

FINDING OF NO SIGNIFICANT IMPACT

ROSEBUD ALLOTMENT #00421 LIVESTOCK GRAZING PERMIT RENEWAL

DOI-BLM-OR-L050-2012-0028-EA

The Bureau of Land Management, Lakeview District, Lakeview Resource Area (BLM), has analyzed several alternative proposals related to renewing term grazing permit number 3601407 for the Rosebud Allotment. The Rosebud Allotment is located about 4 miles east of Summer Lake, Oregon, and encompasses approximately 16,086 acres (including 14,191 acres of BLM-administered lands). An environmental assessment (EA) was prepared that analyzed the potential direct, indirect, and cumulative environmental impacts of four alternatives (see attachment). The alternatives analyzed included No Action (continue current grazing), No Grazing, Improved Distribution, and Optimized Livestock Grazing (see pages 5-7 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 project is the Juniper Mountain grazing allotment (0515). 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 four alternatives would have either significant beneficial or adverse impacts on the human environment. There are no prime or unique farmlands, wild horse management areas, wild and scenic rivers, significant caves, designated wilderness areas, ACEC/RNAs, or hazardous waste sites located in the project area. No measureable impacts would occur to climate, low income or minority populations, air quality, floodplains, land tenure, or mineral and energy resources (pages 10-11).

Potential impacts to soils, biological soil crusts, upland vegetation, wetlands, riparian areas, water quality, wildlife, special status species, livestock grazing management, native American concerns, cultural resources, recreation, visual resources, wilderness study areas, other areas with wilderness characteristics, or social and economic values, and anticipated by the various alternatives have been analyzed in detail within Chapter 3 of the attached EA and found not to be significant (pages 11-38).

- 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 four 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 2, page 11). Further, there are no known hazardous waste sites in the project area (Table 2, page 11). There would be no measureable impacts to air quality within and surrounding the project area (Table 2, page 11). There are no drinking water sources located in the project area (page 18). Potential impacts to water quality in the project area have been analyzed in the attached EA and found not to be significant (pages 18-19).

- 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 ACEC/RNAs located in the project area (Table 2, page 11).

Impacts to wetland and riparian areas (pages 18-19), wilderness study areas (pages 31-33), and lands with wilderness characteristics (pages 33-34).

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

Rationale: The BLM has extensive expertise planning, analyzing impacts, and implementing range management actions such as those proposed by the four alternatives addressed in the attached EA. The potential impacts of these range management actions on soils, biological soil crusts, upland vegetation, wetlands, riparian areas, water quality, wildlife, special status species, livestock grazing management, native American concerns, cultural resources, recreation, visual resources, wilderness study areas, other areas with wilderness characteristics, or social and economic values can be reasonably predicted based on existing science and professional expertise. The attached EA analyzed these impacts (pages 11-38). 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 No

Rationale: The BLM has extensive expertise planning, analyzing impacts, and implementing range management actions such as those proposed by the four alternatives addressed in the attached EA. The potential impacts of these range management actions on soils, biological soil crusts, upland vegetation, wetlands, riparian areas, water quality, wildlife, special status species, livestock grazing management, native American concerns, cultural resources, recreation, visual resources, wilderness study areas, other areas with wilderness characteristics, or social and economic values can be reasonably predicted based on existing science and professional expertise. The attached EA analyzed these impacts (pages 11-38). 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 No

Rationale: The BLM has extensive expertise planning, analyzing impacts, and implementing range management actions such as those proposed by the four alternatives addressed in 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 No

Rationale: Based on the analysis contained within the Cumulative Effects section of Chapter 3 of the attached EA, none of the four 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 35-38).

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 No

Rationale: There are no areas of native American religious concern in the project area (page 27). Potential impacts to cultural resources have been analyzed in Chapter 3 of the attached EA and found not to be significant (pages 27-29).

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 No

Rationale: There are no threatened or endangered species or designated critical habitat within the project area (Table 2 page 11 and page 21).

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 four 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 *Rosebud/Edmunds Well Habitat Management Plan* (BLM 1993a), the *Greater Sage-Grouse Interim Management Policies and Procedures* (BLM 2011), and the grazing regulations (43 CFR Part 4100) in varying degrees (EA pages 7-10). Conformance with this direction will be addressed in more detail within the proposed decision as it represents important decision factors that must be considered in making the final decision (EA page 4).

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
Lakeview Resource Area

Date

Rosebud Allotment #00421 Livestock Grazing
Permit Renewal

ENVIRONMENTAL ASSESSMENT

DOI-BLM-OR-L050-2012-0028-EA

July 2012

TABLE OF CONTENTS

Chapter 1. Purpose and Need	4
A. Introduction.....	4
B. Purpose and Need	4
C. Decision to be Made	4
D. Decision Factors.....	4
E. Issues.....	5
Chapter 2. Alternatives	5
A. Actions Common to All Alternatives.....	5
1. Management Flexibility.....	7
2. Mandatory Terms and Conditions.....	6
B. Alternative 1. No Action.....	6
C. Alternative 2. No Grazing.....	6
D. Alternative 3. Improved Distribution.....	6
E. Alternative 4. Optimize Livestock Grazing.....	7
F. Alternatives Considered but Eliminated From Further Analysis.....	7
G. Conformance with Land Use Plans.....	7
H. Consistency with Other Authorities.....	8
I. Conformance with Other Plans and Policies.....	8
Chapter 3. Affected Environment and Environmental Consequences	10
A. Climate.....	10
B. Soils and Biological Soil Crusts.....	12
C. Upland Vegetation.....	15
D. Wetlands, Riparian Areas, and Water Quality.....	18
E. Wildlife.....	19
F. Special Status Species.....	21
G. Livestock Grazing Management.....	23
H. Native American Traditional Practices.....	27
I. Cultural Resources.....	27
J. Recreation.....	29
K. Visual Resources.....	30
L. Wilderness/Wilderness Study Areas.....	31
M. Lands with Wilderness Characteristics.....	33
N. Social and Economic Values.....	34
O. Cumulative Effects Analysis.....	35
Chapter 4. Consultation and Coordination	39
A. List of Preparers.....	39
B. Agencies and Individuals Consulted.....	39
C. Mailing List.....	39
References	40

List of Tables

Table 1. Specified Grazing Conditions by Alternative6
Table 2. Resources or Uses that would not be Affected..... 11
Table 3. Rangeland Health Standards Summary for Rosebud Allotment24
Table 4. Data Summarized to Calculated Potential Stocking Level..... 26
Table 5. Cumulative Acres of High Ground Disturbance 38

List of Maps

- Map 1—Rosebud Allotment Vicinity Map
- Map 2—Alternative 4 Well Restoration
- Map 3—Sage-grouse Habitat within the Rosebud Allotment
- Map 4—Visual Resource Management Classes in Rosebud Allotment
- Map 5— WSA and Lands with Wilderness Characteristics
- Map 6—Water Developments

CHAPTER 1- PURPOSE AND NEED FOR ACTION

A. Introduction

The Bureau of Land Management (BLM) has prepared this Environmental Assessment (EA) to analyze the potential effects of renewing term grazing permit number 3601407 for the Rosebud Allotment. This EA analyzes the direct, indirect, and cumulative environmental impacts that would result from the alternatives and serves as the analytical basis for compliance with the National Environmental Policy Act of 1969 (NEPA) related to making a determination as to whether any significant impacts to the human environment would result from the proposal.

The Rosebud Allotment is located 4 miles east of Summer Lake, Oregon (Map 1). The allotment encompasses approximately 16,086 acres of which 14,191 acres are BLM-administered lands. Some private land exists within the allotment that is not fenced out, while several parcels of private land are fenced out of the allotment. These fenced private land pieces create a partial separation of the allotment into a northeastern area of grazing and a southwestern area of grazing, though no internal pasture boundary fences exist. The Rosebud Allotment is primarily comprised of salt desert shrub land mixed in with playas, springs, and wetlands.

B. Purpose and Need

A grazing permit renewal application for the Rosebud Allotment was submitted by the permittee for consideration by the BLM. The existing permit will expire in 2014. The primary purpose of this analysis is to consider whether or not to reissue, modify, or cancel the term grazing permit (#3601407) associated with the Rosebud Allotment in accordance with 43 CFR Part 4130. When issued, grazing permits must include appropriate terms and conditions designed to “achieve management and resource condition objectives for the public lands... and to ensure conformance with part 4180” (43 CFR Part 4130.3).

A secondary purpose of the analysis is to consider whether to repair, relocate, or abandon the Emery Well as a range of possible options which would provide water for livestock within the northeastern portion of the allotment. This water development has been slowly ceasing to function in recent years and is in need of repair (Map 2).

C. Decision 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. The authorized officer will also decide whether or not to maintain or abandon/rehabilitate the Emery Well project.

D. 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 and allotment management plans?
- 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?

E. Issues

Identification of issues was accomplished through internal scoping by considering the resources most likely affected by the range of alternatives. The following are three issues that were identified for analysis:

- a) Is there adequate forage and water distribution available that can provide for increased AUMs on the allotment on a permanent basis?
- b) Do the current or proposed levels of grazing on the Diablo wilderness study area portion of the Rosebud Allotment qualify as a “grand-fathered” use?
- c) What would be the effects of authorizing varying levels of grazing use on lands with wilderness characteristics?

CHAPTER 2 - ALTERNATIVES

A. Actions Common to All Alternatives

1. Management Flexibility

Knowing uncertainties exist in managing for sustainable ecosystems, changes to grazing may be authorized within the annual application process 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, within the permitted season of use, and would not allow use above the total permitted use for the allotment.
- Drought causing lack of available water in certain areas originally scheduled to be used.
- Changes in use periods to balance utilization levels.
- Damages to the riparian areas or water sources.

Flexibility in grazing management would be authorized and any changes would continue to meet resource objectives. Flexibility is dependent upon the demonstrated stewardship and cooperation of the permittee. Rangeland monitoring is a key component of grazing management. If monitoring indicates changes in grazing management are needed to meet resource objectives, they can be implemented annually working with the permittee.

Monitoring would occur by BLM staff in coordination with the livestock operator to ensure that the approved grazing strategy is successfully meeting land use plan and allotment-specific resource objectives. Monitoring would ensure standards of rangeland health are being maintained within the allotment, in accordance with 43 CFR 4180. Short-term and long-term monitoring methodology will be consistent with appropriate measurement techniques outlined in the latest Technical Reference (TR) 4400 series.

Annual utilization studies for each pasture grazed by livestock would be collected by BLM staff along with multiple-use supervision reports. The Key Forage Plant Method is typically used to measure utilization in each pasture. Key perennial grass species known to occur within the allotment are Basin wildrye (*Lymus cinereus*), Indian ricegrass (*Achnatherum hymenoides*), Inland saltgrass (*Distichlis spicata*).

Permanent photo points can measure the relative frequency of occurrence of key forbs, shrubs, and perennial grass species, to assess trend in rangeland condition. Upland trend data would be collected and analyzed on 5-year intervals.

2. Mandatory Terms and Conditions

Mandatory stipulations, as required by state or federal policy, would be included in the permit. Typical items include; payment of fees, submission of actual use reports, administrative access across private land, compliance with Standards and Guidelines, and maintenance of range improvements.

B. Alternative 1: No Action

Under this alternative the existing grazing permit would be renewed for a term of ten years. The grazing permit would authorize the same level of livestock use and permitted season as the expiring permit (Table 1). Forage allocation, season of use, grazing system, and overall livestock management would remain the same. (This definition for the No Action Alternative is consistent with BLM (2000) guidance). Currently livestock are put on the southwestern part of the allotment and allowed to redistribute themselves toward the north without herding. Livestock have typically stayed in the southeastern portion where forage and water is abundant and do not range into the northeastern portion much. Even so, utilization monitoring has demonstrated that the southwestern portion of the allotment is under-utilized. Under current management with relatively low stocking rates, it has not been a management priority to ensure more even livestock distribution across the allotment due to the low utilization by livestock in the south half and a lack of reliable water in the north half.

Table 1. Specified Grazing Conditions by Alternative

ALTERNATIVE	LIVESTOCK		GRAZING PERIOD		TYPE USE	AUMS
	Number	Kind	Begin Date	End Date		
1: No Action	80	CATTLE	11/15	01/13	Active	158
2: No Grazing	0	NA	NA	NA	Suspended	0
3: Improved Distribution	80	CATTLE	11/15	01/13	Active	158
4: Optimized Grazing	80	CATTLE	11/15	1/30	Active	203

C. Alternative 2: No Grazing

Under this alternative, the current permit would not be renewed and livestock grazing would not be authorized on public lands within the Rosebud Allotment (Table 1). Owners of livestock grazing on private land in-holdings would be required to keep livestock off public land by either herding or constructing fences to prevent trespass. Existing range improvements within the interior of the allotment would no longer be maintained. The Emery well would be abandoned and rehabilitated. This alternative is being considered to provide a full range of alternatives and comply with grazing management permit renewal guidance (BLM 2000, 2008b).

D. Alternative 3: Improved Distribution

Grazing would continue with the same numbers and season of use under this alternative (Table 1). The forage allocation for the allotment would stay the same at 158 AUMs, however livestock would utilize more acres across the allotment. The operator would put livestock on the allotment first in the northeast corner where water is available. After approximately 2 weeks the operator would herd livestock to the southwestern part of the allotment for the remainder of the permitted time to ensure better distribution across the allotment. Operator would rely on natural water or existing developed sources of water on private land.

E. Alternative 4: Optimize Livestock Grazing

The objective of this alternative would be to optimize the use of available forage for livestock while continuing to maintain or improve range conditions across the allotment. Under this alternative, an increase in AUMs from 158 to 203 would be granted to the permittee to utilize during the winter grazing season. The grazing season would be extended by 17 days (Table 1). The *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b) would be updated appropriately through plan maintenance to reflect this change.

Livestock would be turned out onto the northeastern portion of the allotment first and then herded to the southwestern portion after 2-3 weeks, and then moved home. The existing Emery Well would be maintained to provide reliable livestock and wildlife water in the northeastern part of the allotment. Wildlife escape ramps would be placed in the troughs. Livestock distribution would be increased to provide more even use of forage on the public land acres.

This increase would be accompanied by increased monitoring. Utilization monitoring would be performed annually. In addition, a minimum of two long-term trend sites per pasture would be established on the allotment based on *Lakeview Resource Management Plan/Record of Decision* trend monitoring guidelines (BLM 2003b, Page 55). The trend sites would be evaluated at years 1, 3, and 5 upon implementation of the AUM increase (and every five years afterwards). At the end of year five, the BLM would evaluate the monitoring data to determine if the changes in livestock management have succeeded in adequately distributing livestock across the allotment and other resource management objectives are being met. If the authorized officer determines objectives have not been met, then appropriate management changes would be made through a future grazing decision.

