FINDING OF NO SIGNIFICANT IMPACT

O'SULLIVAN LIVESTOCK GRAZING PERMIT RENEWAL FOR CHUKAR SPRING (#0214) AND HILL CAMP ALLOTMENTS (#0215)
DOI-BLM-OR-L050-2012-0026-EA

The Bureau of Land Management, Lakeview District, Lakeview Resource Area (BLM), has analyzed several alternative proposals related to renewing term grazing permit number 3601210. The allotments are located about 9 miles southeast of Adel, Oregon, and encompass approximately 31,420 acres (including 29,300 acres of BLM-administered lands). An environmental assessment (EA) was prepared that analyzed the potential direct, indirect, and cumulative environmental impacts of four alternatives (attached). The alternatives analyzed included No Action (continue current grazing), rest one year out of four (Chukar Spring only), and No Grazing (see Chapter 2 of attached EA).

The Council on Environmental Quality (CEQ) regulations state that the significance of impacts must be determined in terms of both context and intensity (40 CFR 1508.27). The context of the proposed action is the geographic extent of the Chukar Spring and Hill Camp grazing allotments (0214 and 0215). For this reason, the analysis of impacts in the attached Environmental Assessment (EA) is focused appropriately at this scale. The CEQ regulations also include the following ten considerations for evaluating the intensity of impacts:

1) Would any of the alternatives have significant beneficial or adverse impacts (40 CFR 1508.27(b)(1)?
( ) Yes (X) No

Rationale: Based on the analysis contained in the attached EA, none of the three alternatives would have either significant beneficial or adverse impacts on the human environment. There are no prime or unique farmlands, low income or minority populations, paleontology, perennial water bodies (water quality), wild horse management areas, wild and scenic rivers, significant caves, designated wilderness areas, wilderness study areas, areas with wilderness characteristics, threatened or endangered species, or hazardous waste sites located in the project area. No measureable impacts would occur to climate, air quality, floodplains, land tenure, or mineral and energy resources (Tables 5 and 6).

The potential impacts to soils, biological soil crusts, wetland and riparian areas, upland vegetation, wildlife, special status species, livestock grazing management, native American concerns, cultural resources, recreation, visual resources, or social and economic values, ACEC/RNAs anticipated by the various alternatives have been analyzed in detail within Chapter 3 of the attached EA and found not to be significant.

2) Would any of the alternatives have significant adverse impacts on public health and safety (40 CFR 1508.27(b)(2)? ( ) Yes (X) No

Rationale: None of the three alternatives analyzed in detail in the attached EA would have significant impacts on public health or safety because the project area is not located near any populated rural or urban area. For this reason, there would also be no impacts to low income or minority populations (Table 5). Further, there are no known hazardous waste sites in the project area (Table 5). There would be no measureable impacts to air quality within and surrounding the project area (Table 5). There are no perennial streams or municipal drinking water sources located in the project area (Table 5).

3) Would any of the alternatives have significant adverse impacts on unique geographic characteristics (cultural or historic resources, park lands, prime and unique farmlands, wetlands, wild and scenic rivers, designated wilderness or wilderness study areas, or ecologically critical areas (*ACECs, RNAs, significant caves*)) (40 CFR 1508.27(b)(3)? ( ) Yes (X) No

Rationale: There are no park lands, prime or unique farmlands, wild and scenic rivers, significant caves, designated wilderness areas, or WSAs, located in the project area (Table 5). None of the alternatives analyzed in detail would have significant impacts on wetlands or riparian areas, or either the Spanish Lakes ACEC/RNA or High Lakes ACEC (pages 21-23, 49-50).

4) Would any of the alternatives have highly controversial effects (40 CFR 1508.27(b)(4)? ( ) Yes (X) No

Rationale: The BLM has extensive expertise planning, analyzing impacts, and implementing range management actions such as those proposed by the three alternatives addressed in the attached EA. The potential impacts of these range management actions on soils, biological soil crusts, wetland and riparian areas, upland vegetation, wildlife, special status species, livestock grazing management, native American concerns, cultural resources, recreation, visual resources, social and economic values, and ACEC/RNA values can be reasonably predicted based on existing science and professional expertise. The attached EA analyzed these impacts in detail in Chapter 3. The nature of these impacts is not highly controversial, nor is there substantial dispute within the scientific community regarding the nature of these effects.

The public has been given an opportunity to review and comment on the analysis of effects. The BLM is not currently aware of any potential highly controversial effects, as defined under 40 CFR 1508.27(b)(4), but will review any comments received and address any substantive comments prior to signing this FONSI.

5) Would any of the alternatives have highly uncertain effects or involve unique or unknown risks (40 CFR 1508.27(b)(5)? ( ) Yes (X) No

Rationale: The BLM has extensive expertise planning, analyzing impacts, and implementing range management actions such as those proposed by the three alternatives addressed in the attached EA. The potential impacts of these range management actions on soils, biological soil crusts, wetland and riparian areas, upland vegetation, wildlife, special status species, livestock grazing management, native American concerns, cultural resources, recreation, visual resources, social and economic values, or ACEC/RNA values can be reasonably predicted based on existing science and professional expertise. The attached EA analyzed these impacts in detail in Chapter 3. The nature of these impacts is not highly uncertain nor does it involve unique or unknown risks.

6) Would any of the alternatives establish a precedent for future actions with significant impacts (40 CFR 1508.27(b)(6)? ( ) Yes (X) No

Rationale: The BLM has extensive expertise planning, analyzing impacts, and implementing range management actions such as those proposed by the three alternatives addressed in Chapters 2 and 3 of the attached EA. None of the alternative actions represents a new, precedent-setting range management technique or would establish a precedent for future similar actions with potentially significant effects.

7) Are any of the alternatives related to other actions with potentially significant cumulative impacts (40 CFR 1508.27(b)(7)? ( ) Yes (X) No

Rationale: Based on the analysis contained within the Cumulative Effects section of Chapter 3 of the attached EA, none of the three alternatives would have significant cumulative effects within the project area, even when added to the effects of other past, present, and reasonably foreseeable future actions (pages 50-54).

8) Would any of the alternatives have significant adverse impacts on scientific, cultural, or historic resources, including those listed or eligible for listing on the National Register of Historic Resources (40 CFR 1508.27(b)(8)? ( ) Yes (X) No

Rationale: There are no known areas of native American religious concern in the project area (page 42). Potential impacts to cultural resources have been analyzed in Chapter 3 of the attached EA and found not to be significant (pages 42-44).

9) Would any of the alternatives have significant adverse impacts on threatened or endangered species or their critical habitat (40 CFR 1508.27(b)(9)? ( ) Yes (X) No

Rationale: There are no Federally-listed threatened or endangered species or designated critical habitat within the project area (Table 5, page11). Impacts to the Greater Sage-grouse, a Federal candidate species, were analyzed in the Special Status Species section of the EA and were not significant (pages 33-37).

10) Would any of the alternatives have effects that threaten to violate Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)? ( ) Yes (X) No

Rationale: All of the three alternatives analyzed in the attached EA comply with all Federal, State, and local environmental laws or other environmental requirements, including the requirements of the National Environmental Policy Act.

The Federal Land Policy and Management Act requires that any action that BLM implements must also conform with the current land use plan and other applicable plans and policies. The purpose and need for the proposed action conforms with the management direction contained in the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b). The alternatives that were analyzed in the EA conform to the management direction requirements of this plan and the *Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington* (BLM 1997), the *Greater Sage-Grouse Conservation Strategy and Assessment for Oregon* (ODFW 2005), the *Greater Sage-Grouse Interim Management Policies and Procedures* (BLM 2011c), and the grazing regulations (43 CFR Part 4100) in varying degrees (Chapter 1). Conformance with this direction will be addressed in more detail within the proposed decision as it represents an important decision factor that must be considered in making the final decision (EA page 2).

Finding

On the basis of the analysis contained in the attached EA, the consideration of intensity factors described above, and all other available information, my determination is that none of the alternatives analyzed would constitute a major federal action which would have significant adverse or beneficial impacts on the quality of the human environment. Therefore, an Environmental Impact Statement (EIS) is unnecessary and will not be prepared.

_____ _____

Thomas E. Rasmussen, Field Manager Date
Lakeview Resource Area

O'Sullivan Grazing Permit Renewal for Chukar Spring (0214) and Hill Camp (0215) Allotments

ENVIRONMENTAL ASSESSMENT

DOI-BLM-L050-2012-0026-EA

Lakeview Resource Area
Lakeview District Office
Bureau of Land Management
1301 South G Street
Lakeview, Oregon 97630

December 2012

CHAPTER 1—PURPOSE AND NEED FOR ACTION

Introduction

The Lakeview District, Bureau of Land Management (BLM) has prepared this Environmental Assessment (EA) to analyze the potential effects of renewing term grazing permit #3601210 for a ten-year period for the Chukar Spring (0214) and Hill Camp (0215) Allotments. This EA serves as the analytical basis for compliance with the National Environmental Policy Act of 1969 (NEPA) and making a determination as to whether any significant impacts to the human environment would result from the proposal.

The allotments are located approximately 9 miles southeast of Adel, Oregon (Map 1). The Chukar Spring Allotment is about 1,764 acres in size, is comprised of one pasture, and is grazed by one permitted. The Hill Camp Allotment is about 33,500 acres in size, is comprised of 5 pastures, and is grazed by 2 permittees (Map 2). The Chukar Spring Allotment is entirely public land while the Hill Camp Allotment is 30,790 acres of public land and 2,710 acres of private land.

The O'Sullivan Grazing permit (#3601210) includes four pastures of the Hill Camp Allotment totaling about 29,656 acres, but does not include the Coleman Seeding Pasture. In addition, the Hill Camp Allotment is shared by two permittees. The O'Sullivan permit portion of the allocated forage is 213 AUMS of the 3,932 total AUMs allocated for the allotment. The other (Cahill) grazing permit covering the Hill Camp Allotment is not up for renewal at this time and will not be addressed in this EA. For these reasons, all references to the Hill Camp Allotment in this EA will only include the four pastures in the O'Sullivan permit.

Purpose and Need for Action

The grazing permit for the allotment expired in 2004 at which time the permit renewal application was submitted for consideration by the permittee. At that time the BLM was unable to fully process the permit renewal; therefore the permit was renewed under the authority of Section 416, Public Law 111-88, until such time as the permit could be fully processed.

The primary purpose of this analysis is to respond to the permittee's permit renewal application and consider whether or not to reissue or modify the 10-year term livestock grazing permit #3601210 associated with the Chukar Spring (#00214) and Hill Camp Allotments (#00215).

Decisions to Be Made

The authorized officer will decide whether or not to renew the Term Grazing Permit, and if so, under what terms and conditions.

Decision Factors

Decision factors are additional criteria used by the decision maker to choose the alternative that best meet the purpose and need for the proposal. These include:

a) How well does the decision conform to laws, regulations, and policies related to grazing use and protecting other resource values?
b) How well does the decision conform to the resource management plan or allotment-specific management direction?
c) How well does the decision promote maintenance of rangeland health standards?
d) How well does the decision conform with ODFW (2005) guidelines?
e) How well does the decision conform with IM 2012-043 regarding interim sage-grouse management?

Conformance with Land Use Plan

The Lakeview RMP/ROD (BLM 2003b, as maintained) is the governing land use plan for the area and provides the following goals and management direction related to livestock grazing use:

Livestock Grazing Management Goal—***Provide for a sustainable level of livestock grazing consistent with other resource objectives and public land-use allocations*** (Page 52).

> The Chukar Spring and Hill Camp Allotments are currently open or allotted to grazing use andares allocated for 53 AUMs and 213 AUMS of livestock forage respectively. There are 35 AUMs of wildlife forage on the Chukar Spring Allotment and 345 AUMS of wildlife forage on the Hill Camp Allotment (Page 46, Table 5; Map G-3).
>
> "*The current licensed grazing levels (Appendix E1) will be maintained until analysis or evaluation of monitoring data or rangeland health assessments identify a need for adjustments to meet objectives. Applicable activity plans (including existing allotment management plans, agreements, decisions and/or terms and conditions of grazing use authorizations) will be developed, revised where necessary, and implemented to ensure that resource objectives are met. The full permitted use level for each allotment has been and continues to be analyzed through individual allotment assessments, such as rangeland health and livestock grazing guidelines*…." (Page 52).
>
> "*Rangeland improvement projects will be implemented to meet resource objectives… Range improvement projects that do not enhance resource values and meet management objectives will be abandoned and rehabilitated*" (Page 53).

Appendix E1 – Allotment Specific Management Direction – Chukar Spring Allotment

Livestock distribution/management - *Improve livestock management and distribution through improved management practices, installation of livestock management facilities (such as fences and water sources), and/or other actions as opportunities arise* (Page A-34).

Improve/maintain range condition - *Use management practices and/or better animal distribution; develop range improvements when appropriate: adjust permitted use as needed* (Page A-34).

Wildlife/Wildlife Habitat –

Follow the greater sage-grouse Livestock Grazing guidelines (pages 75-76 of ODFW 2005), where appropriate.

Intensively monitor utilization of browse in winter range areas. Avoid livestock utilization levels that reduce the long-term viability of browse plants.

Monitor elk population expansion to ensure sufficient forage and habitat are available.

Special Management Areas –

Adjust allotment management, including levels and areas of authorized use, and grazing system, if required by future ACEC management plan.

Appendix E1 – Allotment Specific Management Direction – Hill Camp Allotment

Livestock distribution/management - *Continue livestock management practices under the 1975 livestock management plan. Revise the following objectives as needed to meet multiple use objectives: (page 35)*

1. *Allow an opportunity for maximum herbage production, and thereby substantially restore vigor, three of out of four years on all plants affected by grazing.*
2. *Allow an opportunity for maximum seed production two or three years out of four on all plants substantially affected by grazing.*
3. *Acquire substantial trampling by domestic livestock of all seed and foliage litter produced into and on the surface, at least two out of four years.*
4. *Allow all new seedings one full year and two grazing seasons of rest from grazing every four years.*
5. *Close and lay to rest (by filling in and seeding) all unnecessary roads, trails and accelerated erosion scars.*
6. *Require all new construction and maintenance of roads, reservoirs, and waterholes to be done in a manner which will:*

    a) *Cause the least disturbance of topsoil and vegetation.*
    b) *Result in the least amount of erosion possible.*
    c) Acquire quick revegetation of disturbed areas (seeding may be required).

Improve livestock management and distribution through improved management practices, installation of livestock management facilities (such as fences and water sources), and/or other actions as opportunities arise (Page A-35).

Improve/maintain range condition - *Use management practices and/or better animal distribution; develop range improvements when appropriate: adjust permitted use as needed* (Page A-35).

Treat Crested Wheatgrass seedlings to improve ecological condition.

Wildlife/Wildlife Habitat –

Follow the greater sage-grouse Livestock Grazing guidelines (pages 75-76 of ODFW 2005), where appropriate (Page A-35, as maintained).

Intensively monitor utilization of browse in winter range areas. Avoid livestock utilization levels that reduce the long-term viability of browse plants.

Monitor population expansion to ensure sufficient forage and habitat are available.

Special Status Species/Habitat – *Protect special status species /habitat from BLM- authorized activities*

Consistency with Other Authorities

This EA has been prepared in conformance with the NEPA. Grazing permits are subject to renewal in accordance with the provisions of the Taylor Grazing Act (1934), Federal Land Policy and Management Act (FLPMA, 1976), Public Rangelands Improvement Act (1978), and applicable grazing regulations at 43 Code of Federal Regulations (CFR) Part 4100.

In order for an applicant to lawfully graze livestock on public land, the party must obtain a valid grazing permit or lease. The grazing regulations, 43 CFR 4130.2(a), state "grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the Bureau of Land Management that are designated as available for livestock grazing through land use plans." As noted above, the Lakeview RMP/ROD has designated this allotment as available for livestock grazing (BLM 2003b). The permit renewal applicant (current permittee) controls the base property associated with the grazing preference on the allotment and has been determined to be a qualified applicant.

A performance review of the permittee's past use has been completed and BLM found the permittee to have a satisfactory record of performance pursuant to 43 CFR 4110.1(b). This conclusion was based on: grazing utilization at acceptable levels; bills paid on time; actual use turned in annually; permit terms and conditions were adhered to, base property requirements met, and no history of livestock trespass or unauthorized use. The record of performance review is hereby incorporated by reference.

Consistency with Other Plans and Policies

The final decision must also take into account the following plans and policies:

Conducting Wilderness Characteristics Inventory on BLM Lands (BLM 2012a) – Current manual that provides guidance on the process that BLM should use when updating its wilderness characteristics inventory.

Greater Sage-Grouse Conservation Assessment and Strategy for Oregon (ODFW 2005) - states "where livestock grazing management results in a level of forage use (use level) that is consistent with Resource Management Plans, Allotment Management Plans, Terms and Conditions of Grazing Permits or Leases, other allotment specific direction, and regulations, no changes to use or management are required if habitat quality meets Rangeland Health Standard and Guidelines" (Page 75). The plan also provides guidelines on how to construct or maintain range improvement projects to minimize impacts to sage-grouse habitat (Page 76).

Greater Sage-Grouse Interim Management Policies and Procedures (BLM 2011c) – represents the current BLM Washington Office interim policy for sage-grouse habitat management until such time as plan amendments can be completed throughout the range of the species that address a comprehensive conservation strategy. This policy addresses proposed grazing permit renewals and proposed water developments as follows:

<u>Permit Renewals</u>

Plan and authorize livestock grazing and associated range improvement projects on BLM lands in a way that maintains and/or improves Greater Sage-Grouse and its habitat. Analyze through a reasonable range of alternatives any direct, indirect, and cumulative effects of grazing on Greater Sage-Grouse and its habitats through the NEPA process:

- Incorporate available site information collected using the *Sage-Grouse Habitat Assessment Framework* when evaluating existing resource condition and developing resource solutions,
- Incorporate management practices that will provide for adequate residual plant cover (e.g., residual grass height) and diversity in the understories of sagebrush plant communities as part of viable alternatives. When addressing residual cover and species diversity, refer to the ESD (ecological site data) and "*State and Transition Model*," where they are available, to guide the analysis.
- Evaluate and implement grazing practices that promote the growth and persistence of native shrubs, grasses, and forbs. Grazing practices include kind and numbers of livestock, distribution, seasons of use, and livestock management practices needed to meet both livestock management and Greater Sage-Grouse habitat objectives.
- Evaluate the potential risk to Greater Sage-Grouse and its habitats from existing structural range improvements. Address those structural range improvements identified as posing a risk during the renewal process.
- Balance grazing between riparian habitats and upland habitats to promote the production and availability of beneficial forbs to Greater Sage-Grouse in meadows, mesic habitats, and riparian pastures for Greater Sage-Grouse use during nesting and brood-rearing while maintaining upland conditions and functions. Consider changes to season-of-use in riparian/wetland areas before or after the summer growing season.

