FINDING OF NO SIGNIFICANT IMPACT

DICKS CREEK ALLOTMENT GRAZING PERMIT RENEWAL
DOI-BLM-OR-L050-2013-0045-EA

The Bureau of Land Management, Lakeview Resource Area (BLM), has analyzed several alternative proposals related to renewing term grazing permit number 3600119 for the Dicks Creek Allotments for a 9-year period. The allotment is located approximately 15 miles north of Lakeview, Oregon.

An environmental assessment (EA) was prepared that analyzed the potential direct, indirect, and cumulative environmental impacts of five alternatives. The alternatives included (1) No Action (continue current grazing), (2) two-year rest rotation grazing system coupled with new range improvements and vegetation treatments, (3) three-year rest rotation with new range improvements and vegetation treatments,(4) no grazing or vegetation treatments, and (5) a standard rest rotation with new range improvements and vegetation treatments (see Chapter 3 of attached EA).

The Council on Environmental Quality (CEQ) regulations state that the significance of impacts must be determined in terms of both *context* and *intensity* (40 CFR 1508.27). The context of the proposed action is the Dicks Creek Allotment. 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 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, wilderness study areas, other areas with wilderness characteristics, special status plants, threatened or endangered plants and animals, hazardous waste sites, ACEC/RNAs, or low income or minority populations located in the project area. No measureable impacts would occur to climate, floodplains, hydrology, land status, or mineral and energy resources (Table 3.1, page 19).

The potential impacts to existing soils, biological soil crusts, air quality, water quality, fisheries habitat, riparian vegetation, special status aquatic species, upland vegetation, noxious weeds, fire/fuels management, wildlife, special status wildlife species, livestock grazing management, native American traditional practices, cultural resources, recreation, visual resources, and social and economic values anticipated by the various alternatives have been analyzed in detail within the attached EA and found not to be significant (see Chapter 3).

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 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. Further, there are no known hazardous waste sites in the project area. There are no surface drinking water sources located in the project area. Impacts to air and water quality were evaluated and are described as minor (see Chapter 3).

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, wilderness study areas, ACEC/RNAs, or lands with wilderness character located in the project area (Table 3.1, page 19). Potential impacts to riparian vegetation along Dicks Creek have been analyzed in the attached EA and found not to be significant (see Chapter 3).

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

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

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

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

Rationale: The BLM has extensive expertise planning, analyzing impacts, and implementing management actions such as those proposed by the alternatives addressed in the attached EA. The potential impacts of these management actions on soils, biological soil crusts, special status aquatic species, water quality, riparian vegetation, upland vegetation, fire/fuels management, noxious weeds, wildlife, special status wildlife species, livestock grazing management, native American traditional practices, cultural resources, recreation, visual resources, and social and economic values can be reasonably predicted based on existing science and professional expertise. The attached EA analyzed these impacts (see Chapter 3). The nature of these impacts is not highly uncertain, nor does it involve unique or unknown risks.

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

Rationale: The BLM has extensive expertise planning, analyzing impacts, and implementing management actions such as those proposed by the 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 (X) No

Rationale: Based on the analysis contained within the Cumulative Effects section of the attached EA, none of the 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 (see Chapter 3).

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

Rationale: The allotment is located within a broad area which was used historically by native Americans. However, there are no known native American religious or sacred sites, designated Traditional Cultural Properties, or important plant collecting sites known within the allotment. Potential impacts to cultural resources have been analyzed in the attached EA and found not to be significant (see Chapter 3).

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

Rationale: There are no threatened or endangered species or designated critical habitat within the project area (Table 3.1, page 19).

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 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, Clean Water Act, Clean Air Act, and Endangered Species 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 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), and the grazing regulations (43 CFR Part 4100) in varying degrees (see Chapters 1 and 3). Conformance with this direction will be addressed in more detail within the proposed decision as it represents important decision factors that I will consider in making my final decision (EA, page 6).