F. Alternatives Considered but Eliminated from Further Analysis

Spring Grazing – Graze the Rosebud allotment with 80 cattle from 3/17 to 5/15 (158 AUM). To take advantage of forage when it is more palatable by livestock and get off early for grasses to still set seed. Ponding of some of these soils can last through spring into summer. Grazing Reese soils while wet would result in compaction and poor tilth of the surface layer. Plants are sensitive to spring grazing and recovery is slow from damage. Plants are very adapted to winter grazing. These wet areas provide important waterfowl nesting habitat and cover would be disturbed by spring or summer grazing. Due to the nature of the soils and vegetation, spring or summer grazing would not be an appropriate time for grazing in this area and, therefore, was not evaluated further in this EA.

G. Conformance with the Land Use Plan

The *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b) 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 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).

The Rosebud Allotment is currently open or allotted to grazing use and is allocated for 158 AUMs of livestock forage and 6 AUMs of wildlife forage (Page 47, Table 5; Map G-3).

Operation and Maintenance Actions

“Maintenance of existing and newly constructed facilities or projects will occur over time... Such activities could include, but are not limited to, routine maintenance of existing...water control structures..., wells, pipelines, waterholes, fences,... and other similar facilities/projects” (Page 100).

Appendix E1 – Allotment Specific Management Direction

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* (Pages A-59 to A-60).

Improve/maintain range condition - *Use management practices and/or better animal distribution; develop range improvements when appropriate: adjust permitted use as needed* (Page A-59).

Wildlife/Wildlife Habitat - *Follow the greater sage-grouse Livestock Grazing guidelines (pages 75-76 of ODFW 2005), where appropriate* (Page A-60, as maintained).

Appendix E-5 – Grazing Systems within the Planning Area

Established an annual utilization standard of up to 65% for allotments with winter grazing systems (Page A-142).

H. Consistency with Other Authorities

This EA has been prepared in conformance with National Environmental Policy Act of 1969. Grazing permits are issued or renewed 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.” The *Lakeview Resource Management Plan/Record of Decision* 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 permittees past use was 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 were paid on time, actual use information was turned in yearly, use was always within permitted dates, forage consumption was within the allowable animal unit month (AUM) permitted, permit terms and conditions were adhered to, base property requirements were met, and no history of any trespass livestock or unauthorized use has occurred.

I. Conformance with Other Plans and Policies

The final decision must also consider to 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.

Rosebud/Edmunds Well Habitat Management Plan (HMP; BLM 1993a) - contains the following two goals, along with more specific objectives designed to improve or enhance wetland and upland habitats on private and BLM lands:

Goal 1- to reestablish a functioning wetland ecosystem, containing both wetland and associated upland components on the public land within the HMP area.

Goal 2 – to improve or enhance the overall biotic diversity of the wetland and associated upland ecosystems on the public land within the HMP area by providing habitats for the greatest diversity of water-related (wildlife) species at the highest densities consistent with maintaining that diversity.

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 2011) – 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.

Permit Renewal

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 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.

Water Developments

- NEPA analysis for all new water developments must assess impacts to Greater Sage-Grouse and its habitat.
- 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.

BLM manages Wilderness Study Areas (WSAs) in accordance with the *Wilderness Interim Management Policy for Lands Under Wilderness Review* so as not to impair suitability for preservation as wilderness (IMP; BLM 1995). Conformance with this policy is discussed in the Wilderness/WSA section of Chapter 3.

Integrated Noxious Weed Control Program EA#OR-010-2004-03 (BLM 2004) – this plan tiered to the noxious weed management direction in the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b) and provided more specific details on the treatment of known noxious weed sites in the Lakeview Resource Area, as well as new sites discovered during future inventory. The integrated treatment methods addressed in this plan included cultural, mechanical, biological, and chemical. The type of treatment used and the frequency of treatment would be based on site/plant characteristics, treatment priorities identified in the plan, and annual budget.

CHAPTER 3 - 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 interdisciplinary (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 Table 2 and will not be discussed or further analyzed in this EA. This remainder of this chapter describes the potential direct, indirect, and cumulative effects on resources and uses that may result from each alternative.

A. Climate

Affected Environment

The climate in the vicinity of the Rosebud allotment is variable, but typical of the Northern Great Basin or high desert system. Mean annual precipitation ranges from 10-16 inches. Precipitation occurs mostly in the form of snow during December through March with spring rains common. The soil temperature

regime is frigid. Mean annual air temperatures range from 40 to 43 degrees F. The frost-free time period is from 50 to 80 days. The period of optimum plant growth is from April through June.

Table 2. Resources or Uses that would not be Affected

Elements of the human environment		Rationale
Areas of Critical Environmental Concern (ACECs)	Not Present	There are no ACECs or research natural areas (RNAs) within the allotment.
Air Quality (Clean Air Act)	Not Affected	None of the alternatives are expected to have measureable impacts to air quality or regulated air pollutants.
Environmental Justice (Executive Order 12898)	Not Present	None of the alternatives would have disproportionately high or adverse effects on minority populations or low-income populations as such populations do not exist within the allotment area.
Fire and Fuels Management	Not Affected	No fire or fuel treatments are being proposed in this EA.
Fisheries	Not Present	No fish habitat exists within the Rosebud Allotment.
Forest/Woodlands	Not Present	Not present within the allotment.
Flood Plains (Executive Order 13112)	Not Affected	No proposed construction within or other modification of flood plains would occur. Therefore, there would be no floodplain or related hydrologic impacts.
Hazardous or Solid Waste	Not Present	No such sites or issues are known within the allotment.
Lands	Not Affected	None of the alternatives analyzed would have any effects on current land status or land tenure.
Minerals and Energy	Not Affected	None of the alternatives analyzed would have any effects on mineral or energy resources or uses.
Noxious Weeds (Executive Order 13112)	Not Present	No noxious weed infestations are present within the allotment (BLM 2004a) and the risk of future infestations is low under all four alternatives.
Prime or Unique Farmlands	Not Present	No such lands have been identified in the allotment.
Threatened and Endangered Plants and Animals	Not Present	No known federally listed plant or animal species or their habitat are found within the allotment.
Wild Horses (Wild Horse and Burro Act)	Not Present	The allotment is located outside of designated wild horse herd management areas.
Wild and Scenic Rivers	Not Present	There are no Wild or Scenic Rivers within the allotment.

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 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 1-4

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 range of AUMs within the alternatives is from 0 to 203 which would result in estimated methane emissions ranging from 0 to 34.2 metric tons of carbon dioxide equivalent per year. This emission would represent 0.0001 percent of the annual U.S. methane emissions from livestock, and 0.000002 percent of the annual U.S. emissions of all greenhouse gases, and 0.0000007 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 this allotment would not result in any measurable change in total carbon storage under any of the alternatives analyzed.

B. Soils and Biological Soil Crusts

Affected Environment

The Rosebud Allotment is made up of primarily two general soil map units: Reese-Mesman-Kewake and Playas (NRCS 2010). Within the allotment boundary there are three dominant soil series: Reese, Kewake, and Playas (NRCS 2010).

The Reese soil series are frequently ponded, very deep, and poorly drained on alluvial flats formed in lacustrine sediment. The surface layer of Reese soils are very strongly alkaline and very fine sandy loam. The subsoil is clay loam, coarse sandy loam, and loam. Excess sodium in the soils results in nutrient

imbalances and caustic root environment. Dispersion and crusting reduce the water intake rate and restrict plant seedling emergence and survival.

Kewake soil series consists of very deep excessively drained soils formed in eolian sand. Kewake soils are on sand dunes with slopes 1 to 15 percent and annual precipitation of about 9 inches. The surface layer is moderately alkaline fine sand with strongly alkaline in the lower part. The soils are as much as 30 percent pumice sand. Due to a sandy surface layer, these soils are subject to wind erosion.

Playas are poorly drained, very strongly alkaline, barren areas that receive 8-10 inches of precipitation a year on alluvial flats with slopes 0-5 percent (NRCS 2010).

The Rangeland Health Assessment found that upland soils in the Rosebud 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 and Table 3). This assessment examined soil surface factor (SSF) data for the allotment collected during the ecological site inventory (ESI) effort between 1987 and 1997. SSF ratings are used to assign an erosion class rating and the potential susceptibility of soil to accelerated erosion. Ninety-nine percent of the allotment was rated in the moderate erosion condition class with one percent rated in the critical erosion class. Those areas with a moderate or higher ranking indicate some active erosion or evidence of past erosion. Due to the sandy soils within the allotment and the greasewood/saltgrass vegetation community, wind erosion is a natural process on this site and a moderate SSF rating is within an appropriate range. Current grazing practices are not responsible for areas being placed in the moderate or higher erosion condition classes (BLM 2004a).

Biological soil crusts (BSCs) consist of lichens, mosses, green algae, fungi, cyanobacteria, and bacteria growing in a thin layer on or just below the soil surface. BSCs function as living mulch by retaining soil moisture, reducing wind and water erosion, and can be used as an indicator of a site's characteristics (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). Crust cover data was collected during the North Lake Ecological Site Inventory (ESI). This inventory covered the eastern and northern edges of the allotment. The data consisted of a relative crust cover ranking on a scale from 1 to 10 where:

- 0= bare ground
- 1= clearly a crust present
- 2= just Cynobacteria present
- 4= lichens and mosses covering 1 to 5% of ground
- 6= lichens and mosses covering 5 to 10% of ground
- 8= lichens and mosses covering 10 to 20% of ground
- 10= lichens and mosses covering >20% of ground

No attempt was made to identify the species composition of these crusts. Crust cover data was not collected during the South Lake ESI (which covered the western portion of the Rosebud Allotment). The crust cover ratings associated with soils in the North Lake ESI area varied from 0 to 8 and are likely representative of the amount of crust cover present on similar soils in other portions of the Rosebud Allotment. Soils within Kewake complex had a crust cover rating of 4 observed on the Sodic dunes ecological sites, which represents a large portion of the allotment. The rest of the crust data available represents a very small portion of the allotment (1% or less) and, therefore, is not discussed in detail.

Environmental Consequences

Alternative 1: No Action

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). Under this alternative, current grazing management would continue, resulting in continuation of the current observed trend in soil conditions. Disturbance to soils by livestock may include, physical trampling impacts which could cause some sandy soils to lose cohesiveness, increasing the potential for soil erosion by wind and water.

It is not possible to distinguish the specific impacts of current grazing on current soil conditions and BSC cover from that associated with other historic disturbances. There is little information from existing research regarding the relationship between livestock grazing and BSCs specifically from the Northern Great Basin. Research conducted outside of the Northern Great Basin is not directly comparable due to the significant differences in crust species composition, overstory vegetation, soil types, and climate. For purposes of this analysis, BLM assumes that impacts to BSCs would be similar to, or closely associated with, impacts to the soils on which they exist. The greatest impacts to soils and crust cover would continue to occur in livestock concentration areas near water sources and along cattle trails (approximately 1,153 acres or 7.2% of the allotment). This alternative would maintain existing light to moderate forage utilization levels across the southern portion of allotment and continue to provide for some BSC retention and litter accumulation, resulting in 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.

Alternative 2: No Grazing

Under this alternative, the limited impacts to soils and BSCs associated with livestock grazing would be eliminated. Approximately 1,153 acres of soils in would be expected to recover over time from the effects of concentrated livestock use. Soils throughout the allotment would continue to be influenced by natural ecological processes such as litter accumulation, wind and water erosion, fire, and climate. Absent fire, increased BSC cover and litter accumulation could contribute to higher organic matter and improved soil structure slowly over time. The allotment would be expected to continue to meet rangeland health standard 1 into the foreseeable future.

Alternative 3: Improved Distribution

Livestock grazing impacts would be reduced or redistributed across the allotment as a whole under this alternative. Therefore, effects to soils and BSCs would be more evenly distributed throughout the allotment. An additional estimated 156 acres would be impacted by concentrated livestock use in the northeastern portion of the allotment. Wind and water erosion would continue to have an on-going negative impact on soils and BSCs throughout the allotment. However, the allotment would be expected to continue to meet rangeland health standard 1 into the foreseeable future.

Alternative 4: Optimize Livestock Grazing

Although an increase in stocking rate is proposed in this alternative, livestock distribution would also be more evenly distributed across the whole allotment. Though more forage/vegetation would be removed, utilization standards would continue to be met across the allotment. This would ensure some BSC retention and litter accumulation, resulting in maintenance of organic matter, soil structure, and productivity. An additional estimated 156 acres would be impacted by concentrated livestock use in the northeastern portion of the allotment. Decreased impacts to soils and BSCs would occur on the southern

portion of the allotment. These changes in impacts would not likely lead to any substantial changes in overall soil characteristics. While wind and water erosion would still have an on-going negative impact on soils and BSCs across the allotment. However, the allotment would be expected to continue to meet rangeland health standard 1 into the foreseeable future.

C. Upland Vegetation

Affected Environment

Vegetation data for the allotment comes from two Ecological Site Inventories (ESI). The South Lake ESI covers the western portion of the allotment and was completed in the early 1980's. The North Lake ESI covers the northern and eastern edges of the allotment and was completed in the late 1990's. Current vegetation data is not available from this specific portion of the South Lake ESI area. However, potential vegetation information is available based upon its association with known soil types. Both current and potential vegetation data are available for the North Lake ESI portion of the allotment. The ecological site descriptions listed below describe the Potential Natural Community (PNC) that would be expected, based on soil and precipitation conditions, if the vegetation on the site was fully developed or in a "climax" condition. Some limited current vegetation information is also included where available.

Major vegetation types within the Rosebud Allotment consist of salt desert shrub surrounded by some big sagebrush plant communities. Mixed in with these upland vegetation communities are playas and wetlands, providing a diverse landscape vegetation mosaic. The dominant ecological sites within the allotment are: Sodic Dunes (R024XY005OR), Sodic Meadow (R024XY002OR), Low Sodic Lake Terrace 6-10 PZ (R024XY013OR), and Sodic Lake Terrace (R24XY114OR). Other ecological sites exist within the allotment but only comprise minor components of the vegetation and, therefore, were not described in detail (refer to project file).

- a. The Sodic Dunes ecological site comprises approximately 25% of the BLM-administered lands on the allotment. The potential natural community for this ecological site is dominated by basin big sagebrush and Indian ricegrass. Black greasewood, needle-and-thread, basin wildrye, and beardless wildrye are common. With the high pH of soils within the allotment inland saltgrass, black greasewood and other salt tolerant species increase in abundance. The potential vegetative composition is approximately 50 percent grasses, 15 percent forbs, and 35 percent shrubs. The approximate ground cover is 30 to 40 percent (basal and crown). One site write-up on the very northern portion of the allotment indicates vegetation is in a late seral state and in good condition with an upward trend. Another Sodic Dune ecological site write-up in the southern portion of the allotment indicates vegetation is in an early seral state with an upward trend.
- b. The Low Sodic Terrace 6-10 PZ ecological site represents about 8% of the BLM-administered lands on the allotment. The potential natural community for this ecological site is dominated by greasewood. Shadscale, spiny hopsage, and bud sagebrush are prominent. Bottlebrush squirreltail is common. Saltgrass, beardless wildrye (creeping), basin wildrye, Indian ricegrass and a variety of forbs are present. Wyoming big sagebrush is a minor component. Vegetative composition of the community is approximately 75 percent shrubs, 20 percent grasses, and 5 percent forbs. The approximate ground cover is 30 to 40 percent (basal and crown). There are no write-ups available for this ecological site so current status is unknown.
- c. The Sodic Meadow ecological site represents about 5% of the BLM-administered lands on the allotment. The potential natural community for this ecological site is dominated by alkali sacaton and inland saltgrass. Alkali bluegrass and alkali cordgrass occur commonly in the stand. Shrubs are a minor component in the community. The potential vegetative composition is approximately 90 percent grass, 5 percent forbs, and 5 percent shrubs. The approximate ground cover is 60-80 percent (basal and crown). There are no write-ups available for this ecological site, so current status is unknown.