To ensure that the NEPA analysis for permit/lease renewal has a range of reasonable alternatives:

- Include at least one alternative that would implement a deferred or rest-rotation grazing system, if one is not already in place and the size of the allotment warrants it.
- Include a reasonable range of alternatives (e.g., no grazing or a significantly reduced grazing alternative, current grazing alternative, increased grazing alternative, etc.) to compare the impacts of livestock grazing on Greater Sage-Grouse habitat and land health from the proposed action.
- Install escape ramps and a mechanism such as a float or shut-off valve to control the flow of water in tanks and troughs.
- Design structures in a manner that minimizes potential for production of mosquitoes which may carry West Nile virus.

CHAPTER 2—ALTERNATIVES

Alternatives Considered but Eliminated from Further Analysis by Allotment

Chukar Spring Allotment

An alternative that included a 50% reduction in the permitted livestock numbers was considered, but eliminated from further analysis. The permitted use on the Chukar Spring Allotment is only 52 AUMs and reducing it in half would make grazing economically unfeasible for the permittee and, therefore, grazing would not occur on the allotment. For this reason, the impacts would be similar to the no grazing alternative, which will be addressed in the analysis.

Hill Camp Allotment

An alternative that included a 50% reduction in permitted livestock numbers was considered, but eliminated from further analysis as the current allocation for this permittee (O'Sullivan) comprises only 6% of the total AUMs permitted on this allotment. Therefore, reducing the O'Sullivan permit by 50% on the Hill Camp Allotment would be an insignificant difference in livestock numbers grazing the allotment.

Reducing the grazing season was also was considered, but eliminated from further analysis for the same reason.

Actions Common to Grazing Alternatives 1 and 2 for Chukar Spring Allotment (0214)

Grazing management system

There is only one pasture in the allotment and it is grazed in the early spring every year. The yearly grazing schedule for Chukar Spring Allotment is 4 weeks of grazing between 3/15 and 4/30. While it is a separate allotment, it is used in conjunction with the Hill Camp Allotment, providing early season forage before Hill Camp is available for grazing.

Monitoring

Monitoring would continue, as specified in the Lakeview RMP and incorporated herein by reference (BLM 2003b, pages 53-55). In summary, trend monitoring studies would be conducted and include nested frequency and 180° step-toe and photo station and observed apparent trend methodologies are used to measure cover, species composition and frequency. Utilization studies would be conducted using the key forage plant method. Utilization is a measure of the amount of the current year's forage that is consumed by livestock. Monitoring methodology would follow the latest protocol, such as Technical References 1734-3 and 1734-4 (BLM 1996a & b) incorporated by reference. Table 1 describes the key species and utilization targets identified for the Chukar Spring Allotment.

Table 1. Key Species and Target Utilization Levels for Pastures within the Chukar Spring Allotment

Pasture	BLM Acres	Trend Plot[1]	Key Species	Utilization Target %
Chukar Spring	1,764	CS-01 CS-02	Idaho Fescue (*Festuca idahoensis*) Squirreltail (*Elymus elymoides*)	50

Actions Common to Alternatives 1 and 2 for Hill Camp Allotment (0215)

Grazing management system

The current rest rotation grazing system would be applied to all grazing alternatives for this allotment. There are 4 pastures in the allotment grazed as part of the grazing system (Map 2). The four pastures in the grazing system are currently grazed three years and rested one year. Three of the four pastures are grazed three years in a row for part of the year and then rested the year after deferment. The term deferment refers to grazing after grass species have completed most of their growth cycle. The West Pasture is grazed three years and rested one year, but is deferred every year because of the higher elevation and reliable water. The typical growth cycle for the Lakeview Resource Area is 4/15 for start of growth through 7/15 seed set. The four pastures are grazed, deferred, and rested as shown in Table 2.

Monitoring

Monitoring would continue using the same techniques described above for the Chukar Spring Allotment. Table 3 describes the key species and utilization targets identified for the Hill Camp Allotment.

Table 2. Rest Rotation Grazing System for Hill Camp Allotment

Pasture	Year 1 in Rotation (2013)	Year 2 in Rotation (2014)	Year 3 in Rotation (2015)	Year 4 in Rotation (2016)
North East	Graze May - June 15	Defer, Graze June 15-August	Rest	Graze May-June 15
South East	Defer, Graze June15-August	Rest	Graze May-June 15	Defer Graze August-Oct 1
West	Defer Graze August –Oct 1	Defer Graze August-Oct 1	Defer, Graze August-October	REST
Basin	Rest	Graze May-June 15	Defer Graze June15- August	Defer Graze June 15- August

Table 3. Key Species and Target Utilization Levels for Pastures in Hill Camp Allotment

Pasture	Acres	Trend Plot[1]	Key Species	Utilization Target %
Northeast	5,010	HC-02 HC-03 HC-04 HC-16 HC-442	Idaho Fescue (*Festuca idahoensis*) Squirreltail (*Elymus elymoides*) Thurbers Needlegrass (*Achnatherum thurberianum*)	50
Southeast	4,985	HC-05 HC-14 HC-15 HC-10A&B HC-171A&B HC-172A&B HC-173A&B HC-444	Idaho Fescue (*Festuca idahoensis*) Squirreltail (*Elymus elymoides*) Thurbers Needlegrass (*Achnatherum thurberianum*)	50
West	12,106	HC-01 HC-06 HC-07 HC-08 HC-09 HC-11 HC-425 HC-437	Bluebunch Wheatgrass (Elymus pseud Idaho Fescue (*Festuca idahoensis*) Squirreltail (*Elymus elymoides*) Thurbers Needlegrass (*Achnatherum thurberianum*)	50
Basin	7,555	HC-12 HC-13	Bluebunch Wheatgrass (Elymus pseud Idaho Fescue (*Festuca idahoensis*) Squirreltail (*Elymus elymoides*) Thurbers Needlegrass (*Achnatherum thurberianum*)	50

Grazing Permit Terms and Conditions Applicable to All Grazing Alternatives for Both Allotments

Terms and conditions that comply with Federal and State policies will be included within any grazing permit issued under any grazing alternative. This includes requirements such as: timely payment of fees, submission of actual use reports, providing administrative access across private land, continued compliance with Rangeland Health Standards, and maintenance of range improvements.

Grazing Management Flexibility

Knowing that uncertainties exist in managing for sustainable ecosystems, changes to the annual grazing use may be authorized within the limits of the grazing permit for reasons such as, but not limited to:

> Adjust the rotation/timing of grazing based on previous year's monitoring and current year's climatic conditions. An example of this would be; to turn livestock out later in the season on a year with a wet cold spring; or to bring livestock off the allotment early as conditions warrant this need.
>
> Dry years that limit water availability; An example would be resting a pasture that had low water and shifting livestock use to the pasture that had water. Conversely on wet years, livestock could be moved to areas near more dependable water sources.
>
> Change in use periods to balance utilization levels in each pasture. An example of this would be to shorten the time period or number of livestock in a pasture that had 65% average utilization and or increase the time period and number of livestock in another pasture that had 30% average utilization if the target utilization in both pastures is 50%.

Flexibility in grazing management would be authorized within the active permitted AUMs and outside permit dates, some of the more common adjustments are:

> Increasing livestock numbers while shortening the season of grazing use
>
> Adjustments to the length of time and AUMs of grazing use to meet resource objectives including but not limited to utilization targets
>
> Temporary (1 year) adjustments to pasture use usually dependent on water availability or climate related issues. Sometimes adjustments would be made to reduce conflicts with other resources; such as one time recreational or other activities where livestock or the other resource would benefit from adjusting the livestock use.

Alternatives Analyzed in Detail

Alternative 1 - No Action

The No Action Alternative would renew the existing livestock grazing permit (#3601210) in the Hill Camp and Chukar Spring Allotments for the current grazing permittee with the same terms and conditions. A 10-year term livestock grazing permit would be issued that continues current

grazing management during the permitted season with the current specified grazing use and rest-rotation grazing system (Table 4). This definition for the No Action Alternative is consistent with BLM (2000) guidance.

Table 4. Specified Grazing Use for Alternatives 1 and 2

	LIVESTOCK		**GRAZING PERIOD**		**TYPE USE**	**AUMs**
Allotment	Number	Kind	Begin Date	End Date		
Hill Camp (0215)	51	CATTLE	4/25	10/1	Active	213
Chukar Spring (0214)	33	CATTLE	03/15	5/01	Active	52

Alternative 2 - Chukar Spring Allotment Only (Rest One Year Out of Four)

Under this alternative, livestock grazing permit (#3601210) in the Chukar Spring Allotment would be renewed at the same number of AUMs and the same grazing period as Alternative 1, but the allotment would be rested one year out of four. Under this alternative, a 10-year term livestock grazing permit would contain a stipulation that the permittee would rest the allotment at least one year of four.

Under this alternative, there are no changes proposed to livestock grazing management in the Hill Camp Allotment. Grazing would be similar to Alternative 1.

Alternative 3 - No Grazing

Under this alternative, the current grazing permit would not be renewed and livestock grazing would not be authorized on public lands within the Chukar Spring Allotment and 213 AUMS on the Hill Camp Allotment would be relinquished. The Hill Camp Allotment would still have 3,719 AUMS authorized under a different permit with a different permittee. This alternative is being considered to provide a full range of alternatives and comply with current grazing management permit renewal guidance (BLM 2000, 2008b).

CHAPTER 3—DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section presents a description of the current environment within the allotment and a discussion of the potential changes resulting from implementation of the alternative management actions. An inter-disciplinary (ID) team has reviewed and identified the resources values and uses that could potentially be affected by the alternative actions. The resources identified as “not affected” or “not present” are listed in Tables 5 and 6 and will not be discussed or further analyzed in this EA. The remainder of this chapter describes the potential direct, indirect, and cumulative effects on resources and resource uses that may result from each alternative on those resources or uses that are present within the allotments.

Table 5 - Critical Elements of the Human Environment that Would Not be Affected

Elements of Human Environment		Rationale
Air Quality (Clean Air Act)	Not Affected	None of the alternatives would have measureable impacts to air quality or discharges of regulated air pollutants.
Environmental Justice (Executive Order 12898)	Not Present	None of the alternatives would have disproportionately high or adverse effects on minority or low-income populations as such populations do not exist within the allotments.
Prime or Unique Farmlands	Not Present	No such lands have been identified in the allotments.
Flood Plains (Executive Order 13112)	Not Affected	None of the alternatives propose construction within or other modification of flood plains. Therefore, there would be no floodplain or hydrologic impacts.
Paleontology	Not Present	There are no known paleontological resources within the allotments.
Threatened and Endangered Plants and Animals	Not Present	No known federally listed plant or animal species or their habitat are found within the allotments. No fish-bearing streams are present in the allotments.
Wild and Scenic Rivers	Not Present	There are no wild or scenic rivers within the allotments.
Water Quality (Clean Water Act)	Not Present	There are no perennial streams, water quality limited streams, or municipal drinking water sources in the allotments (BLM 2004a, 2004b).
Wilderness	Not Present	There are no WSAs or designated wilderness areas within the allotments (BLM 1989, 1991).

Climate

Affected Environment:

Climate patterns of this region are typical of the Intermountain West precipitation zone, with winters and early springs cold and constituting the majority of the precipitation, while summers are typically warm and dry. Average precipitation for Chukar Spring and Hill Camp Allotments, based upon the Parameter-elevation Regressions on Independent Slopes Model (PRISM system, is estimated to average 7-12 inches/year, with extreme lows (<6 in) and highs (>13in) occasionally occurring. Average yearly temperatures range from 30-59º F, with average lows in December ~18º F, and average highs in July ~82º F; the coldest and warmest months, respectively (PRISM Climate Group, 2012).

Changes in greenhouse gas levels may affect global climate (Forster *et al*. 2007). However, the U.S. Geological Survey (USGS) has summarized the latest science on greenhouse gas emissions and concluded it is currently beyond the scope of existing science to identify a specific source of greenhouse gas emissions and designate it as the cause of specific climate impacts at a specific

Table 6 – Other Resources and Uses that Would not be Affected

Lands	Not Affected	None of the alternatives analyzed would have any effects on current land status or land tenure.
Fisheries	Not Present	No perennial streams or associated fisheries exist within the allotments.
Minerals and Energy	Not Affected	None of the alternatives analyzed would have any effects on mineral or energy resources or uses.
Hazardous or Solid Waste	Not Present	No such sites or issues are known within the allotments.
Noxious Weeds (Executive Order 13112)	Not Present	No noxious weed infestations are present within the Chukar Spring or Hill Camp Allotments, If new infestations are found in the future, they would be treated in accordance with the most current Integrated Weed Treatment Plan (such as BLM 2004d).
Lands with Wilderness Characteristics	Not Present	BLM's original wilderness inventory did not find wilderness characteristics to be present within these allotments (USDI-BLM 1979f, 1979g, 1979h, 1980a, and 1980b). Since 2007, the BLM has been conducting wilderness inventory updates following current inventory guidance (BLM 2007c, 2008c, 2012a). In this process, an inter-disciplinary team reviewed the existing wilderness inventory information contained in the BLM's wilderness inventory files, previously published inventory findings, and citizen-provided wilderness information (such as ONDA 2005). BLM conducted field inventory, completed route analysis forms, made unit boundary determinations, and subsequently evaluated wilderness character within each inventory unit. BLM has completed wilderness character inventory updates for all lands within the two allotments. Published inventory updates are available on BLM's website at http://www.blm.gov/or/districts/lakeview/plans/inventas.php. While ONDA found wilderness characteristics to be present in most of these 2 allotments (ONDA 2005; p. 47-55 and 87-120), BLM did not find wilderness characteristics to be present (BLM 2009, 2012b). BLM hereby incorporates these findings by reference in their entirety. Based upon the results of BLM's inventory updates, there are no lands with wilderness characteristics in either allotment. Therefore, there would be no impacts to such values.
Wild Horses (Wild Horse and Burro Act)	Not Present	The allotments are located outside of designated wild horse herd management areas.

location (USGS 2008). For this reason, the analysis focuses on quantifying the potential changes in greenhouse gas emissions and carbon sequestration associated with the alternatives.
Environmental Consequences:

Effects Common to Alternatives 1-2

Livestock grazing results in methane emissions as a result of ruminant digestion. Methane emission rates from cattle vary widely and depend on many variables (Johnson and Johnson 1995; DeRamus *et al*. 2003). Estimates for grazing cattle typically range from 80 to 101 kilograms of methane per year per animal (Environmental Protection Agency (EPA),

2009) or 6.7-9.2 kilograms of methane per month. This analysis assumes a methane emission rate of 8 kilograms of methane per AUM. Assuming that methane has a global warming potential 21 times that of carbon dioxide (EPA 2009, p. ES-3), each AUM results in 0.168 metric tons of carbon dioxide equivalent.

Current U.S. emissions of methane from livestock production total approximately 139 million metric tons of carbon dioxide equivalent per year (EPA 2009, p. 6-2); current U.S. emissions of all greenhouse gases total approximately 7 billion metric tons of carbon dioxide equivalent (EPA 2009, p. 2-4); current global emissions of all greenhouse gases total about 25 billion metric tons of carbon dioxide equivalent (Denman *et al*. 2007, p. 513).

The alternatives would permit grazing use between 0 and 265 AUMs per year within the both the Chukar Spring and Hill Camp Allotments which would result in methane emissions estimated between 0 and 44.52 metric tons of carbon dioxide equivalent per year. This emission represents less than 0.000000032 percent of the estimated annual U.S. methane emissions from livestock production, 0.000000006 percent of the annual U.S. emissions of all greenhouse gases, and 0.000000002 percent of the global emissions of all greenhouse gases.

The amount of greenhouse gas emissions estimated from the alternatives would represent an extremely small incremental contribution to total national and global emissions. In addition, the level of emissions would be so small that it would not even merit reporting under current EPA rules related to mandatory annual reporting of greenhouse gases from industrial and agricultural sectors (reporting threshold is 25,000 metric tons of carbon dioxide equivalent; 40 CFR 98.2).

Livestock grazing can affect rangeland carbon levels, through changes in plant community and changes in ecosystem processes, but the effects have been variable and inconsistent among the ecosystems studied (Schuman *et al*. 2009). Some studies have found that grazing can result in increased carbon storage compared to no grazing, because of increased plant turnover and changes in plant species composition (Follett *et al*. 2001). Many changes in rangeland carbon from different grazing practices do not result in substantial changes in total ecosystem carbon, but rather simply redistribute carbon, for example, from aboveground vegetation to root biomass (Derner and Schuman 2007).

Overall, the changes in rangeland carbon storage that are likely to result from the minor changes in grazing practices described in the alternatives would be small and difficult to predict, especially where a RHA has determined that the Standards for Rangeland Health Standards and Guidelines for Livestock Grazing Management are being met. Therefore, this analysis assumes that the minor changes in proposed grazing practices on these allotments would not result in any measurable change in total carbon storage under any of the alternatives analyzed.

Soils and Biological Soil Crusts

Affected Environment: Chukar Spring Allotment 0214

Soil information was collected from the Soil Survey of Lake County, Southern Part, Natural Resource Conservation Service (NRCS 1991) as well as soil data on file at the Lakeview District BLM Office. This data is herein incorporated by reference in its entirety and is summarized in the following section.

There are 4 soil map units in the Chukar Spring allotment (Map 3). The prominent soil type is the Diaz very cobbly loam, 2-15 percent slopes (43% of the allotment) and occupies the tablelands. This soil is moderately deep (20-40 inches) to bedrock and well drained with slow permeability. The available water holding capacity is about 4 inches and the hazard of water erosion is moderate. There is a high shrink-swell potential between the depths of 9 and 17 inches.

The McConnel association, 30-50 percent slopes (25% of the allotment) occupies the north and south facing slopes above the lake terrace. The typical profile for this soil is very gravelly sandy loam on the surface (0-10 inches) down to extremely gravelly course sand (22-60 inches). This soil is very deep (more than 60 inches) to bedrock and shallow to moderately deep (10-25 inches) to sand and gravel. It is somewhat excessively drained and permeability is moderately rapid to very rapid. The hazard of water erosion is severe.

The Mesman fine sandy loam, 0-5 percent slope (11% of the allotment) is located on the lake terrace. This soil is very deep (more than 60 inches) to bedrock and moderately deep (20-40 inches) to consolidated, compacted sediment. The soil is well drained with slow permeability and available water capacity of about 2 inches. The hazard of erosion by water is slight and by wind-moderate. The upper 9 inches are slight saline and strongly saline below 9 inches. The upper 9 inches are moderately sodic and slightly or moderately sodic below 9 inches.

The Rock outcrop-Felcher association, 30 to 70 percent south slopes, (20% of the allotment) occupies the escarpments and mountainsides with 50% of the association being rock outcrop. The Felcher soil a very cobbly clay loam and moderately deep (20-40 inches) to bedrock. This soil is well drained with moderately slow permeability and available water capacity of about 4 inches. The hazard of erosion by water is severe to very severe.

The Rangeland Health Assessment found that soils in the Chukar Spring Allotment exhibit infiltration and permeability rates, moisture storage, and stability appropriate for soil, climate, and land form. Root occupancy for the soil is appropriate, and therefore, Standard 1 is being met (BLM 2004a). This assessment examined soil surface factor (SSF) data for the allotment collected during the ecological site inventory (ESI) effort in 1987. SSF ratings are used to assign an erosion class rating and the potential susceptibility of soil to accelerated erosion. Seven-one percent of the allotment was rated in the slight erosion condition class with 12 percent in rockland and 17 percent unknown (Table 7).

