Rajnus and Son Allotment (#00864)
Rangeland Health Standards Assessment

Allotment Overview

The Rajnus and Son grazing allotment is located approximately 6 miles south of Bonanza, Oregon. The allotment contains approximately 1440 acres of BLM-administered land (see attached map). The allotment is split into several tracts with the largest piece of 960 acres being along a north to south trending ridge. Another 360 acre piece lies to the south of the larger tract along a ridge top known as Buck Butte. The remaining 120 acres are in 3 separate 40 acre pieces that lie to the east of the two larger parcels.

The current grazing lease for the allotment authorizes use by 55 cattle from May 1 to June 30 which is 110 AUMs. A review of the allotment file shows that the current allotment of 1440 acres was created from two separate areas in 1970. From 1970-1975, the season of use was May 1 to July 31. The current season of use of May 1 to June 30 has been in effect since 1975. A range study completed on the northern portion of the allotment in 1969 noted the heavy infestation of medusahead (*Taeniatherum caput-medusae*) on the allotment. Recommendations at that time were for continuous rest or limited spring use. There are no water developments on the allotment. Access to water is provided on the private lands adjacent to the allotment. A juniper treatment project was completed on portions of the allotment during 2002 and 2004. This project will be discussed later in this document.

The allotment was visited in 2005 and 2006 to gather information for the Rangeland Health Standards Assessment using the Ecological Site Inventory (ESI) method. This inventory provided data on the current vegetation on the allotment. A map of the area was produced that divided the allotment into units based upon distinct vegetation communities. These units were labeled as Site Write-up Areas or SWAs (see the attached ESI map). For each of these SWAs, one or more Rangeland Inventory Ecological Status Worksheets (worksheets) was completed that provides information on vegetation, ground cover characteristics, production, erosion, and other site factors. The vegetation information on the worksheets was used to determine what ecological site or sites were in the SWAs. A condition rating was assigned to each ecological site based upon the site's current attributes when compared to a site in Potential Natural Community (PNC) condition. Following is a table showing the results of the ESI survey on the Rajnus and Son allotment.

SWA#	Acres	Ecological Site	%of SWA	Condition
RS1	269.2	Juniper Claypan	60%	Good
	112.1	Stony Claypan	25%	Fair
	67.3	Shallow Stony	15%	Fair
RS2	93.3	Shallow Loam	100%	Good
RS3	63.3	Shallow Loam	100%	Good
RS4	262.6	Juniper Claypan	100%	Poor
RS5	59.5	South Slopes	100%	Good
RS6	75.1	Juniper Claypan	100%	Good
RS7	47.3	South Slopes	100%	Good
RS8	89.7	North Slopes	100%	Good
RS9	54.8	Juniper Claypan	100%	Good
RS10	52.3	Shallow Loam	100%	Good
RS11	41.3	Shallow Loam	100%	Fair
RS12	73.7	Shrubby Loam	100%	Good
RS13	40.6	Juniper Claypan	100%	Good

During the ESI a general overview of an allotment is also done. This can include an inventory of any range improvements, indications of recent use by livestock and wildlife, and observations of riparian and wetland conditions. The data from the ESI and field observations will be the primary information used for this assessment.

General observations of the allotment indicated that there has been no livestock use within the past several years. The allotment boundary fencing was in good condition in most areas but there were locations where it was laying on the ground and/or in need of repairs. On the south portion of the allotment a fence was built and a cattleguard installed on the road that goes to the top of Buck Butte, evidently several years ago. This fencing effectively separated approximately 240 acres of the allotment and now allows this area to be used in conjunction with the BLM grazing allotment to the south, the Haught allotment. There is no fence that separates these 240 acres from the Haught allotment and observations during the ESI survey indicated that these 240 acres had recently been grazed.

Junipers have reached invasive levels in most areas of the allotment and the exotic, invasive grass medusahead was found throughout the allotment with a dense infestation present on a large area in the south end of the north portion of the allotment. This is the area labeled as SWA RS4 on the ESI map. This SWA and RS5 were the areas where a juniper treatment project was done during 2002. The current conditions of these treatment sites will be discussed more below. Just south of this SWA, there is an area of the allotment that is being used by the adjacent private landowners for fields and roadways. This area was not included in the ESI survey.

Standard 1 - Watershed Function - Uplands

This standard focuses on the basic physical functions of upland soils that support plant growth, the maintenance or development of plant populations and communities, and promote dependable flows of quality water from the watershed.