- d. The Sodic Lake Terrace ecological site represents about 3% of the allotment. The potential natural community for this ecological site is dominated by a uniform stand of inland saltgrass. Lemmon and Nuttall alkaligrass, along with a variety of other salt tolerant grasses are common. Black greasewood is present. The potential vegetative composition is approximately 80 percent grasses, 5 percent forbs, and 15 percent shrubs. Ground cover is about 60-80 percent (basal and crown). One write-up on the very northern portion of the allotment indicates that current vegetation is in late mid to late seral status and good condition with a stable trend.

Utilization has been monitored based on key species observed on the allotment. The key species grazed class method was used to collect data. Utilization was observed to be between 3 to 30% on key species over the last 10 years. Utilization was taken on a rolling transect in the southwestern portion of the allotment only and does not represent an average for the entire allotment. The northeastern half of the allotment has been observed as having minimal to no use for the last 10 years. The current utilization level is well below the allowable utilization standard set for a winter grazing system of 65% in the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b, p. A-142).

Based on a field tour in January 2012, the allotment currently contains all of the species described as components of the potential natural communities for each of the rangeland ecological sites listed above. Most ecological sites are likely heading toward mid to late seral stage due to the increase of late seral seedlings and the diversity of plant species observed during the field tour (see local administrative file).



Photo 1. Example of inland saltgrass flats with greasewood on Rosebud Allotment Photo taken 3/28/2012.



Photo 2. Wetland area on Rosebud Allotment (photo taken 3/28/2012).

Environmental Consequences

Effects Common to Alternative 1, 3, and 4

The impacts of continuing grazing under a winter 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 be maintained or improved over time under this type of grazing system because it involves dormant season grazing (BLM 2003a; page 4-5. In addition, a winter grazing system would improve the composition of key perennial species specifically within the salt desert shrub/grassland community (BLM 2001; page A-168).

All grazing alternatives propose to graze during the winter season. Therefore, plants in this allotment would continue to be provided with growing season rest. Plants would be grazing during the winter when they are dormant allowing plants to complete their reproductive cycle each year. Perennial grasses are dormant during the winter and primarily survive off of energy stored in their roots (Porath *et al.* 2003) Utilization would continue to be managed at an appropriate level and promote healthy vegetative communities.

Alternative 1: No Action

Under the current grazing management, the allotment is meeting Rangeland Health Standard 3. The vegetation within the allotment is productive and healthy, as indicated by widespread and substantial numbers of Indian rice grass, a species that is indicative of a high level of rangeland health (BLM 2004a and Table 3). Grazing under this alternative would continue to provide growing season rest to plants and provide adequate ground cover and an appropriate upland vegetation composition. Ecological site conditions have been observed to be very stable or improving under the current livestock grazing system. This trend would continue into the foreseeable future.

Alternative 2: No Grazing

Under this alternative, grazing would be limited to wildlife species and would not likely utilize all available forage on the allotment. Succession would likely favor shrub species over the long-term greater than 10 years. Due to a lack of defoliation to grass species older plant leaves would be favored which function at a less than maximum photosynthetic level. Increased shrubs and older grasses could change the structure of the plant community causing changes to the overall ecosystem relationships. With limited plant defoliation, regrowth could be restricted by previous year's growth causing decreased evapotranspiration rates (Manske2001, McNaughton 1979). Older vegetation and higher shrub populations would favor an increase in above ground biomass. However, with a lack of livestock on the allotment there would be a decreased need for forage production for animals and communities would change accordingly. The allotment would continue to meet rangeland health standards into the foreseeable future and would, therefore, continue to provide healthy, productive, and diverse plant populations and communities.

Alternative 3: Improved Distribution

This alternative would have mixed effects on upland vegetation across the allotment. Generally, livestock grazing impacts on vegetation communities would be reduced or redistributed across the allotment. Distribution of livestock would be more even across the allotment and would promote some increased use of vegetation by livestock in the northeast portion of the allotment while decreasing overall intensity of grazing use and utilization levels of vegetation on the southwest end of the allotment.

However, this change in grazing use would not have a substantial effect on overall upland vegetation community health compared to the No Action Alternative. The southwest portion of the allotment is currently meeting rangeland health standard 3 under current levels of grazing use (BLM 2004a). This area would continue to meet standards as grazing use in this area would be reduced. The northeast portion of the allotment is also meeting rangeland health standards under very light utilization levels. While utilization would increase, it would not likely exceed moderate levels and the plant communities would still continue meet standard 3 for Rangeland Health. Ecological site conditions would generally remain static or improve slightly across the entire allotment into the foreseeable future.

Alternative 4: Optimize Livestock Grazing

Livestock distribution would be improved with the additional water provided by maintenance of the Emery Well. Greater distribution of livestock would allow for improved plant community composition, and overall production across the allotment stimulating younger plant growth and promoting defoliation of older vegetation (Manske 2001, McNaughton 1979). Average utilization levels across the allotment as a whole would likely to be similar to what is currently measured in just the southeast portion of the allotment (30% or less). However utilization would be more evenly distributed throughout the entire allotment. The allotment would continue to meet rangeland health standards into the foreseeable future and would, therefore, continue to provide healthy, productive, and diverse plant populations and communities.

D. Wetlands, Riparian Zones, and Water Quality

Affected Environment

There are approximately 603 acres of Palustrine wetlands and 144 acres of Lacustrine aquatic habitats with associated riparian vegetation in the Rosebud Allotment, all of which are rated at Proper Functioning Condition (PFC; BLM 1997b). Water levels in these systems fluctuate widely, both seasonally and from year to year. There are also 13 undeveloped springs scattered across the allotment (most are located in the southern portion). No perennial aquatic systems exist capable of supporting fish or other aquatic organisms.

There are no municipal drinking water sources located within the allotment. In addition, no water quality data exists for surface waters within the allotment, but they are assumed to be meeting appropriate standards based on the existing proper functioning conditions of the wetland and riparian areas, and the fact that the State of Oregon has not listed any surface waters in the area as exceeding State water quality standards (BLM 2004a; GIS data 2008).

Some wetland restoration efforts have occurred on adjacent private lands within the Rosebud Allotment. These efforts have supported an increased water overland flow to BLM administered lands promoting, an expansion of existing wetlands on the Rosebud Allotment. These improvements have helped promote the goals and objectives outlined in the *Rosebud/Edmunds Well Habitat Management Plan* (BLM 1993a).

Environmental Consequences

Alternative 1: No Action

Under current management wetland habitats are utilized lightly and are allowed ample time for plant regrowth in the following spring. These areas currently receive more use in the south end of the allotment and less use in the north end. Wetlands and riparian vegetation throughout the allotment would continue to function at PFC and existing water quality would be maintained into the foreseeable future.

Alternative 2: No Grazing

Under the no grazing alternative, wetland and riparian communities in the allotment would no longer be utilized by livestock. These areas would continue to function at PFC and existing water quality would be maintained or improved slightly in the foreseeable future.

Alternative 3: Improved Distribution

Under this alternative wetland and riparian vegetation would see slightly less utilization in the southwestern portion of the allotment and slightly higher utilization in the northeastern portion of the allotment compared to the No Action Alternative. However, utilization levels would not exceed moderate and the areas would be provided with ample rest in the spring for plant regrowth, and would continue to function at PFC, resulting in the maintenance of existing water quality.

Alternative 4: Optimize Livestock Grazing

Under this alternative, wetland and riparian areas would see slightly more utilization across the entire allotment, but based on moderate utilization levels and the provision of ample rest in the spring for plant regrowth, these areas would still be expected to continue to function at PFC and existing water quality would be maintained into the foreseeable future.

E. Wildlife

Affected Environment

The RHA found this allotment was meeting the Rangeland Health Standards (3 and 5) related to wildlife habitat (BLM 2004a).

The allotment falls within the larger Oregon Department of Fish and Wildlife (ODFW) Wagontire big game habitat management unit. The mule deer and pronghorn 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 a few mule deer and pronghorn antelope. There are currently 6 AUMs allocated for mule deer, pronghorn antelope, and other wildlife species within the allotment (BLM 2003b, page A-59). Based on previous consultation with ODFW biologists, this forage allocation is adequate to support current deer and antelope populations within the allotment.

The allotment also provides habitat for numerous small and nongame birds and mammals common to the Great Basin. The allotment also provides some habitat for raptors.

Migratory birds use all habitat types in the allotment 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 include American robin (*Turdus migratorius*), dark-eyed junco (*Junco hyemalis*), mourning dove (*Zenaida macroura*), Townsend's solitaire (*Myadestes townsendi*), and mountain bluebird (*Sialia currucoides*).

Birds of Conservation Concern for the Great Basin Region that may inhabit portions of the allotment include Brewer's sparrow (*Spizella breweri*), sage sparrow (*Amphispiza belli*), and loggerhead shrike (*Lanius ludovicianus*) (USFWS 2008) which tend to associate more with sagebrush habitat types. However, the majority of the allotment is comprised of salt desert shrub communities, which limits the

amount of available habitat for these species. Waterfowl also frequent the wetlands in the allotment during migration and a few pairs likely breed in the area.

Environmental Consequences

Alternative 1: No Action

Current grazing management has met Rangeland Health Standards 3 and 5 for wildlife habitat (BLM 2004a and Table 3). Under current management with light stocking rates, livestock grazing does not appear to be limiting wildlife habitat, including big game, nongame bird and mammals, raptor, or migratory bird habitat within the allotment. Existing vegetation communities and associated wildlife habitat would be maintained across the allotment. (Refer to the Upland Vegetation and Riparian and Wetland sections of this EA for a discussion of these vegetation impacts). Grazing would continue to occur outside of the migratory bird nesting season and, therefore, there would continue to be no impact associated with nest trampling.

For these reasons, current grazing management would continue to maintain or provide wildlife habitat for these species into the foreseeable future.

Alternative 2: No Grazing

The allotment is currently meeting Rangeland Health Standards 3 and 5 for wildlife habitat (BLM 2004a and Table 3). Under the no grazing alternative, existing vegetation communities and associated wildlife habitat would change little across the allotment. (Refer to the Upland Vegetation and Riparian and Wetland sections of this EA for a discussion of these vegetation impacts).

For these reasons, the allotment would continue to meet the applicable standards and maintain or provide big game, nongame birds and mammals, raptor, and migratory bird habitat into the foreseeable future.

Alternative 3: Improved Distribution

Under this alternative, there would be very little change in big game, nongame bird and mammals, raptor habitat, and migratory bird habitat compared to the no action alternative. Grazing would occur outside of the migratory bird nesting season and, therefore, there would be no impact associated with nest trampling. There would be minor positive and negative effects to wildlife habitat, including migratory birds, due to the minor impacts on vegetation communities associated with redistribution of livestock use across the allotment. (Refer to the Upland Vegetation and Riparian and Wetland sections of this EA for a discussion of these vegetation impacts). However, the allotment is expected to continue to meet applicable rangeland health standards.

For these reasons, the allotment would continue to maintain or provide big game, nongame birds and mammals, raptor, and migratory bird habitat into the foreseeable future.

Alternative 4: Optimize Livestock Grazing

Under this alternative, there would be very little change in wildlife, including migratory bird, habitat compared to the no action alternative. Grazing would occur outside of the migratory bird nesting season and, therefore, there would be no impact associated with nest trampling. There would be minor positive and negative effects to wildlife habitat, including migratory birds, due to the minor impacts on vegetation communities associated with redistribution of livestock use and increased stocking levels across the allotment. (Refer to the Upland Vegetation and Riparian and Wetland sections of this EA for a discussion of these vegetation impacts). However, the allotment is expected to continue to meet applicable rangeland health standards.

Escape ramps would be installed in the troughs at Emery Well during maintenance to minimize impacts to wildlife using this water source.

For these reasons, the allotment would continue to maintain or provide big game, nongame birds and mammals, raptor, and migratory bird habitat into the foreseeable future.

F. Special Status Species

Affected Environment

There are no Federally listed Threatened or Endangered wildlife or fish species found within the Rosebud Allotment.

The Rangeland Health Assessment noted the following special status wildlife species or their habitats may be present within this allotment: bald eagle (*Haliaeetus leucocephalus*), ferruginous hawk (*Buteo regalis*), peregrine falcon (*Falco peregrinus*), burrowing owl (*Athene cunicularia*), western snowy plover (*Charadrius alexandrinus*), kit fox (*Vulpes macrotis*), sage-grouse (*Centrocercus urophasianus*), pygmy rabbit (*Brachylagus idahoensis*), and California bighorn sheep (*Ovis canadensis*) (BLM 2004a).

There are no known bald eagle nests or nesting habitat within the allotment. It is suspected that they are occasional visitors to the area. Bald eagles may occasionally feed on scattered carrion within the allotment. Potential nesting habitat is available for peregrine falcons and ferruginous hawks on a few cliff faces in the eastern edge of the allotment. These sites were surveyed for peregrine falcon nests in 1999, but none were located. No incidental sightings of peregrine falcons exist within the allotment, but a historic hack site occurs approximately four miles west of the allotment. Potential ferruginous hawk foraging habitat exists through much of the allotment (BLM 2004a). However, there have been no inventories or incidental sightings to confirm the presence of this bird. More recently golden eagles (*Aquila chrysaetos*) have been seen within the allotment foraging on small mammals. However, there are no known golden eagle nests or nesting habitat within the allotment.

Incidental sightings of burrowing owls have been observed within this allotment. No nesting activity has been observed. Inventories for burrowing owls were conducted in adjacent allotments in 2000 and only occasional sightings were documented (BLM 2004a).

The Rangeland Health Assessment noted that western snowy plovers occurred within this allotment and were closely associated with the playa lakebeds and alkaline flats. While monitoring has documented populations of snowy plovers on or near Summer Lake to the south of the allotment (BLM 2004a), no plovers have ever been observed within the allotment. The Rangeland Health Assessment also noted potential habitat is present for kit fox and pygmy rabbit, but no known locations exist within the allotment for these species (BLM 2004a). For this reason, these species are not carried forward for further analysis.

Bighorn sheep have also been documented as inhabiting the rim along the eastern-most edge of the allotment (BLM 2004a).

Special status bats may occur within the allotment. There are no known caves, adits, shafts, outbuildings, or large trees on the BLM portion of the allotment to provide hibernacula for bats, but some limited habitat could possibly occur on adjacent private lands. The occurrence of bats in the allotment would likely involve individuals foraging or migrating through from adjacent habitat. Due to

the low potential for occurrence, lack of habitat, or lack of measurable impacts to these species likely to result from implementation any of the alternatives, they are not carried forward for further analysis.