Table 7. Soil Surface Factor Chukar Spring Allotment 0214

	Erosion Condition Classes*				
	Slight	Moderate	Critical	Rockland or Playa	Unknown**
Acres	1,374	0	0	225	325
Percent of Allotment	71%	0	0	12%	17%

** The erosion condition classes are based on numeric scoring system which considers soil movement, surface litter, surface rock, pedestalling, flow patterns, rills and gullies.*
*** Every Site Writeup Area (SWA) has a 10-15% portion of that area that is considered inclusions of different vegetation communities. The transect data for the SWA may not apply to these inclusion, therefore the acres in these inclusions are considered unknown.*

Observed apparent trend (OAT) data (Table 8) was used to determine trend indicators correlated to soil stability. These indicators are: surface litter, pedestals, and gullies. OAT data collected indicates stable soils on the slopes of the Chukar Spring Allotment; i.e. the majority of litter is collecting in place, there is little evidence of pedestaling, and gullies are absent from the slopes. There was some evidence of litter movement and there were active gullies in the Diaz soil series in the low areas of the allotment in 1987. A change in grazing management has reversed the trend as documented in the Rangeland Health Assessment (BLM 2004a) and recent trend photos indicate that this erosion has been stabilized.

Table 8. Observed Apparent Trend Chukar Spring Allotment 0214

	Observed Apparent Trend*				
	Upward	Static	Downward	Rockland or Playa	Unknown**
Acres	375	283	716	225	325
Percent of Allotment	19%	15%	37%	12%	17%

** The Observed Apparent Trend (OAT) is a numerical rating which considers vigor, seedlings, surface litter, pedestals and gullies to estimate the trend of a particular site and SWA..*
*** Every Site Writeup Area (SWA) has a 10-15% portion of that area that is considered inclusions of different vegetation communities. The transect data for the SWA may not apply to these inclusion, therefore the acres in these inclusions are considered unknown.*

Biological soil crusts (BSCs) such as mosses, lichens, micro fungi, cyanobacteria and algae play a role in a functioning ecosystem. In addition to providing biological diversity, BSCs contribute to soil stability through increased resistance to erosion and nutrient cycling (Belnap *et al.* 2001). Lichen species diversity is poorly known in the Pacific Northwest (Root *et al*. 2011). Further, identification of BSCs at the species level is not practical for fieldwork, as it is very difficult and may require laboratory culturing (Belnap *et al.* 2001).

BSC cover data was not collected during the South Lake Ecological Site Inventory (ESI) process. In the Chukar Spring Allotment the 2 vegetation transects done in 2012 did not record any BSCs. Though data is lacking, BLM staff note (based on professional field knowledge) that BSCs

are present in the allotment, but occupy a very small percentage of the total ground cover. The condition of existing BSCs would be similar to the condition of the soils, litter, and vegetation with which they co-exist.

Environmental Consequences: Chukar Spring Allotment 0214

Effects Common to Alternatives 1 and 2

The impacts of livestock grazing on soils within the Lakeview Resource Area were analyzed in the Lakeview Proposed RMP/Final EIS (BLM 2003a) and that analysis is incorporated herein by reference. In summary, livestock use would continue to negatively impact soils due to compaction at waterholes and along trails (pages 4-35 to 4-36). However the limited grazing period (4-6 weeks, Spring) does allow time for plant growth and micro biological activity in the soil to mitigate the impacts of trampling to some degree.

Soils and BSCs would continue to be negatively impacted in livestock concentration areas near water sources and cattle trails under both Alternatives 1 and 2. The use pattern maps (located in allotment file) and the low livestock density (34 acres/AUMS) for this allotment indicate that cattle tend to concentrate within a tenth of a mile around existing water sources (a tenth of a mile buffer around a water source represents approximately 25 acres). There are 4 water troughs, 1 constructed reservoir, and about 0.75 miles of intermittent creek fed by springs (Map 4). Approximately 125 acres total (5 x 25 acres) around water sources would be impacted by concentrated grazing use under Alternatives 1 and 2. The concentrated use on the intermittent creek is assumed to be concentrated within a 100 foot buffer along 0.75 miles and would impact approximately 9 acres. There are also approximately 2.4 miles of fence (1.5 acres) and 0.2 miles of pipeline (0.2 acres) with associated troughs within the allotment (Map 4).

The total area assumed to be most impacted by livestock concentration is about 135.7 acres or about 8% of the allotment. This alternative would maintain slight to moderate forage utilization across 92% of the allotment and continue to provide for some BSC retention and litter accumulation, resulting in the maintenance of existing organic matter, soil structure, and productivity. While wind and water erosion would still have an on-going negative impact on soils and BSCs, the allotment would be expected to continue to meet rangeland health standard 1 into the foreseeable future.

Effects of Alternative 2 - Chukar Springs Allotment (Rest One Year Out of Four)

Under Alternative 2, little change to soils or BSCs would occur on most of the allotment in the short-term (up to 5 years). In the concentrated livestock use areas (135.7 acres), associated with water sources and fencing, BLM would expect some minor recovery by the native perennial plants and BSCs in long term (10-20 years). This recovery would be around the outer edges of the disturbed areas, as the year of rest would allow more litter to accumulate and maximize both root and aboveground production.

Effects of Alternative 3 - No Grazing Alternative

Under the No Grazing Alternative, little change to soils or BSCs would occur on the allotment in the short-term (up to 5 years). Most of the concentrated livestock use areas (135.7 acres) associated with water sources and trails would reclaim naturally with vegetation from surrounding areas over the long term (5-10 years). However, due to the limited amount of existing BSCs present in the area to serve as a seed source, total BSC cover is not expected to increase substantially in the long-term. Further, some ground disturbance may persist due to continued use by wildlife such as antelope and deer.

Affected Environment: Hill Camp Allotment 0215

Soil information was collected from the Soil Survey of Lake County, Southern Part, Natural Resource Conservation Service (NRCS 1991) as well as soil data on file at the Lakeview District BLM Office. This data is herein incorporated by reference in its entirety and is summarized in the following section.

There is a variety of soils present within Hill Camp Allotment with over 23 soil map units found in the Hill Camp Allotment (Map 3). The soils range from very stoney loam with a thin surface on steep slopes, to very silty clay loams in lakebeds. Six soil map units comprise 60% or more of the area with the remaining 17 smaller soil map units depicting isolated features such as steeper slopes, rock outcrops and lakebeds. The six most dominant soil map units within the allotment represent a cross section of the allotment and will be described beginning with the Blizzard very cobbly clay loam (16% of the allotment). This soil is shallow (10-20 inches to bedrock) and well drained with slow permeability. The water holding capacity is about 2 inches and the hazard of erosion by water is moderate. The shrink-swell potential is high between depths of 1 and 16 inches.

The Pearlwise loam, 2-30 % (12% of the allotment) is located on table lands and mountains. It is moderately deep (20-40 inches) to bedrock and is well drained with moderate permeability. The available water capacity is 5 inches and the erosion hazard is moderate or severe by water and moderate by wind.

The Freznik very stoney loam, thin surface, 2-15 percent slopes, (12% of the allotment) is located on tablelands. This soil is moderately deep (20-40 inches) to bedrock but very shallow to claypan (1-5 inches). It is well drained with moderate permeability to 3 inches, but permeability is very slow below that depth. The available water capacity is about 5 inches and the water erosion hazard is moderate. There is a high shrink-swell potential between the depths of 3 and 25 inches.

The Anawalt loam, 2-8 percent slopes (8% of the allotment) is located on tablelands. This soil is shallow to (12-20 inches) bedrock and very shallow (3-10 inches) to the claypan. It is well drained with slow permeability and the available water capacity is about 2 inches. There is a high shrink-swell potential between depths of 9 and 17 inches.

The Devoy-Blizzard complex, 2-15 percent slopes, (6% of the allotment) is located on tablelands. The Devoy soil is 50% of the complex and the typical profile range from dark brown cobbly loam to very cobbly clay. This soil is moderately deep 20-40 inches) to bedrock and is well drained with slow permeability. The available water capacity is about 3 inches and the erosion hazard by water is moderate. There is a high shrink-swell potential between the depths of 1 and 16 inches. The Blizzard soil is 35 % of the complex and the typical profile very cobbly silty clay loam to cobbly clay. The soil is shallow (10-20 inches) to bedrock and very shallow (1-4 inches) to claypan. This soil is well drained with slow permeability and an available water capacity of about 2 inches. The hazard of erosion by water is moderate and there is a high shrink-swell potential between depths of 1 and 16 inches.

The Locane cobbly clay loam, 2-8 percent slopes (6% of the allotment) is located on tablelands. This soil is shallow (10-20 inches) to bedrock and shallow (10-15 inches) to the claypan. This soil is well drained with slow permeability and an available water capacity of about 1 inch. The shrink-swell potential is high between the depths of 10 and 18 inches.

The Rangeland Health Assessment found that soils in the Hill Camp Allotment exhibit infiltration and permeability rates, moisture storage, and stability appropriate for soil, climate, and land form. Root occupancy for the soil is appropriate, and therefore, Standard 1 is being met (BLM 2004b). This assessment examined soil surface factor (SSF) data for the allotment collected during the ecological site inventory (ESI) effort in 1987. SSF ratings are used to assign an erosion class rating and the potential susceptibility of soil to accelerated erosion. Ten percent of the allotment was rated in the stable erosion condition and 63% in the slight erosion condition class with 1% in rockland and 24% unknown (Table 9).

Table 9. Soil Surface Factor for Hill Camp Allotment 0215

	Erosion Condition Classes*				
	Stable	Slight	Moderate	Rockland or Playa	Unknown**
Acres	2,831	19,469	0	304	7,052
Percent of Allotment	10%	65%	0	1%	24%

** The erosion condition classes are based on numeric scoring system which considers soil movement, surface litter, surface rock, pedestalling, flow patterns, rills and gullies. Appendix A is an example of the scoring sheet that is used.*
*** Every Site Writeup Area (SWA) has a 10-15% portion of that area that is considered inclusions of different vegetation communities. The transect data for the SWA may not apply to these inclusion, therefore the acres in these inclusions are considered unknown .The unknown also includes acres of types for which the SWA transect was run in a different allotment and the data from that transect may not apply to this allotment.*

Observed apparent trend (OAT) data (Table 10) was used to determine trend indicators correlated to soil stability. These indicators are: surface litter, pedestals, and gullies. OAT data collected indicates stable soils on the majority of the Hill Camp Allotment; i.e. the majority of litter is collecting in place, there is little evidence of pedestaling, and gullies are absent from the allotment.

Table 10. Observed Apparent Trend for Hill Camp Allotment 0215

	Observed Apparent Trend*				
	Upward	Static	Downward	Rockland or Playa	Unknown**
Acres	1,351	20,949	0	304	7,052
Percent of Allotment	4%	71%	0	1%	24%

** The Observed Apparent Trend (OAT) is a numerical rating which considers vigor, seedlings, surface litter, pedestals and gullies to estimate the trend of a particular site and SWA.. An example of how the rating is determined can be seen in Appendix B.*
*** Every Site Writeup Area (SWA) has a 10-15% portion of that area that is considered inclusions of different vegetation communities. The transect data for the SWA may not apply to these inclusion, therefore the acres in these inclusions are considered unknown. The unknown also includes acres of types for which the SWA transect was run in a different allotment and the data from that transect may not apply to this allotment.*

BSC cover data was not collected during the South Lake Ecological Site Inventory (ESI) process. In the Hill Camp Allotment there is one long-term vegetation transect that collected data in 4 different years since 1990, but never recorded any BSCs. The 14 vegetation transects done in 2012 also did not record any BSCs. Though data is lacking, BLM staff note (based on professional field knowledge) that BSCs are present in the allotment, but occupy a very small percentage of the total ground cover. The condition of existing BSCs would be similar to the condition of the soils, litter, and vegetation with which they co-exist.

Environmental Consequences: Hill Camp Allotment 0215

Effects of Alternatives 1 and 2

The impacts of livestock grazing on soils within the Lakeview Resource Area were analyzed in the *Lakeview Proposed RMP/Final EIS* (BLM 2003a) and that analysis is incorporated herein by reference. In summary, livestock use would continue to negatively impact area soils due to compaction at waterholes and along trails (pages 4-35 to 4-36). However, a rest-rotation grazing system is designed to reduce or mitigate these impacts.

Soils and BSCs would continue to be negatively impacted in livestock concentration areas near water sources and cattle trails under both Alternatives 1 and 2. Livestock would tend to concentrate within a quarter of a mile around existing water sources (a quarter mile buffer around a water source represents approximately 120 acres). There are at approximately 54 acres of intermittent, natural water sources, 5 developed springs and associated water troughs, 12 waterholes, and 28 reservoirs (5,239 acres) scattered across the allotment (Map 4) where livestock use would be expected to be most concentrated.

Cattle trails tend to be located along fence lines and near water sources. These trails are typically less than 5 feet wide. There are about 39.5 miles of fences representing about 35.9 acres of disturbance associated with fence construction and livestock trailing. BLM does not have a quantifiable means of estimating disturbed acres associated with cross-country livestock

trailing to water sources, but based on estimates associated with fencing, believes that it represents a very small percentage of the allotment.

Based on the methodology described above, an estimated total of approximately 5,328.9 acres (16%) of the soils and areas potentially containing BSCs within the allotment would be impacted by concentrated livestock use. However, the grazing permit addressed in this EA only authorizes 6% of the total livestock grazing use on this allotment, so only about 6% of total magnitude of this concentrated livestock use impact can actually be attributed to the level of use authorized under the permit.

Effects of Alternative 3 - No Grazing Alternative

Under the No Grazing Alternative, little change to soils or BSCs would occur on the allotment in the short-term (up to 5 years). Most of the concentrated livestock use areas associated with water sources and trails would recover naturally with vegetation from surrounding areas over the long-term (5-10 years). However, due to the limited amount of existing BSCs present in the area to serve as a seed source, total BSC cover is not expected to increase substantially in the long-term. As an example, one vegetation transect located in an exclosure within the allotment (where grazing has been removed since at least 1978) has recorded only 2% total ground cover by mosses compared to 0% outside the exclosure. Further, some ground disturbance may persist due to continued use of the area by wildlife such as antelope and deer.

Vegetation

Wetland and Riparian Condition

Affected Environment: Chukar Spring Allotment 0214

The Rangeland Health Assessment for the Chukar Spring Allotment noted there are 4 acres of palustrine wetlands in the allotment, but there are no perennial streams within the allotment. The Rangeland Health Assessment found that these wetland areas were rated at Proper Functioning Condition (PFC) and were meeting Rangeland Health Standard 2 (related to riparian/wetland function). Livestock grazing did not appear to be a factor limiting Riparian/Wetland function (BLM 2004a).

Environmental Consequences: Chukar Spring Allotment 0214

Effects of Alternative 1 - No Action

Since the existing palustrine wetlands in the allotment are in PFC and livestock grazing does not appear to be a factor limiting riparian/wetland function (BLM 2004a), continuing current grazing management would be expected to maintain this condition over the 10-year permit lifetime.

Effects of Alternative 2 - Chukar Spring Allotment (Rest one year out of four)

Under this alternative, the impacts to wetland habitat would be similar to Alternative 1. The existing wetland condition (PFC) would be maintained or improved slightly due to the additional rest provided.

Effects of Alternative 3 - No Grazing

Under this alternative, the wetland habitat would be expected to maintain or improve its existing condition (PFC) due to the removal of livestock grazing.

Affected Environment: Hill Camp Allotment 0215

The Rangeland Health Assessments for the Hill Camp Allotment noted there were 54 acres of palustrine wetlands in the allotment and they were all in PFC. However, the assessment also noted problems in riparian-wetland function at 4 springs (Game, Hidden, Tim, and Jackass) where Rangeland Health Standard 2 (related to riparian/wetland function) was not being met and livestock grazing was a contributing factor at 3 of these (BLM 2004b). The assessment made recommendations on how to remedy these problems. Subsequently, several spring maintenance or restoration projects were implemented (BLM 2004c). Conditions at these 3 springs are now either meeting or making substantial progress towards meeting Rangeland Health Standard 2.

There are no perennial streams within the Hill Camp Allotment. Piute Creek is an intermittent stream located in the allotment. Although evidence of historic erosion is present along Piute Creek, rocky banks have contributed to maintaining these areas in a relatively static state. Cut banks are present in areas throughout the length of the creek. Most of these areas are relatively stable, but there are some stretches where active erosion is occurring. Sedimentation and siltation into the channel is occurring. The creek is also widening in some places (BLM 2004b).

The current rest rotation grazing system has resulted in an overall improvement of ecological conditions on much of Piute Creek, and this can be seen from the trend photos taken along the creek starting in the 1970s through last year. There are three trend photo plots on Piute Creek and two on tributary drainages, with four of the five showing a noticeable increase in ground cover and a reduction in the amount of exposed bank. The other trend plot appears to be unchanged through the years.

Environmental Consequences: Hill Camp Allotment 0215

Effects of Alternatives 1 and 2

As cited in the affected environment section of the wetland vegetation, the 54 acres of palustrine wetlands found in the Hill Camp allotment are functioning at PFC and livestock grazing does not appear to be a factor limiting Riparian / Wetland function. Under current management the 54 acres of wetlands is expected to maintain its condition over time and continue to function at PFC.

Effects of Alternative 3 - No Grazing

Under this alternative, wetland vegetation would be expected to maintain or improve with the removal of livestock grazing.

Upland Vegetation

Affected Environment: Chukar Spring Allotment 0214

The Chukar Spring Allotment is in the Twentymile Creek subwatershed and is located on the flats and hills below and including the slopes of Coleman Rim. The vegetation consists primarily of big sagebrush, bluebunch wheatgrass, cheatgrass and some western juniper (Map 5). Table 11 summarizes the composition of the plant communities within the allotment from the range site data in the South Lake Ecological Site Inventory (ESI) which is hereby incorporated by reference in its entirety. Several indicators of plant community health are described. These include current dominant vegetation, Soil Surface Factor (SSF), observed apparent trend (OAT), and ecological condition.

There is no single dominant vegetation type in the allotment, with Wyoming big sagebrush/cheatgrass (37% of allotment) and big sagebrush/grass (34% of the allotment) being the most common types (Table 11). Within the big sagebrush/grass type there are big sagebrush/blue bunch wheatgrass occupying about 19% and big sagebrush/cheatgrass about 15% of the allotment, respectively.

The Wyoming big sagebrush/cheatgrass type has variation in the herbaceous understory, with Sandberg bluegrass, basin wildrye and Thurber's needlegrass all present at the inventory transect. This indicates that while cheatgrass is prevalent it is not a monoculture within this type. The two trend photos for the allotment, taken in the Wyoming big sagebrush/cheatgrass type indicate an increase in perennial grass cover since 1970 and also an increase in juniper density. The current spring grazing system utilizes some of the green cheatgrass before it has a chance to go to seed and the grazing is over before most of the native perennial grasses have undergone significant growth. Therefore the plant community and structure in this allotment appear to be stable and even improving under this current grazing management.

