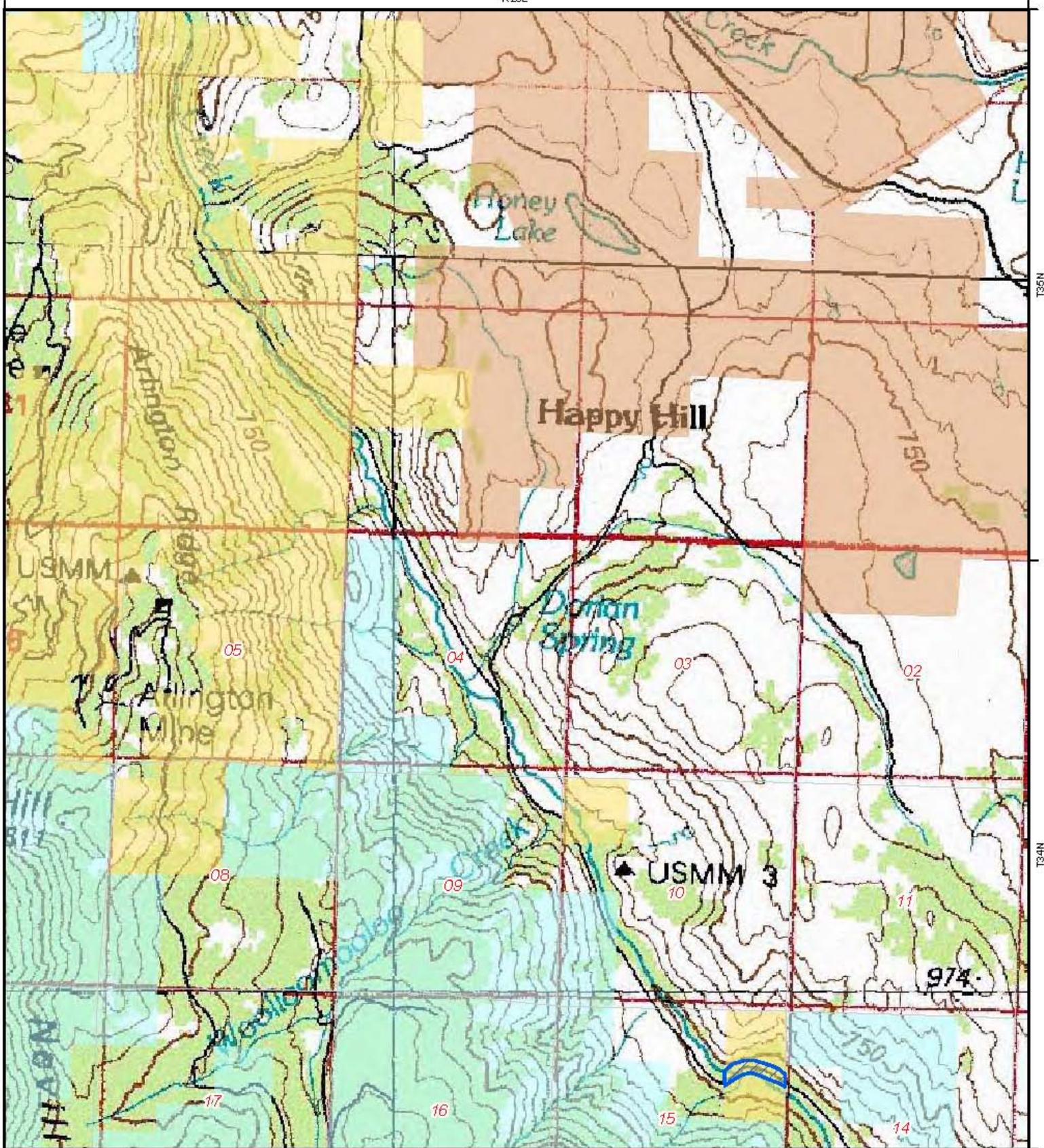


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



# Salmon Creek Treatment Area

R25E



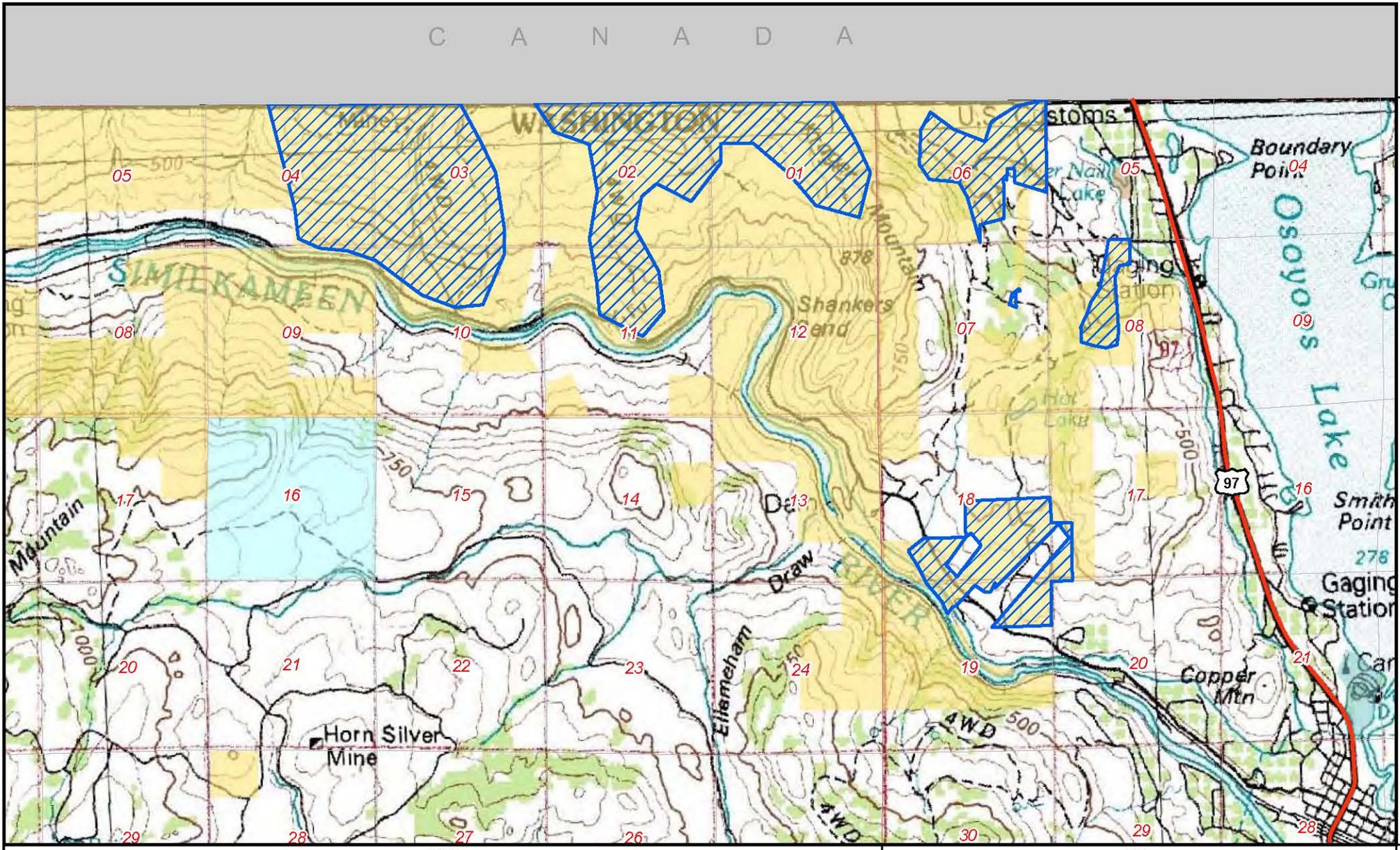
-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands
-  WA Dept. of Fish and Wildlife



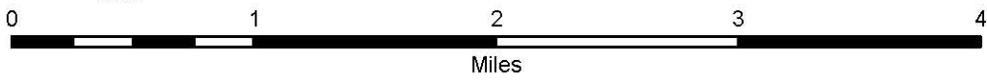
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were accepted from various sources and may be updated without notification.