The greater sage-grouse (*Centrocercus urophasianus*) is a Bird of Conservation Concern for the Great Basin Region and a USFWS candidate species. In March 2010, the U.S. Fish and Wildlife Service (USFWS 2010) issued its 12-Month Finding which noted that that listing the greater sage-grouse range-wide is warranted, but precluded by higher priority listing actions. The major risk factors in the western portion of the range that are relevant to the allotment area include habitat conversion due to fire, cheatgrass invasion, and west Nile virus occurrence.

At the time the RHA was prepared, BLM biologists estimated that 83% of the allotment was not suitable habitat due to the prevalence of salt desert shrub communities, but did contain small percentages of potential nesting (3%), brood rearing (5%), and winter habitat (9%). Further, no leks were known within the allotment (BLM 2004a). Based on updated lek data, the nearest active lek complexes are located at least 10 miles from the allotment boundary.

Sage-grouse habitats were reassessed for this EA using the *Sage-grouse Habitat Assessment Framework* (Stiver *et. al.* 2010). At the Third Order scale (sage-grouse home range scale) habitats are restricted to a thin strip generally located on the steeper slopes and benches along the northern and eastern boundaries of the allotment. This is primarily due to the great extent of salt desert shrub (non-habitat) located within the majority of the allotment. Based on the distance from the nearest lek, there is no breeding habitat within the allotment. While some brood-rearing and winter habitat is present, it comprises a very limited area (approximately 600 acres), has less than 10% sagebrush cover, and is considered marginal (Map 3). Potential natural communities (climax) in this area rarely meets the minimum requirements of 10% sagebrush cover to qualify as suitable sage-grouse habitat.

In addition, the ODFW recently developed updated habitat maps that identify the most productive landscapes for sage-grouse as either Core or Low Density habitats (ODFW 2011). The Rosebud Allotment currently contains approximately 14.3 acres of Low Density habitat along the northwestern boundary in an area that, due to the juxtaposition of existing fences and private lands, has received little grazing use in recent years (Map 3).

Environmental Consequences

Effects Common to Alternatives 1-4

IM-2012-043 requires that BLM address the effects of existing range improvements on greater-sagegrouse (BLM 2011). Very few range improvement structures (4.6 miles of allotment boundary fence) occur within the portions of the allotment identified as sage-grouse habitat. 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. The ODFW (2011; p. 104) strategy recommends that fences within 1 mile of sage-grouse leks be marked with anti-strike markers (reflectors). Based on the long distance to the nearest active lek and the small amount of marginal habitat present, this fence poses very little risk to the species under Alternatives 1, 3, and 4. This low level risk would remain under Alternative 2, as this fence would remain in place to allow continued grazing on the adjacent allotment.

Alternative 1: No Action

Under current management the allotment is meeting all Rangeland Health Standards, including standards 3 and 5 related to wildlife habitat, and habitat associated with Special Status Species (BLM 2004a and

Table 3). The allotment would continue to meet standards into the foreseeable future and would, therefore, continue to provide adequate habitat for special status species and comply with ODFW (2005, Page 75) sage-grouse guidelines.

The allotment would also continue to provide foraging habitat for bald and golden eagles into the foreseeable future.

Alternative 2: No Grazing

Under the no grazing alternative there would be no substantial change in Special Status Species or their habitat compared to the No Action Alternative. The allotment would continue to meet rangeland health standards into the foreseeable future and would, therefore, continue to provide adequate habitat for special status species and comply with ODFW (2005, Page 75) sage-grouse guidelines.

The allotment would also continue to provide foraging habitat for bald and golden eagles into the foreseeable future.

Alternative 3: Improved Distribution

There would be very little change in special status species or their habitat compared to the no action alternative. The allotment would continue to meet standards into the foreseeable future and would, therefore, continue to provide adequate habitat for special status species and comply with ODFW (2005, Page 75) sage-grouse guidelines.

There would be minor positive and negative effects to bald and golden eagle foraging habitat due to the minor impacts on vegetation communities associated with redistribution of livestock use. Refer to the Upland Vegetation and Riparian and Wetland sections of this EA for a discussion of these vegetation impacts.

Alternative 4: Optimize Livestock Grazing

There would be very little change in special status species or their habitat compared to the no action alternative. The allotment would continue to meet standards into the foreseeable future and would, therefore, continue to provide adequate habitat for special status species and comply with ODFW (2005, Page 75) sage-grouse guidelines.

There would be minor positive and negative effects to bald and golden eagle foraging habitat due to the impacts on vegetation communities associated with redistribution of livestock use and minor increased stocking levels/forage utilization. Refer to the Upland Vegetation and Riparian and Wetland sections of this EA for a discussion of these vegetation impacts.

Escape ramps would be installed in the troughs during well maintenance to minimize impacts to wildlife using this water source.

G. Livestock Grazing Management

Affected Environment

The allotment is categorized as an “M” or “maintain” category. This category was determined by a set of 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

The Rosebud Allotment is grazed under a yearly winter grazing system (Table 1). It is interspersed with fenced private land and is comprised of one pasture. Livestock primarily graze in the southern portion of the allotment on the saltgrass flats. Forage is abundant and grazing is currently at 67 acres per AUM, a very low stocking rate. Increased distribution is currently not needed to maintain management objectives and resource health. The entire acreage and available forage within the allotment are not utilized.

A rangeland health assessment was performed (BLM 2004a) to determine if current management was in conformance with *Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon and Washington* (BLM 1997a). The assessment found that existing grazing management practices and levels of grazing use in the Rosebud Allotment #00421 met all five standards (Table 3).

Table 3. Rangeland Health Standards Summary for Rosebud Allotment (BLM 2004a)

Standard	Determination	Comments
1. Watershed Function – Uplands	Met	Upland soils in the Rosebud 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	The allotment contains 603 acres of Palustrine and 144 acres of Lacustrine wetlands in Proper Functioning and Conditioning (PFC)
3. Ecological Processes	Met	The area is dominated by salt desert scrub mixed in with playas, springs, and wetlands. The allotment is healthy, as indicated by widespread and substantial numbers of Indian rice grass, a species that is indicative of a high level of rangeland health. The allotment is vegetatively productive. Wildlife species are at appropriate levels.
4. Water Quality	Met	No surface water or groundwater within the allotment has been listed as exceeding State Water Quality standards.
5. Native, T/E, and Locally Important Species	Met	No conflicts exist between cattle grazing and any wildlife species within the allotment. No known noxious weed sites in the Allotment. No known sensitive plant species in the Allotment.

Environmental Consequences

Alternative 1: No Action

Under the no action alternative, the allotment would continue to be under-utilized, promoting decadent stands of old forage in the northeastern portion of the allotment. Old forage has less protein and is less desirable for wildlife and livestock use. However plants would not be susceptible to any grazing pressure and only natural processes would have communities evolve and

Continued current grazing management would continue to meet rangeland health standards into the foreseeable future. Multiple use objectives from the land use plan (see Chapter 2) would continue to be

met on the allotment. For these reasons, this alternative would be consistent with the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b), the grazing regulations, and FLPMA.

Alternative 2: No Grazing

Under this alternative, grazing would no longer be permitted within the allotment. The permittee would need to replace 158 AUMs of lost forage (approximately 2,400 lbs) with private land forage or hay in the general vicinity. The additional cost to replace this forage would be at the permittee's expense. If private landowners within the allotment wish to continue livestock grazing on their private lands, they would be required to bear the cost of keeping livestock off public land by either herding or constructing fences to prevent trespass. These costs are discussed further in the Social and Economic section.

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

This alternative would not be consistent with the primary Livestock Grazing Management Goal of providing “*for a sustainable level of livestock grazing consistent with other resource objectives and public land-use allocations*” (Page 52). Further, the alternative would not be consistent with the current grazing management direction for the Rosebud Allotment, which is open and available to grazing use (Page 47, Table 5; Map G-3).

Alternative 3: Improved Distribution

This alternative would have mixed effects across the allotment. Distribution of livestock would be more even across the allotment as a whole. It would promote some increased use by livestock in the northeastern portion of the allotment while decreasing overall intensity of grazing use and utilization levels on the southwestern end of the allotment. However, unless water is made available from an adjacent private land source, this alternative would still not utilize available forage in the northeastern portion of the allotment to its fullest potential. Herding would be used to improve livestock distribution and grazing use across the allotment and would result in the allotment continuing to meet rangeland health standards into the foreseeable future.

Adjusting livestock distribution using the techniques proposed under this alternative would be consistent with the allotment-specific management direction found in Appendix E1 of the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b) (see also Chapter 2). For these reasons, this alternative would be consistent with the management direction within the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b), the grazing regulations, and FLPMA.

Alternative 4: Optimize Livestock Grazing

This alternative provides the most flexible management of all the alternatives considered by increasing distribution of livestock, and by increasing the water available on the allotment for both livestock and wildlife.

Two methods of analyzing stocking rate were considered. An assessment of forage production was performed on the Lakeview District in the 1960s. This assessment provided forage allocation for livestock grazing based on vegetation communities similar to the ecological site inventory by taking into account distance to water and wildlife use. This survey provided a basis of forage allocation for livestock and allocation of AUMs on permits. A review of forage available for livestock in the Rosebud Allotment was performed based on the 1962 survey (see case file available at the Lakeview District). Results show that 268 AUMs or 40 acres/AUM are available for livestock use.

A second potential stocking level analysis was calculated using actual use of livestock and wildlife, percent utilization, and crop yield index (Table 4). This analysis looked at historical livestock use and the

resulting utilization per year taking into account climate conditions, and wildlife use. The results show the difference in stocking level based on a target utilization of 50%. Note the 50% target utilization is 15% less than the maximum allowable utilization of 65% use for winter grazing systems in the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b, p. A-142). Results show a potential stocking level of up to 324 AUMs or 33 acres/AUM. The species analyzed are both late seral and indicators of rangeland health.

The current permitted forage for livestock is 158 AUMs (or a stocking level of 67 acres/AUM) used in a winter grazing season (between November 1 and February 28). The 80 cattle enter the southwestern portion of the allotment and due to abundant forage available and lack of water in the northeastern portion, livestock do not naturally disperse evenly throughout the allotment.

Table 4. Actual Use and Utilization in a Key Area on *Achnatherum hymenoides* and *Elymus cinereus* Summarized to Calculate Potential Stocking Level of the Rosebud Allotment.

Year	Livestock Actual Use	Wildlife Allocated Use	Total Use	Utilization	Yield Index ²	Adjusted Utilization ³	Target Utilization	PSL ⁴	CSL ⁵	Acres per AUM
	-----AUM ¹ -----			-----%-----				-----AUM-----		
1990-1991	163	6	169	30	97	29	50	290	290	37
1991-1992	156	6	162	30	94	28	50	287	289	37
1994-1995	160	6	166	30	58	17	50	477	352	30
1996-1997	187	6	193	30	162	49	50	199	313	34
2003-2004	158	6	164	13	90	12	50	701	391	27
2004-2005	158	6	164	13	105	14	50	601	426	25
2005-2006	156	6	162	3	150	5	50	0	365	29
2006-2007	146	6	152	30	190	57	50	0	319	33
2011-2012	158	6	164	30	75	23	50	364	324	33

¹AUM abbv. for animal unit month

²Yield index = 1.11(precipitation index) – 10.6. Precipitation index= crop year/ long term median. Crop year = total precipitation amounts at weather station for growing season (Sept-June). Long term median is the precipitation amount representing the long term normal for the crop year.

³Adjusted utilization = the actual utilization adjusted by yield year

⁴PSL- abbv. for potential stocking level

⁵CSL – abbv. for cumulative stocking level calculated by averaging the previous year’s potential stocking level did not include 2005 or 2006 PSL in average as they were outliers.

The current stocking level is well below the estimated carrying capacity of the land based on historical utilization levels, analysis of the 1962 forage production survey, and analysis of potential stocking level (PSL), as discussed above. Based on the analysis of the 1962 survey notes in the Rosebud/Edmonds Well HMP (BLM 1993a) and current and past under-utilization of vegetation, a permanent increase in stocking rate for livestock is highly plausible.

Based on the carrying capacity calculations described above, BLM believes that adequate forage is available to support the proposed allocation increase. The use of herding and water development maintenance would improve livestock distribution and grazing use across the allotment. However, additional monitoring would be performed to ensure that the allotment is capable of supporting increased forage allocation over the long-term and ensure the allotment would continue to meet rangeland health standards into the foreseeable future.

Though the *Lakeview Resource Management Plan/Record of Decision* provided initial forage allocations for each allotment, it also provided management direction to allow changes in forage allocations over time. Specifically, the “permitted use level for each allotment has been and continues to be analyzed through individual allotment assessments, such as rangeland health and livestock grazing management guidelines, allotment evaluations, allotment management plans.... It is through these assessments that any changes in forage allocation will be made, where needed, on an allotment specific basis” (BLM 2003b, Pages 52-53). Adjusting livestock distribution using the techniques identified in this alternative would also be consistent with the allotment-specific management direction found in Appendix E1 of the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b). Maintaining the existing well would also be consistent with the Operation and Maintenance management direction in the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b, Page 100). For these reasons, this alternative would be consistent with the management direction within the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b), the grazing regulations, and FLPMA.

H. Native American Traditional Practices

Affected Environment

The allotment is located within a pre-Contact and modern native American traditional use area. Some ancestors of The Klamath Tribes used the Summer Lake Area in their seasonal economic activities, including hunting and gathering. The allotment is rich in water sources and the sandy areas would have supported stands of grasses such as Indian Rice Grass which was historically a staple in their diet. The BLM is not aware of specific locations of importance to The Klamath Tribes or families that make up its membership, but is aware that the Klamath Tribal Council regards Summer Lake as an important cultural place.

Environmental Consequences

Effects Common to Alternatives 1-4

There is currently no known active use of the allotment for either plant collecting or religious purposes. For this reason, none of the alternatives would be expected to have any impacts on Native American traditional uses.

I. Cultural Resources

Affected Environment

Approximately 500 acres of the Rosebud Allotment has had a Class III survey performed. In addition, much of the allotment has had “intuitive” surveys completed where likely site areas were examined and recorded. Surveys have been also completed in the area for a number of previous project proposals. 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 allotment are estimated at \$8 to \$11 per acre (or approximately \$113,500 to \$156,000 total) and would be exorbitant.

Based on what is known about the area, the allotment has a high probability for containing high-value archaeological resources because it is well watered and has widespread sand areas containing edible grass seed crops. Based upon an analysis of known sites in the area, the allotment was used by native people for seed gathering and hunting, especially in the last 2,000 to 4,000 years. Use prior to that may have been focused along the past shore lines and water sources. Some evidence of occupation 8,000 to 10,000 before present (BP) is also indicated by the sites presently known.