The recent ESI provides good information for assessing the conditions of the upland soils and vegetation. An overview of the data and interpretations for each of the SWAs listed in the table above will provide a good picture of the current conditions.

SWAs RS1 through RS5 are located on the larger north portion of the allotment (see attached ESI map).

SWA RS1 encompasses 3 different ecological sites that have shallower soils with low sagebrush and varying levels of junipers. The Shallow Stony and Stony Claypan ecological sites are generally found on the more level areas of the SWA and the Juniper Claypan is on the sideslopes above them. The Stony Claypan and Shallow Stony were both rated as being in Fair condition. The production levels on these sites were low with the native, perennial grass species comprising between 20-40% of the total. Both areas had the invasive, exotic grass species of cheatgrass (*Bromus tectorum*) and medusahead in varying densities. There was also juniper present at low levels in all size classes. These sites have likely had more historic livestock utilization due to their flatter topography.

The Juniper Claypan ecological sites cover about 60% of SWA RS1. ESI worksheets were done in 3 different areas of Juniper Claypan in the SWA. All of the areas had high levels of stones, cobbles, and gravels on the soil surface and southerly facing aspects. All 3 were rated in Good condition with around 50% of the vegetative production in native, perennial grasses, although total production levels were low for this type of ecological site. Idaho fescue (*Festuca Idahoensis*) was the dominant grass in most areas with the exception of an area that was adjacent to the Stony Claypan site. This area had likely received more historic livestock grazing due to its location and was dominated by Bluebunch wheatgrass (*Pseudoroegneria spicata spicata*) which tended to be most prevalent in the rockier, inaccessible areas. This area also had the densest juniper levels and most of the Idaho fescue was found under the junipers. Possible explanations for this

could be that these areas are less accessible to livestock or that the junipers have effectively lowered the available soil moisture on this site leaving only the cooler areas in the shade as a refuge for the fescue which tends to require more moisture than the wheatgrass. Patches of medusahead were also found throughout all 3 of these areas. Shrub levels were from 10-20%, dominated by low sagebrush (*Artemisia arbuscula*) with low levels of Antelope bitterbrush (*Purshia tridentata*) and shrubby buckwheat. Much of the bitterbrush had been heavily hedged and there were numerous skeletons. In many areas junipers have reached densities that are negatively affecting the shrub component.

Figure 1 Juniper Claypan in SWA RS1

Figure 2 Stony Claypan w/ Juniper Claypan in background in SWA RS1

SWA RS2 is a Shallow Loam ecological site located along a south facing ridge and slope with 'stair stepping' rock outcrops. This site was rated in Good condition with a good stand of native perennial grasses dominated by Idaho fescue with a good level of production. The shrub component was a little sparse here due to the high level of junipers. Mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and Antelope bitterbrush were both present in low levels and the bitterbrush was heavily hedged. There were 5-10 old growth junipers/acre but the level of younger junipers would be considered invasive. There were 10-30 junipers/acre in both the 12-20' and 20'+ foot size classes.

Figure 3 Shallow Loam in SWA RS2 showing shrub skeletons and invasive juniper

SWA RS3 is another Shallow Loam site. This one is on an east facing side hill with a slope range from 8-40%. It had a good production level of native perennial grasses with Idaho fescue dominant. This area also has an invasive level of junipers with 10-30/acre in the 20'+ size class and 5-10/acre in both the 3-12' and 12-20' size classes. There was a good level of Mountain big sagebrush still present here along with scattered Antelope bitterbrush.

Figure 4 SWA RS3 Shallow Loam w/ invasive junipers

SWA RS4 was classified as a Juniper Claypan in Poor condition during the ESI survey but it is likely a combination of Juniper Claypan, Stony Claypan, Shallow Stony, and South Slopes ecological sites. This area was part of a juniper treatment project in 2002. The junipers were cut and piled with machinery and the piles were burned in 2004. At the time of the ESI survey the area was dominated by medusahead with it comprising about 40% of the estimated 300#/acre of production. An additional 20% of the production was provided by fireweed (*Epilobium spp*.), a weedy native forb species. There were scattered native perennial grasses within the heavy medusahead litter and an occasional low sagebrush plant. There were lots of dead sagebrush skeletons present that were evidently overwhelmed by the medusahead.