Wildfire in 1969 resulted in the seeding of 40 acres of the allotment to crested wheatgrass, but this area was too small to map separately and is included in the big sagebrush/cheatgrass type. The crested wheatgrass seeding has been invaded by sagebrush, but still provides a stable perennial plant community and a significant forage resource for livestock.

Table 11. Vegetation Types in Chukar Spring Allotment 0214

Vegetation Type	Acres	Percent of Allotment
Low sagebrush/Grass		
ARAR-FEID Low sagebrush/Idaho fescue	1	T
ARAR-POSE Low sagebrush/Sandberg bluegrass	2	T
Big Sagebrush/Grass		
ARTRT-AGSP big sagebrush/blue bunch wheatgrass	375	19%
ARTR-BRTE big sagebrush/cheatgrass	281	15%
Big Sagebrush/Grass TOTAL	**656**	**34%**
Mountain Sagebrush/Grass		
ARTRV-FEID Mountain big sagebrush/Idaho fescue	1	T
Wyoming Big Sagebrush/Grass		
ARTRW-BRTE Wyoming big sagebrush/cheatgrass	716	37%
TOTAL VEGETATION	**1,376**	**71%**
Rockland/ Rubble	225	12%
Unknown*	323	17%
ALLOTMENT TOTAL	**1,924**	

** Every Site Writeup Area (SWA) has a 10-15% portion of that area that is considered inclusions of different vegetation communities. The transect data for the SWA may not apply to these inclusion, therefore the acres in these inclusions are considered unknown. The unknown also includes acres of types for which the SWA transect was run in a different allotment and the data from that transect may not apply to this allotment*

Soil Surface Factor (SSF) is an indicator of accelerated erosion and is a method of documenting observations regarding erosion. With 71% (Table 7) of the allotment being in the slight and no acres in the moderate or higher classes there is little or no active soil erosion or evidence of past erosion on these areas.

The Ecological Site Inventory (ESI) compares the current plant composition to a defined Potential Natural Plant Community for the identified soil type and precipitation zone. Using the 1987 ESI, the percent of the allotment in each seral stage is summarized in the table below.

About 37% of the allotment is in the early seral stage and this is the Wyoming sagebrush/cheatgrass type that was discussed earlier. This type almost rated mid seral and without the invading juniper would be mid seral. This rating was done in 1987 and the photo trend information in this type seems to indicate that the amount of perennial grass has increased in the last 15 years and this also would raise the rating to mid seral.

The vegetation type in the mid seral (13%) is big sagebrush/cheatgrass with enough of a perennial grass understory and variety of shrubs to rate out in the mid seral. These types appear stable.

Table 12. Ecological Conditions in Chukar Spring Allotment 0214

	Ecological Condition Classes					
	Early	Mid	Late	Climax	Rockland or Playa	Unknown*
Acres	716	243	415	0	225	325
Percent of Vegetation	37%	13%	22%	0	12%	17%

** Every Site Writeup Area (SWA) has a 10-15% portion of that area that is considered inclusions of different vegetation communities. The transect data for the SWA may not apply to these inclusion, therefore the acres in these inclusions are considered unknown.*

The vegetation types in the late seral stage (22%) are big sagebrush/bluebunch wheatgrass and small area (39 acres) of big sagebrush/cheatgrass. The blue bunch wheatgrass is a desirable native perennial and indicates these sites are stable.

The Observed Apparent Trend (OAT) for the vegetation communities on public land was determined during the ESI (1987) and is seen in the Table 8. The vegetation type making up the 37% of the allotment with a downward trend is the Wyoming sagebrush/cheatgrass type. This is the same type that was in early seral stage and was discussed earlier. The downward trend rating in 1987 does not fit with the recent trend photos of the area that would indicate an increase in perennial grasses and an upward trend. The inventory in 1987 gave the site an OAT rating of 16 and 17 that would have put the site in the static category. The low rating was the result of the observed condition of the desirable plants which had low vigor and few seedlings.

Since 1987, there has been a reduction in the total AUMs grazed in the allotment from 105 AUMs in 1985 and 1986 to around 50 AUMs during the last 15 years. This reduction correlates with the 2 photo trend plots in this type which indicate an upward trend in range condition. Therefore the downward trend observed in 1987, was probably the result of high stocking rates, and seems to have been reversed by cutting the stocking rate in half and limiting the grazing to early spring.

In 1987 the OAT recorded that 19% of the allotment was in upward condition and this is the big sagebrush/bluebunch wheatgrass type which occurs in the higher elevations and has always received lighter utilization (<30%). With lower stocking rates now than in 1987, it is assumed that the upward trend in the bluebunch wheatgrass sites is continuing.

Environmental Consequences: Chukar Spring Allotment 0214

<u>Effects of Alternative 1 - No Action</u>

The impacts of continuing grazing under a spring grazing system on the upland plant communities within the Lakeview Resource Area have previously been analyzed in the *Draft Lakeview RMP/EIS* and *Lakeview Proposed RMP/Final EIS*, page A-163 (BLM 2001, 2003a) and these analyses are incorporated herein by reference. In summary, by removing the livestock by May 1 the key vegetation species composition is expected to be maintained or improve as

plants have time and sufficient soil moisture to reach full growth, produce seed and replenish reserves after grazing (BLM 2003a; pages 4-5 and 4-9). In addition, a spring system would maintain or improve the composition of the key perennial herbaceous species within both the big sagebrush/grassland and Wyoming big sagebrush/grassland communities (BLM 2001; page A-162). Absent a wildfire, juniper expansion is expected to continue regardless of grazing strategies, as it out-competes understory grasses and shrubs for available moisture and soil nutrients.

According to utilization maps created from the utilization data gathered following grazing (located in allotment file), approximately 135.7 acres of the vegetation communities within the allotment would continue to be impacted by concentrated livestock use (cattle trails and water sources). Impacts to vegetation across the majority of the allotment would be dispersed and much less concentrated. The average utilization on key species was 36%. This level of average utilization would provide for a diversity of residual grass cover heights across the allotment. Grazing at light to moderate intensities combined with the grazing deferment and plant growth after May 1 would likely sustain the current plant cover and species diversity. The current early spring grazing does not significantly impact this sagebrush type and the utilization of the cheatgrass when it is young and green may actually reduce cheatgrass production.

Effects of Alternative 2 - Chukar Spring Allotment (Rest one year out of four)

The effects would be similar to Alternative 1 in the three grazed years. Under the spring grazing system, most grasses are able to grow after grazing, producing seeds and replenishing reserves. However some plants, especially in drier years may not be able to recover fully and would not reach full growth potential, produce seed and replenish reserves. These plants would benefit from the full year of rest provided under this alternative. The invasive annual cheatgrass is often used heavily in the spring grazing system and during the rest years would benefit by producing significantly more seed.

Effects of Alternative 3 - No Grazing

The effects would be similar to the rest years in Alternative 2. The grass plants that receive heavy use during the spring grazing would reach their full growth potential every year. The majority of the allotment (93-98%) receives moderate to no use and in long-term studies of exclosures, it was determined there no was significant difference between moderately grazed sagebrush communities and the excluded ones (Rose *et al.* 1994). Complete removal of livestock grazing may be relatively ineffective in increasing herbaceous biomass because of the long life and competitive nature of sagebrush (Daddy *et al.* 1988).

The total rest from grazing would also allow the invasive annual cheatgrass to maximize seed production each year and increase the risk of wildfire. Not only does wildfire reduce sagebrush, but was found to be more detrimental to perennial native grasses in rested areas then in grazed areas (Davies *et al.* 2009). Their study speculated that the increased litter component around

long-term rested grass plants increased the risk of these plants being killed by wildfire as they saw a decline in perennial grasses inside exclosures after fire.

Affected Environment: Hill Camp Allotment 0215

Vegetation within the Hill Camp Allotment comprises a fairly complex sagebrush steppe system. There are multiple plant communities transitioning from one to another influenced by soil type, elevation and aspect (Map 5). The majority of the area is over 6,000 feet in elevation with the lowest elevation being about 5,700 feet. Therefore the three main varieties of sagebrush dispersed throughout the allotment include: Basin big sagebrush, *Artemisia tridentata tridentata* (ARTRT), Mountain big sagebrush *Artemisia tridentata vaseyana* (ARTRV), and low sagebrush, *Artemisia arbuscula* (ARAR8) (Plant codes represent genus-species abbreviations adopted by USDA-NRCS; see also Plants Database available at http://www.plants.usda.gov). The allotment supports a healthy abundance of native grasses and forbs.

Table 13 describes the composition of the plant communities within the allotment as summarized from the range site data in the South Lake Ecological Site Inventory (ESI) which is hereby incorporated by reference. Several indicators of plant community health are described. These include current dominant vegetation, Soil Surface Factor (SSF), observed apparent trend (OAT), and condition rating.

Soil Surface Factor (SSF) is an indicator of accelerated erosion and is a method of documenting observations regarding erosion. With 10% (Table 9) of the allotment being stable and 65% in the Slight category and no acres in the moderate or higher classes there is little or no active soil erosion or evidence of past erosion on these areas.

The Observed Apparent Trend (OAT) for the vegetation communities on public land was determined during the ESI (1987) and is seen in the Table 10. In 1987, the OAT recorded that 4% of the allotment was in upward condition and this was in both the big sagebrush and the mountain big sagebrush/bluebunch wheatgrass types, and the mountain big sagebrush/Idaho fescue type long with some acres in the Juncus type. The OAT was determined have a static trend for the remaining vegetation types.

The ESI compares the current plant composition to a defined Potential Natural Plant Community for the identified soil type and precipitation zone. Using the 1987 ESI, the percent of the allotment in each seral stage is summarized in the Table 14.

About 5% of the allotment is in the early seral stage and included most of the acres in the shrub types with no grass understory and part of the big sagebrush cheatgrass type. Most of the allotment was in the mid seral stage. The acres in the late seral stage (11%) include

Table 13. Vegetation Types in Hill Camp Allotment 0215

Vegetation Type	Acres	Percent of Allotment
JUNCUS	**242**	1%
Shrubs		
ARAR low sagebrush	181	1%
ARTRT big sagebrush	759	2%
ARTRV Mountain big sagebrush	904	3%
ARCA Silver sagebrush	14	T
Shrubs TOTAL	**1,858**	**6%**
Shrubs/Grasses		
CHVI-AGSP Green rabbitbrush/blue bunch wheatgrass	80	T
PUTR-BRTE Antelope bitterbrush/cheatgrass	284	1%
Shrub/Grass TOTAL	**363**	**1%**
Low sagebrush/Grass		
ARAR-FEID Low sagebrush/fescue	578	2%
ARAR-POSE Low sagebrush/Sandberg bluegrass	10,320	35%
ARAR-STTH Low sagebrush/Thurber's needlegrass	554	2%
Low sagebrush/Grass TOTAL	**11,452**	**39%**
Big Sagebrush/Grass		
ARTRT-AGSP big sagebrush/blue bunch wheatgrass	270	1%
ARTR-BRTE big sagebrush/cheatgrass	344	1%
ARTRT-FEID big sagebrush/Idaho fescue	99	T
ARTRT-SIHY big sagebrush/bottlebrush squirreltail	55	T
ARTRT-STTH big sagebrush/Thurber's needlegrass	2,553	9%
Big Sage/Grass TOTAL	**3,321**	**11%**
Mountain Sagebrush/Grass		
ARTRV-AGSP Mountain sagebrush/blue bunch wheatgrass	1,680	6%
ARTRV-BRTE Mountain big sage/cheatgrass	342	1%
ARTRV-FEID Mountain big sage/Idaho fescue	5,164	17%
ARTRV-SIHY Mountain big sagebrush/bottlebrush squirreltail	524	2%
Mountain Sagebrush/Grass TOTAL	**7,710**	**26%**
All Big Sagebrush/Grass TOTAL	**11,031**	**37%**
TOTAL VEGETATION	**24,947**	**84%**
Playa	66	T
Rockland/ Rubble	238	1%
Unknown*	4,405	15%
ALLOTMENT TOTAL	**29,656**	

** Every Site Writeup Area (SWA) has a 10-15% portion of that area that is considered inclusions of different vegetation communities. The transect data for the SWA may not apply to these inclusion, therefore the acres in these inclusions are considered unknown. The unknown also includes acres of types for which the SWA transect was run in a different allotment and the data from that transect may not apply to this allotment.*

Table 14. Ecological Condition in Hill Camp Allotment 0215

	Ecological Condition Classes					
	Early	Mid	Late	Climax	Rockland or Playa	Unknown*
Acres	1,443	20,065	3,197	0	304	4,647
Percent of Vegetation	5%	68%	11%	0	1%	15%

** Every Site Writeup Area (SWA) has a 10-15% portion of that area that is considered inclusions of different vegetation communities. The transect data for the SWA may not apply to these inclusion, therefore the acres in these inclusions are considered unknown. The unknown also includes acres of types for which the SWA transect was run in a different allotment and the data from that transect may not apply to this allotment.*

Mountain big sagebrush types with Idaho fescue or blue bunch wheatgrass understory and low sagebrush with Idaho fescue or Thurber's needlegrass in the understory.

Photos were taken between 1975 and 2012 at 23 long term trend plots and vegetation data was collected at one trend plot between 1990 and 2012. In 2012 vegetation transects were established at 21 of the long term photo plots. At the long term trend plot where there has been a vegetation transect, the vegetation cover has increased from the 13% recorded in the first year it was read (1990). In 1998 the vegetation cover was 46% and then 29% and 26% in 2006 and 2009 respectively. The cover has varied in response to differences in precipitation, but has been stable during the last 10 years. The long term trend photos (1970s to present) across the allotment show the vegetation communities to be mostly stable with some increase in sagebrush cover and juniper cover except in the west pasture. In the west pasture there was a prescribed burn in 1992 and there was more sagebrush and junipers before the burn then there is now. However both sagebrush and juniper are slowly returning to the sites. In the other pastures there were treatments on the sagebrush and juniper in the 1970s and 1980s creating grass dominated communities. In the more recent photos, sagebrush and in some areas western juniper, have been slowly returning to the sites.

Environmental Consequences: Hill Camp Allotment 0215

<u>Effects of Alternatives 1 and 2</u>

The impacts of continuing grazing under a rest-rotation grazing system on the upland plant communities within the Lakeview Resource Area have previously been analyzed in the *Draft Lakeview RMP/EIS* and *Lakeview Proposed RMP/Final EIS* (BLM 2001, 2003a) and these analyses are incorporated herein by reference. In summary, the vegetation composition of key species is expected to improve over time under this type of grazing system (BLM 2003a; pages 4-5 and 4-9). In addition, a rest rotation system would significantly improve the composition of the key perennial herbaceous species within both the big sagebrush/grassland and low sagebrush-grassland communities (BLM 2001; page A-162). Absent a wildfire, juniper expansion is

expected to continue regardless of grazing strategies, as it out-competes understory grasses and shrubs for available moisture and soil nutrients.

Approximately 1,740 acres (5%) of the vegetation communities within the allotment would continue to be impacted by concentrated livestock use (near cattle trails and water sources). This estimated heavy use is based on utilization pattern maps created from the utilization data gathered following grazing. Impacts to vegetation across the majority of the allotment (95%) would be dispersed and much less concentrated. Rest rotation grazing management as adjusted through the flexibility provided in the annual application process, would control livestock distribution, grazing utilization levels and provide rest from grazing. This would provide for a diversity of residual grass cover heights across the allotment. Grazing at light to moderate intensities combined with yearlong rest one out of four years would likely sustain the current plant cover and species diversity.

The current livestock management for this allotment is described in Table 1. Recognizing that most of the use (94% of the AUMS) in this allotment is by a different permittee under a separate grazing permit, the small (6%) number of livestock permitted under this permit would have insignificant effects on the vegetation in this allotment. However, the permittee would still follow the grazing plan outlined in Table 1.

Effects of Alternative 3 - No Grazing

The elimination of grazing under this alternative would only reduce total AUMs of use in the allotment by 6%. Based on the methodology described previously in the soils impact section, only about 6% of the total magnitude of concentrated livestock use impacts on vegetation can actually be attributed to the level of use authorized under the permit. Therefore, eliminating this grazing permit from the Hill Camp Allotment would have a minor or negligible impact on the existing vegetation communities in the allotment.

Wildlife

Affected Environment:

The Rangeland Health Assessments for Chukar Spring and Hill Camp allotments were meeting the Rangeland Health Standard 5 related to wildlife habitat (BLM 2004a, 2004b). A mix of big and low sagebrush communities inter-mingled with invasive juniper comprise the dominant vegetation across the allotment. Water for wildlife within the allotments is available from a few natural sources and livestock water developments (waterholes, reservoirs, and developed springs). Competition for water can occur between wildlife and livestock in areas where water is scarce.

The allotments fall within the larger Oregon Department of Fish and Wildlife (ODFW) 2,507 square mile Beaty Butte big game habitat management unit. The mule deer and pronghorn antelope populations are relatively stable within this unit. Habitat quantity and quality do not

appear to be limiting big game population size or health within the unit. Deer and pronghorn populations continue to fluctuate at or slightly above ODFW's population management objectives for the unit (ODFW 2003). The allotment comprises a small percentage of the unit and provides habitat capable of supporting mule deer and pronghorn antelope. Of this Herd Unit, the area within Hill Camp and Chukar Spring Allotments provide spring-fall habitat for mule deer, including fawning habitat. There are currently 380 AUMs allocated for mule deer, pronghorn, and other wildlife species within the allotment (BLM 2003b, pages A-55 and 56). Based on previous consultation with ODFW biologists, this forage allocation is adequate to support big game populations within the allotment.

California bighorn sheep habitat occurs within the Chukar Spring and Hill Camp Allotments. The ODFW describes the existing bighorn habitat as adequate for future population expansion. The only limitations in bighorn habitat within the allotment are limited perennial water sites and unrestricted movement to and from these water sources.

Other mammals observed in the two allotments are jackrabbits, cottontails, coyotes, ground squirrels, chipmunks, marmots, bobcats, mountain lions, badgers, bats, and other common shrub-steppe mammal species. In some areas porcupines and bears have been seen.

Some migratory birds use all habitat types in the allotments for nesting, foraging, and resting as they pass through on their yearly migrations. There has been no formal monitoring of migratory birds on this allotment. Common species observed or expected to occur based on species range and vegetation in the allotment are included in the following table (birds identified under the Migratory Bird Treaty Act of 1918, as amended).

Birds of Conservation Concern for the Great Basin Region that may inhabit the allotments are also included in Table 15. Waterfowl may frequent the allotment during migration and a few pairs may breed on the private reservoirs in the area. The 1988 amendment to the Fish and Wildlife Conservation Act mandates the U.S. Fish and Wildlife Service (USFWS) to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973." *Birds of Conservation Concern 2008* (*BCC 2008*) is the most recent effort to carry out this mandate.