Based on a review of existing cultural resource inventories, 26 sites have been documented in the allotment. Four sites are prehistoric sites devoted to stone tool manufacture and maintaining hunting tools. Twenty sites are more complex and also involve plant food processing and maybe longer term camps. One site contains both prehistoric and historic material (trash refuse). One site is a refuse dump dating to the early 20th century.

Environmental Consequences

Alternative 1: No Action

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 sites located in the top 12 inches of the soil profile. These effects include ground cover removal, surface scuffing, hoof shear, and ground punching by hoofs (wet soils). 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 livestock congregation areas (near water sources and trailing areas) where concentrated hoof shear is common during wet soil conditions. 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 under more typical drier soil conditions. Generally, there is a relationship between soil health and potential effects to cultural resources buried within the soil profile. Those soils that retain adequate vegetation cover and are lightly or moderately grazed, do not suffer from substantial soil loss, artifact exposure, or deep trampling effects.

In the Rosebud Allotment, sites appear to be concentrated in dune areas. These dunes are composed of loose sands which are at some risk of livestock trampling, wind erosion, and sheet wash erosion from rains. According to cultural site records, 24 of 26 known sites have been impacted by past or present livestock use varying from surface scuffing (2 inches deep) to hoof shear (12 inches deep). However, the severity and extent of impacts have not been quantified. In addition, these sites are naturally eroding from sand dunes or hillocks. One site has also been affected by road construction and use.

Under the No Action Alternative, cultural resources (both documented and undocumented) would continue to be affected by current grazing use, especially any that are located in existing concentration areas (approximately 1,153 acres or 7.2%) near water sources and cattle trails in the southwestern half of the allotment. Away from livestock concentration areas (92.8 % of the allotment), surface disturbance and impacts to cultural resources would continue to be minimal. Given the current low stocking rate and the level of current soil impacts, the current risk of impact to cultural sites buried within the soil profile across the majority of the allotment would remain relatively low under this alternative.

Alternative 2: No Grazing

With the elimination of livestock grazing on the allotment effects to cultural resources would be limited to those associated with wind and sheet erosion.

Alternative 3: Improved Distribution

Distributing livestock use more evenly over the allotment would not likely increase the effects on cultural resources substantially across most of the allotment. It could potentially reduce impacts to cultural resources in the southwestern portion of the allotment by reducing some of the livestock concentration in this area. However, it could also increase trampling impacts to cultural resources by increasing concentrated use on an additional 156 acres in the northeastern portion of the allotment (8.1% total).

Impacts associated with erosion from wind and water would be expected to continue across the entire allotment.

Alternative 4: Optimize Livestock Grazing

Alternative 4 would improve livestock distribution and increase the total amount of livestock use across much of the allotment. It would not likely lead to much change in impacts to cultural sites in the southeastern portion of the allotment. However, it could also increase trampling impacts to cultural resources by increasing concentrated use on an additional 156 acres in the northwestern portion of the allotment (8.1% total).

Impacts associated with erosion from wind and water would be expected to continue across the entire allotment.

J. Recreation

Affected Environment

The recreational opportunities and uses within the allotment are typical of those available throughout the Summer Lake Basin. There are currently no developed or undeveloped recreation sites within the Rosebud Allotment nor are there any planned for future development. Recreation in the allotment is managed for Semi-Primitive Motorized activities, opportunities, and experiences (Map R-3, 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.

Cross-country motorized travel is allowed in most of the allotment. Motorized vehicle use within the Diablo WSA portion of the allotment is limited to existing road and trails (Map R-7, BLM 2003b). The primary recreation activities in the Rosebud Allotment are upland game bird (e.g. chukar), waterfowl (e.g., ducks and geese), and big game (deer and antelope) hunting, which generally occur in the fall and early winter months. Other recreation activities periodically occur in the allotment including: wildlife viewing, dispersed camping, hiking, horseback riding, and target shooting.

Environmental Consequences

Alternative 1: No Action

Continuing current levels of grazing use within the allotment would have negligible effects to existing recreation. Current levels of recreation activities, opportunities, and experiences in the allotment would remain relatively constant into the foreseeable future.

Alternative 2: No Grazing

The No Grazing Alternative would marginally enhance recreation activities, opportunities, and experiences within the allotment by slightly reducing user interaction and the evidence of others.

Wildlife-dependent recreational experiences in the area, such as hunting and wildlife viewing would likely be improved slightly compared to the No Action Alternative.

Alternative 3: Improved Distribution

This alternative would have both minor negative and positive impacts to recreation within the allotment. Moving livestock to the northeast corner of the allotment would minimally enhance primitive recreation experiences on the southern portion of the allotment for those seeking isolation and closeness to nature, as well as those pursuing hunting and wildlife viewing opportunities. Conversely, redistribution of livestock use to northeast portion of the allotment would diminish hunting and wildlife viewing opportunities, as well as reduce the recreational experiences for those seeking isolation and closeness to nature to a minor degree. Overall, the alternative would have a negligible impact to recreation opportunities in the allotment.

Alternative 4: Optimize Livestock Grazing

This alternative would have both negative and positive impacts to recreation opportunities and experiences in the allotment. Recreational experiences would be negatively affected to a minor degree by an increase of 45 AUMs (28%) and an increased season of use of 17 days (29%). Recreationists would experience some additional negative impacts from diminished hunting and wildlife viewing opportunities, as well as reduced primitive recreational experiences by those seeking isolation and closeness to nature, compared to Alternatives 1-3.

The impacts associated with the redistribution of livestock to northern portion of the allotment would generally have the same negligible positive and negative impacts to recreation as described for Alternative 3.

Impacts to recreation associated with the maintenance of Emery Well would be negligible. A functioning well, providing increased access to reliable water would be a positive benefit to wildlife viewing and hunting opportunities in northeast portion of the allotment, as well as a minor detrimental impact to those users seeking isolation and closeness to nature due to an increased presence of humans (permittee, BLM staff) and livestock in the area.

K. Visual Resources

Affected Environment

The visual setting in the project area is typical of the Summer Lake Basin with wide-open panoramic views of the Summer Lake Basin to the west/southwest and to the east several long north-to-south ridges, rising in elevation to the summit of Diablo Mountain (6,147 ft.). There are also low rolling hills, dunes, and salt flats, mixed with springs and wetlands. Observable developments within the vicinity of the allotment consist of roads, fences, water developments (wells and water troughs), as well as private ranch houses and structures.

The *Lakeview Resource Management Plan/Record of Decision* classifies BLM-administered lands within the Rosebud Allotment into three of four possible Visual Resource Management (VRM) classes (Map VRM-3, BLM 2003b). Table 4 and Map 4 show the existing VRM classes found in the allotment.

Table 4. Existing VRM Classes in the Rosebud Allotment

VRM Class	Acres of BLM-Administered Lands	Percentage of BLM-Administered Lands
Class I	6,622 acres	47%
Class III	409 acres	3%
Class IV	7,071 acres	50 %

VRM classes specify management objectives and allow for differing degrees of modification in the basic elements of landscape features (form, line, color, and texture). These elements determine the degree of alteration that is acceptable within the characteristic landscape.

VRM Class I is designed to “preserve the existing character of the landscape.” This class provides for natural ecological changes and allows limited management activity. The level of change should be very low and must not attract attention.

VRM Class III is designated to “partially retain the existing character of the landscape.” Moderate levels of change are acceptable. Management activities may attract attention, but should not dominate the view of a casual observer. Changes should conform to the basic elements of the predominant natural features of the characteristic landscape.

VRM Class IV is designated to provide for management activities that require “major modification of the landscape.” These management activities may dominate the view and become the focus of viewer attention. However, every effort should be made to minimize the impact of these projects by carefully locating activities, minimizing disturbance, and designing the projects to conform to the characteristics of the landscape.

Environmental Consequences

Effects Common to Alternatives 1-4

None of the alternatives analyzed would cause substantial alternation of the current visual quality within the allotment, and would therefore, preserve the existing visual character of the landscape. For this reason, all alternatives would meet the visual objectives for VRM Classes I, III, and IV.

L. Wilderness/Wilderness Study Areas

Affected Environment

There are no designated wilderness areas within the allotment. However, the allotment contains approximately 6,622 acres of the 118,799-acre Diablo Mountain Wilderness Study Area (WSA) (OR-1-58). This WSA was inventoried under Section 603 of the FLPMA and was determined to be in an essentially natural condition, and to possess outstanding opportunities for solitude and primitive and unconfined recreation. Additionally, the WSA has several special features including California bighorn sheep, snowy plover, raptors, fossils, and archaeological sites (BLM 1989, 1991).

Existing WSAs must be managed in accordance with the *Management of Wilderness Study Areas* manual so as not to impair suitability for preservation as wilderness (BLM 2012c). Generally, wilderness values must be protected or enhanced in WSAs. Preservation of wilderness values is the primary consideration when evaluating a proposed action or use that may affect those values. To this end, all proposals for uses and/or facilities within WSAs must be reviewed to determine whether the proposal meets the non-impairment criteria: (1) temporary (2) wilderness values must not be degraded so far as to significantly constrain the area’s wilderness suitability for preservation as wilderness.

The only permitted exception to the non-impairment criteria are: (1) emergency (wildfire/search and rescue), (2) reclamation activities to minimize impacts created by violations and emergencies, (3) uses and facilities which are considered grandfathered or valid existing rights under the IMP, (4) uses or facilities that clearly protect and enhance the area’s wilderness values, and (5) reclamation of pre-FLPMA impacts.

The manual specifically identifies grazing as a “grandfathered use” and permits this use to “continue in the same manner and degree as on that date (October 21, 1976), even if this impairs wilderness suitability”. The “manner and degree” of grazing use is further defined as “the physical and visual impacts that use was having on the area on October 21, 1976” (BLM 2012c, Page 1-12). Grandfathered grazing use is further defined as the grazing management practices (e.g. level of use, season of use, etc.) authorized during the 1976 grazing fee year (BLM 2012c, Page 1-18).

The Rosebud Allotment was originally part of the larger Paisley Common (00400) grazing allotment, which historically covered about 551,620 acres (BLM 1981). The Paisley Common Allotment was subsequently divided into several smaller allotments as part of the implementation of the Lakeview Grazing EIS Record of Decision (BLM 1982a, 1982b, 1984, 1987, 1993b, 1994) and the Paisley Agreement (BLM 1993c). The Rosebud Allotment (00421) was created around 1983 (BLM 1982b, 1984). Approximately 6,622 acres or 47% of the Rosebud Allotment overlaps the Diablo Mountain WSA (Map 4). Based on a grazing bill from the 1976 grazing season (contained in the allotment file), 320 AUMs of forage were authorized for cattle use on that portion of the Paisley Common Allotment that is now the Rosebud Allotment for a winter season of use. Assuming an even distribution of forage, 47% of this allocation (150 AUMs) can be attributed to the WSA portion of the allotment.

This portion of the WSA also has one existing grandfathered water development, Emery Well, which was originally constructed in 1973 (BLM RIPS database) and several miles of existing allotment boundary fence (Map 5). Pre-FLPMA developments may continue to be used and maintained in the same manner and to the same degree as was being conducted on October 21, 1976 (BLM 2012c, Page 1-16).

Environmental Consequences

Alternative 1: No Action

The No-Action Alternative would allow cattle grazing to continue across the allotment at current levels (158 AUMs total; 74 of which would be attributed to the WSA portion of the allotment). This represents a level of use that is lower than the level of grandfathered grazing use that occurred in 1976 within the WSA portion (150 AUMs) of the allotment. In addition, grazing would continue to be authorized during the winter season, similar to the season of use authorized in 1976. The physical and visual impacts of continuing this grazing use would be less than that which occurred in 1976.

For these reasons, this alternative meets the definition of grandfathered use and would have less impact to the wilderness character within the Diablo Mountain WSA than what occurred in 1976.

Alternative 2: No Grazing

The No Grazing Alternative would remove grandfathered grazing use from the WSA portion of the allotment. This would minimally enhance naturalness and outstanding opportunities for solitude and primitive and unconfined recreation within the WSA by removing disturbances associated with cattle grazing and well maintenance, and would therefore, meet the Wilderness IMP’s non-impairment criteria.

Alternative 3: Improved Distribution

This alternative would put more cattle use in the northeast portion of the allotment and less cattle use in the southwest portion of the allotment. Both areas are partially within the Diablo Mountain WSA. While this change may result in somewhat higher or lower utilization of portions of the allotment compared to what has occurred in recent years, it still represents a level of use (158 AUMs total; 74 of which would be attributed to the WSA portion of the allotment) that is lower than the level of grandfathered use that occurred within the WSA portion (150 AUMs) in 1976. In addition, grazing

would continue to be authorized during the winter season, similar to the season of use that was authorized in 1976. The physical and visual impacts of continuing and redistributing this grazing use would be less than that which occurred in 1976.

For these reasons, this alternative meets the definition of grandfathered use and would have less impact to the wilderness character within the Diablo Mountain WSA than what occurred in 1976.

Alternative 4: Optimize Livestock Grazing

This alternative would increase grazing use to 203 AUMs across the allotment. While this represents an increase in forage use compared to recent years, it still represents a level of use (95 AUMs attributed to the WSA portion of the allotment) that is lower than the level of grandfathered use that occurred within the WSA portion (150 AUMs) in 1976. While the number of days open to grazing under this alternative would be increased by 17 days, the use would still occur during the winter season of use, similar to how grazing use was authorized in 1976.

This alternative would also redistribute livestock within the WSA, similar to Alternative 3. While this change may result in somewhat higher or lower forage utilization of portions of the allotment compared to what has occurred in recent years, it still represents a level of use that is less than what occurred in 1976. The physical and visual impacts of increasing and redistributing this grazing use would be less than that which occurred in 1976.

Maintenance to Emery Well, which was constructed prior to the passage of FLPMA, also represents a grandfathered use (BLM 2012c, Page 1-16). The physical and visual impacts of maintaining Emery Well would be similar to, but no greater than those that existed in 1976.

For these reasons, this alternative meets the definition of grandfathered uses and would likely have less impact to the wilderness character within the Diablo Mountain WSA than what occurred in 1976.

M. Lands with Wilderness Characteristics

Affected Environment

Since 2007, the BLM has been conducting wilderness inventory updates for public lands within the Lakeview Resource Area, following current inventory guidance (BLM 2007a, 2008a, 2012a). An interdisciplinary (ID) team reviewed the existing wilderness inventory information contained in the BLM's wilderness inventory files, previously published inventory findings (BLM 1979a, 1979b, 1979c, 1980a, and 1980b), and citizen-provided wilderness information (ONDA 2005).

BLM has completed the route analyses, made inventory unit boundary determinations, and subsequently evaluated wilderness characteristics for all areas within the Rosebud Allotment (BLM 2009, 2010). BLM identified one 4,418-acre area (Diablo West Inventory Unit; OR-015-206) as having wilderness characteristics. Although the unit was less than 5,000 acres, it was found to be contiguous with the adjacent Diablo Mountain WSA and, therefore meets the size criteria exception. The unit was found to be marginally natural, and minimally enhanced opportunities for solitude associated with the adjacent WSA, but lacked outstanding opportunities for primitive or unconfined recreation (BLM 2010). The wilderness characteristics findings have been made available to the public on the Lakeview District's website at <http://www.blm.gov/or/districts/lakeview/plans/inventas.php>. The Diablo West Inventory Unit accounts for about 31% of the Rosebud Allotment (Map 5).