Figure 5 SWA RS4 - Medusahead infestation

SWA RS5 is a South Slope ecological site in Good condition. This area was included in the juniper treatments in 2002. The remaining junipers on the site include 5-10 old growth/acre. There were a few Mountain big sagebrush and Antelope bitterbrush present and lots of bitterbrush skeletons. The native perennial grasses were responding well to the juniper treatments with Idaho fescue and Bluebunch wheatgrass producing over 50% of the sites total production. There was only a trace amount of medusahead in this area.

SWAs RS6 through RS13 are located on the southern portion of the allotment (see attached ESI map).

SWA RS6 is a Juniper Claypan ecological site in Good condition with a good native perennial grass component dominated by Bluebunch wheatgrass with Idaho fescue found mainly around the junipers. Medusahead was also found throughout this area. The soil surface had a high amount of stones, cobbles, and gravels. In some of the areas where the surface was less rocky, the production levels were lower, likely due to historic heavier grazing in these areas. This area showed no sign of any recent livestock use, however.

Figure 6 SWA RS6 - Juniper Claypan

SWA RS7 is a South Slopes ecological site in Good condition. There was a good level of native perennial grasses with Bluebunch wheatgrass as the dominant species. There were only scattered patches of Mountain big sagebrush and some Antelope bitterbrush skeletons due to the level of junipers present. There were 30-60 trees/acre in the 20'+ size class and 5-10 trees/acre in the 12-20' size class. Overall site production levels were still relatively good, but the junipers were definitely causing a decline in the shrubs. This site also had a minor component of medusahead.

Figure 7 SWA RS7 w/ invasive juniper and lack of shrubs

SWA RS8 is a North Slopes ecological site in Good condition with a nice mixture of shrub species including Curleaf mountain mahogany (*Cercocarpus ledifolius*), serviceberry (*Amelanchier alnifolia),* mountain big sagebrush, chokecherry (*Prunus virginiana),* and Klamath plum (*Prunus subcordata*). There was also a good mix of native perennial grasses with Idaho fescue and bluebunch wheatgrass being the most dominant. There was a fairly high level of juniper with 10-30 trees/acre in both the 12-20' and 20'+ size classes. This would be a good juniper hand-cut area for wildlife habitat enhancement.

Figure 8 SWA RS8 Shrub mix w/ invasive juniper

SWA RS9 is a Juniper Claypan ecological site in Good condition. Idaho fescue was the dominant grass with lesser amounts of Bluebunch wheatgrass and Sandberg's bluegrass (*Poa secunda*) also present. A trace level of medusahead was also noted. There was a high level of surface stones, cobbles, and gravels and scattered junipers with only 0-5 trees/acre in most size classes.

SWA RS10 is a Shallow Loam ecological site in Good condition. This is mainly an east facing slope with a high level of invasive juniper. There were 30-60 junipers/acre in the 20'+ size class and 10-30 trees/acre in the 12-20' size class. Total production on the site was a little low with Idaho fescue being the dominant perennial grass. Mountain big sagebrush was present in scattered pockets across the slopes where the juniper was less dense.

SWA RS11 is a Shallow Loam ecological site in Fair condition. It is mainly a gentle south facing slope with a high level of surface stones and cobbles. It has a high level of invasive junipers with 30-60 trees/acre in the 20'+ size class and 10-30 trees/acre in the 12-20' size class. Idaho fescue was the dominant grass with Sandberg's bluegrass, Bluebunch wheatgrass, and bottlebrush squirreltail (*Elymus elymoides*) also present. Overall site production was a little low for a Shallow Loam site. Livestock utilization was moderate to heavy at the time of the survey. There were scattered live Mountain big sagebrush plants and lots of skeletons, likely due to the high level of junipers.

Figure 9 SWA RS11 Invasive juniper

SWA RS12 is a Shrubby Loam ecological site in Good condition. There was a good grass cover with Idaho fescue being the dominant species. The level of shrubs was a little low likely due to the level of invasive junipers. There was no evidence of recent grazing in this area. There was a small area at the base of the hill that is now included in the agricultural fields on the adjacent private lands. This area was not included in the ESI inventory.