# Similkameen Corridor Treatment Area



-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands
-  WA State Parks and Recreation



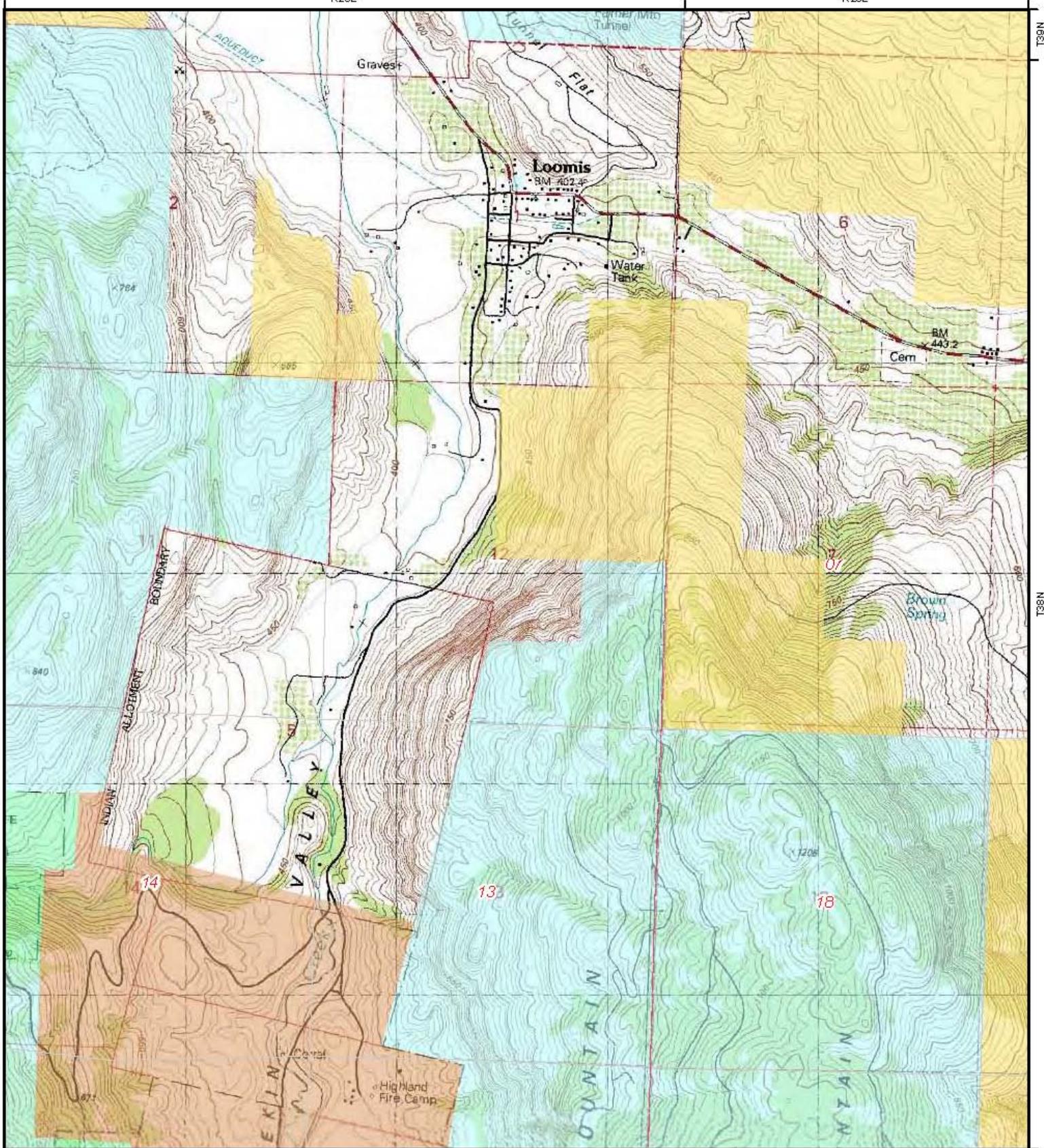
No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



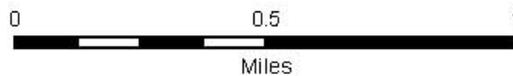
# South of Loomis Treatment Area

R25E

R26E



-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands
-  WA Dept. of Fish and Wildlife