While BLM does have policy in place describing how to consider managing lands with wilderness characteristics at the resource management planning level (BLM 2012b), there is no existing policy regarding how such lands should be managed at the implementation plan level, such as a permit renewal

decision. Further, such lands cannot be managed as WSAs (BLM 2003c).

Environmental Consequences

Alternative 1: No Action

BLM found wilderness characteristics to be present in the Diablo West Inventory Unit even though the area is currently grazed and contains some existing range improvements. Continuing livestock grazing at current levels under this alternative would have no effect on unit size or result in any other measurable changes to wilderness characteristics.

Alternative 2: No Grazing

This alternative would have no effect on unit size, but would enhance naturalness and outstanding opportunities for solitude to a small degree, by removing all livestock grazing disturbances in the Diablo West Inventory Unit.

Alternative 3: Improved Distribution

This alternative would have no effect on unit size, but would result in a minor positive impact on naturalness and opportunities for solitude within the Diablo West Inventory Unit, as less livestock grazing disturbance would occur within the unit boundary. More livestock use would occur in the northeast corner of the allotment, generally outside of the Diablo West Inventory Unit, and less use would occur within the southern portion of this inventory unit which is located in the southwest portion of the allotment.

Alternative 4: Optimize Livestock Grazing

This alternative would have no effect on unit size, but would have both minor negative and positive impacts on naturalness and opportunities for solitude in the Diablo West Inventory Unit. This alternative would increase forage allocation by 45 AUMs to 203 AUMs total, and increase the season of use by 17 days to 75 days total. Thus, livestock grazing levels and season of use would be approximately 28% higher across the allotment. However, due to the redistribution of livestock most of this increased use would occur outside of the Diablo West Inventory Unit, similar to Alternative 3. For these reasons, this increase in use would not substantially impact wilderness characteristics within the Diablo West Inventory Unit.

N. 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 2009, an estimated 96,500 head of cattle and calves were in Lake County Oregon (Oregon Agricultural Information Network, 2010). In 2009, Lake County ranchers sold an estimated \$28,000,000 worth of cattle and calves or related beef products from public lands. The Rosebud Allotment provides winter forage for 80 cows for 60 days. This equals to approximately 144,000 pounds of forage, which in turn is approximately the amount of forage needed to produce 59 stocker calves.

Environmental Consequences

Effects Common to Alternatives 1-4

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 Summer Lake, Paisley, and Christmas Valley, though the specific contribution of the allotment cannot be accurately estimated.

Alternative 1 and 3

Under these alternatives, the Federal Government would continue to collect grazing fees (158 AUM @ \$1.35/AUM = \$213.30) 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 59 calves each year associated with the Rosebud Allotment, providing continued economic stability for themselves and contributing approximately 0.06% to the total county-wide cattle production. Providing the permittee with a gross income of approximately \$57,702, based on the current price of stocker calves at \$163/cwt.

Alternative 2: No Grazing

A minimum annual loss of \$213.30 would occur to the Federal Government due to the loss of grazing fee collections associated with this allotment. 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). This would result in approximately \$17,640 in additional costs to feed the permittee's 80 cows for 60 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 \$2,125 ((158 AUMs * \$14.80) - \$213.30).

If the rancher could not secure other suitable pasture land or could not afford these increased costs, then approximately 59 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 of about \$57,702 per year.

In addition, if private landowners within the allotment boundary wished to continue to graze their private lands, they would either have to employ herding techniques at an additional annual cost or construct up to 13.8 miles of boundary fences to keep livestock off of public lands. This would result in an indirect impact of a one-time cost of up to \$4,000/mile to private land owners.

Alternative 4: Optimize Livestock Grazing

Under this alternative, the Federal Government would collect increased annual grazing fees (203 AUM @ \$1.35/AUM = \$274.05). This alternative would provide a small increase in economic benefit to the federal government. The permittee would produce slightly more (76 total stocker calves) each year, providing a slight economic boost for themselves (of approximately \$16,626 additional income) and contributing approximately 0.07 % to the total county-wide cattle production.

In addition, well maintenance could potentially provide a one-time influx of approximately \$3,000 in income to surrounding businesses and communities from maintenance/repair activities.

O. Cumulative Effects Analysis

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* and an existing habitat management plan (Appendix E, BLM 2003b, 1993a). 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 (ie. 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 Rosebud Allotment 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 Rosebud Allotment was subdivided from the larger Paisley Common Allotment around 1983 (BLM 1984b).

Based on a GIS analysis of current data, there are approximately 42.2 miles of open roads, 2.1 miles of routes in a reclaiming condition, and 9.4 miles of user-created routes within the WSA portion of the allotment that have been closed, resulting in an estimated 65.1 acres of total road related disturbances within the allotment. About 41.8 miles of fence (resulting in approximately 25.3 acres fence and livestock trailing disturbance) currently exist. These disturbances (90.4 acres) are scattered relatively evenly across the entire allotment.

There are at approximately 747 acres of intermittent, natural water sources, 13 undeveloped springs, and four wells within the allotment (Map 6) where livestock use would be expected to be most concentrated under Alternatives 1, 3, and 4. Most of the existing water sources are located in the southern half of the allotment. The total area of highest livestock ground disturbance within the allotment is currently limited to the southern portion of the allotment where most of the water is located and is estimated at about 1,128 acres. All of these past or on-going activities have affected or shaped the landscape within the allotment 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 allotment (BLM 2004a).

Reasonably Foreseeable Future Actions

The *Lakeview Resource Management Plan/Record of Decision* (Appendix E3, page A-144, BLM 2003b) does not specifically list any future project proposals for this allotment. However, the Reasonably Foreseeable Future Actions that would likely occur in this allotment under Alternatives 1-4 are: continued road maintenance, range improvement maintenance, weed treatments, wildlife (wetland) 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.

The Reasonably Foreseeable Future Actions that would likely occur in this allotment under Alternative 2 would largely be similar to Alternatives 1, 3, and 4. The maintenance of the existing Emery well would not be needed (the three other wells are located on private lands fenced in with the allotment and may or may not be maintained by the landowners). However, the allotment boundary fences would still need to be maintained to allow continued grazing on adjacent allotments.

Cumulative Effects Common to Alternatives 1 – 4

None of the alternatives would have any measureable or substantial incremental cumulative effects on climate, greenhouse gas emissions, carbon storage, water quality, native American traditional practices, recreation, or visual quality, as the analysis 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 2004a) and the risk of future infestations is low under all four 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 2004b, Pages 10-20).

For purposes of this analysis, total acres of high ground surface disturbance or surface recovery served as the main indicator of cumulative impacts on soils, BSCs, upland vegetation, wetland and riparian vegetation, cultural resources, and wildlife and special status species habitat.

Cumulative Effects Common to Alternatives 1, 2, and 4

The incremental cumulative effects of continued grazing of up to 203 AUMs each year and well maintenance, when added to past, present, and reasonably foreseeable future actions would result in either: no change in total acres of high ground disturbance (Alternative 1), or a minor incremental increase in total acres of high ground disturbance (Alternative 3 and 4) (see Table 5).

Table 5 - Cumulative Acres of High Ground Disturbance

	Alternative 1 – No Action	Alternative 2 – No Grazing	Alternative 3 – Improved Distribution	Alternative 4 – Optimal Grazing
Past/Present Actions	1,218	1,218	1,218	1,218
Estimated Area of New Disturbance or Recovery	0	-1,153 of natural recovery	156	156
Cumulative Total	1218	65	1,374	1,374

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.

Implementation of Alternatives 1 or 3 would not contribute to any measurable positive or negative incremental cumulative social or economic effects to either the livestock permittee or the agricultural sector of the annual Lake County economy, as grazing and livestock production within the allotment would continue at current levels. Implementation of Alternative 4 would have a direct positive social-economic effect upon the livestock permittee (as discussed earlier in this chapter), but would have only minor, incremental cumulative effect (0.01% increase) on the agricultural sector of the annual Lake County economy.

Cumulative Effects – Alternative 2

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 1,153 acres around existing water sources and trailing areas along fences in the southern portion of the allotment. About 65 acres would continue to be impacted by road use and maintenance (Table 9). The allotment would continue to achieve or maintain all Rangeland Health Standards into the foreseeable future.

Implementation of Alternative 2 would have a substantial, direct negative social-economic effect upon the livestock permittee (as discussed earlier in this chapter), but would have only minor, incremental cumulative effect (0.06% reduction) on the agricultural sector of the annual Lake County economy.

CHAPTER 4 - CONSULTATION AND COORDINATION

A. List of Preparers

Range Management Specialist – Lori Crumley
Supervisory Range Management Specialist – Theresa Romasko
Fisheries Biologist – James Leal
Natural Resource Specialist (Weeds) – Brennan Hauk
Wildlife Biologist – Vern Stoffleth
Outdoor Recreation Planner – Chris Bishop
Cultural Resource Specialist – Bill Cannon
Planning and Environmental Coordinator/Editor – Paul Whitman

B. Agencies and Individuals Consulted

Permittee – Marie Leehman
Oregon Department of Fish and Wildlife – Marty St. Louis

C. Mailing List

The EA was made available for review to Federal, state, and local agencies, Native American Tribes, and interested members of the public. The notification list is contained in the project file.

REFERENCES

- Belnap, J., J. Kaltennecker, R. Rosentreter, J. Williams, S. Leonard, and D. Eldridge. 2001. Biological Soil Crusts: Ecology and Management. USDI, BLM and USGS Technical Reference TR-1730-2.
- BLM. 1979a. Wilderness proposed initial inventory. Roadless areas and islands which clearly do not have wilderness characteristics, Oregon and Washington. April 1979. USDI, BLM, Oregon and Washington State Office. Portland, OR.
- BLM. 1979b. Wilderness review. Initial inventory. Final decision on public lands obviously lacking wilderness characteristics and announcement of public lands to be intensively inventoried for wilderness characteristics. August 1979. USDI, BLM, Oregon and Washington State Office. Portland, OR.
- BLM. 1979c. Wilderness review. Intensive inventory. Proposed decision on the intensive wilderness inventory of selected area, Oregon. October 1979. USDI, BLM, Oregon and Washington State Office. Portland, OR.
- BLM. 1980a. Wilderness Review Intensive Inventory—Final Decision on 30 Selected Units in Southeastern Oregon and Proposed Decisions on Other Intensively Inventoried Units in Oregon and Washington. Oregon/Washington State Office, Portland, OR.
- BLM. 1980b. Wilderness Inventory— Oregon and Washington Final Intensive Inventory Decisions. Oregon/Washington State Office, Portland, OR.
- BLM. 1981. Lakeview Grazing Management Draft Environmental Impact Statement. USDI, BLM, Oregon/Washington State Office, Portland, OR.
- BLM. 1982a. Rangeland Program Summary Record of Decision, Lakeview EIS Area. Lakeview District, Lakeview, OR.
- BLM. 1982b. Lakeview Rangeland Program Summary Update. November 1982. USDI, BLM, Lakeview District, Lakeview, OR.
- BLM. 1983. Paisley Agreement. USDI, BLM, Lakeview District, Lakeview, OR.
- BLM. 1984. Lakeview Rangeland Program Summary Update. January 1984. USDI, BLM, Lakeview District, Lakeview, OR.
- BLM. 1987. Lakeview Rangeland Program Summary Update. January 1987. USDI, BLM, Lakeview District, Lakeview, OR.
- BLM. 1989. Oregon Wilderness Final Environmental Impact Statement. Oregon/Washington State Office, Portland, OR. Four Volumes.
- BLM. 1991. Wilderness Study Report. OR-EA-91-45-8561.6. Oregon/Washington State Office, Portland, OR. 3 volumes.

BLM. 1993a. Rosebud/Edmunds Well Habitat Management Plan. Lakeview District, Lakeview, OR. 32 p.

BLM. 1993b. Lakeview District Planning Update. USDI, BLM, Lakeview District, Lakeview, OR.

BLM. 1994. Lakeview District Planning and Range Program Summary Update. USDI, BLM, Lakeview District, Lakeview, OR.

BLM. 1997a. Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands in Oregon and Washington. Oregon State Office, Portland, OR.

BLM. 1997b. Standard Lentic Checklist. PFC Assessment for Rosebud Allotment #0421. USDI, BLM, Lakeview Resource Area, Lakeview District, Lakeview, OR. 3 checklists and maps.

BLM. 2000. Instruction Memorandum No. 2000-022, Change 1. Compliance with the National Environmental Policy Act (NEPA) – Addressing Alternatives for Livestock Grazing Permit Renewals. USDI, BLM, Washington Office, Washington, DC.

BLM. 2003a. Lakeview Proposed Resource Management Plan/Final Environmental Impact Statement. USDI, BLM, Lakeview Resource Area, Lakeview District, Lakeview, OR. 4 volumes.

BLM. 2003b. Lakeview Resource Management Plan/Record of Decision. USDI, BLM, Lakeview Resource Area, Lakeview District, Lakeview, OR. 3 volumes.

BLM. 2003c. Instruction Memorandum No. 2003-275 – Change 1. Consideration of Wilderness Characteristics in Land Use Plans (Excluding Alaska). USDI, BLM, Washington Office, Washington, DC.

BLM. 2004a. Rangeland Health Assessment for the Rosebud Allotment (#0421). USDI, BLM, Lakeview District, Lakeview, OR. 9 p.

BLM. 2004b. Integrated Noxious Weed Management Program. EA#OR-010-2004-03. USDI, BLM Lakeview Resource Area, Lakeview, OR.

BLM. 2007a. H-6300-1-Wilderness Inventory Maintenance in BLM Oregon/Washington. April 2007. Oregon/Washington State Office, Portland, OR.

BLM. 2007b. Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement. USDI, BLM, Washington Office, Washington, DC.

BLM. 2007c. Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Record of Decision September 2007. USDI, BLM, Washington Office, Washington, DC.

BLM. 2008a. H-6300-1-Wilderness Inventory Maintenance in BLM Oregon/Washington. 4-18-08 Current Edition. Oregon/Washington State Office, Portland, OR.

BLM. 2008b. BLM. H-1790-1 - National Environmental Policy Act Handbook. USDI, BLM, Washington Office, Washington, DC.

BLM. 2009. Black Hills WSA Proposal Wilderness Characteristics Evaluation. USDI, BLM, Lakeview Resource Area, Lakeview District, Lakeview, OR.

BLM. 2010. Wilderness Character Inventory Form for Diablo West (OR-015-206). USDI, BLM, Lakeview Resource Area, Lakeview District, Lakeview, OR.

BLM. 2011. Instruction Memorandum No. 2012-043. Greater Sage-Grouse Interim Management Policies and Procedures. USDI, BLM, Washington Office, Washington, DC.

BLM. 2012a. Manual 6310 – Conducting Wilderness Characteristics Inventory on BLM Lands (Public). USDI, BLM, Washington Office, Washington, DC.