SWA RS13 is a Juniper Claypan ecological site in Good condition. This 40 acre piece is detached from the rest of the allotment acres. There was no sign of any recent livestock grazing in this area. The perennial grass cover in this area is dominated by almost equal portions of Idaho fescue and Bluebunch wheatgrass. There were patches of medusahead throughout the area with higher concentrations along the lower parts of the slopes. The overall production in the area was a little low likely due to a variety of factors including past livestock grazing, increased juniper levels, and the invasive grass species.

As noted above, medusahead is present throughout most of the allotment in varying levels. It is an exotic, invasive annual grass that has the ability to out compete the other vegetation on a site due to its early germination time and the heavy layer of thatch that it produces. Cheatgrass is also found throughout all of the ecological sites. Both of these exotic species germinate earlier than the native perennials found in these ecological sites. This allows them to start growth earlier and use up soil moisture that could otherwise be used by the native grasses. These exotic species have a negative effect on the watershed function of the uplands. Their shallow-rooted nature provides less soil stability than a mixed stand of native species, which could lead to increased soil loss and decreased water storage capacity in the upland soils. The recent juniper treatments on these sites will likely result in an increase in both of these species. The soil disturbance and burning associated with the juniper treatments will result in bare soil areas where these weedy species can readily establish and overwhelm the native species. This ability to overwhelm the other species on a site is especially true with medusahead as evidenced by the current conditions in SWA RS4.

This Standard is not currently being met on the Rajnus and Son grazing allotment. Many areas are considered to be in Good ecological condition, but the levels of medusahead that are present result in a large area in Poor condition and other areas in Fair condition. Even though the north portion of the allotment appears to have not been grazed in recent years, the current conditions are the result of historic livestock grazing in combination with the existence of the exotic grass species of medusahead. In many areas the increasing levels of junipers is also negatively affecting the upland ecological conditions.

Standard 2 - Watershed Function-Riparian/Wetland Areas

This Standard focuses on the properly functioning condition of riparian/wetland areas as appropriate to soil, climate, and landform.

There are limited riparian/wetland areas on the allotment. There is an ephemeral drainage that flows from north to south in the eastern part of the north portion of the allotment. This same drainage joins another drainage that flows through the very southwest corner of this same portion of the allotment (see attached map). The ESI notes indicated that the eastern drainage was in stable condition with upland vegetation and bedrock in the channel. The larger drainage in the southwest corner has more riparian vegetation as it is used as an irrigation channel between reservoirs on the adjacent private land. It also was in stable condition.

This Standard is currently being met on the Rajnus and Sons allotment.

Standard 3 - Ecological Processes

This Standard addresses the ecological processes of energy flow and nutrient cycling as influenced by existing and desired plant and animal communities.

As discussed under Standard 1 above, many areas of the allotment are currently in Good ecological condition. There is a good mix of native perennial grass, forb, and shrub species that are providing the basis for the processes of energy flow and nutrient cycling. In some areas, the level of juniper trees is resulting in a decline in the overall site production levels. This is mainly evident in the low levels of shrub species and the existence of shrub skeletons.

Also as noted under Standard 1, invasive exotic grass species, particularly medusahead, have been increasing and displacing the native perennial grasses in the allotment. This is causing a change in the ecological process of nutrient cycling. These shallow rooted annuals utilize soil moisture at different times of the year (early winter through early spring) and at shallower soil depths than the natives they are displacing. They also reach maturity early in the growing season and then are not a source of nutrition for dependent vertebrate species. Medusahead also has a mechanical advantage to exclude other grass and forb species. High levels of silica in the stems of medusahead slows the decomposition process and results in a mat of litter that inhibits the germination of seeds other than its own. Both cheatgrass and medusahead tend to spread more rapidly onto disturbed areas, germinate in late fall/early winter when moisture is adequate, and then rapidly develop in early spring as soil temperatures warm. This allows them to utilize the available moisture and nutrients before native annuals and perennials begin active growth.

Figure 10 Medusahead with high litter buildup

This Standard is not currently being met on the Rajnus and Son allotment. There are many areas in Good condition, but the level of junipers and exotic annual grasses are causing declines in native species abundance and production levels. Historic and recent livestock grazing is a factor in the current conditions.

Standard 4 - Water Quality

This Standard addresses surface and groundwater quality as influenced by agency actions and whether it complies with State water quality standards.

At this time, neither the surface water nor groundwater within the Rajnus and Son allotment has been listed for exceeding State water quality standards.

This Standard is currently being met on the Rajnus and Son allotment.