Finding

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

_____ _____

Thomas E. Rasmussen, Field Manager Date
Lakeview Resource Area

LIVESTOCK GRAZING PERMIT RENEWAL

for

DICKS CREEK ALLOTMENT (#01306)

ENVIRONMENTAL ASSESSMENT

DOI-BLM-OR-L050-2013-0045-EA

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

December 2013

CHAPTER I - PURPOSE AND NEED FOR ACTION

A. Introduction

The Lakeview District, Bureau of Land Management (BLM) has prepared this Environmental Assessment (EA) to analyze the potential effects of renewing term grazing Permit #3600119 for a 9-year period. This permit addresses grazing management within the Dicks Creek Allotment (#01306). This EA analyzes the direct, indirect, and cumulative environmental impacts that may result from the alternatives and serves as the analytical basis for making the determination as to whether any significant impacts to the human environment would result from the proposal, as well as provides general compliance with the National Environmental Policy Act of 1969 (NEPA).

Dicks Creek Allotment is located approximately 15 miles north of Lakeview, Oregon (Map 1). Elevation across the allotment ranges from 4,850 feet to 5,300 feet. There are approximately 3 acres of private land and 366 acres of BLM-administered land within the allotment (Map 2). There are two pastures within the Dicks Creek Allotment, Upper and Lower. One grazing permit, #3600119, exists for the allotment. Under this grazing permit, the current season of use for the allotment is from May 1 through May 31with 55 Animal Unit Months (AUMs) of active use and 0 AUMs suspended use.

B. Purpose and Need for Action

The grazing permit for this allotment expires in January 2014. The permittee has already submitted a permit renewal application to the BLM for consideration. The primary purpose of this analysis is to respond to the permittee's permit renewal application and consider whether or not to reissue or modify the 9-year term livestock grazing permit #3600119 associated with the allotment in accordance with 43 CFR Part 4130. This permit would be issued for 9 years which is the term of the base property lease. When issued, grazing permits must also address 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 second purpose of this analysis is to consider the effects of range improvement and fuel reduction projects within the allotment.

A third purpose of this analysis is to consider treating noxious weeds and invasive species within the allotment using both approved weed management methods described in the existing integrated weed treatment plan (BLM 2004), as well as allowing the use of additional herbicides for treatment consistent with the *Record of Decision (ROD) for the Vegetation Treatments using Herbicides on BLM Lands in Oregon* (BLM 2010b).

C. Decision to be Made

The authorized officer will decide whether or not to renew the 9-year Term Grazing Permit, and if so, under what terms and conditions. The authorized officer will also determine whether or not the proposed range improvements and fuel reduction treatment should be implemented as part of an overall plan to improve management for the allotment. The authorized officer will also decide whether or not to treat weeds and invasive species throughout the allotment, as well as determine which methods to use.

D. Decision Factors

Decision factors are additional criteria used by the decision maker to choose the alternative or

combination of alternatives that best meet the purpose and need for the proposal. These include:

a) How well does the decision conform to laws, regulations, and policies related to grazing use and protecting other resource values?
b) How well does the decision conform to the resource management plan?
c) How well does the decision promote maintenance of rangeland health standards?
d) How well does the proposal conform to the existing integrated weed management plan (BLM 2004) and *Record of Decision for Vegetation Treatment Using Herbicides on BLM Lands in Oregon* (BLM 2010b)?
e) How well does the proposal conform to the Fremont-Winema National Forest and Lakeview District BLM 2013 Fire Management Plan?

E. Conformance with Land Use Plans

The *Lakeview Resource Management Plan/Record of Decision, (RMP/ROD)* (BLM 2003b, as maintained) is the governing land use plan for the area and provides the following goals and management direction related to livestock management, fuel treatments, and weed treatments:

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

Management Direction

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 Dicks Creek Allotment is currently open or allotted to grazing use. Livestock are allocated 55 animal unit months (AUMs) of forage (Table 5, page 49, as maintained; Appendix E1, page A-129, as maintained; Map G-3).

Rangeland improvement projects will be implemented to meet resource objectives… Range improvement projects that do not enhance resource values and meet management objectives will be abandoned and rehabilitated (page 53).