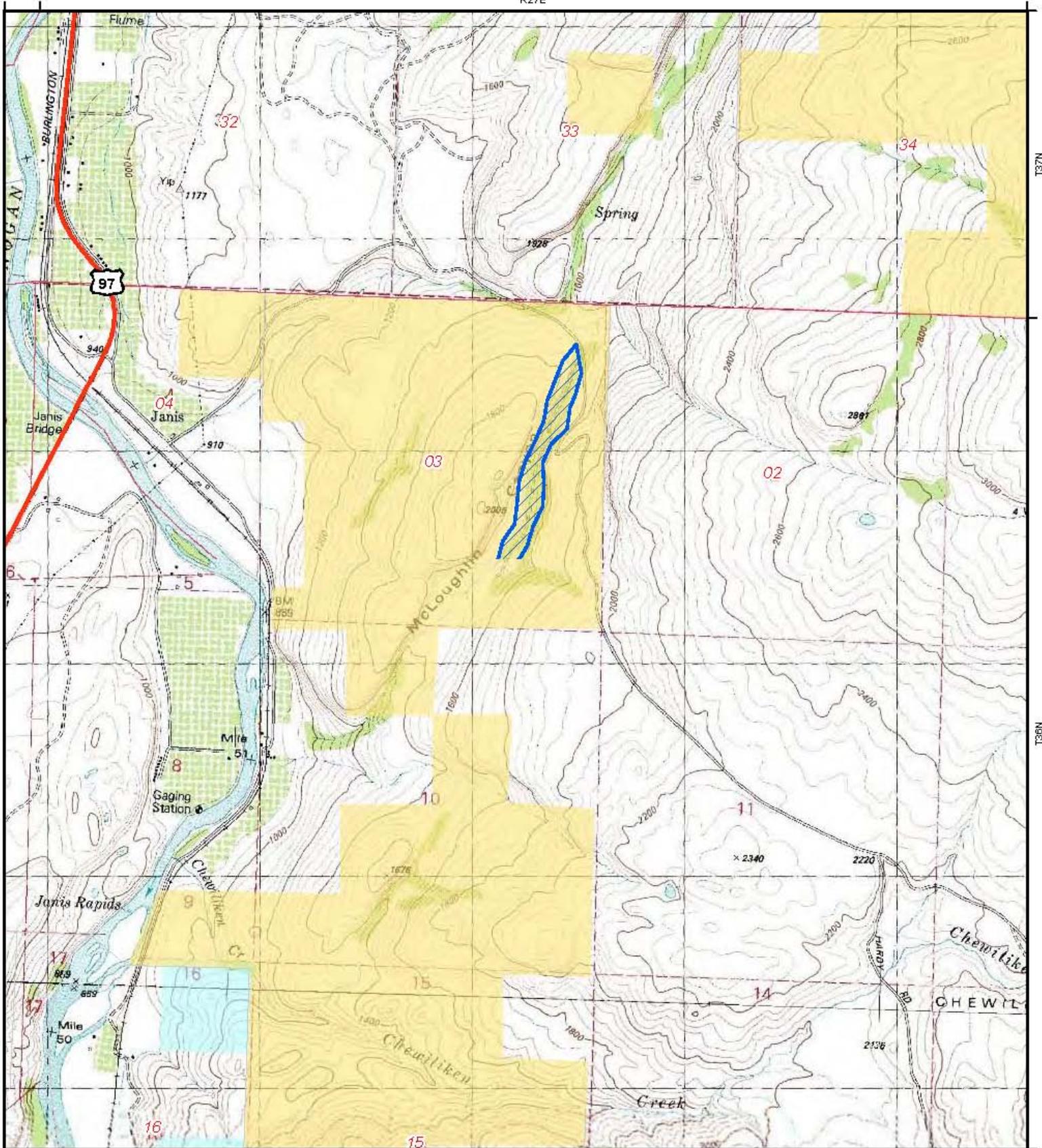


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use without other data. Original data were compiled from various sources and may be updated without notification.



# Tunk Grade Fire Treatment Area

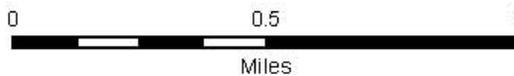
R27E



T37N

T38N

-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands

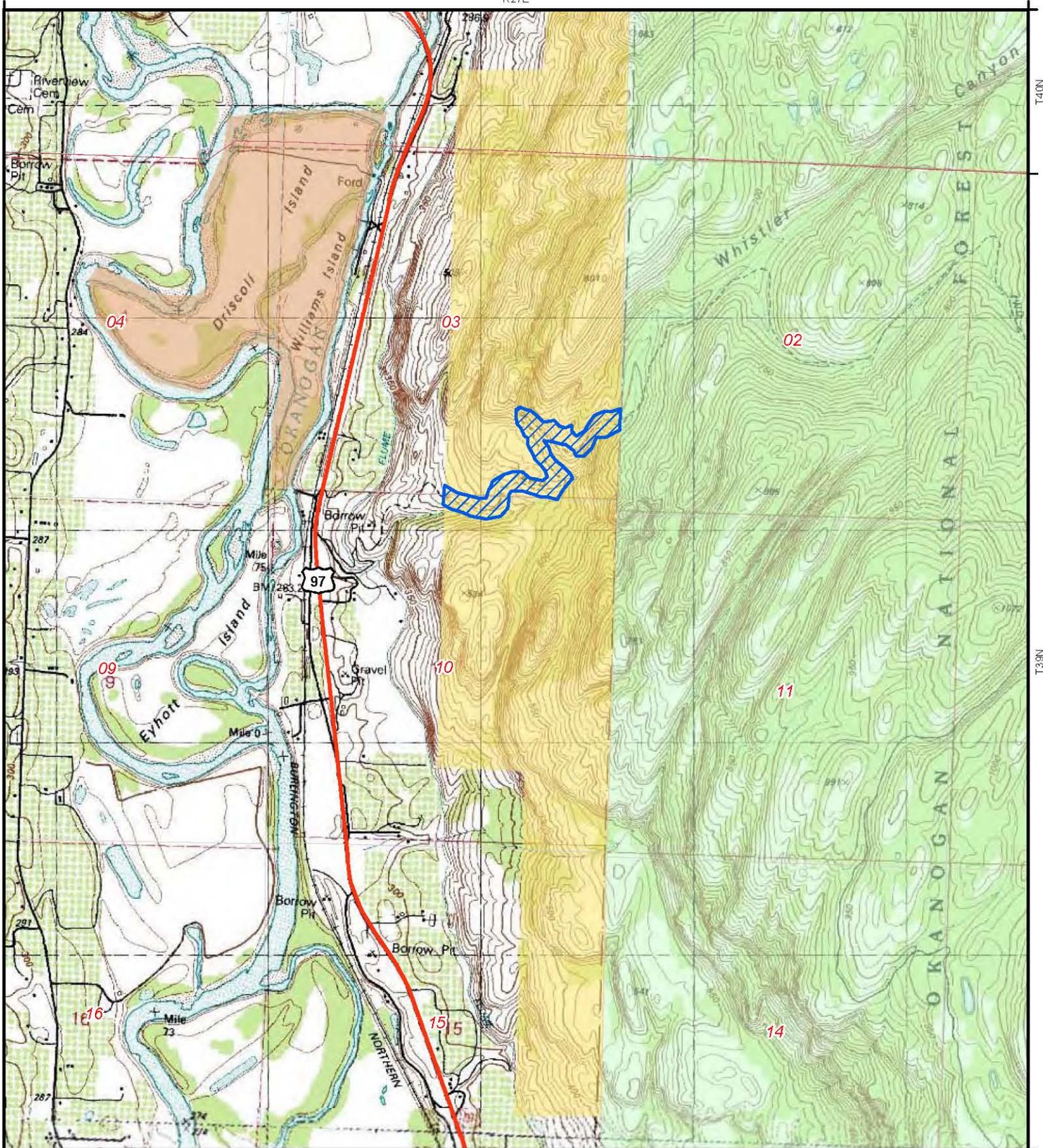


No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were accepted from various sources and may be updated without notification.