Standard 5 - Native, T&E, and Locally Important Species

This Standard focuses on retaining and restoring native plant and animal (including fish) species, populations and communities (including threatened, endangered, and other special status species and species of local importance).

As discussed above, the presence of exotic, annual grasses and the increasing level of junipers have caused negative impacts to some of the native grass and shrub species on the allotment. The majority of the allotment is still in a good ecological condition, but there are some areas where the exotic grass medusahead has almost completely overwhelmed the other vegetation. In the areas that are still considered to be in good condition, there is a small percentage of medusahead present, usually in scattered patches. The invasive capability of this grass, especially with surface disturbance, was discussed previously in this document. The continued spread of this grass along with the

increasing level of junipers will continue to negatively affect the overall vegetation communities on the allotment and their role in supporting dependent animal species.

This allotment is considered deer winter range and it also supports many other native mammals including wood rats, rabbits, coyotes, ground squirrels, and mice. The shrub and juniper communities also support many species of birds, herptiles, and invertebrates. No special status animal species are known to occur on the allotment.

The northern portions of the allotment were surveyed for botanical resources in 1999, and the Buck Butte portions of the allotment were surveyed in 2002. Only the 40 acre parcel in section 15 has not been surveyed for botanical resources. No special status plant species were documented as a result of these surveys or are known from other sources to occur on the allotment.

Several noxious weed populations in addition to the medusahead have been documented in the area. Four populations of musk thistle (*Carduus nutans*) were documented in the Buck Butte portions of the allotment in sections 20 and 21. A large population of leafy spurge (*Euphorbia esula*) was document in private lands adjacent to the allotment in section 21. A population of yellow starthistle (*Centuarea solstitialis*) was previously documented in section 19 on Buck Butte and was regularly treated as part of the noxious weed management program. No plants have been found for several years.

This Standard is currently being met on the majority of the Rajnus and Son allotment. However, there are areas where exotic, annual grasses have overwhelmed the native vegetation. In addition, juniper trees are increasing to a point where they are negatively affecting the vegetation communities in many areas of the allotment.

Summary

For this allotment, Standards 1 and 3 are not currently being met and livestock grazing is considered to be a factor. One of the main reasons for this is the dense infestation of medusahead in SWA RS4 and the scattered occurrences of it throughout the allotment. The level of juniper trees is also having negative effects in many areas of the allotment as evidenced by the low to nonexistent shrub populations where the junipers are densest.

Management Recommendations

The current level of medusahead throughout the allotment has negatively affected the vegetation conditions and the levels will continue to increase. The biological and mechanical characteristics of this exotic grass have been discussed throughout the assessment. It is currently designated as a “B” classified weed by the Oregon Department of Agriculture with the recommended action limited to intensive control at the state, county or regional level as determined on a case-by-case basis. One of its primary means of expansion is through the colonization of disturbed areas. It is spread to

these areas through transport by wind and by animals in their hair, hooves, and feces. Livestock grazing has been and will continue to be a major factor in the spread of the weed and the subsequent downward trend in the vegetation conditions. Control of medusahead through the use of various combinations of fire, herbicides, tillage, controlled grazing and seeding has had varied responses and costs depending upon site conditions, weather and other factors. With the dense levels of medusahead that are adjacent to the private base property and the scattered patches throughout the allotment it is recommended that the allotment be rested from livestock grazing. Resumption of grazing would be based upon the success of any future weed control strategies.

There are areas in the allotment where juniper control projects would benefit the vegetation and the dependent wildlife species. SWA RS8 would be a good candidate for removal by hand cutting as there is a good variety of shrubs and perennial grasses still present. Other areas to consider would be SWAs RS3, RS7, RS10 and RS12. These all have high levels of juniper with enough remaining shrubs and perennial grass cover to provide for a good recovery. Hand cutting would be the preferred method in these areas due to the steeper slopes and the presence of medusahead.

As identified above, there are approximately 240 acres of the allotment that have been fenced into the neighboring Haught allotment, #00801. A review of the grazing files for both allotments show no records for this fence construction or allotment boundary adjustments. The situation should be discussed with both allotment lessees. If an agreement can be reached it is recommended that these acres be transferred into the Haught allotment.