Plant Communities – Shrub Steppe Management Goal 1– restore, protect, and enhance the diversity and distribution of desirable vegetation communities, including perennial native and desirable introduced plant species. Provide for their continued existence and normal function in nutrient, water, and energy cycles (page 28).

Management Direction

Upland native shrub steppe communities will be managed to attain a trend toward the desired range of conditions based on management objectives and site potential (page 28).

Prescribed and wildland fire use will be implemented to rehabilitate or vegetate plant communities that do not meet desired conditions due to dominance by annual, weedy, or woody species… (page 29).

Seedings will be implemented with appropriate mixes of adapted native and nonnative perennial and annual plant species; although native species will be preferred for seedings. Species mixes will be determined on a site-specific basis dependent upon the probability of successful establishment and risks associated with seeding failure (page 29).

Plant Communities – Shrub Steppe Management Goal 2– protect healthy functioning ecosystems consisting of native plant communities. Restore degraded high-potential landscapes and decadent shrublands

Management Direction

High priority will be given to restoration of degraded landscapes and decadent shrublands through projects such as prescribed burns, seeding of desirable native and nonnative species, … (page 29).

Plant Communities – Forest and Woodlands Management Goal 2– restore productivity and biodiversity in western juniper woodlands and quaking aspen groves.

Management Direction

When evaluating areas for western juniper treatment…, priority areas will be those areas where western juniper is most adversely affecting other resources. These include quaking aspen groves, riparian areas, greater sage-grouse leks and primary habitat, deer winter range, bighorn sheep range, and younger, invasive western juniper in old-growth western juniper sites… Western juniper areas will be considered a high priority for treatment where canopy cover is under 15 percent (areas that still have a grass and brush understory)…. Combinations of one or more treatment methods (mechanical, chemical, biological, or prescribed fire) could be made in a treatment area. Mechanical treatments will be preferred when trying to preserve the shrub component important to wildlife (pages 33-34).

Noxious Weeds and Competing Undesirable Vegetation Management Goal – control the introduction and proliferation of noxious weeds and competing undesirable plant species, and reduce the extent and density of established populations to acceptable levels (page 37).

Management Direction

Weeds will be controlled in an integrated weed management program that includes prevention education and cultural, physical, biological, and chemical treatments… Mechanical and manual control methods and burning treatments will (be used to) physically remove noxious weeds and unwanted vegetation; biological controls will introduce and cultivate agents such as insects and pathogens that naturally limit the spread of noxious weeds; and chemical treatments using approved herbicides will be applied where mechanical and/or biological controls are not feasible (page 37).

Selection of the appropriate control method will be based on such factors as the growth characteristics of the target species, size of the infestation, location of the infestation, accessibility of equipment, potential impacts to non-target species, use of the area by people, effectiveness of the treatment on target species, and cost… these methods may be used individually or in combination and may be utilized over several years… for a period of 10 or more years (page 37).

Operation and Maintenance Management Direction -

"*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…, reservoirs, wells, pipelines, waterholes, fences, cattle guards, seedings, … 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* (Page A-129).

Improve/maintain range condition - *Use management practices and/or better animal distribution; develop range improvements when appropriate: adjust permitted use as needed* (Page A-129).

F. Consistency with Other Authorities, Plans, and Policies

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 pasture and has been determined to be a qualified applicant.

A performance review of the permittees past use was completed and BLM found the permittee's record to be substantially in compliance, pursuant to 43 CFR 4110.1(b). This conclusion was based on: grazing utilization at acceptable levels except two years, the majority of bills were paid on time, the majority of actual use information was turned in and within authorized AUM's, authorized use was within permitted dates, permit terms and conditions were adhered to, base property requirements were met, and there has been no trespass or unauthorized use within the last ten years.

Other Plans and Policies

The final decision must also conform to the following plans or policies, which direct and provide a framework for management of BLM lands/resources within Lakeview Resource Area:

- *Standards for Rangeland Health and Guidelines for Livestock Management for Public Lands Administered by the BLM in the States of Oregon and Washington* (BLM 1997) A Rangeland Health Assessment (RHA) was conducted in 2002 for the Dicks Creek Allotment, and was

updated in 2013. The Dicks Creek Allotment met standards 2, 4 and 5. Standards 2 and 3 were not met due to the following factors: lack of periodic rest from livestock grazing, invasive weeds and juniper/pine expansion (BLM 2003c, 2013e).