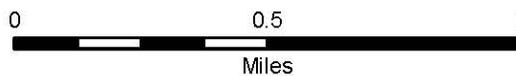
WASHINGTON

# Whistler Canyon Treatment Area

R27E

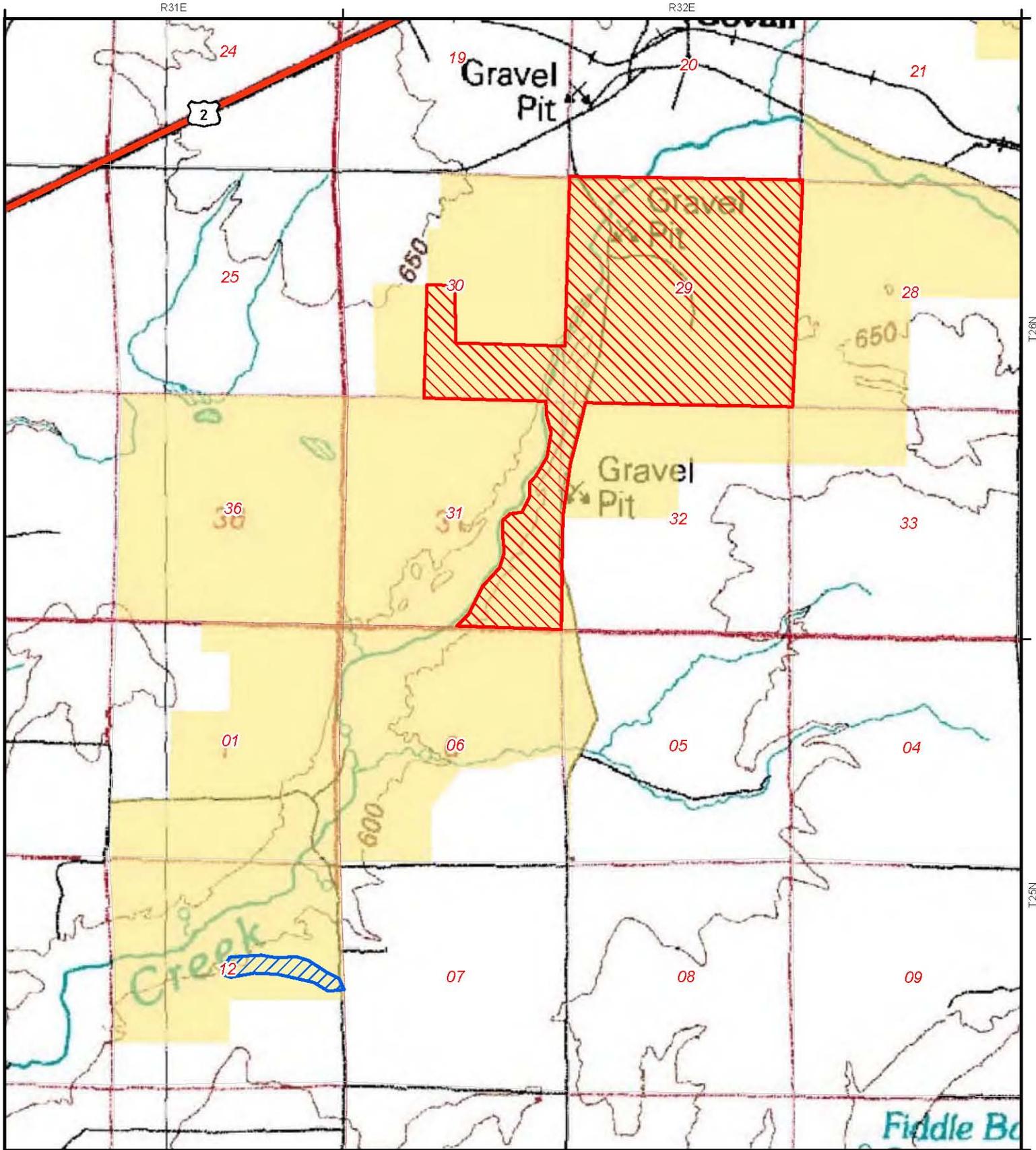


-  Application from Road Spot Treatment
-  Bureau of Land Management
-  Forest Service
-  WA Dept. of Fish and Wildlife



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

# Wilson Creek Treatment Area



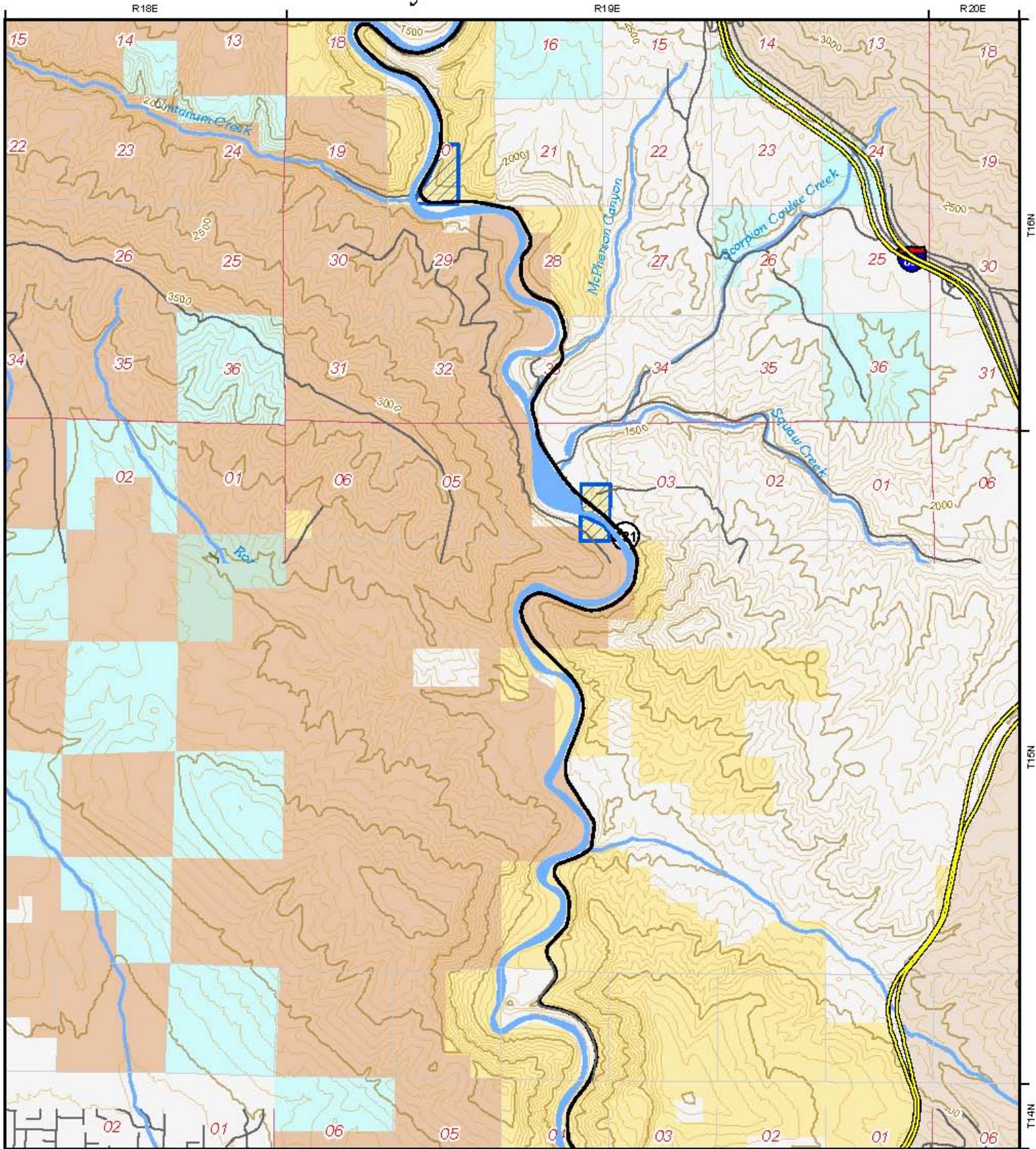
-  Application from Road Spot Treatment
-  Off Road Application
-  Bureau of Land Management



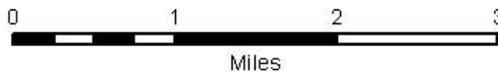
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.