Partners in Flight use the focal species approach to set biological objectives and link priority species with specific conservation recommendations. It is a multi-species approach in which the ecological requirements of a suite of focal species are used to define an 'ideal landscape' to maintain the range of habitat conditions and ecological processes required by landbirds and many other species. Focal species are considered most sensitive to or limited by certain ecological processes (*e.g.* fire or nest predation) or habitat attributes (*e.g.* patch size or snags). The requirements of a suite of focal species are then used to help guide management activities.

Table 15. Wildlife Species with Special Management Considerations

Species	General Habitat	Species Status	Birds of Conservation Concern	Migratory Birds	Focal Species	Game Birds Below Desired Condition	Eagle Act	Allotments with Known Habitat or Potential Habitat
Prairie Falcon	Cliff-open habitat				x			0214, 0215
Ferruginous Hawk	Sagebrush-shrub steppe		x	x	x			0214, 0215
Golden Eagle	Elevated nest sites in open country		x	x			x	0214, 0215
Sage Sparrow	Sagebrush		x	x	x			0214, 0215
Greater Sage Grouse	Sagebrush dominated rangelands	*FC	x		x			0214, 0215
Peregrine Falcon	Cliff-open habitat	**SSS	x	x				0214, 0215
Loggerhead Shrike	Open country/scattered trees/shrubs		x	x	x			0214, 0215
Swainson's Hawk	Open Habitat			x				0214, 0215
Sage Thrasher	Sagebrush-shrub steppe		x		x			0214, 0215
Bald Eagle	Wetlands/River Systems/Lakes	**SSS	x				x	0214, 0215
Burrowing Owl	Grasslands-shrub steppe			x	x			0214, 0215
Brewer's Sparrow	Sagebrush clearings in bitterbrush		x	x	x			0214, 0215
Pygmy Rabbit	Sagebrush with deep soils	**SSS						0214, 0215
Kit Fox	Arid shrub-steppe	**SSS						0214, 0215
Pallid Bat	Arid regions/rocky outcroppings	**SSS						0214, 0215
Townsend's Big-eared Bat	Lava fields /Rocky Cliffs /Abandoned Structures	**SSS						0214, 0215
Northern Harrier	Wetlands/Ponds /Riparian Areas			x				0214, 0215

*FC – Federal Candidate Species
**SSS – Special Status Species

Migratory game bird species identified by the USFWS that represents species whose population is below long-term averages or management goals, or for which there is evidence of declining population trends, and may be present in the allotments, are also included in the following table. Golden and bald eagles are 2 species given special protection under the Bald Eagle Protection Act of 1940 (as amended).

There are also numerous amphibian and reptile species that occur within the allotments including fence lizards, sagebrush lizards, gopher snakes, rattlesnakes, horned–lizards, and many other common shrub–steppe species.

Special Status Species

Affected Environment:

BLM policy on special status species (listed in Table 15) is to conserve those species and the ecosystems upon which they depend (BLM 2001c). While there are no wildlife species classified as federally-listed Threatened or Endangered or proposed or designated critical habitat within the project area, the Greater Sage-grouse is a Federal Candidate Species and is currently managed as a special status species.

Both allotments provide habitat for the Greater sage-grouse. The *Lakeview Proposed RMP/Final EIS* (BLM 2003a) Map W-1 shows areas defined as sage-grouse habitat as of spring 2002. The data displayed in the map is considered to be a "broad-brush" habitat map subject to refinement/update with new information over time. As noted in the footnotes of Map W-1, the habitat data represented *"*the best data currently available*"* and this data was expected to be refined or updated over time. Since the map was published, a cooperative habitat mapping effort with ODFW has occurred throughout eastern Oregon resulting in updated sage-grouse habitat and lek location data.

Knick and Connelly (2011) contains a compilation of recent sage-grouse research which addresses a variety of issues related to management of the species at the range-wide scale (often referred to as the "Monograph"). Information from the Monograph was synthesized for application at the regional scale (Oregon) within the *Greater Sage-Grouse Conservation Assessment and Strategy for Oregon: A Plan to Maintain and Enhance Populations and Habitats* (ODFW 2011).

Based on Oregon Department of Fish and Wildlife's (ODFW) most recent sage-grouse lek data, there are no active sage grouse leks found within the Chukar Spring allotment, however, sage grouse have been seen historically using the allotment at different times of the year. The nearest active lek is located approximately 4 miles east of the allotment boundary. There are 2 active sage-grouse leks found within the Hill Camp Allotment and sage-grouse have been seen using the allotment at all times of the year.

ODFW (2011) developed a habitat dataset that identifies the most productive landscapes for sage-grouse as either "core habitat" or "low density habitat". Since that time, the BLM, in coordination with ODFW, have refined this dataset. At this point in time, core habitat has become synonymous with what BLM is currently calling "preliminary priority habitat" (PPH). This habitat is defined as areas that have the highest conservation value for maintaining sustainable Greater Sage-Grouse populations. These areas include breeding, late brood-

rearing, and winter concentration areas. BLM is currently calling low density habitat has as "preliminary general habitat" (PGH). This is defined as areas of occupied seasonal or year-round habitat outside of priority habitat. This mapping exercise considered a landscape approach to wildlife conservation prioritizing sage-grouse habitats and was based upon sage-grouse distribution and abundance in association to nearest lek and not on actual vegetation. The main objective of the exercise was to protect the most important breeding or nesting areas. All of the Chukar Spring Allotment and all four pastures of the Hill Camp Allotment are in sage-grouse core habitat or PPH.

Sage-grouse habitat quality was reassessed using the *Sage-grouse Habitat Assessment Framework* (Stiver *et. al.* 2010). At the Third Order scale (sage-grouse home range scale) habitats are limited within the allotment. Connelly *et al*. (2004) found most sage-grouse nest within 4 miles of a lek. Based on the distance from the nearest active lek and the sagebrush cover heights associated with the current dominant vegetation types, approximately 1,912 acres (100%) of the Chukar Spring Allotment is marginal yearlong habitat. Based on the distance from the nearest active lek and the sagebrush cover heights associated with the current dominant vegetation types, approximately 16,948 acres (48.9%) of the Hill Camp Allotment is suitable nesting and yearlong habitat. Based on the cover heights associated with the current dominant sagebrush vegetation types, approximately 16,938 acres (48.7 %) of the Hill Camp Allotment contains marginal nesting, summer habitat, and yearlong habitat. Based on the cover heights associated with the current dominant sagebrush vegetation approximately 828 acres (2.4%) of the Hill Camp Allotment contains unsuitable nesting, summer and winter habitat (Map 6).

The allotments lie within the northern range of the kit fox, a bureau sensitive species, in Oregon. No kit fox have been documented within the Lakeview Resource Area; however, potential habitat does exist.

While potential habitat for pygmy rabbits (BLM sensitive species) was identified in the Rangeland Health Assessments (BLM 2004a, 2004b), this species has since then been confirmed in a few locations within the allotments to date.

Peregrine falcons (BLM sensitive Species) have been observed in the general area due to releases from the Crump Lake hack site; however, no nesting has been documented within either the Chukar Spring or Hill Camp Allotments.

Currently, there are no known nests or nesting habitat for bald eagles within either allotment. They are suspected to be occasional visitors to the area. There are two confirmed golden eagle nests within the Hill Camp Allotment.

Special status bats may occur within the allotment, but likely only involve occasional migrating individuals or animals foraging or passing through from adjacent habitat. There are no known caves, adits, shafts, or outbuildings on the BLM portion of the allotment capable of providing hibernacula for bats. Habitat is unknown on adjacent private lands. Due to the low potential

for occurrence and lack of roosting/resting habitat, none of the alternatives would likely have any measurable impacts to bats. Therefore, they are not carried forward for further analysis.

Environmental Consequences: Wildlife and Special Status Species:

Effects Common to Alternatives 1-3

ODFW (2011; page 13) cites two unpublished studies that documented sage-grouse mortality associated with fencing as a risk factor in winter habitat in Wyoming and near lek sites in Idaho. IM No. 2012-043 recommends marking fences within 1.25 mile of leks with anti-strike markers (reflectors). No new fence construction would occur in either allotment. Based on the closest active leks being over 1.25 miles away from existing fences associated with the Chukar Spring Allotment, the risk of fence collision mortality would be low and anti-strike markers would not be required to comply with BLM's interim management guidelines. Within the Hill Camp Allotment, there is one section of existing fence that is located within 1.25 miles of two existing leks. This section of fence would be inspected by BLM biologists and anti-strike markers installed in accordance with criteria outlined in IM No. 2012-043. This would mitigate the potential risk of future fence collisions within this allotment.

Effects of Alternatives 1 and 2

An estimated 1,740 acres (5%) of predominantly sagebrush habitat types within the Hill Camp allotment would continue to be impacted by livestock trailing and concentration near existing water sources. The majority of these acres lie within marginal and unsuitable sage-grouse habitat. The remainder of the vegetation and associated habitats within the Hill Camp allotment would continue to be impacted to a very minor degree by dispersed grazing use. The Hill Camp allotment is currently achieving Rangeland Health Standard 5 for wildlife habitat, including special status species habitat, and this trend is expected to continue into the foreseeable future under these alternatives.

Due to the lack of suitable habitat within the Chukar Spring Allotment, continuing grazing under these two alternatives would have minor effects on sage-grouse nesting and brood-rearing/summer habitat within the allotment. An estimated 34 acres (2%) of predominantly sagebrush habitat types within the Chukar Springs allotment would continue to be impacted by livestock trailing and concentration near existing water sources. The majority of these acres lie within marginal and unsuitable sage-grouse habitat. The remainder of the vegetation and associated habitats within the Chukar Springs allotment would continue to be impacted to a very minor degree by dispersed grazing use. In the long-term, the diversity of native plants and residual cover currently classified as marginal habitat for sage-grouse would be maintained or improved under the livestock management associated with Alternatives 1 and 2. The presence of herbaceous vegetation within each pasture would not increase the available vertical or horizontal screening cover, but would retain forbs and habitat for insects, which are important to sage-grouse during the spring and summer months (Drut *et al*. 1994,

Gregg and Crawford 2009). Continued grazing would have little effect on suitable or marginal quality winter habitat in both allotments.

Another risk factor identified in the Monograph, the Oregon Strategy, and the 12-Month Finding is West Nile virus spread by mosquitoes around standing water (Knick and Connelly 2011, ODFW 2011, USFWS 2010). Sage-grouse are susceptible to West Nile Virus (Clark *et al*. 2006) and mortality may be as high as 100 percent (Naugle *et al*. 2004) in certain areas. The virus is primarily transmitted by infected mosquitoes, and was first detected in southeastern Oregon near Burns Junction in 2006, and then later near Crane and Jordan Valley that same year. Across the species range, total mortalities attributable to West Nile Virus have markedly declined since 2003. The virus has not been detected near the allotment or in southeast Oregon since the first observations in 2006 (DeBess 2009). Existing water troughs (Map 4) are designed to minimize overflow and minimize potential for the production of mosquitoes. Alternative 2 would not have any substantially different effects on suitable mosquito larval habitat at water troughs compared to Alternative 1. There are no new water development projects proposed in either allotment. Therefore, the risk of virus spread or associated mortality would be low and identical under both alternatives.

Alternative 1 - No Action

Current grazing management has achieved Rangeland Health Standard 5 for wildlife habitat. Approximately 1,774 acres (6%) of the wildlife habitat within the allotments would continue to be impacted by concentrated livestock use (near cattle trails and water sources), while impacts to habitat across the majority of the allotments (94%) would be dispersed and much less concentrated. The existing vegetation communities (Tables 11 and 13) contain a diversity of native grasses, forbs, and shrubs that would be maintained across the allotments through continuation of the current rest rotation grazing system. (Refer to the Upland Vegetation section). In particular, the allotments have adequate habitat to support an appropriate assemblage of migratory birds and current livestock grazing does not appear to be affecting this habitat.

Current livestock grazing use (both stocking rates and grazing season) does not appear to be limiting wildlife habitat within the majority of either allotment. Rangeland Health Standard 5 (BLM 2004a, 2004b) would continue to be met and the allotments would continue to provide adequate quality wildlife habitat that is capable of supporting an appropriate assemblage of sagebrush-dependent wildlife species.

Sage-grouse habitat in the Hill Camp Allotment has maintained an approximately 50% to 50% mix of suitable to marginal sage-grouse habitat under the current grazing management. It is expected that vegetation trends would remain static or improve slightly and provide adequate habitat for sage-grouse. In the long-term Western Juniper expansion in the allotment could affect portions of suitable breeding habitat in the allotments, but future juniper management is not specifically addressed in this analysis.

The entire Chukar Spring Allotment is year-long marginal sage-grouse habitat under the current grazing management. It is expected that under current management vegetation trends will remain static to slight improvement and provide adequate habitat for sage-grouse.

Alternative 2 - Chukar Spring Allotment (Rest one year out of four)

The impacts of this alternative on wildlife habitat in the Chukar Spring Allotment in general would be somewhat less than Alternative 1. The vegetation within the allotment would be rested completely for one year out of four. The existing vegetation communities (Table 11) contain a diversity of native grasses, forbs, and shrubs that would be maintained across the allotment through continuation of a rest rotation grazing system. (Refer to the Upland Vegetation section).

Rangeland Health Standard 5 would continue to be met and the allotment would continue to provide adequate quality wildlife habitat that is capable of supporting an appropriate assemblage of sagebrush-dependent wildlife species. The effects of this alternative on sage-grouse habitat would be similar to Alternative 1 and provide adequate habitat for sage-grouse in the short and long-term.

The impacts of this alternative on wildlife habitat in the Hill Camp Allotment would be similar to Alternative 1.

Alternative 3 - No Grazing

Under the no grazing alternative there would be very little change in the existing quality of wildlife or migratory bird habitat compared to the no action alternative. However, the removal of grazing would provide some increased forage availability for wildlife.

There would be no substantial change in special status species habitat quantity or quality in the short-term compared to Alternative 1 and 2. An estimated 1,740 acres (6%) of sagebrush habitat within the allotments formerly impacted by livestock trailing and concentration near existing water sources would improve over the long-term.

Alternative 3 would result in slightly less total suitable mosquito larval habitat at available at water sources in the Chukar Spring Allotment compared to Alternatives 1and 2. However, all existing water sources in the Hill Camp Allotment would remain. This reduction would not substantially lower the risk of viral spread of West Nile virus or mortality compared to these alternatives.

The allotments currently meet Rangeland Health Standard 5, provide quality wildlife habitat and forage, and would continue to do so under this alternative into the foreseeable future. The effects of this alternative on sage-grouse habitat would be similar to Alternatives 1 and 2 and would continue to provide adequate habitat for sage-grouse in both the short and long-term.

Livestock Grazing Management

Affected Environment: Chukar Spring Allotment 0214

Grazing would continue to be managed under the grazing permit as a spring use grazing system authorizing 52 AUMs of use from March 15th thru May 1st, and utilizing one pasture (Table 2). Livestock use has typically been concentrated on the western side of the pasture where the terrain is gentler, while the east side includes the steep slopes of Coleman Rim. The four water troughs and dirt tank are well distributed across the allotment that is accessible to grazing. The current permitted use of 52 AUMs is a low stocking density of 34 acres per AUM.

The allotment is categorized as an "M" or "maintain" category and this category was determined by the following criteria:

- Present range condition satisfactory
- Allotments have moderate to high resource production potential, and are producing near their potential (trend is moving in that direction)
- No serious resource-use conflicts exist
- Opportunities may exist for positive economic return from public investments
- Present management appears satisfactory
- Other criteria appropriate to area

Range Condition

A RHA was performed in 2004 to determine if current management was in conformance with the applicable standards and guidelines. Existing grazing management practices or levels of grazing use in the Chukar Spring Allotment 0214 promote achievement or significant progress towards the *Oregon/Washington Standards and Guidelines for Rangeland Health and conform to the Guidelines for Livestock Grazing Management* (BLM 1997, 2004a; see Table 16). All standards that are attributed to livestock grazing were met for the Chukar Spring Allotment.

Environmental Consequences: Chukar Spring Allotment 0214

Effects Common to Alternatives 1 and 2

Actual use, utilization, and climate data have been summarized in the allotment monitoring file and indicate that livestock grazing levels are sustainable at the current forage allocation for the allotment. Trend photos indicate a stable trend in the key areas of the allotment, and the current spring grazing system is meeting all Standards and Guidelines. Livestock grazing management is maintaining a vegetative community that supports other resources objectives and uses.

Table 16. Summary of Rangeland Health Assessment for Chukar Spring Allotment (BLM 2004a)

Standard	Determination	Causal Factors	Comments
1. **Watershed Function – Uplands**	Met	NA	Upland soils in the allotment exhibit infiltration and permeability rates, moisture storage, and stability appropriate for soil, climate, and land form. Root occupancy for the soil is appropriate
2. **Watershed Function - Riparian/ Wetland Areas**	Met	NA	The allotment contains 4 acres of Palustrine wetlands in Proper Functioning and Conditioning (PFC) and met this standard. Livestock grazing did not appear to be a factor limiting Riparian/Wetland function.
3. **Ecological Processes**	Met	NA	Following are observations from the interdisciplinary team about the current plant community in the allotment: There are no obvious signs of livestock overuse or damage in areas surveyed. The higher elevation areas are composed of pockets of big sagebrush with an understory of dense populations of cheatgrass. Livestock use when cheatgrass are greening up may be helpful in reducing cheatgrass populations. Lower elevations are primarily crested wheat and cheatgrass with scattered forbs and grasses. Hilltops and upper elevation areas possess the greatest plant diversity, including grasses, forbs, and shrubs. In the northeast part of the allotment, the plant community changes as soil type changes, into the more salt tolerant species.
4. **Water Quality**	Met	NA	No surface water or groundwater within the allotment has been listed for exceeding State Water Quality standards.
5. **Native, Threatened & Endangered, and Locally Important Species**	Met	NA	No conflicts exist between cattle grazing and wildlife species within the allotment. There are no known sage-grouse lek sites. No known noxious weed sites in the Allotment. No known sensitive plant species in the Allotment.

The average actual use over the last 10 years was 41 AUMS. The average utilization measured in seven of those years was 36% and the actual use in those 7 seven years was 34 AUMS. In 2 of those 7 years the precipitation was 30% above the long term average; but the other 5 years the precipitation averaged 63% of the long term mean. The average utilization was below the 50% utilization level allowed to sustain root growth and maintain perennial native grass production.

The grazing levels would remain at 52 AUMs under Alternatives 1 and 2. This level of use, along with managed grazing, would provide a sustainable forage base under both alternatives. There could potentially be a decline in forage production over the long-term as western juniper continues to expand into the area in the absence of wildfire.

Effects of Alternative 2 - Chukar Spring Allotment (Rest one year out of four)

Providing a season of rest every four years would increase the amount of forage available for the livestock in the first spring after the rest year. This increase in forage would be most significant around the water sources.

The permittee would have to find an alternate pasture during that the period in the spring when Chukar Spring was being rested.

Alternative 3 - No Grazing

Under this alternative, livestock grazing within the allotment would not be authorized. The permittee would need to replace 52 AUMs of lost forage with private land forage or hay in the general vicinity. The additional cost to replace this forage would be at the permittee's expense. These costs are discussed further in the social and economic section.