- *Integrated Noxious Weed Control Program, EA#OR-010-2004-03* (BLM 2004) - This document tiered to the noxious weed management direction in the *Lakeview RMP/ROD* and provided more specific details on the locations of known noxious weed sites in the Lakeview Resource Area and how periodic treatments would be conducted on these sites, as well as new sites discovered during future inventory. The 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 budget.

- *Record of Decision* (ROD) *for Vegetation Treatment Using Herbicides on BLM Lands in Oregon* (BLM 2010b). Pending site specific National Environmental Policy Act analysis at the District level, this programmatic, statewide decision expands the number of herbicides available for use by Oregon BLM Districts and expands herbicide use beyond noxious weed treatments to include: the treatment of all invasive plants; the control of pests and diseases; the control of native vegetation to achieve habitat goals specified in interagency conservation Strategies for Federally-listed and other Special Status species. The ROD selected a slightly modified version of Alternative 4 as described in the Final EIS (BLM 2010a) and authorized the use of 17 herbicides east of the Cascades and 14 herbicides west of the Cascades. This EA provides the site specific analysis necessary to consider the use of herbicide active ingredient Imazapic for use on the Dicks Creek Allotment.

CHAPTER II - ALTERNATIVES

Alternatives 1 through 5 have been fully analyzed in Chapter III of this EA. Following the public review period for this document a proposed decision would be made by the Field Manager that may choose to proceed with any one of the alternatives analyzed or a combination of portions of multiple alternatives.

Actions Common to All Grazing Alternatives (1-3, and 5)

Grazing Management Flexibility

Knowing uncertainties exist in managing for sustainable ecosystems, changes to the proposal may be authorized 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 permitted AUMs). An example of this would be; to turn livestock out later in the season on a year with a wet cold spring; or to bring livestock off the allotment early as conditions warrant this need.

- Drought causing lack of available water in certain areas originally scheduled to be used. An example would be resting a pasture that had low water and shifting livestock use to the pasture that had water. Conversely in wet years, livestock could be moved to areas near less dependable water sources.

- Changes in use periods to balance utilization levels per pasture. An example of this would be to shorten the time period or number of livestock in a pasture that had 65% average utilization and or increase the time period and number of livestock in another pasture that had 30% average utilization if the target utilization in both pastures is 50%.

Flexibility in grazing management would be authorized within permit dates and within active permitted AUMs so long as:

- Changes in rotations 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 flexibility in grazing management. As monitoring indicates changes in grazing management are needed to meet resource objectives, they are implemented annually working with the permittee.

Monitoring

Monitoring would continue, as specified in the Lakeview Resource Management Plan (RMP), incorporated herein by reference in its entirety (BLM 2003b, pages 53-55). In summary, trend monitoring studies may include nested frequency and 180° step-toe and photo station and observed apparent trend methodologies are used to measure cover, species composition, and frequency. Utilization studies would be conducted using the key forage plant method. Utilization is a measure of the amount of the current year's forage consumed by livestock. Target utilization levels for key forage plant species are shown in Table 2.1. Monitoring methodology will follow the latest protocol(s), such as Technical Reference 1734-3 and 1734-4 (BLM 1996a, 1996b) incorporated herein by reference in their entirety.

Table 2.1. Key Species and Target Utilization Levels

Pasture	Acres	Key Species	Utilization Target
Upper		Thurbers needlegrass/bluebunch wheatgrass	50%
Lower		Riparian Vegetation	50%

During each allotment visit, monitoring for noxious weed establishment would occur, as well as observations of overall rangeland condition. Adjustments to timing of grazing and pasture use sequence to ensure/promote achievement of rangeland health standards, and to meet other resource objectives, may be implemented based on this annual data.

Other Terms and Conditions

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.