BLM. 2012b. Manual 6320 – Considering Lands with Wilderness Characteristics in the BLM Land Use Planning Process (Public). USDI, BLM, Washington Office, Washington, DC.

BLM. 2012c. Manual 6330 – Management of Wilderness Study Areas (Public). USDI, BLM, Washington Office, Washington, DC.

DeRamus, H.A., T.C. Clement, D.D. Giampola, and P.C. Dickison. 2003. Methane emissions of beef cattle on forages: efficiency of grazing management systems. *Journal of Environmental Quality* 32:269-277.

Derner, J.D. and G.E. Schuman. 2007. Carbon sequestration and rangelands: a synthesis of land management and precipitation effects. *Journal of Soil and Water Conservation* 62(2): 77.

Environmental Protection Agency. 2009. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2007. U.S. EPA, Washington, D.C.

Follett, R.F., J.M. Kimble, and R. Lal. 2001. The potential of U.S. grazing lands to sequester soil carbon. Chapter 16 in R.F. Follett, J.M. Kimble, and R. Lal, eds. *The Potential of U.S. Grazing Lands to Sequester Carbon and Mitigate the Greenhouse Effect*. CRC Press LLC. Boca Raton, Florida.

Johnson, K.A. and D.E. Johnson. 1995. Methane emissions from cattle. *Journal of Animal Science* 73(8):2483-2492.

Forster, P. et al. 2007. Changes in Atmospheric Constituents and in Radiative Forcing. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Manske, L. 2001. Manipulating Grass Plant Growth can enhance forage Production. <http://www.ext.nodak.edu/extnews/newsrelease/2001/042601/07manipu.htm>.

McNaughton, S.J. 1979. Grazing as an optimization process: Grass-Ungulate relationships in the Serengeti. *The American Naturalist* 113:691-703.

NRCS. 2010. Soil Survey of Lake County, Oregon Southern Part. USDA, NRCS.

ODFW. 2003. Oregon's Mule Deer Management Plan. February 2003. Oregon Department of Fish and Wildlife, Portland, OR.

ODFW. 2005. Greater sage-grouse conservation strategy assessment and strategy for Oregon: a plan to maintain and enhance populations and habitat. Oregon Department of Fish and Wildlife, Salem, OR.

ODFW. 2011. Greater sage-grouse conservation strategy assessment and strategy for Oregon: a plan to maintain and enhance populations and habitat. Oregon Department of Fish and Wildlife, Salem, OR.

ONDA. 2005. Wilderness Inventory Recommendations: Lakeview BLM District. Bend, OR.

Oregon-Washington Weekly Hay Report. 2012. Accessed July, 2012.
http://www.ams.usda.gov/mnreports/ml_gr310.txt.

Oregon Agricultural Information System 2010. Accessed March 2012.
<http://oain.oregonstate.edu/>.

Porath, M.L., T.E. Bedell, Grass Growth and Development Considerations for Grazing Management. Cattle Producers Library. Published by the Western Beef Resource Committee, Moscow, ID. 2003. CL505:1-5.

Root, H.T., Miller J.E.D., McCune B. 2011. Biotic soil crust lichen diversity and conservation in shrub-steppe habitats of Oregon and Washington. *The Bryologist* 114(4): 796-812.

Schuman, G.E., L.J. Ingram, P.D. Stahl, J.D. Derner, G.F. Vance, and J.A. Morgan. 2009. Influence of management on soil organic carbon dynamics in northern mixed-grass rangeland. Chapter 11 in *Soil Carbon Sequestration and the Greenhouse Effect*. 2nd Edition. SSSA Special Publication 57. Madison, Wisconsin.

Stiver, S., E. Rinkes, and D. Naugle. 2010. Sage-Grouse habitat assessment framework. Multi-scale habitat assessment tool. Unpublished Report. USDI, BLM, Idaho State Office, Boise, ID. 135 p.

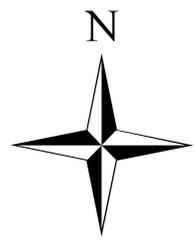
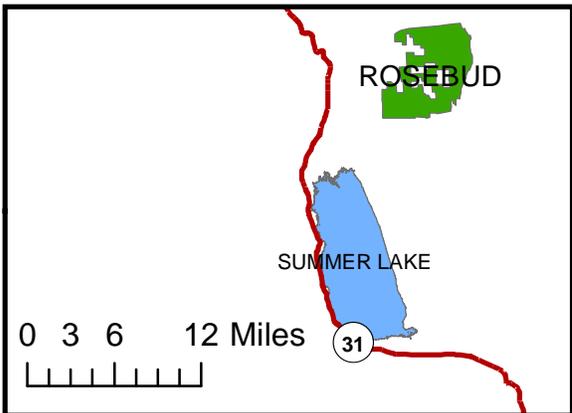
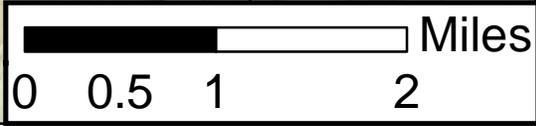
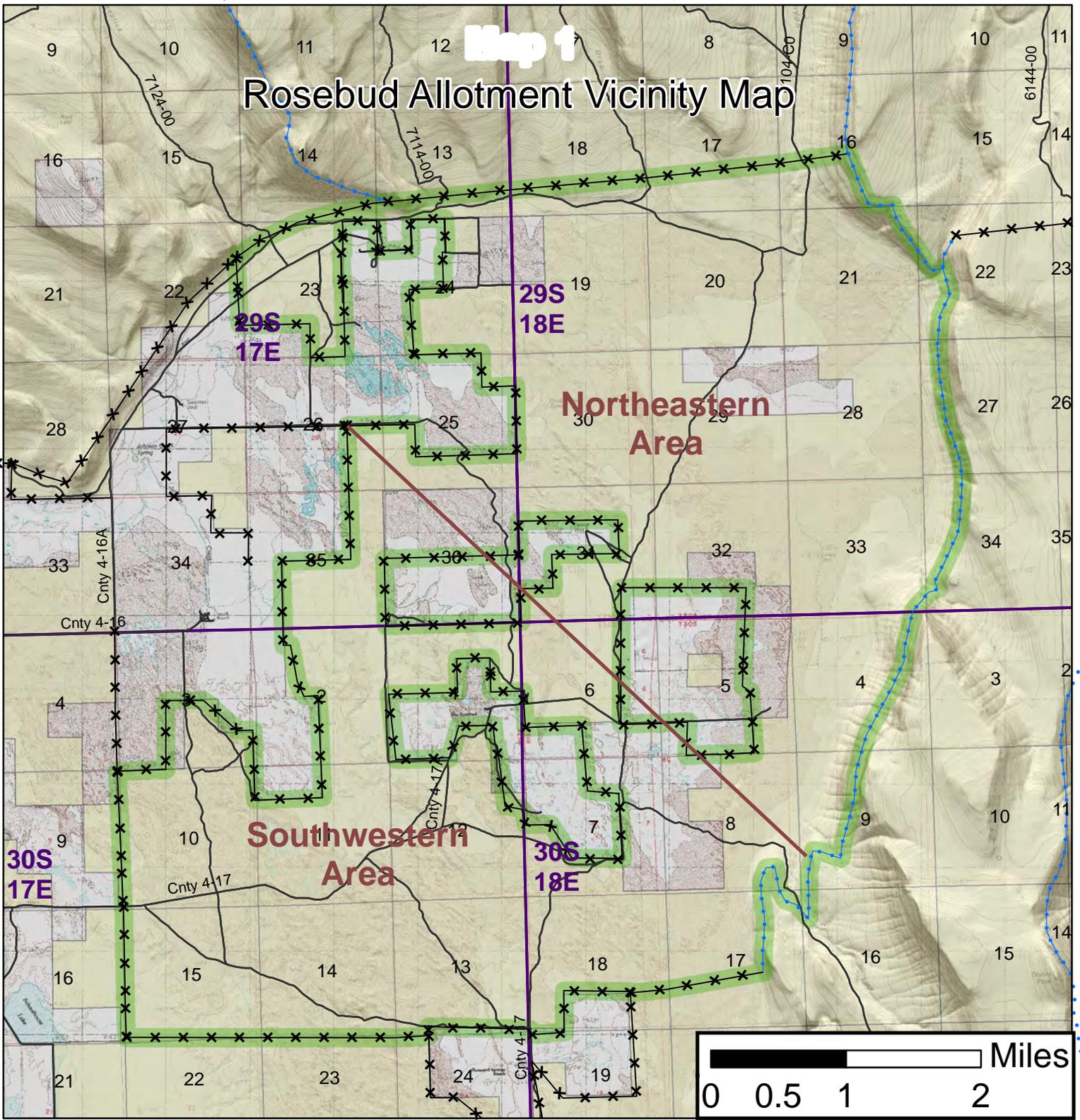
Stockmans Journal. 2012. Central Oregon Livestock Auction, Madras, OR. Vol. 14 Issue 8 June, 8, 2012.

USFWS. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp.

USFWS. 2010. 50 CFR Part 17, Endangered and Threatened Wildlife and Plants; 12-Month Findings for Petitions to List the Greater Sage-Grouse (*Centrocercus urophasianus*) as Threatened or Endangered; Proposed Rule. *Federal Register* 75:13909-14014.

USGS. 2008. The Challenges of Linking Carbon Emissions, Atmospheric Greenhouse Gas Concentrations, Global Warming, and Consequential Impacts. Memorandum to Director, USFWS.

Map 1 Rosebud Allotment Vicinity Map



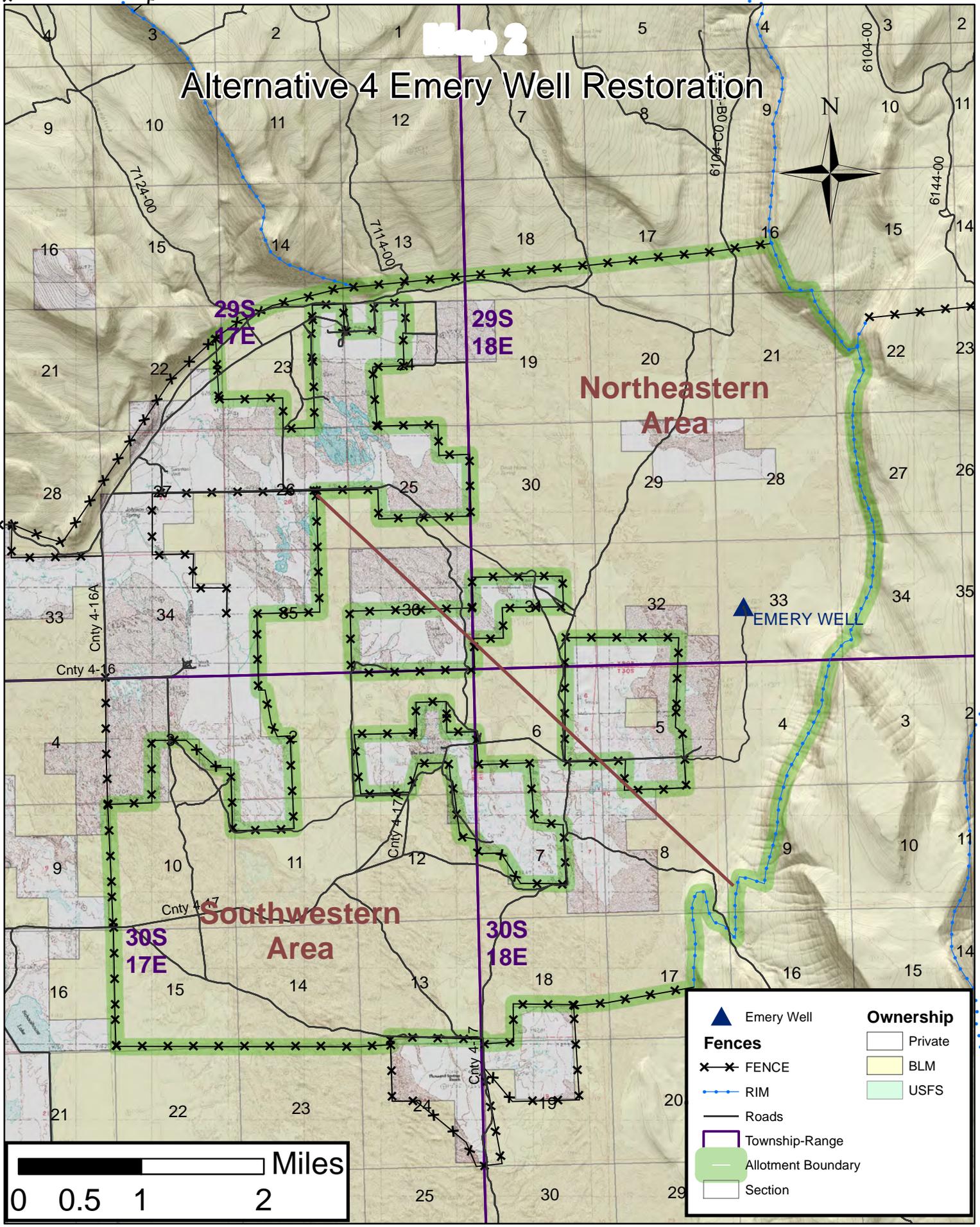
Fences		Ownership	
✕ ✕	FENCE	□	Private
— · — ·	RIM	□	BLM
—	Roads	□	USFS
—	Township-Range		
—	Allotment Boundary		
□	Section		