There are some areas of the allotment that should be considered for sale or exchange to private parties. There is an area that borders the north edge of the private base property that is currently part of the private agricultural fields and road system. This area of unintentional agricultural trespass can clearly be seen on the attached aerial photo maps. Additionally, the three 40 acre parcels listed as SWAs RS12 and RS13 should be considered for sale. These parcels are separated from the main allotment and have private lands on 3 or 4 sides of their borders. A small area of SWA RS12 is also included into private agricultural lands. These factors limit the access to and management of these parcels.

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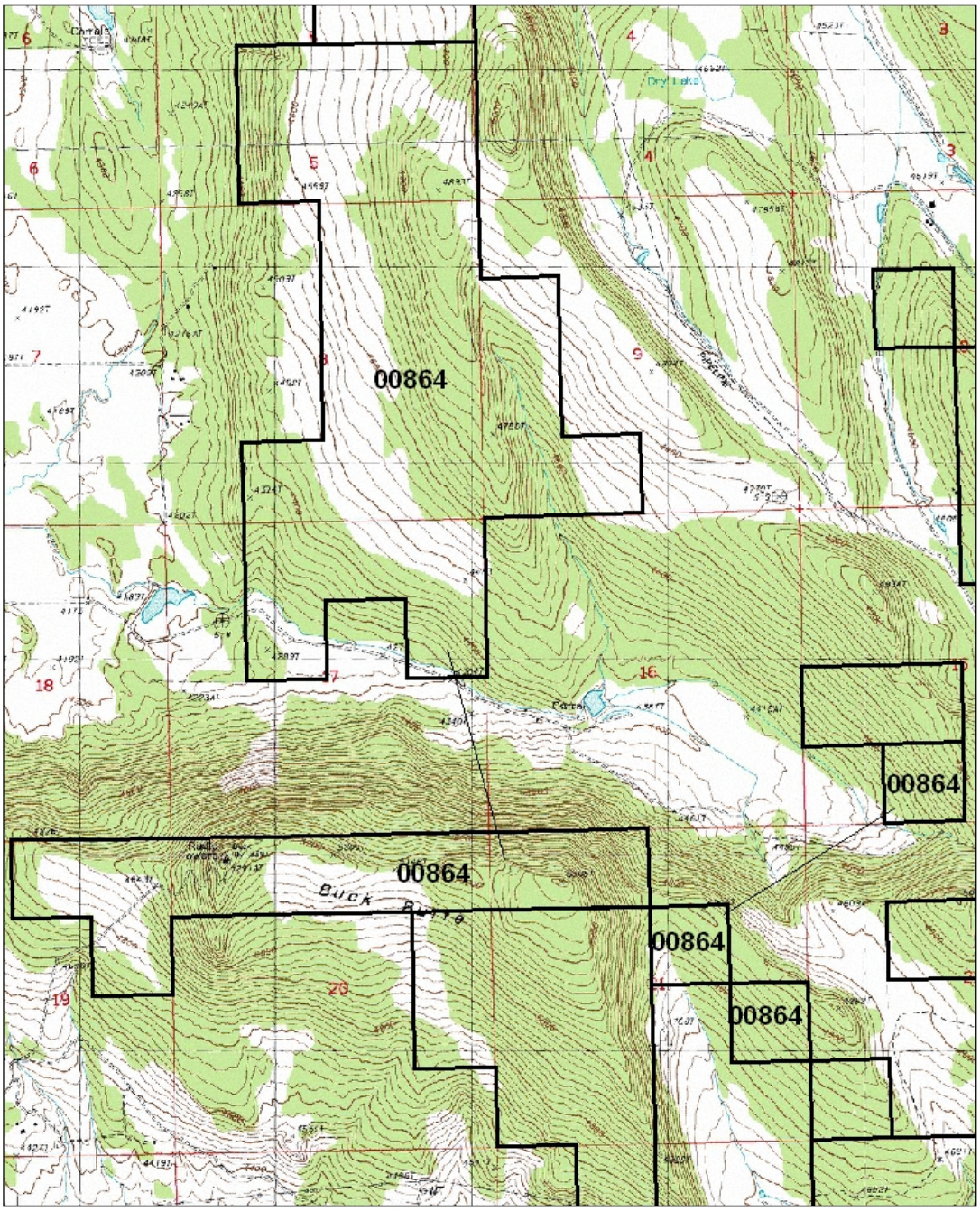
Determination

( ) Existing grazing management practices and/or levels of grazing use on the Rajnus and Son grazing allotment promotes achievement or significant progress toward the Oregon Standards for Rangeland Health and conforms with the Guidelines for Livestock Grazing Management.