Trailing

Trailing use would occur through the Dicks Creek Allotment, outside the permit dates, to move cattle to and from private property. Dicks Creek Allotment is an isolated piece of BLM administered land neighboring private property and forest service administered lands. Cattle would be moved from private property south of the allotment into the allotment during the permitted season of use. After cattle are

removed from the Dicks Creek Allotment, they would generally be moved to private land north of the allotment. Cattle would then be moved south back through the allotment to private. Trailing use occurring through the allotment would take approximately an hour or less because the small size of the allotment. Cattle would be actively moved through the allotment, and not left to drift.

Actions Common to Alternatives 2, 3, and 5

Proposed Range Improvements and Treatments

A cooperative agreement between the permittee and BLM would be completed to address each partner's responsibilities for labor, construction, maintenance, and/or supplies of the new range improvement if this alternative is selected.

a. Reservoir Construction

A small (less than half an acre) reservoir would be constructed in drainage on the south side of the road, in the Upper Pasture (Map 2). This reservoir would be used collect runoff water, and create an additional water source for the Upper Pasture.

b. Project Maintenance

Maintenance on all existing and proposed projects in the allotment would likely be needed sometime in the next 9 years. Reservoir maintenance would include cleaning (within the original area of disturbance) of the reservoir to ensure continued water storage function. Spring and pipeline maintenance would include cleaning, repair, or replacing spring box, fixing and/or replacing fittings, or repairing broken, damaged, or leaking sections of pipe, etc.

c. Fuel Load Reduction

Treatments would be implemented to reduce the densities of invasive Western juniper (*Juniperus occidentalis*) and small diameter ponderosa pine (*Pinus ponderosa*) trees. Old-growth juniper stands would be left throughout the allotment for diversity and wildlife habitat needs.

Areas of densely stocked ponderosa pine trees would be thinned. The small diameter trees (9-inch dbh and below) would be cut and hand piled to be burned. Treatments would consist of cutting followed by hand piling or machine piling and single tree or pile burning, or cutting and leaving. Machine piles would be approximately 8 to 12 feet by 16 to 22 feet in size and would be constructed using grapple equipment during dry or frozen conditions. Conifers with old-growth characteristics or obvious wildlife occupation (cavities or nests) would be avoided. Such trees would be protected during prescribed fire operations by placing piles far enough away from them to avoid any damage. Hand piles would be located at least 25 feet from Dicks Creek and 15 feet from trees found in the valley bottom. Any hand piles located in the Dicks Creek valley bottom would be burned when soils are frozen. All tree cutting along Dicks Creek would be accomplished manually using chainsaws and should, as much as practicable, fell trees into the stream and be left intact to provide aquatic structure and bank stabilization. Hand piles would be 3 to 5 feet by 3 to 5 feet in size. Hand piling would occur in areas that are sensitive and/or inaccessible to equipment due to slope or terrain. Piles would be burned when soils are saturated or frozen and there is no potential for the fire to spread. Burning would occur within 2 years of piling. Cut and leave treatments would occur in areas where juniper density is low enough that

the cut juniper would not pose a risk of fire danger. Burned areas would be seeded when necessary, see section e. (seeding) below.

d. Noxious Weed Treatment

During the botany clearance in 2013 medusahead rye *(taeniatherum caput-medusae),* cheatgrass (*Bromus tectorum*), and Africa wiregrass (*Ventinata dubia*) were found across the Dicks Creek Allotment. These are all non-native invasive winter annual grasses, and have high potential to out-compete native vegetation, and reduce forage for wildlife and livestock. Currently, only four herbicides are available for use on BLM lands in the Lakeview Resource Area. Out of these four herbicides only glyphosate would have potential to suppress the winter annual grass species. Glyphosate is a non-selective herbicide that kills both grass and broadleaf species. Due to the non-selectiveness of glyphosate, BLM management does not allow broadcast applications of this herbicide on rangelands. This leaves the BLM with no effective controls measures for winter annual grasses on BLM land. The *Record of Decision for Vegetation Treatment Using Herbicides on BLM Lands in Oregon EIS* (BLM 2010b) allows an additional 13 herbicides to be used on BLM lands in Oregon once site-specific NEPA is completed.