# Yakima River Canyon Rec. Sites Treatment Area



-  Application from Road Spot Treatment
-  Bureau of Land Management
-  DNR Lands
-  WA Dept. of Fish and Wildlife
-  Other Federal



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use without other data. Original data were compiled from various sources and may be updated without notification.

WASHINGTON

## APPENDIX C

### NOXIOUS WEED TREATMENT CONTROL FACTORS

- 1) a.) The control work specified in this contract will require multiple site visits during late spring and early summer seasons. The work involves coverage of broad project areas consisting of thousands of acres, seeking out both individual and patches of targeted noxious weeds for herbicide treatments. Targeted noxious weeds identified in this contract will be treated at the precise biological window to insure successful control. The Contractor will be available as directed by the COR/PI to provide treatments at the time of the proper biological window. The majority of the specified treatments will require hand work that includes pulling/dragging hose and backpack applications on steep terrain. The Contractor shall contact the authorized BLM Contractor Officer Representative or Project Inspector (COR/PI) 72 hours prior to implementing any work specified in this contract. Furthermore, the COR/PI shall be present at the prescribed work sites to direct and inspect the Contractor. The Contractor shall complete the attached BLM Pesticide Application Record (Attachment # 2) no later than 24 hours after applying a chemical herbicide specified in this contract.  
  
b.) To protect BLM sensitive species with small home range sizes, the use of 2,4-D and Diuron will be, to the extent practicable, limited to the maximum spray area sizes (interpreted as spots or patches within project areas) described for each project area.
- 2) Contractor shall provide a completed PAR (Pesticide Application Record) for each Completed site. A map showing treated areas is required.
- 3) The Contractor shall not treat chemically treat targeted noxious weeds species which have exceeded the prescribed biological treatment window and are producing seed, unless otherwise directed to do so by the Contracting Officer.
- 4) The Contractor shall use Transline for treatment of targeted noxious weeds found amongst tree and wood plants. Additionally, spray tanks must be rinsed properly and not contain residues of other prescribed herbicides which may result in off-target damage or mortality.
- 5) The Contractor shall apply the prescribed herbicide tank mix at no less than 30 gallons per acre when treating Dalmatian toadflax.
- 6) The Contractor will use only the EPA approved herbicides prescribed to complete noxious weed treatments.

- 7) The Contractor shall apply sticker/spreaders shall be used to enhance effectiveness of herbicides. Drift retardants shall be used to minimize spray drift. Dye marker will be used to mark treated areas.
- 8) Only 4x4, large tire, ATV vehicles with less than 500 cc displacement shall be allowed to operate in riparian zones. Use of all other types of vehicles shall be restricted to existing roads and trails throughout the entire project area. All vehicle use is prohibited within 10 feet of all live water, including springs, seeps, and wet soil areas. Primary paths and tracks should be cleared on foot prior to use by all-terrain vehicles.
- 9) All roads (public and private) damaged or opened by the Contractor shall be restored at no cost to the Government to their condition prior to commencement of work.
- 10) Sensitive, Endangered or Threatened Species (plant or animal) - If sensitive, endangered, or threatened species (plant or animal) are discovered within the treatment area immediately notify the COR. The Government may issue a suspend work and/or partially terminate any portion of the work due to discoveries of sensitive, threatened, endangered species or archeological sites during contract operations.
- 11) Candidate I rare plants will be clearly marked in the field. Contract sprayers shall be trained to recognize these areas as no spray zones. When applying herbicides other than Rodeo, spray contractors will not treat noxious weeds within twenty (20) feet of a rare plant if found on flat to nearly flat terrain and 100 feet if found on steep terrain or the rare plant is located within 100 feet down slope of the treatment area.
- 12) Raptor Nesting Sites - Contractor shall be briefed on not approaching active raptor nesting sites any closer than absolutely necessary in order to implement weed control treatment. Vehicle operators shall be required to maneuver vehicles at slow enough speeds to be able to avoid disturbance to a nest if a bird is flushed directly in front of the vehicle. Raptor nest sites shall not be used by contractor work crews for the purpose of providing shade, rest areas, lunch stops, etc. Workers shall be required to withdraw immediately following treatment of any areas where raptors are observed leaving or defending a nest sight. A distance of at least ½ mile shall be maintained when disturbance of a raptor nest has occurred.
- 13) Prior to commencement of scheduled weed control, the Bureau shall clearly mark no spray-zones around known raptor nesting sites and other established wildlife sensitive areas.
- 14) Bureau Archaeologist will brief the spray contractors on how to recognize cultural resource sightings and to stay clear and report them to the COR.

- 15) Whenever a specification; Agency, State or Federal law; or label direction has a contradiction, the most stringent interpretation shall take precedence.
- 16) A 500 foot unsprayed buffer strip shall be left next to inhabited dwellings unless waived in writing by the resident. A buffer strip of 100 feet shall be left next to croplands and barns. Boom sprayers shall not be used within 25 feet of water bodies.
- 17) Granular formulations shall be applied no closer than 10 feet from the height waterline of streams and other water bodies. Spot treatments with vehicle mounted handguns or with backpacks shall not be applied within 10 feet of water. Herbicides shall be dripped or wicked on individual plants within 10 feet of water.
- 18) Wind velocities for chemical applications of herbicides must be 8 mph or less in all instances except in riparian areas where the velocity must be 5 mph or less.
- 19) The contractor will work with BLM to identify treatment areas that encroach into developed or undeveloped recreation sites where BLM determines a significant enough level of recreation use might occur to warrant temporarily restricting public access. As required via BLM input for those sites, spraying timeframes will be defined, and signs will be posted identifying exclusion areas and stating the duration of exclusion for the recommended restricted entry interval, as well as the chemical used, the date of application, and a contact number for more information that would remain in place past the end of the exclusion period.