Existing range improvement projects within the allotment would not be maintained. However, the allotment boundary fences would still need to be maintained by the BLM or adjacent permittees.

Affected Environment: Hill Camp Allotment 0215

The term Grazing Permit authorizing 213 AUMs of cattle use in Hill Camp Allotment is one of two grazing permits in this allotment and only 6% of the AUMs authorized in this allotment. The season of use is from April 25th thru October 1st. Grazing is managed under a rest rotation grazing system using four pastures (Table 2).

The allotment is categorized as an "M" or "maintain" category and this category was determined by the following criteria:

- Present range condition satisfactory
- Allotments have moderate to high resource production potential, and are producing near their potential (trend is moving in that direction)
- No serious resource-use conflicts exist
- Opportunities may exist for positive economic return from public investments
- Present management appears satisfactory
- Other criteria appropriate to area

Range Condition

A RHA was performed in 2004 to determine if current management was in conformance with the applicable standards and guidelines. Existing grazing management practices or levels of grazing use in the Hill Camp Allotment promote achievement or significant progress towards

the *Oregon/Washington Standards and Guidelines for Rangeland Health and conform to the Guidelines for Livestock Grazing Management* (BLM 1997, 2004b; see Table 17).

Table 17. Summary of Rangeland Health Assessment for Hill Camp Allotment (BLM 2004b)

Standard	Determination	Causal Factors	Comments
1. **Watershed Function – Uplands**	Met	NA	Upland soils in the Hill Camp Allotment exhibit infiltration and permeability rates, moisture storage, and stability appropriate for soil, climate, and land form. Root occupancy for the soil is appropriate
2. **Watershed Function - Riparian/ Wetland Areas**	Initially Not Met/ Now Met	NA	The allotment contains 54 acres of Palustrine wetlands in Proper Functioning Condition (PFC). The ID team determined that grazing at 3 springs (Game, Hidden, and Tim) was contributing to their failure to function at their site potential and, therefore, Standard 2 was not being met in these specific areas. The problems at these springs were corrected by enlarging the existing exclosures and repairing the overflow pipes to return water back into the riparian area (BLM 2004c). Following implementation, BLM determined this standard is now being met or substantial progress towards meeting the standard has been made.
3. **Ecological Processes**	Met	NA	Following are observations from the interdisciplinary team about the current plant community in the Allotment. Overall plant diversity is high with shrubs and grasses in excellent condition. There are 23 trend photo plots scattered around the allotment which began in the 1960s or 1970s and continue today. These photos illustrate the plant communities are either stable or improving across the allotment. The vigor, condition and composition of the vegetation in the photos were influenced by the amount of moisture that season, the grazing schedule and fire. But even taking into account these factors, the ecological condition of these sites has either remained stable or improved over the last 30 years. There has been an increase in juniper density at the sites where fire has not been present. Another noticeable trend is that even following fire, the mountain big sagebrush returns to the site in 10-15 years. The allotment is supporting the current and proposed number of mule deer and pronghorn antelope identified by Oregon Department of Fish and Wildlife (ODFW) management plans**.**
4. **Water Quality**	Met	NA	No surface water or groundwater within the allotment has been listed for exceeding State Water Quality standards.
5. **Native, Threatened & Endangered, and Locally Important Species**	Met	NA	No conflicts exist between cattle grazing and wildlife species within the allotment. There are two known sage-grouse lek sites in the allotment. No known noxious weed sites in the Allotment. No known sensitive plant species in the Allotment.

Effects of Alternatives 1 and 2

Actual use, utilization, and climate data have been summarized in the allotment monitoring file and indicate that livestock grazing levels are sustainable at the current forage allocation for the allotment. Trend photos indicate a stable trend in the key areas of the allotment, and the current rest rotation grazing system is meeting all Standards and Guidelines. Livestock grazing management is maintaining a vegetative community that supports other resources objectives and uses.

The grazing level under this permit would remain at 213 AUMS and is only 6% of the AUMS in the allotment. Therefore, the effects of livestock grazing in alternatives 1 and 2 are insignificant.

Environmental Consequences: Hill Camp Allotment 0215

Effects of Alternative 3 - No Grazing

Under this alternative, livestock grazing under this permit would not be authorized, but 94% of the AUMs in the allotment would still be authorized under a separate permit and a different permittee. The permittee under the O'Sullivan permit would need to replace 213 AUMs of lost forage with private land forage or hay in the general vicinity. The additional cost to replace this forage would be at the permittee's expense. These costs are discussed further in the social and economic section.

Native American Traditional Practices

Affected Environment:

The allotments are located within a pre-contact and modern native American Traditional Use area. Some members of the Fort Bidwell Paiute Community have ancestors one to two generations back that used the area in their seasonal economic activities. Current members of the Fort Bidwell Community have indicated that they consider this area to be a Traditional Cultural Property location. However, they have made such statements about virtually all of the surrounding region. The BLM is not aware of any specific locations important to the Fort Bidwell Community in general or the individual families that make up its membership. Statements from the Fort Bidwell Community also indicate that they consider all manifestations of the native American past to be important or sacred.

Environmental Consequences:

There is currently no known use of the area for collecting of any type of culturally important plants or for religious/ceremonial purposes. None of the alternatives would change the nature of the traditional use sites in the area. Therefore, none of the alternatives would affect native American traditional practices.

Cultural Resources

Affected Environment:

Only about 5 percent of the allotments have had a Class III survey completed. Surveys have been done for past geothermal leasing of portions of the area (intuitive survey), land exchanges, water developments, juniper cutting projects, and roads. The fact that cultural surveys have not been completed on 100% of the allotment represents a resource for which there is "incomplete or unavailable information". According to the CEQ's NEPA regulations (40 CFR Part 1502.22), when an agency is evaluating impacts and there is incomplete or unavailable information, the agency must make clear that such information is lacking. Further, if the information "cannot be obtained because the cost of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include…. (1) a statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts….; (3) a summary of the existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant impacts… and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community…". The DOI NEPA regulations state that these costs are not just monetary, but can also include "social costs, delays, opportunity costs, and non-fulfillment or non-timely fulfillment of statutory mandates" (43 CFR Part 46.125). The costs of obtaining a comprehensive survey of cultural resources across the entire area (31,420 acres) are estimated at $800 to $1080 per acre (or approximately $25,136,000 to $33,933,600) and would be exorbitant.

The allotments have a high probability for containing high-value archaeological resources because they are fairly well watered and have areas containing edible grass seed, roots, and other plants of cultural importance. The area would have been valuable for hunting of game. Based on past surveys, 9 archaeological sites have been documented in the 2 allotments. Four sites are large rock art sites with associated occupation. In three of these sites, stone house rings are present. On all of these sites, ground stone in the form of metates and manos are found. One site is a small cave which has associated rock art. The remaining 4 sites are occupation sites located at spring or seep locations. The time of occupation for the area covers all of the past 12,000 year time period.

Environmental Consequences:

<u>Alternative 1 - No Action</u>

Based on field observations by BLM cultural resources staff over the last 38 years on known cultural resource sites in the Lakeview Resource Area, livestock can impact cultural materials located in the top 12 inches of the soil profile. These effects include ground cover removal, surface scuffing, and hoof shear. The reoccurring cycle of ground disturbance, removal of vegetative cover, along with water and wind erosion can lead to continued loss of soil and further exposure of a given site, and loss of vertical context within the site. Cultural materials within the top 12 inches of soil can be exposed to trampling damage, resulting in reduced site

integrity. The deepest disturbance is typically seen at sites located in congregation areas (near water sources and trailing areas) where concentrated hoof shear is common. Generalized dispersed grazing, with light hoof shear and surface scuffing, can result in light (2 inches) to moderate (6 inches) depth of impacts to some sites.

According to site records 8 of the 9 sites have been impacted from surface scuffing (2 inches deep) to hoof shear (12 inches deep) by past livestock and/or wild horse grazing. However, the severity and extent of impacts have not been quantified. The most common impacts to sites have been livestock trampling, wind erosion and sheet wash erosion from rains. Cultural resources sites were likely affected more intensely and to a greater soil depth by past grazing practices than under the more refined, controlled grazing management practices of today. Under this alternative, cultural resources, if present, would continue to be affected by existing livestock grazing use, primarily in high livestock concentration areas.

<u>Alternative 2 - Chukar Spring Allotment (Rest one year out of four)</u>

Under this alternative, cultural resources in high livestock concentration areas in the Chukar Spring Allotment would continue to be affected, if present, but at a slightly reduced level. In the Hill Camp Allotment, impacts would be similar to Alternative 1.

Continued erosion from wind and water would still be expected. Minor trampling effects from large wildlife would continue to occur.

<u>Alternative 3 - No Grazing</u>

Under the No Grazing Alternative, cultural resources would no longer be affected by livestock grazing, especially in former high livestock concentration areas.

Continued erosion from wind and water would still be expected. Minor trampling effects from large wildlife would continue to occur.

Recreation

Affected Environment:

There are currently no developed recreation sites within the Chukar Spring and Hill Camp Allotments, nor are there any planned for the future. Recreation in these allotments is managed for Semi-Primitive Motorized activities, opportunities, and experiences (see Map R-3 of *Lakeview RMP/ROD*; BLM 2003b). The area possesses a moderate probability of experiencing isolation, closeness to nature, and self-reliance in outdoor skills. User interaction is low, but there is evidence of other users. Pockets of vegetative (aspen and old-growth juniper) and topographic (Coleman Rim) screening provide some opportunities for solitude within these allotments where a visitor could avoid the presence of others.

Use of motorized vehicles on roads, trails, and cross-country travel is allowed across the majority of the area. However, off-highway vehicles (OHVs) are limited to "designated roads and trails" in portions of both allotments (approximately 5,000 acres in the northeast corner of Hill Camp and 150 acres along the western boundary of Chukar Spring). The primary recreation activities in these allotments are upland game bird (e.g., chukar) and big game (e.g., mule deer and pronghorn antelope) hunting. Other recreation activities may occasionally occur in these allotments and include wildlife viewing, photography, camping, hiking, backpacking, horseback riding, or target shooting.

Environmental Consequences:

Alternative 1 - No Action

The No Action Alternative would continue to have minimal effects to recreation opportunities across the allotments. Current levels of recreation activities, opportunities, and experiences would remain relatively constant.

Alternative 2 - Chukar Spring Allotment (Rest one year out of four)

Since this alternative would rest the Chukar Spring Allotment one out or every four years, it would marginally enhance recreational experiences and opportunities. Users seeking isolation and naturalness, as well as hunters and wildlife viewers, would benefit slightly due to the temporary absence of the sights and sounds of cattle. There would be a slight increased potential to watch and hunt wildlife due to the slightly improved ecological conditions in the allotment.

Impacts to recreational opportunities within the Hill Camp Allotment would be similar to Alternative 1.

Alternative 3 - No Grazing

The No-Grazing Alternative would minimally enhance recreation activities, opportunities, and experiences in both allotments. Naturalists' and wildlife dependent recreationists' experiences in the area would be slightly enhanced by the removal of livestock grazing from this permit. However, the improvement would be negligible, particularly on the Hill Camp Allotment, as only 213 AUMS would be relinquished, while another 3,719 AUMs of permitted use (on another permit) would continue across the allotment.

Visual Resources

Affected Environment:

The visual setting of Chukar Spring Allotment consists of downslope panoramic views to the west, across and out of the allotment, toward Spanish Lake, Greaser Reservoir, and Greaser

Canyon from atop Coleman Rim along the eastern edge of the allotment. Topographically, the area angles steeply to the west from the rim with several drainages descending to a small valley below Chukar Spring. The drainage continues to the northwest until exiting the allotment in the lower reaches of Greaser Canyon. The vegetation consists of big sagebrush, wheatgrass, and western juniper. Observable developments within the allotment include: a pipeline, troughs, dike, fences, developed springs, reservoirs, past prescribed fires, roads, and primitive motorized routes.

The Hill Camp Allotment consists of a variety of visual settings. The northeast corner of the allotment includes the MC Reservoir and Greaser Basin, surrounded by Greaser Rim and Greaser Ridge, sloping to the southwest into Greaser Canyon. The western boundary of the allotment is formed by Coleman Rim, a massive fault scarp with a west facing slope. The central portion of the allotment consists of numerous minor and moderate sized fault scarps rising to over 6400 feet in elevation, springs, small playas and reservoirs. Several drainage forks of Piute Creek drain to the east, converging four miles east of the allotment at Piute Reservoir. The southeast corner of the allotment flattens out into Antelope Flat forming the northern end of larger Macy Flat playa to the south in northern Nevada. Vegetation associated with the sagebrush steppe varies from old-growth juniper and pockets of aspen to several varieties of sagebrush, along with native grasses and forbs. Observable developments within the allotment include: roads, primitive motorized routes, reclaiming routes, closed routes, fences, waterholes, reservoirs, developed springs, and past prescribed fires.

Chukar Spring and Hill Camp Allotments are currently managed according to Visual Resource Management (VRM) Classes III and IV (Table 18 and Map 7).

Table 18. Existing VRM Classes within the Allotments

Allotment	VRM Class III (acres/percent)	VRM Class IV (acres/percent)
Chukar Spring	205/ 12%	1559/ 88%
Hill Camp	14,106/ 42%	19,394/ 58%

Management objectives for VRM Class III are to “partially retain the existing character of the landscape, moderate levels of change are acceptable.” While VRM Class IV is managed to allow for “major modifications to the landscape,” though “every effort should be made to … minimize disturbances and design projects to conform to the characteristic landscape” (BLM 2001, page 290).

Environmental Consequences:

<u>Alternative 1 - No Action</u>

The No-Action Alternative would continue to have negligible effects to existing visual resources, and therefore, would continue to achieve the management objectives for both VRM Class III and IV.

Alternative 2 - Chukar Spring Allotment (Rest one year out of four)

Since Alternative 2 would rest the Chukar Spring Allotment one out or every four years, this alternative would marginally enhance the existing visual resources by providing slightly more esthetically pleasing components of a rested and semi-restored upland plant ecosystem. This alternative would achieve the management objectives for both VRM Class III and IV within this allotment.

Impacts within the Hill Camp Allotment would be similar to Alternative 1.

Alternative 3 - No Grazing

The No Grazing Alternative would nominally enhance visual resources in the allotments by reducing the occurrence of viewing non-natives animals within the landscape and by the esthetically pleasing components of a rested and semi-restored upland plant ecosystem, particularly grown in cattle trails and trampled areas around water developments in Chukar Spring Allotment. However, the improvement would be negligible within the Hill Camp allotment, as only 213 AUMS would be relinquished, while another 3,719 AUMS, on another permit, would remain across the allotment. Furthermore, the visual developments (pipelines, roads, motorized trails, reclaiming routes, closed routes, fences, major utility line, waterholes, reservoirs, troughs, dikes, and developed springs) scattered across these allotments would remain indefinitely.

Social and Economic Values

Affected Environment:

The economy of Lake County is based primarily on agriculture, timber, livestock, and government sectors. Livestock grazing and associated feed production industries are major contributors to the economy of Lake County. The most common is the raising of cattle and calves for beef. In 2010, an estimated 52,500 cow/calves were in Lake County Oregon (Pete Schreder, Personal Communication, Lake County Agricultural Extension Agent, November 14, 2012). In 2010, Lake County ranchers sold an estimated $35,000,000 worth of cattle and calves or related beef products from public lands.

The Chukar Spring Allotment provides spring forage for 52 cows for 30 days and the Hill Camp Allotment provides summer forage for the same 52 cows for about 153 days. The same permittee and the same cows use both allotments at different times of the year. Thus, these allotments produce about 42 calves for market (assuming 3 bulls and an 85% calf crop each year).

Environmental Consequences:

Effects Common to Alternatives 1-3

Public lands in and around the allotment would continue to contribute social amenities such as open space and recreational opportunities. These amenities encourage tourism in the surrounding region and provide economic benefits to nearby communities such as Lakeview, Plush and Adel, though the specific contribution of the allotment cannot be accurately estimated.

Alternative 1 – No Action

Under this alternative, the Federal Government would continue to collect grazing fees (52 AUM @ $1.35/AUM = $70.20 (Chukar Spring) and 213 AUMS @ $1.35/AUM = $287.55 for a total of $357.75 from the permittee. This commodity use of public lands would continue to generate revenues for the Federal Government on an annual basis.

The rancher/permittee would continue to produce approximately 42 calves each year associated with the Chukar Spring and Hill Camp Allotments, providing continued economic stability for the permittee and contributing approximately 0.08% to the total county-wide cattle production. Based on the current price of a 600-pound stocker calf at $163/cwt (100 lbs. of live weight) (Stockmans Journal, 2012) the permittee would generate a gross income of approximately $41,076. This is an estimate that would vary every year depending on the price of beef and the weight/condition of the calves at the time of sale.

Alternative 2 - Chukar Spring Allotment (Rest One out of Every Four Years)

The effects would be the same as Alternative 1, except during the rest year when the Federal Government would not collect grazing fees from the Chukar Spring Allotment, reducing the grazing fees collected by about $70.20. During that rest year the permittee would then have to find suitable pasture to graze his livestock elsewhere in the surrounding region or feed additional hay, resulting in additional production costs. The current cost of hay is approximately $245/ton (Oregon-Washington weekly hay report, 2012) and assuming it takes 30lb/day/cow, the additional cost per day would be $191. This would result in approximately $5,733 in additional costs to feed the permittee's 52 cows for 30 days, not including transportation costs of moving the hay to the ranch. The average pasture rate for private land forage in Oregon is $14.80 Per AUM. The additional annual cost to the rancher for renting private pasture land would be approximately $556.30 ((52 AUMs * $14.80) - $213.30)).

Alternative 3 - No Grazing

A minimum annual loss of $357.75 would occur to the Federal Government due to the loss of grazing fees collected from this permittee. This would also result in the loss of suitable grazing

land for the local rancher/permittee. The rancher would then have to find suitable pasture to graze his livestock elsewhere in the surrounding region or feed additional hay, resulting in additional production costs. The current cost of hay is approximately $245/ton (Oregon-Washington weekly hay report, 2012) and assuming feeding 30lb/day/cow. This would result in approximately $34,971 in additional costs to feed the permittee's 52 cows for 183 days, not including transportation costs of moving the hay to the ranch. The average pasture rate for private land forage in Oregon is $14.80 Per AUM. The additional annual cost to the rancher for renting private pasture land would be approximately $3,564 ((265 AUMs * $14.80) - $357.75)).

If the rancher could not secure other suitable pasture land or could not afford these increased costs, then approximately 42 calves would no longer be produced in Lake County, resulting in a 0.06% annual reduction in county-wide cattle production. Based on the current price of a 600-pound stocker calf at $163/cwt (100 lbs. of live weight) (Stockmans Journal, 2012), this could result in an economic gross loss to the permittee and counties economy of about $41,076 per year.