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

Map 2

Alternative 4 Emery Well Restoration



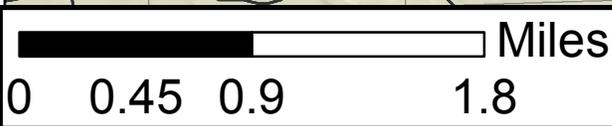
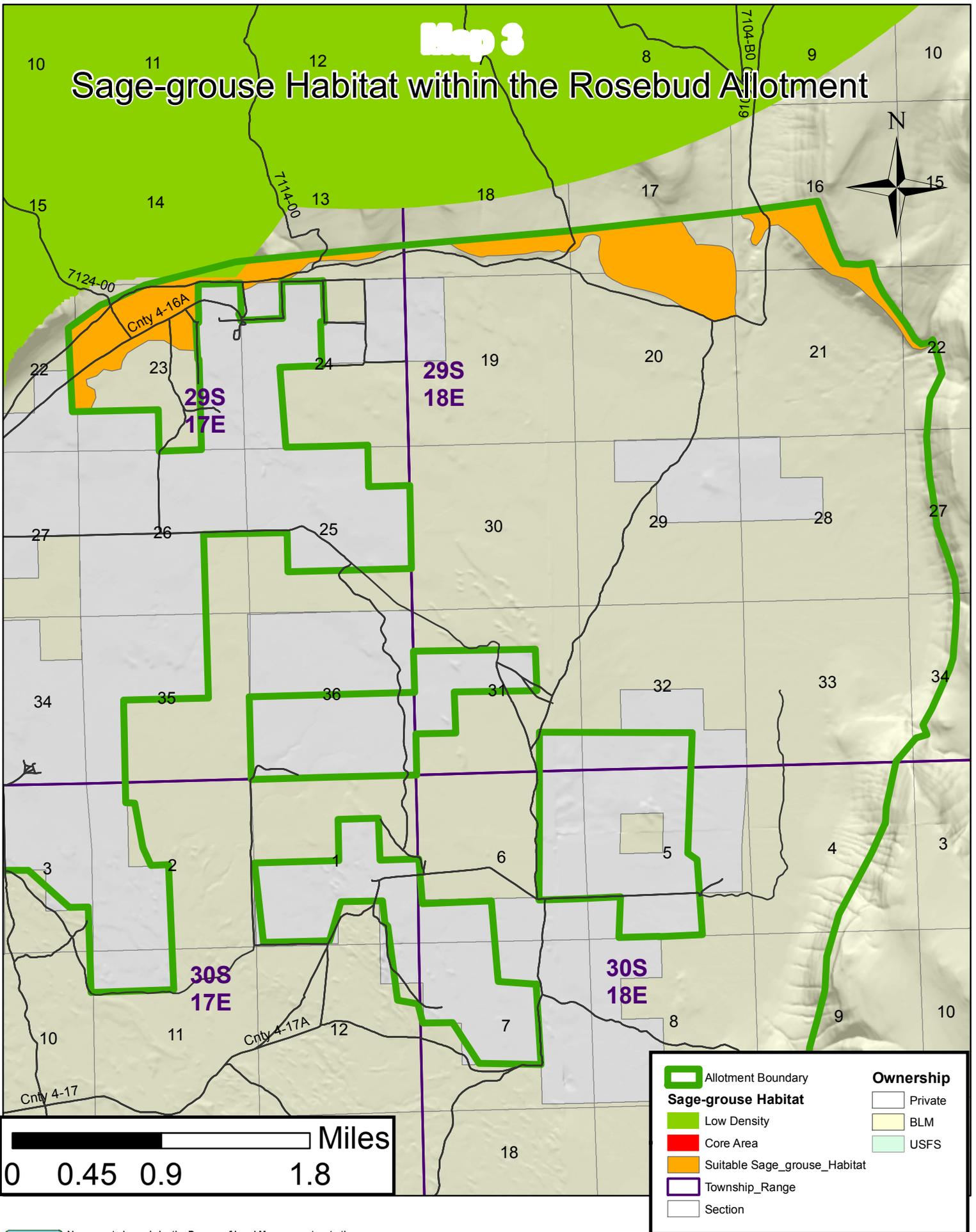
Emery Well	Ownership
Fences	Private
FENCE	BLM
RIM	USFS
Roads	
Township-Range	
Allotment Boundary	
Section	



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

Map 3

Sage-grouse Habitat within the Rosebud Allotment

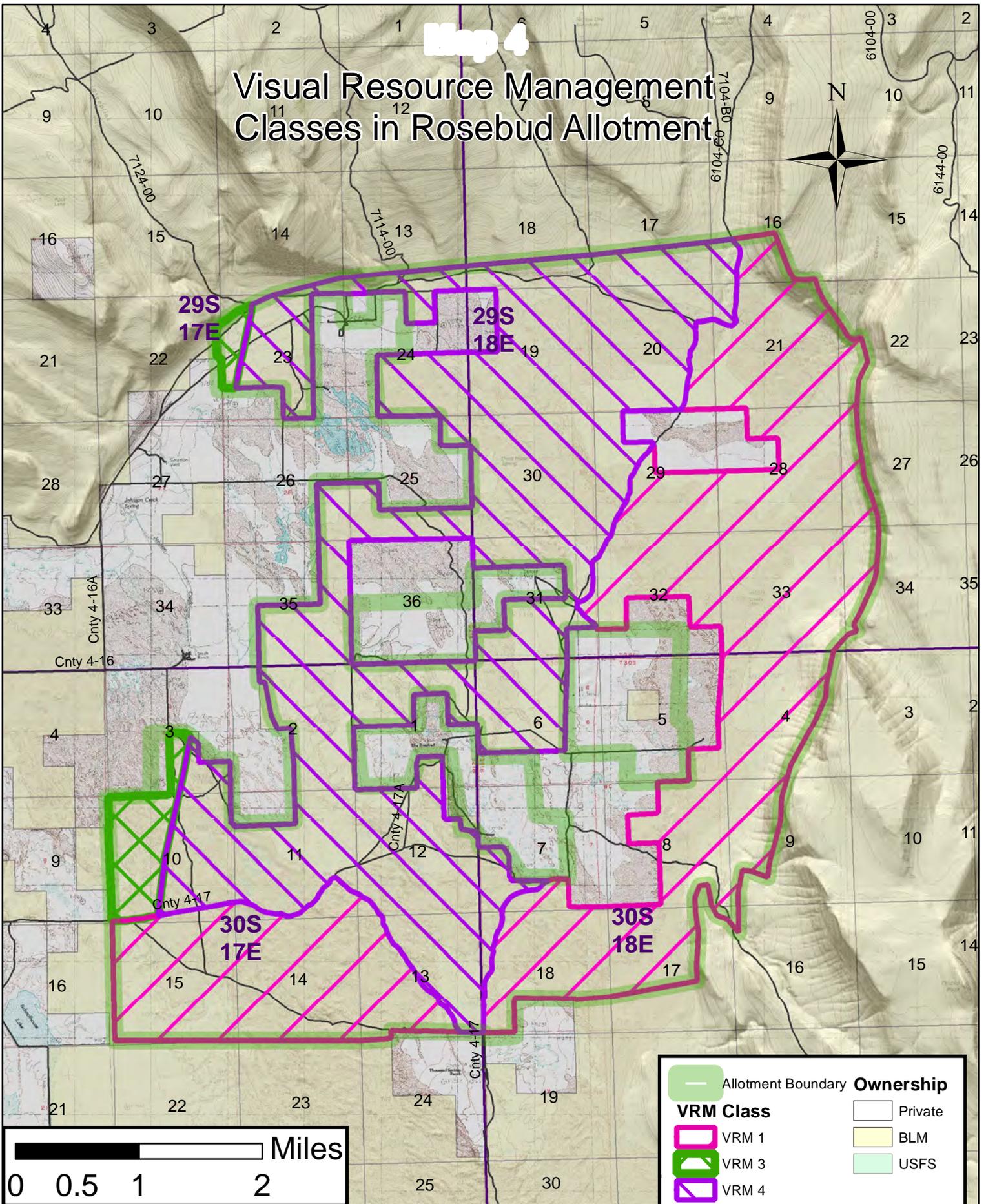


Allotment Boundary	Ownership
Sage-grouse Habitat	Private
Low Density	BLM
Core Area	USFS
Suitable Sage_grouse_Habitat	
Township_Range	
Section	



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

Visual Resource Management Classes in Rosebud Allotment

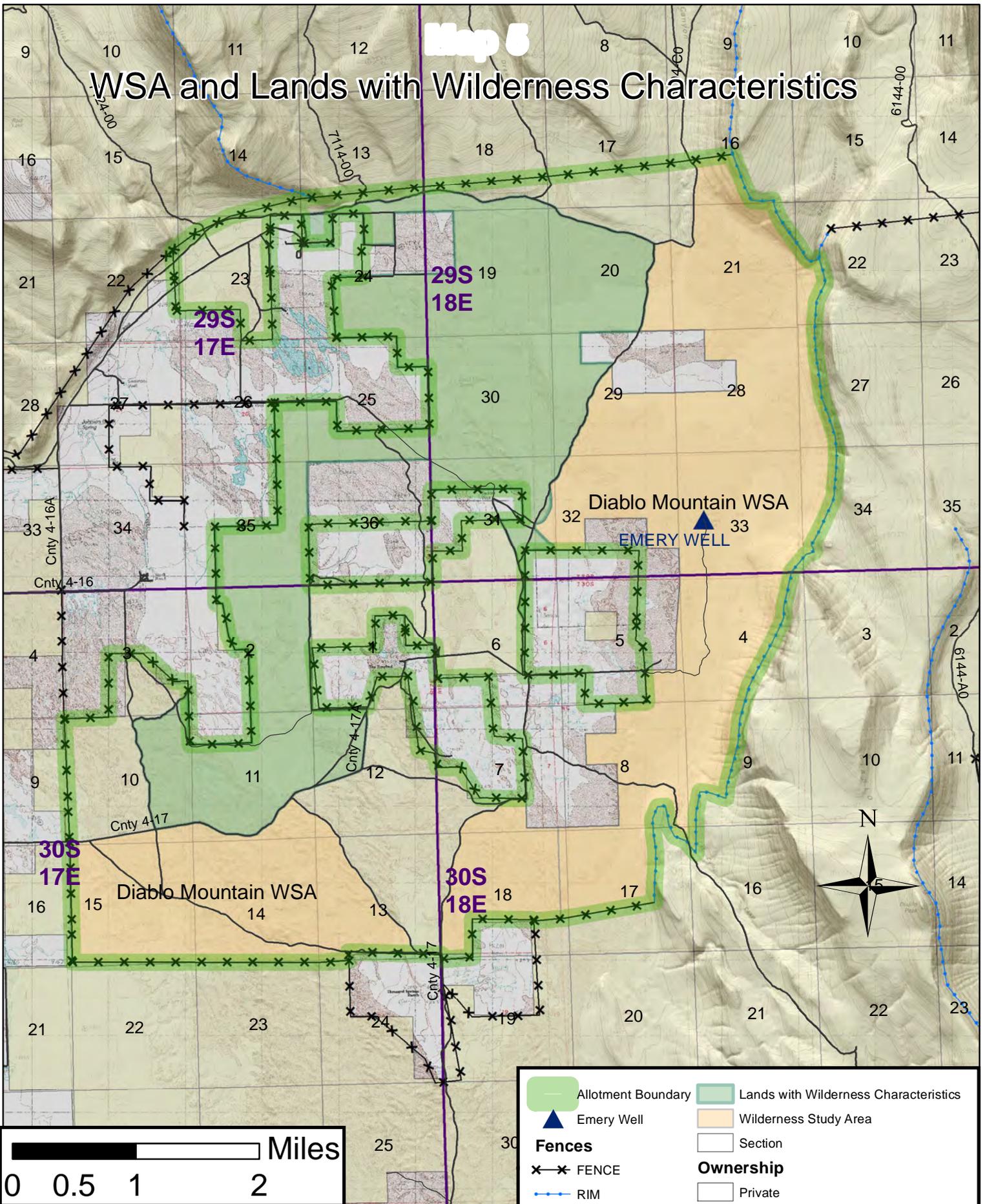


	Allotment Boundary	Ownership
	VRM Class	Private
	VRM 3	BLM
	VRM 4	USFS
	Roads	
	Township_Range	
	Section	



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

WSA and Lands with Wilderness Characteristics

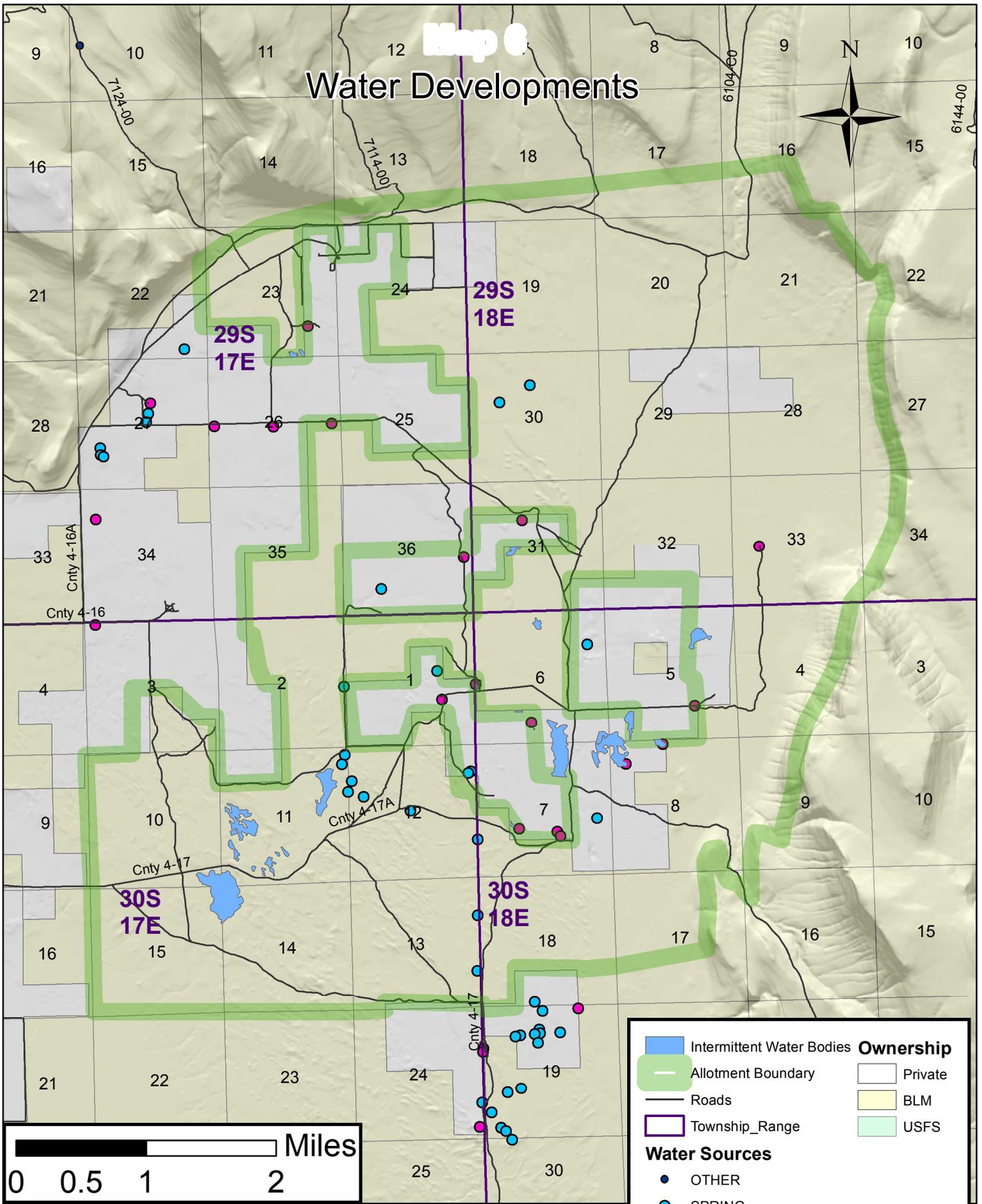


	Allotment Boundary		Lands with Wilderness Characteristics
	Emery Well		Wilderness Study Area
Fences			
	FENCE		Section
	RIM		Private
	Roads		BLM
	Township_Range		USFS



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.

Map 8 Water Developments



Ownership	
	Private
	BLM
	USFS

Water Sources	
	OTHER
	SPRING
	WELL
	Section

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.