**APPENDIX D**  
**Standard Operating Procedures for Applying Herbicides**  
**(Taken from the 2007 Final Vegetation Treatments Using Herbicides on BLM Lands in**  
**17 Western States Programmatic EIS, Volume 1, Chapter 2, Page 2-30 to 2-35)**

Resource Element	Standard Operating Procedure
Guidance Documents	<p>BLM Handbook H-9011-1 (<i>Chemical Pest Control</i>); and manuals 1112 (<i>Safety</i>), 9011 (<i>Chemical Pest Control</i>), 9012 (<i>Expenditure of Rangeland Insect Pest Control Funds</i>), 9015 (<i>Integrated Weed Management</i>), and 9220 (<i>Integrated Pest Management</i>)</p>
General	<ul style="list-style-type: none"> <li>• Prepare spill contingency plan in advance of treatment.</li> <li>• Conduct a pretreatment survey before applying herbicides.</li> <li>• Select herbicide that is least damaging to environment while providing the desired results.</li> <li>• Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures.</li> <li>• Apply the least amount of herbicide needed to achieve the desired result.</li> <li>• Follow product label for use and storage.</li> <li>• Have licensed applicators apply herbicides.</li> <li>• Use only USEPA-approved herbicides and follow product label directions and “advisory” statements.</li> <li>• Review, understand, and conform to the “Environmental Hazards” section on the herbicide label. This section warns of known pesticide risks to the environment and provides practical ways to avoid harm to organisms or to the environment.</li> <li>• Consider surrounding land use before assigning aerial spraying as a treatment method and avoid aerial spraying near agricultural or densely populated areas.</li> <li>• Minimize the size of application areas, when feasible.</li> <li>• Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents/landowners.</li> <li>• Post treated areas and specify reentry or rest times, if appropriate.</li> <li>• Notify adjacent landowners prior to treatment.</li> <li>• Keep copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs available for review at <a href="http://www.cdms.net/">http://www.cdms.net/</a>.</li> <li>• Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location.</li> <li>• Avoid accidental direct spray and spill conditions to minimize risks to resources.</li> <li>• Consider surrounding land uses before aerial spraying.</li> <li>• Avoid aerial spraying during periods of adverse weather conditions (snow or rain imminent, fog, or air turbulence).</li> <li>• Make helicopter applications at a target airspeed of 40 to 50 miles per hour (mph), and at about 30 to 45 feet above ground.</li> <li>• Take precautions to minimize drift by not applying herbicides when winds exceed &gt;10 mph (&gt;6 mph for aerial applications) or a serious rainfall event is imminent.</li> </ul>

Resource Element	Standard Operating Procedure
	<ul style="list-style-type: none"> <li>• Use drift control agents and low volatile formulations.</li> <li>• Conduct pre-treatment surveys for sensitive habitat and special status species within or adjacent to proposed treatment areas.</li> <li>• Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation.</li> <li>• Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species.</li> <li>• Turn off applied treatments at the completion of spray runs and during turns to start another spray run.</li> <li>• Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide.</li> <li>• Clean OHVs to remove seeds.</li> </ul>
<p>Air Quality See Manual 7000 (<i>Soil, Water, and Air Management</i>)</p>	<ul style="list-style-type: none"> <li>• Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks.</li> <li>• Apply herbicides in favorable weather conditions to minimize drift. For example, do not treat when winds exceed 10 mph (6 mph for aerial applications) or rainfall is imminent.</li> <li>• Use drift reduction agents, as appropriate, to reduce the drift hazard.</li> <li>• Select proper application equipment (e.g., spray equipment that produces 200- to 800-micron diameter droplets [spray droplets of 100 microns and less are most prone to drift]).</li> <li>• Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources).</li> </ul>
<p>Soil See Manual 7000 (<i>Soil, Water, and Air Management</i>)</p>	<ul style="list-style-type: none"> <li>• Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected.</li> <li>• Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility.</li> <li>• Do not apply granular herbicides on slopes of more than 15% where there is the possibility of runoff carrying the granules into non-target areas.</li> </ul>

Resource Element	Standard Operating Procedure
<p>Water Resources See Manual 7000 (<i>Soil, Water, and Air Management</i>)</p>	<ul style="list-style-type: none"> <li>• Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs.</li> <li>• Select herbicide products to minimize impacts to water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments.</li> <li>• Use local historical weather data to choose the month of treatment. Considering the phenology of the target species, schedule treatments based on the condition of the water body and existing water quality conditions.</li> <li>• Plan to treat between weather fronts (calms) and at appropriate time of day to avoid high winds that increase water movements, and to avoid potential stormwater runoff and water turbidity.</li> <li>• Review hydrogeologic maps of proposed treatment areas .Note depths to groundwater and areas of shallow groundwater and areas of surface water and groundwater interaction. Minimize treating areas with high risk for groundwater contamination..</li> <li>• Conduct mixing and loading operations in an area where an accidental spill would not contaminate an aquatic body.</li> <li>• Do not rinse spray tanks in or near water bodies. Do not broadcast pellets where there is danger of contaminating water supplies.</li> <li>• Maintain buffers between treatment areas and water bodies. Buffer widths should be developed based on herbicide- and site-specific criteria to minimize impacts to water bodies.</li> <li>• Minimize the potential effects to surface water quality and quantity by stabilizing terrestrial areas as quickly as possible following treatment.</li> </ul>
<p>Wetlands and Riparian Areas</p>	<ul style="list-style-type: none"> <li>• Use a selective herbicide and a wick or backpack sprayer.</li> <li>• Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths of 100 feet for aerial, 25 feet for vehicle, and 10 feet for hand spray applications.</li> </ul>
<p>Vegetation See Handbook H-4410-1 (<i>National Range Handbook</i>), and manuals 5000 (<i>Forest Management</i>) and 9015 (<i>Integrated Weed Management</i>)</p>	<ul style="list-style-type: none"> <li>• Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide.</li> <li>• Use native or sterile species for revegetation and restoration projects to compete with invasive species until desired vegetation establishes</li> <li>• Use weed-free feed for horses and pack animals. Use weed-free straw and mulch for revegetation and other activities.</li> <li>• Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, needed to maintain desirable vegetation on the treatment site.</li> </ul>

Resource Element	Standard Operating Procedure
Pollinators	<ul style="list-style-type: none"> <li>• Complete vegetation treatments seasonally before pollinator foraging plants bloom.</li> <li>• Time vegetation treatments to take place when foraging pollinators are least active both seasonally and daily.</li> <li>• Design vegetation treatment projects so that nectar and pollen sources for important pollinators and resources are treated in patches rather than in one single treatment.</li> <li>• Minimize herbicide application rates. Use typical rather than maximum rates where there are important pollinator resources.</li> <li>• Maintain herbicide free buffer zones around patches of important pollinator nectar and pollen sources.</li> <li>• Maintain herbicide free buffer zones around patches of important pollinator nesting habitat and hibernacula.</li> <li>• Make special note of pollinators that have single host plant species, and minimize herbicide spraying on those plants (if invasive species) and in their habitats.</li> </ul>
Fish and Other Aquatic Organisms See manuals 6500 ( <i>Wildlife and Fisheries Management</i> ) and 6780 ( <i>Habitat Management Plans</i> )	<ul style="list-style-type: none"> <li>• Use appropriate buffer zones based on label and risk assessment guidance.</li> <li>• Minimize treatments near fish-bearing water bodies during periods when fish are in life stages most sensitive to the herbicide(s) used, and use spot rather than broadcast or aerial treatments.</li> <li>• Use appropriate application equipment/method near water bodies if the potential for off-site drift exists.</li> <li>• For treatment of aquatic vegetation, 1) treat only that portion of the aquatic system necessary to achieve acceptable vegetation management; 2) use the appropriate application method to minimize the potential for injury to desirable vegetation and aquatic organisms; and 3) follow water use restrictions presented on the herbicide label.</li> </ul>
Wildlife See manuals 6500 ( <i>Wildlife and Fisheries Management</i> ) and 6780 ( <i>Habitat Management Plans</i> )	<ul style="list-style-type: none"> <li>• Use herbicides of low toxicity to wildlife, where feasible.</li> <li>• Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area.</li> <li>• Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife.</li> <li>• Avoid using glyphosate formulations that include R-11 in the future, and either avoid using any formulations with POEA, or seek to use the formulation with the lowest amount of POEA available, to reduce risks to amphibians.</li> </ul>
Threatened, Endangered, and Sensitive Species See Manual 6840 ( <i>Special Status Species</i> )	<ul style="list-style-type: none"> <li>• Survey for special status species before treating an area. Consider effects to special status species when designing herbicide treatment programs.</li> <li>• Use a selective herbicide and a wick or backpack sprayer to minimize risks to special status plants.</li> <li>• Avoid treating vegetation during time-sensitive periods (e.g., nesting and migration,</li> </ul>