ACEC/RNA

Affected Environment:

The Chukar Spring Allotment contains approximately 145 acres of the Spanish Lake ACEC/RNA (Map 2), which was designated specifically to recognize and manage natural system values representing a diversity of salt desert scrub communities with limited distribution in the Lakeview Resource Area and Northern Great Basin. The area contains 3 Oregon Natural Heritage Program (ONHP) native plant communities "cells" for the Basin and Range Ecosystem: (19) black greasewood- shadscale/bunchgrass/playa margin (73) playa with greasewood/Great Basin wildrye, and (34) shadscale-budsage/bunchgrass/salt desert shrub (BLM 2003a).

The Hill Camp Allotment contains approximately 5,135 acres of the High Lakes ACEC (Map 2), which was designated specifically to recognize and manage cultural, wildlife, and natural system values including a high concentration of prehistoric rock art sites, culturally important plants, special status plant species, and greater sage-grouse habitat (BLM 2003a).

Environmental Consequences:

<u>Alternative 1 – No Action</u>

The RHAs completed in 2004 found both allotments were meeting Standards 1 (upland watershed function), 3 (ecological processes), 4 (water quality), and 5 (native, threatened and endangered, and locally important species). With the exception of 4 small spring sites, both allotments met Standard 2 (riparian/wetland function) (BLM 2004a, 2004b). Based on these findings, and the analysis contained in the cultural resources, vegetation, and wildlife sections of this EA, continued grazing on the 2 allotments under this alternative would not have any

significant impacts on either the natural system values (ecological processes), wildlife values, or cultural values for which the ACEC/RNAs were designated.

Alternative 2 - Chukar Spring Allotment (Rest One out of Every Four Years)

Since Alternative 2 would rest the Chukar Spring Allotment one out or every four years, this alternative would marginally enhance or protect the natural system values (ecological processes) for which the Spanish Lakes ACEC/RNA was designated compared to Alternative 1.

Impacts within the Hill Camp Allotment and High Lakes ACEC would be similar to Alternative 1.

Alternative 3 - No Grazing

Permanently removing grazing from the Chukar Spring Allotment, would marginally enhance or protect the natural system values (ecological processes) for which the Spanish Lakes ACEC/RNA was designated compared to Alternative 1.

Reducing 6% of the AUMS from the Hill Camp Allotment and High Lakes ACEC would marginally enhance or protect the natural system values (ecological processes), wildlife values, and cultural values for which the High ACEC was designated compared to Alternative 1.

Cumulative Effects

Analysis Scale and Timeframe

For the purposes of this analysis, cumulative impacts are generally addressed at the allotment scale. The reasons for choosing this analysis scale include the fact that issuing a permit is a decision that affects the entire allotment and BLM has a good idea of other potential reasonably foreseeable actions that may occur within the allotment due to management direction identified in the *Lakeview Resource Management Plan/Record of Decision*. However, the analysis spatial scale does vary somewhat (to county boundary) depending upon the resource value/use being addressed. The timeframe of analysis is defined as the same 15-20 year expected life of the *Lakeview Resource Management Plan/Record of Decision*. The reason for choosing this timeframe is because this represents the same analysis timeframe considered in the Lakeview Proposed RMP/Final EIS (BLM 2003a) and portions of that analysis may be appropriate for impact tiering purposes.

Known Past Activities

The Council on Environmental Quality (CEQ) issued cumulative impact guidance on June 24, 2005, that states the "environmental analysis required under NEPA is forward-looking," and review of past actions is required only "to the extent that this review informs agency decision-making regarding the proposed action." Use of information on the effects of past action may be useful in two ways: one is for consideration of the proposed action's cumulative effects, and

secondly as a basis for identifying the proposed action's direct and indirect effects.

The CEQ stated that "[g]enerally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." This is because a description of the current state of the environment (i.e. affected environment section) inherently includes the effects of past actions. Further, the "CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions." Information on the current environmental condition is more comprehensive and more accurate for establishing a useful starting point for a cumulative effects analysis than attempting to establish such a starting point by adding up the described effects of individual past actions to some environmental baseline condition in the past that, unlike current conditions, can no longer be verified by direct examination.

The second area in which the CEQ guidance states that information on past actions may be useful is in "illuminating or predicting the direct and indirect effects of a proposed action. The usefulness of such information is limited by the fact that it is anecdotal only, and extrapolation of data from such singular experiences is not generally accepted as a reliable predictor of effects".

The Department of Interior issued some additional guidance related to past actions which state, "when considering the effects of past actions as part of a cumulative effects analysis, the Responsible Official must analyze the effects in accordance with 40 CFR 1508.7 and in accordance with relevant guidance issued by the Council on Environmental Quality, such as ''The Council on Environmental Quality Guidance Memorandum on Consideration of Past Actions in Cumulative Effects Analysis'' dated June 24, 2005, or any superseding Council on Environmental Quality guidance (see 43 CFR 46.115)".

Based on this guidance, BLM has summarized known disturbances from past or on-going management activities that have occurred on BLM-administered lands which may contribute to cumulative effects within the allotment. These include: livestock grazing and management, road construction and maintenance, range improvement construction and maintenance, wildlife (wetland) habitat management, and dispersed recreational use. In addition, range improvement construction and maintenance, road maintenance, and other associated activities have occurred on private lands within or adjacent to the allotment.

The area within the Chukar Spring and Hill Camp Allotments has historically been grazed by cattle. Prior to the Taylor Grazing Act of 1935, grazing on public lands was essentially uncontrolled. After the Taylor Grazing Act, allotments were established tied to private base property owned by a permittee, and were initially under the management responsibility of the Grazing Service. Under the Grazing Service and then under the new BLM in 1946, the number of grazing livestock was higher and the pattern of grazing use was more intense than today. The current Chukar Spring Allotment was split from the Rim (Griener) Allotment around 1985.

The *Lakeview Resource Management Plan/Record of Decision* (Appendix E3, page A-143, BLM 2003b) listed juniper control as future project proposals for these allotments. Several juniper control projects were completed between 2008 and 2010 and no other future projects are proposed at this time.

All past or on-going activities have affected or shaped the landscape within the allotments into what it is today. Current resource conditions are described previously in the "Affected Environment" portions of this chapter, as well as in the Rangeland Health Assessment for the allotments (BLM 2004a, 2004b). In particular, the Visual Resources section above provides an overview of existing disturbances within the allotments.

Chukar Spring Allotment 0214

Based on a GIS analysis of current data, there are approximately 4.2 miles of open roads resulting in an estimated 5.1 acres of total road-related disturbance within the allotment.

There are at approximately 2.4 miles of fence (1.5 acres), 4 acres of wetland and an intermittent creek (natural water source), 3 developed springs and troughs and 1 reservoir (134 acres), and 0.2 miles of pipeline (0.2 acres) with associated troughs within the allotment (Map 4). The area of highest livestock ground disturbance within the allotment would generally occur from trailing along fences (5 feet on each side) and within close proximity to water sources. The total area estimated to be most impacted by livestock concentration is about 135.7 acres.

Hill Camp Allotment 0215

Based on a GIS analysis of current data, there are approximately 3.4 miles of state highway (20.6 acres), 67.9 miles of open roads (82.3 acres), 4 miles of routes in a reclaiming condition (4.8 acres), 3 miles of closed roads (3.6 acres), and scattered across the allotment resulting in an estimated 111.3 acres of total road-related disturbances.

There are at approximately 39.5 miles of fences (35.9 acres), 54 acres of intermittent, natural water sources, 5 developed springs and associated water troughs, 12 waterholes, and 28 reservoirs (5,239 acres) scattered across the allotment (Map 4) where livestock use would be expected to be most concentrated. The area of highest livestock ground disturbance within the allotment would generally occur from trailing along fences (5 feet on each side) and within 0.25 mile of water sources Total area of concentrated use attributed to livestock grazing is approximately 5,328.9 acres.

Reasonably Foreseeable Future Actions

The Reasonably Foreseeable Future Actions that would likely occur in these allotments under Alternatives 1-3 are: continued road maintenance, range improvement maintenance, weed treatments, wildlife habitat management, and hunting and other dispersed recreation activities.

Road and range improvement maintenance activities would occur on an as needed basis and generally would not cause additional surface disturbance beyond what already exists on the ground. Further, such activities are considered to be so minor as to be categorically excluded from NEPA analysis (BLM 2008b). The amount and location of future dispersed recreational activities are difficult to estimate, but are not expected to result in any additional, measurable long-term surface disturbance in the allotment. While there is also a risk of a future wildfire within the allotment, it is impossible to predict how much area would likely burn, how intensely the area would burn, how much fire suppression would be employed, and how much area may need to be actively rehabilitated after the fire. For this reason, fire disturbances are not considered further in this analysis.

Cumulative Effects Common to Alternatives 1 – 3

None of the alternatives would have any measureable or substantial incremental cumulative effects on climate, greenhouse gas emissions, carbon storage, native American traditional practices, recreation, or visual quality, as the analysis contained earlier in this chapter revealed that there would be little or no direct or indirect effects on these values/issues.

No noxious weeds are present within the allotment (BLM 2004d) and the risk of future infestations is low under all alternatives. If new infestations were to occur in the future, they would be treated in accordance with the most current Integrated Weed Treatment Plan(s) and related policies (such as BLM 1995, 2004b, 2007b, 2007c). The impacts of such treatments have already been analyzed and are incorporated by reference in their entirety. Such impacts could include: short-term increases in surface disturbance and soil erosion, coupled with reduction in weed distribution, native vegetation recovery, protection or restoration of wildlife habitats, maintenance of recreation experiences, maintenance of livestock forage production, maintenance of visual quality, and minimal risk to human health over the long-term (BLM 2004d, Pages 10-20).

For purposes of this analysis, total acres of concentrated ground surface disturbance or potential for surface recovery served as the main indicator of cumulative impacts on soils, BSCs, upland vegetation, wetland and riparian areas, cultural resources, and wildlife and special status species habitat. Road-related ground disturbances under all alternatives would be similar and is estimated at 116.4 acres.

Cumulative Effects Common to Alternatives 1 and 2

The incremental cumulative effects of continued grazing of up to 52 AUMs on Chukar Spring Allotment and 213 AUMs on the Hill Camp Allotment each year when added to past, present, and reasonably foreseeable future actions (including routine project maintenance), would result in no change in total acres of concentrated surface disturbance associated with livestock grazing. The incremental impacts of continued grazing under these alternatives, even when added to past, present, and reasonably foreseeable future actions would still result in

continued achievement or maintenance of all Rangeland Health Standards into the foreseeable future.

Cumulative Effects – Alternative 3

The incremental impacts of removing grazing under this alternative, when added to past, present, and reasonably foreseeable future actions would result in natural recovery of about 135.7 acres around existing water sources and trailing areas along fences in the Chukar Spring Allotment over time.

Since this permit only covers 6% of the AUMs of use permitted on the Hill Camp Allotment, most of the existing concentrated ground disturbance impacts (5,328.9 acres) associated with livestock grazing would continue to occur under this alternative.

Both allotments would continue to achieve or maintain all Rangeland Health Standards into the foreseeable future.

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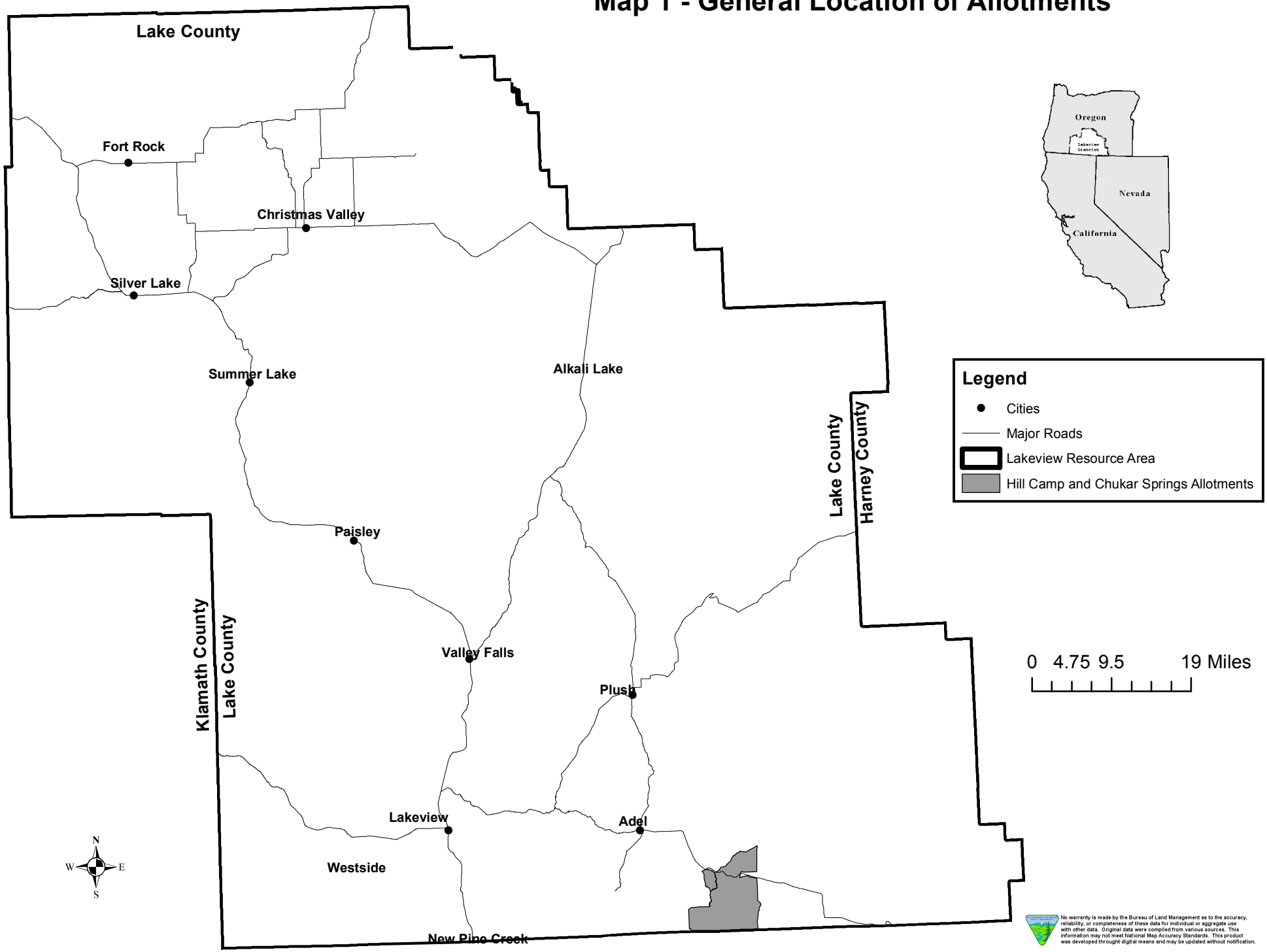
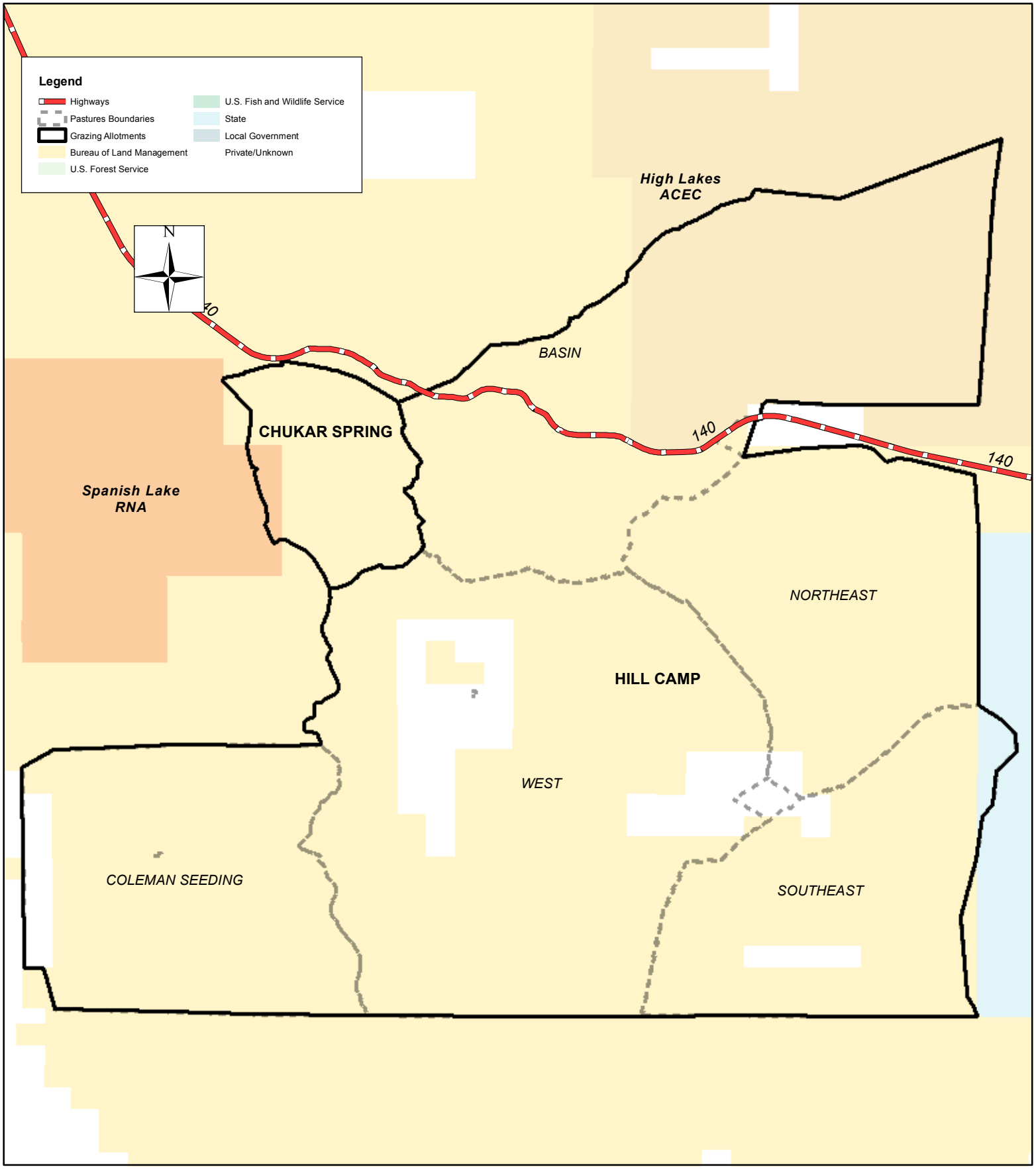
Map 1 - General Location of Allotments





Map 2. Land Status, Pastures, and ACEC/RNAs within the Chukar Spring and Hill Camp Allotments