(X) Existing grazing management practices and/or levels of grazing use on the Rajnus and Son grazing allotment will require modification or change prior to the next grazing season to promote achievement of the Oregon Standards for Rangeland Health and conform with the Guidelines for Livestock Grazing Management.

/s/ *Mike Bechdolt* (Acting) 4/11/07
Manager, Klamath Falls Resource Area Date



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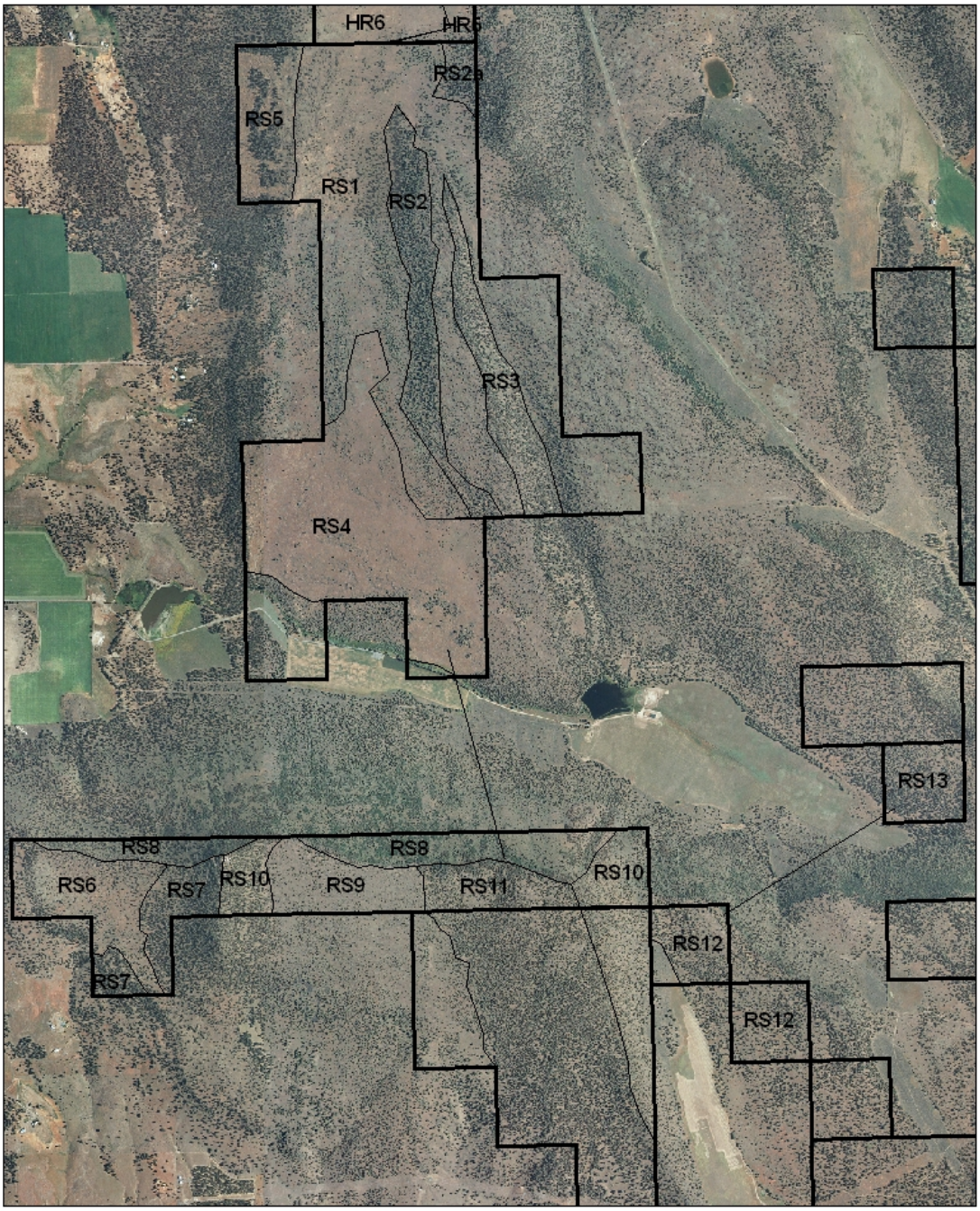

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