Resource Element	Standard Operating Procedure
	sensitive life stages) for special status species in area to be treated.
<p>Livestock See Handbook H-4120-1 (<i>Grazing Management</i>)</p>	<ul style="list-style-type: none"> <li>• Whenever possible and whenever needed, schedule treatments when livestock are not present in the treatment area. Design treatments to take advantage of normal livestock grazing rest periods, when possible.</li> <li>• As directed by the herbicide label, remove livestock from treatment sites prior to herbicide application, where applicable.</li> <li>• Use herbicides of low toxicity to livestock, where feasible.</li> <li>• Take into account the different types of application equipment and methods, where possible, to reduce the probability of contamination of non-target food and water sources.</li> <li>• Avoid use of diquat in riparian pasture while pasture is being used by livestock.</li> <li>• Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.</li> <li>• Notify permittees of livestock grazing, feeding, or slaughter restrictions, if necessary.</li> <li>• Provide alternative forage sites for livestock, if possible.</li> </ul>
<p>Wild Horses and Burros</p>	<ul style="list-style-type: none"> <li>• Minimize using herbicides in areas grazed by wild horses and burros.</li> <li>• Use herbicides of low toxicity to wild horses and burros, where feasible.</li> <li>• Remove wild horses and burros from identified treatment areas prior to herbicide application, in accordance with label directions for livestock.</li> <li>• Take into account the different types of application equipment and methods, where possible, to reduce the probability of contaminating non-target food and water sources.</li> </ul>

Resource Element	Standard Operating Procedure
<p>Cultural Resources and Paleontological Resources  See handbooks H-8120-1 (<i>Guidelines for Conducting Tribal Consultation</i>) and H-8270-1 (<i>General Procedural Guidance for Paleontological Resource Management</i>), and manuals 8100 (<i>The Foundations for Managing Cultural Resources</i>), 8120 (<i>Tribal Consultation Under Cultural Resource Authorities</i>), and 8270 (<i>Paleontological Resource Management</i>),  See also: <i>Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act.</i></p>	<ul style="list-style-type: none"> <li>• Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the <i>Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act</i> and state protocols or 36 CFR Part 800, including necessary consultations with State Historic Preservation Officers and interested tribes.</li> <li>• Follow BLM Handbook H-8270-1 (<i>General Procedural Guidance for Paleontological Resource Management</i>) to determine known Condition I and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts.</li> <li>• Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments.</li> <li>• Work with tribes to minimize impacts to these resources.</li> <li>• Follow guidance under Human Health and Safety in areas that may be visited by Native peoples after treatments.</li> </ul>
<p>Visual Resources  See handbooks H-8410-1 (<i>Visual Resource Inventory</i>) and H-8431-1 (<i>Visual Resource Contrast Rating</i>), and manual 8400 (<i>Visual Resource Management</i>)</p>	<ul style="list-style-type: none"> <li>• Minimize the use of broadcast foliar applications in sensitive watersheds to avoid creating large areas of browned vegetation.</li> <li>• Consider the surrounding land use before assigning aerial spraying as an application method.</li> <li>• Minimize off-site drift and mobility of herbicides (e.g., do not treat when winds exceed 10 mph; minimize treatment in areas where herbicide runoff is likely; establish appropriate buffer widths between treatment areas and residences) to contain visual changes to the intended treatment area.</li> <li>• If the area is a Class I or II visual resource, ensure that the change to the characteristic landscape is low and does not attract attention (Class I), or if seen, does not attract the attention of the casual viewer (Class II).</li> <li>• Lessen visual impacts by: 1) designing projects to blend in with topographic forms; 2) leaving some low-growing trees or planting some low-growing tree seedlings adjacent to the treatment area to screen short-term effects; and 3) revegetating the site following treatment.</li> <li>• When restoring treated areas, design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established Visual Resource Management (VRM) objectives.</li> </ul>

Resource Element	Standard Operating Procedure
<p>Wilderness and Other Special Areas  See handbooks H-8550-1 (<i>Management of Wilderness Study Areas (WSAs)</i>), and H-8560-1 (<i>Management of Designated Wilderness Study Areas</i>), and Manual 8351 (<i>Wild and Scenic Rivers</i>)</p>	<ul style="list-style-type: none"> <li>• Encourage backcountry pack and saddle stock users to feed their livestock only weed-free feed for several days before entering a wilderness area.</li> <li>• Encourage stock users to tie and/or hold stock in such a way as to minimize soil disturbance and loss of native vegetation.</li> <li>• Revegetate disturbed sites with native species if there is no reasonable expectation of natural regeneration.</li> <li>• Provide educational materials at trailheads and other wilderness entry points to educate the public on the need to prevent the spread of weeds.</li> <li>• Use the “minimum tool” to treat noxious and invasive vegetation, relying primarily on use of ground-based tools, including backpack pumps, hand sprayers, and pumps mounted on pack and saddle stock.</li> <li>• Use chemicals only when they are the minimum method necessary to control weeds that are spreading within the wilderness or threaten lands outside the wilderness.</li> <li>• Give preference to herbicides that have the least impact on non-target species and the wilderness environment.</li> <li>• Implement herbicide treatments during periods of low human use, where feasible.</li> <li>• Address wilderness and special areas in management plans.</li> <li>• Maintain adequate buffers for Wild and Scenic Rivers (¼ mile on either side of river, ½ mile in Alaska).</li> </ul>
<p>Recreation  See Handbook H-1601-1 (<i>Land Use Planning Handbook, Appendix C</i>)</p>	<ul style="list-style-type: none"> <li>• Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species.</li> <li>• Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas.</li> <li>• Adhere to entry restrictions identified on the herbicide label for public and worker access.</li> <li>• Post signs noting exclusion areas and the duration of exclusion, if necessary.</li> <li>• Use herbicides during periods of low human use, where feasible.</li> </ul>