Miles
0 0.75 1.5 3

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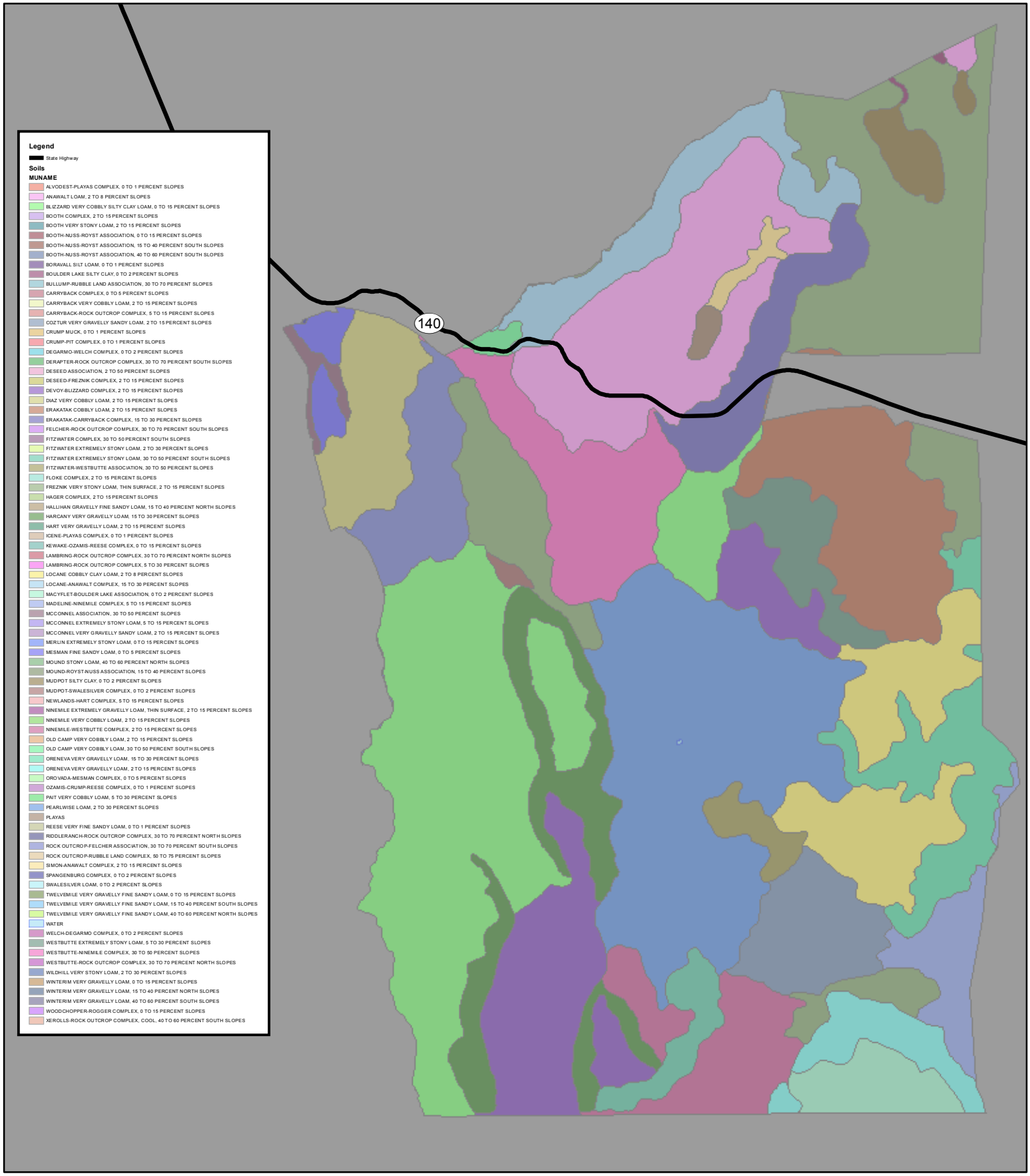

Map 3 - Soils in the Chukar Spring and Hill Camp Allotments

0 0.75 1.5 3 Miles

N

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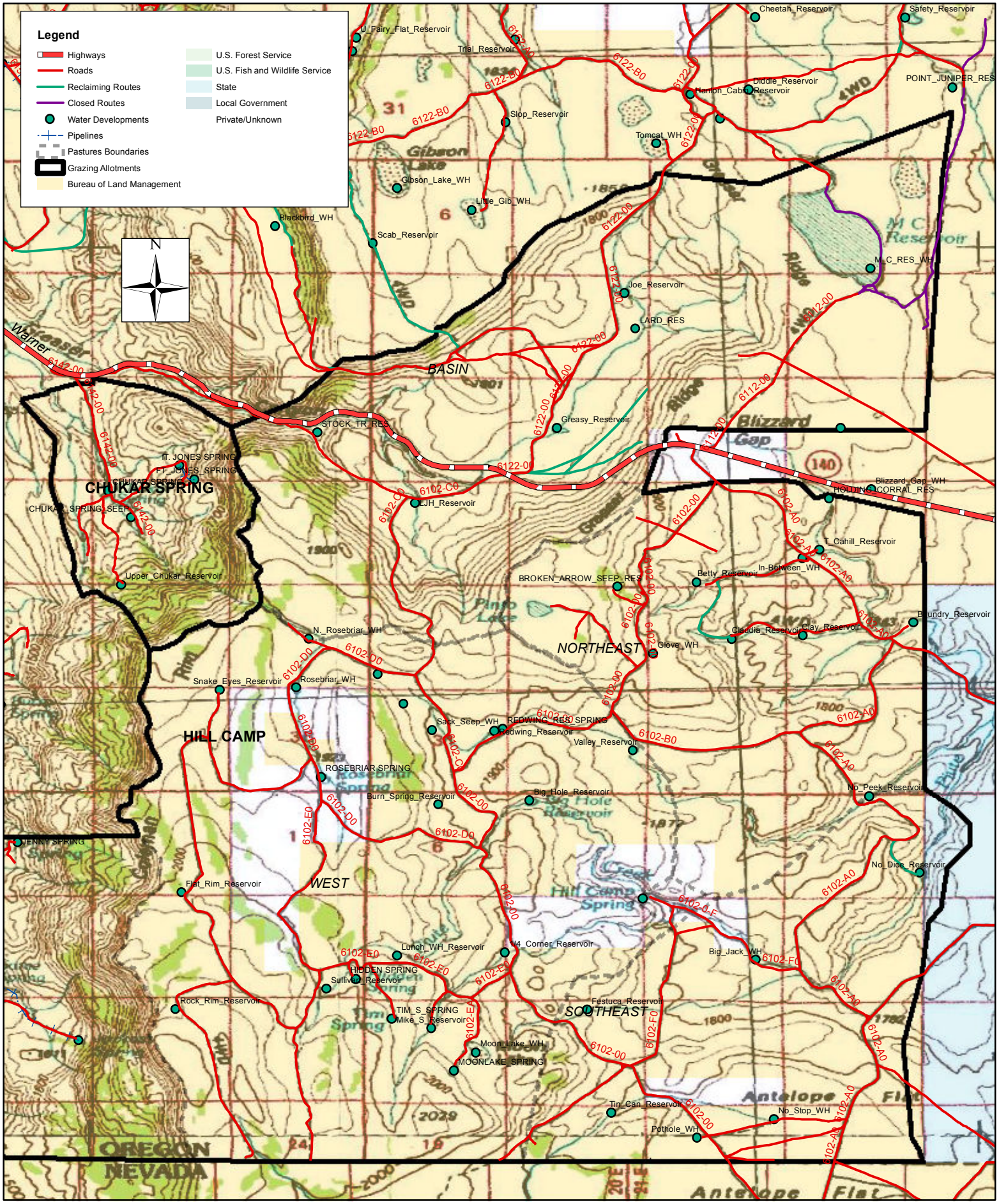

Map 4. Human Disturbances in the Chukar Spring and Hill Camp Allotments

Miles
0 0.75 1.5 3

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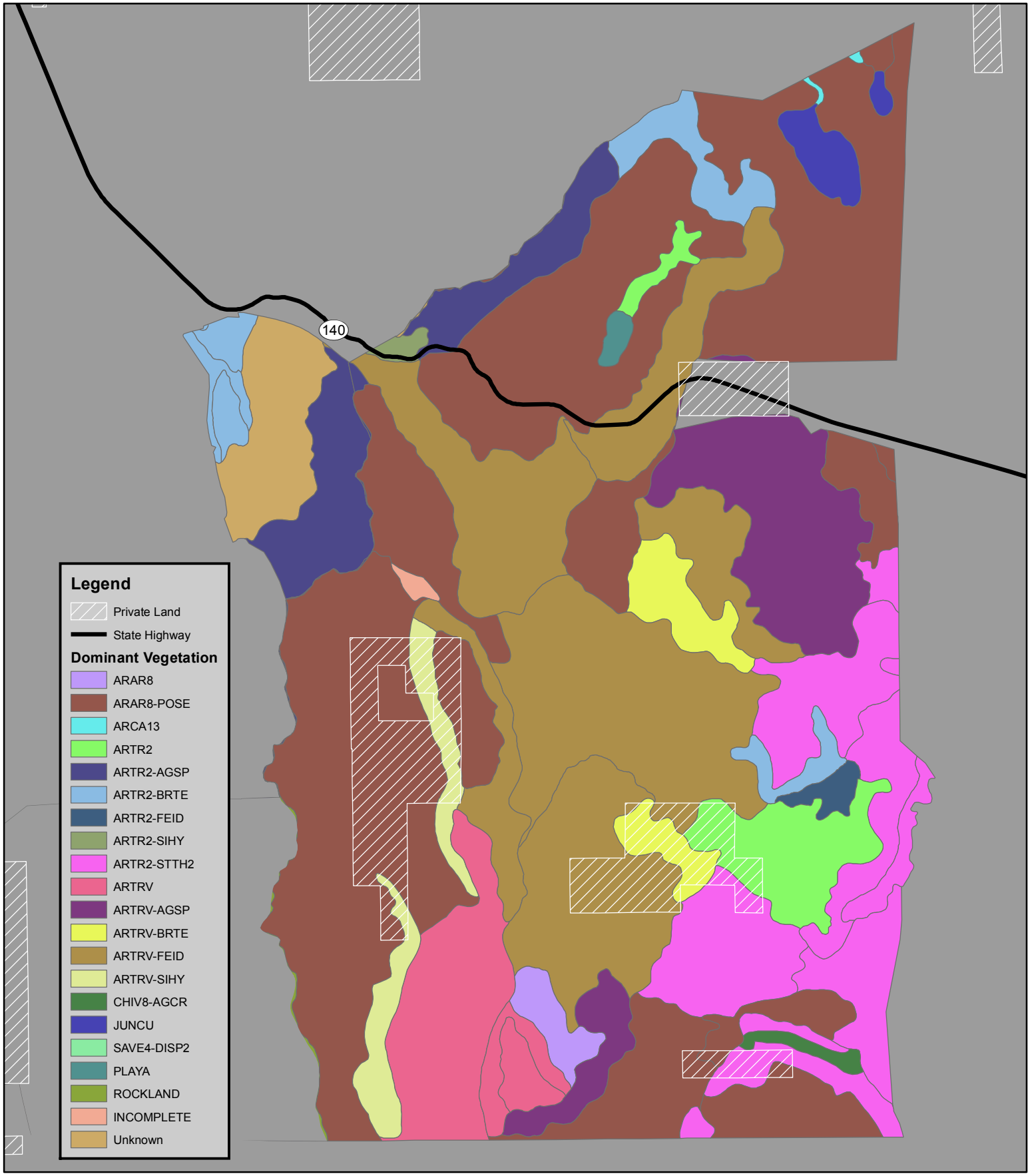

Map 5. Existing Dominant Vegetation in Chukar Spring and Hill Camp Allotments

0 0.75 1.5 3 Miles

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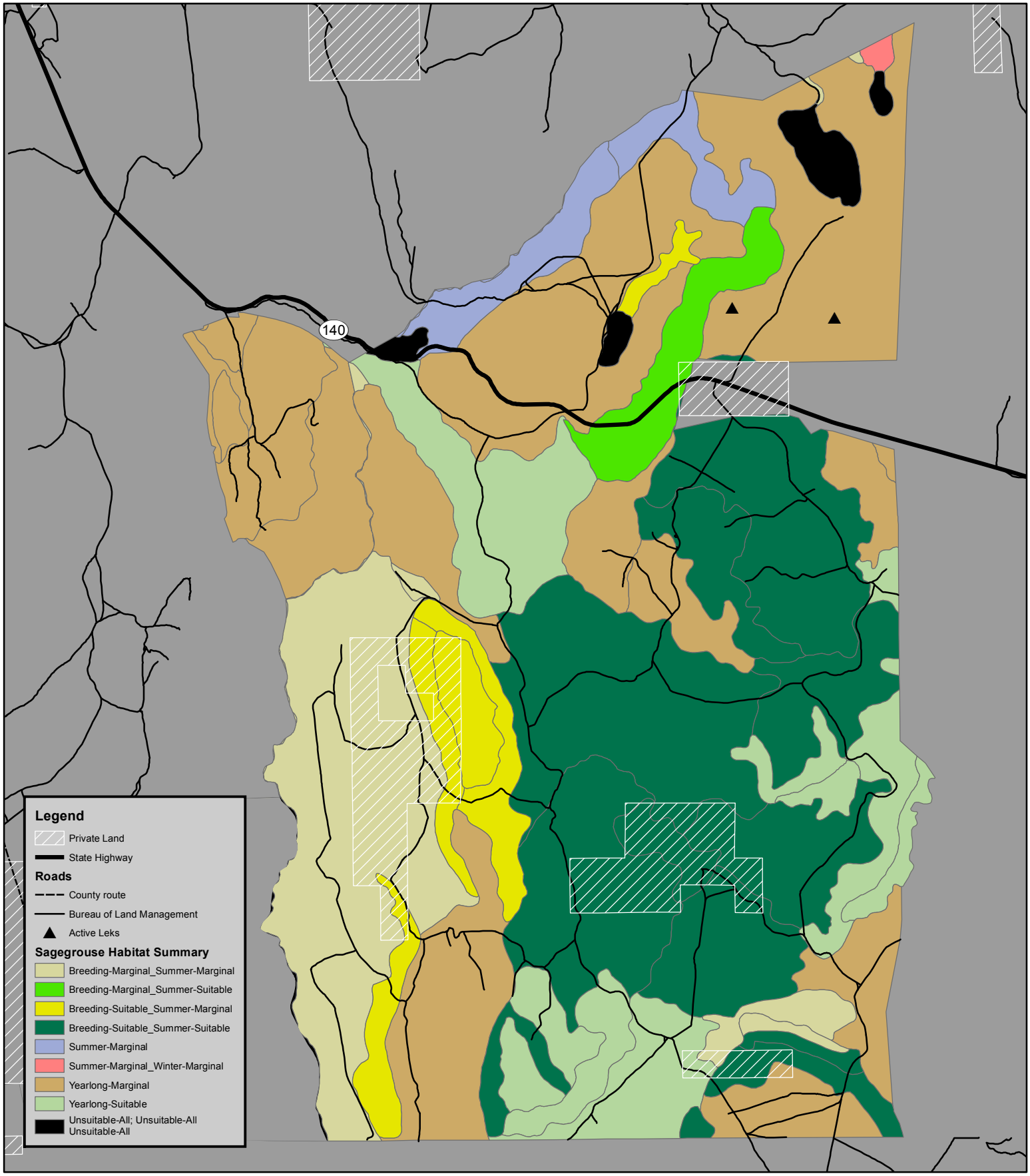

Map 6. Current Sage-Grouse Habitat in Chukar Spring and Hill Camp Allotments

0 0.75 1.5 3 Miles

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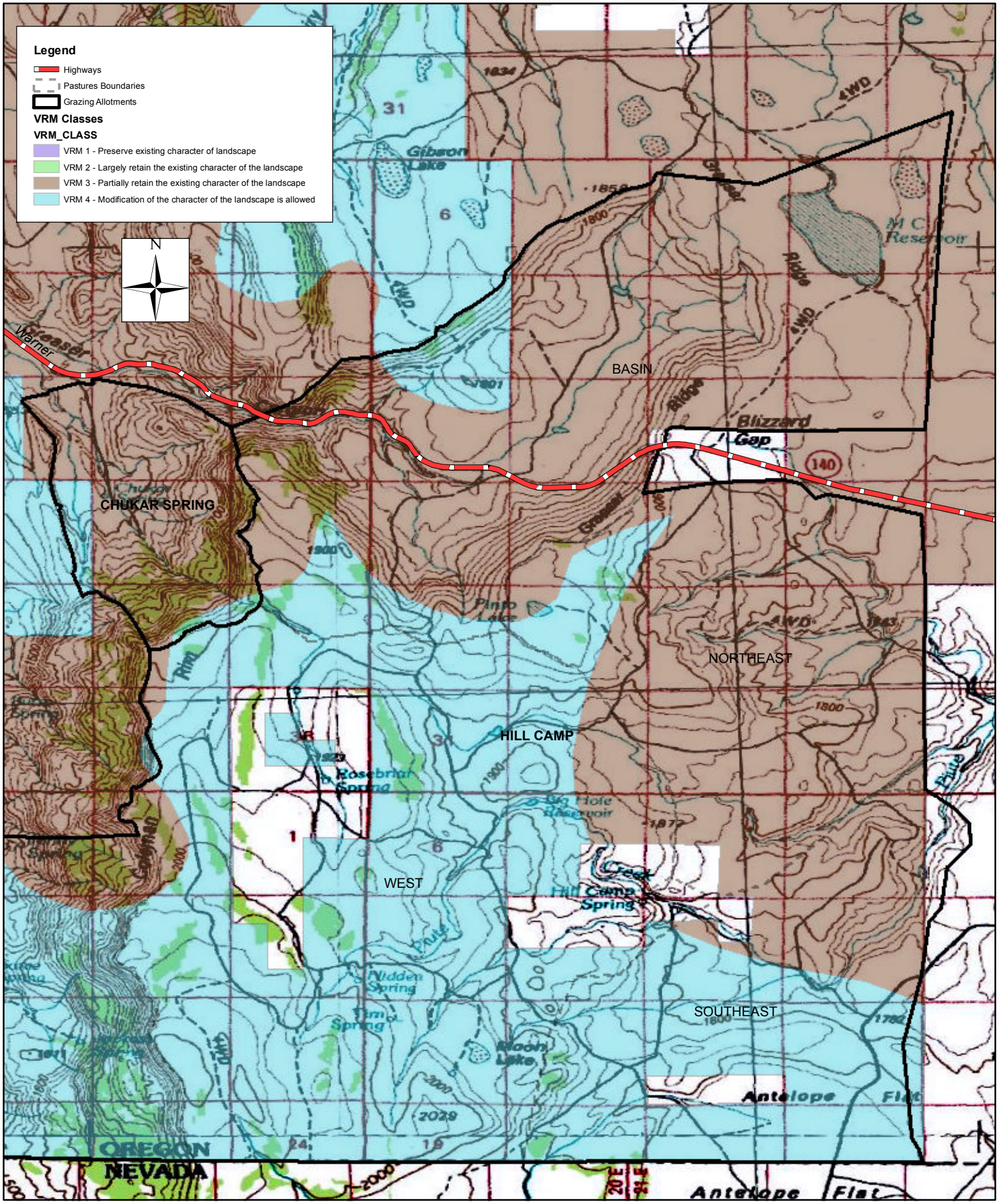

Map 7. Visual Resource Management Classes in Chukar Spring and Hill Camp Allotments

Miles
0 0.75 1.5 3

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