Resource Element	Standard Operating Procedure
Social and Economic Values	<ul style="list-style-type: none"> <li>• Consider surrounding land use before selecting aerial spraying as a method, and avoid aerial spraying near agricultural or densely-populated areas.</li> <li>• Post treated areas and specify reentry or rest times, if appropriate.</li> <li>• Notify grazing permittees of livestock feeding restrictions in treated areas, if necessary, as per label instructions.</li> <li>• Notify the public of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.</li> <li>• Control public access until potential treatment hazards no longer exist, per label instructions.</li> <li>• Observe restricted entry intervals specified by the herbicide label.</li> <li>• Notify local emergency personnel of proposed treatments.</li> <li>• Use spot applications or low-boom broadcast applications where possible to limit the probability of contaminating non-target food and water sources, especially vegetation over areas larger than the treatment area.</li> <li>• Consult with Native American tribes and Alaska Native groups to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments.</li> <li>• To the degree possible within the law, hire local contractors and workers to assist with herbicide application projects and purchase materials and supplies, including chemicals, for herbicide treatment projects through local suppliers.</li> <li>• To minimize fears based on lack of information, provide public educational information on the need for vegetation treatments and the use of herbicides in an Integrated Pest Management program for projects proposing local use of herbicides.</li> </ul>
Rights-of-way	<ul style="list-style-type: none"> <li>• Coordinate vegetation management activities where joint or multiple use of a ROW exists.</li> <li>• Notify other public land users within or adjacent to the ROW proposed for treatment.</li> <li>• Use only herbicides that are approved for use in ROW areas.</li> </ul>
Human Health and Safety	<ul style="list-style-type: none"> <li>• Establish a buffer between treatment areas and human residences based on guidance given in the HHRA, with a minimum buffer of ¼ mile for aerial applications and 100 feet for ground applications, unless a written waiver is granted.</li> <li>• Use protective equipment as directed by the herbicide label.</li> <li>• Post treated areas with appropriate signs at common public access areas.</li> <li>• Observe restricted entry intervals specified by the herbicide label.</li> <li>• Provide public notification in newspapers or other media where the potential exists for public exposure.</li> <li>• Have a copy of MSDSs at work site.</li> <li>• Notify local emergency personnel of proposed treatments.</li> </ul>

Resource Element	Standard Operating Procedure
	<ul style="list-style-type: none"><li>• Contain and clean up spills and request help as needed.</li><li>• Secure containers during transport.</li><li>• Follow label directions for use and storage.</li><li>• Dispose of unwanted herbicides promptly and correctly.</li></ul>

## Appendix E

### 2003-2008 Noxious Weed Site Observations-Spokane District

Project Area	County/Legal	Weed Species	Approx % Noxious Weed Reduction	Comments
Packer Creek	Whitman T. 19N., R. 40 E Sec. 29Sec. 31	-Rush Skeletonweed -St. Johnswort -Canada Thistle	85%	Project in weed maintenance status.
Escure Ranch	Whitman/Adams T. 18N R. 38E Sec. 12-14 T. 18N R. 39E Sec. 17-19, 30, 31	-Scotch Thistle -Whitetop -Russian Knapweed -Rush Skeletonweed -Canada Thistle	60%	Contractor just started spraying these areas last fall.
Fishtrap/Miller Ranch	Lincoln/Spokane T. 22N R. 40E Sec. 19, 30 T. 22N R. 39E Sec. 24, 35 T. 21n R. 39E Sec. 7,8,17	-Dalmation Toadflax -Rush Skeletonweed -Canada Thistle	75%	Square Butte and Hog Lake area in weed maintenance status.  Weeds scattered throughout parcel that have not yet been treated.  Adjacent landowners don't treat weeds.
Goose Butte	Lincoln T. 21N R. 36 E Se. 15, 22	-Rush Skeletonweed	85%	
Wilson Creek	Lincoln T. 26N R. 32 E Sec. 29-32 T. 25N R. 31 E Sec. 12	-Whitetop -Canada Thistle -Dalmation Toadflax	60%	Contractor sprays approx. 60-70 acres every spring.  Adjacent landowners don't treat weeds.
Juniper Dunes	Franklin T. 10N R. 32E Sec. 18, 20 T. 10N R. 31E Sec. 13, 16, 24	-Scotch Thistle -Diffuse Knapweed -Yellow Starthistle	70%	Contractor started spraying areas last spring.
Palmer Mountain	Okanogan T. 38N R. 26E Sec. 4-5 T. 39N R. 26E	-Diffuse Knapweed -Canada Thistle -Kochia -Houndstongue	85%	Project in weed maintenance status.

Project Area	County/Legal	Weed Species	Approx % Noxious Weed Reduction	Comments
	Sec. 16-21, 27-33	-St. Johnswort		
Liberty Recreation Site	Kittitas T. 20N R. 17E Sec 10, 11	-Diffuse Knapweed -Meadow Knapweed -Canada Thistle	85%	Project in weed maintenance status.
Ringer Road	Kittitas T. 17N R. 18E Sec. 25	-Diffuse Knapweed -Houndstongue -Perennial Pepperweed -Canada Thistle -St. Johnswort -Dalmation Toadflax	70%	
Eaton/Burbank	Kittitas T. 15N R. 19E Sec. 22, 26	-Kochia -Whitotop -Russian Knapweed -Perennial Pepperweed -Canada Thistle	70%	Russian Knapweed is in maintenance status.
Yakima River Canyon- Recreation Sites	Kittitas T. 15N R. 19E Sec. 4, 28, 33 T. 16N R. 19E Sec. 20	-Kochia -Russian Knapweed -Diffuse Knapweed -Canada Thistle -Perennial Pepperweed -Puncturevine	95%	Project in weed maintenance status.
Whistler Canyon	Okanogan T. 39N R. 27E Sec. 3, 10	-Diffuse Knapweed	80%	
Similkameen Corridor	Okanogan T. 40N R 26E Sec. 1-4, 9-11 T. 40N R. 27E Sec. 6-8, 17-19	- Diffuse Knapweed -Russian Knapweed -Dalmation Toadflax -Canada Thistle	70%	Project in weed maintenance status.  Weeds scattered throughout parcel that have not yet been treated.

<b>Project Area</b>	<b>County/Legal</b>	<b>Weed Species</b>	<b>Approx % Noxious Weed Reduction</b>	<b>Comments</b>
		-Houndstongue		
Chopaka Lake	Okanogan T. 40N R. 25E Sec. 14,15,22,33	- Diffuse Knapweed -Canada Thistle -Houndstongue	85%	Project in weed maintenance status.
North of Beaver Creek	Okanogan T. 39N R. 31E Sec. 21	-Canada Thistle -Musk Thistle - Diffuse Knapweed	80%	
Salmon Creek	Okanogan T. 34N R. 25E Sec. 15 T. 35N R. 25E Sec. 21, 28, 29, 32,33	- Diffuse Knapweed -Canada Thistle -St. Johnswort	85%	Project in weed maintenance status.
Tunk Grade Fire	Okanogan T. 36N R. 27E Sec. 3	-Russian Knapweed	70%	Contractor started treating areas last fall.
South of Nighthawk	Okanogan T. 40N R. 25E Sec. 13, 14, 23, 24	-Diffuse Knapweed	80%	
South of Loomis	Okanogan T. 38N R. 25 E Sec. 12	- Diffuse Knapweed	90%	Project in weed maintenance status.
Conconully	Okanogan T. 35N R. 24E Sec. 1, 2, 13	-Diffuse Knapweed -Canada Thistle -St. Johnswort	75%	