The proposed treatment would allow control of the winter annual grasses present in the Dicks Creek allotment by allowing the use herbicide Imazapic. Imazapic was one of the 13 herbicides analyzed in the *Vegetation Treatment Using Herbicides on BLM Lands in Oregon FEIS* (BLM 2010a). This herbicide would be very selective and the majority of the native grasses would not be affected by the application of Imazapic, however it would be a very effective control for the winter annual grass species. Imazapic would be applied one year prior to cutting the conifer trees to suppress the present infestations and directly after the trees are burned to prevent new winter annual grass infestations. Spot spraying may occur the second year after conifer treatment. The Imazapic application will be applied at the typical rate of 0.0313 pounds of Acid Equivalent per acre. Herbicide would be applied using ground-based methods such as backpack sprayers, ATV, UTV, truck-mounted sprayers and aerial (helicopter or fixed wing sprayers) in accordance with the *Record of Decision for Vegetation Treatment Using Herbicides on BLM Lands in Oregon* (BLM 2010b). The BLM would also use manual, mechanical, biological control methods, including prescribed fire, as part of an integrated vegetation management approach (BLM 2004a).

Mediterranean sage has been a historic noxious weed issue within the allotment. A biological control agent *Phrydiuchus tau* (Mediterranean sage weevil) is present in the area, and would continue to be used to control Mediterranean sage under these alternatives. Continued use of hand digging and the the four herbicides currently authorized for use (2,4-D, dicamba, glyphosate and picloram) would also occur under this alternative.

e. Seeding

Treated areas would be seeded when necessary after the trees are burned and second application of spray has been applied. Seeding would also take place in areas disturbed by implementation of the proposed range improvement project. Seeding would likely occur in the fall/winter season using a 4-wheeler and/or hand seeder. The seed mix would include species that provide competition against annual grasses and other undesirable species; the seed mix would include a combination of native (may include, but is not limited to: bottlebrush squirreltail, Sandberg's bluegrass, bluebunch wheatgrass, and Idaho fescue) and introduced grasses (namely crested wheatgrass) and forbs. Crested wheatgrass (*Agropyron cristatum*) may be used in the seed mix because it is drought tolerant, competitive with invasive species, has a long seed viability period, and aggressive germination characteristics.

The allotment or pasture would be rested from livestock grazing for a minimum of two growing seasons after seeding, in accordance with the Lakeview RMP/ROD, page 81.

f. Project Design Features for Proposed Range Improvements and Treatments

(1) Prior to implementation, the proposed rangeland improvement and treatment sites would be surveyed for cultural resources. If cultural sites are found, their condition and National Register eligibility would be evaluated. If determined National Register eligible and under threat of damage, mitigation measures to protect cultural materials would be developed in consultation with the State Historic Preservation Office, as necessary. Mitigation measures could include protective fencing, surface collection and mapping of artifacts, subsurface testing, complete data recovery (full-scale excavation), or relocation of the proposed project(s).

(2) The risk of new noxious weed introduction would be minimized by ensuring all equipment (including all machinery, 4-wheelers, and pickup trucks) is cleaned prior to entry to the sites, minimizing disturbance activities, and completing follow-up monitoring for five years, to ensure no new noxious weed establishment. Should new noxious weed sites be found, appropriate control treatments would be performed in conformance with the Lakeview Resource Area Integrated Weed Management Program (BLM 2004a) or with the strategy outlined in this EA.

(3) Maintain suitable big game hiding and thermal cover. Ensure that mountain mahogany stands and conifer stands continue to function as big game cover following treatments. Thermal cover to be retained would be identified during project layout for all prescribed fire and mechanical treatment projects.

(4) Visual Quality:

Insure timeframe from the initial cutting treatments to burning applications as short as possible (1-2 years).

Create treatment unit boundary such that they appear as natural as possible by rounding corners, curving or undulating edges, as well as by feathering edge densities instead of creating square/angular shapes with hard boundary lines.

Retain some standing trees, particularly in large groups or islands to break up open spaces.

(5) Burning would follow the Oregon State Smoke Management Plan in order to protect air quality and reduce health and visibility impacts on designated areas.

(6) As soon as practicable after completion of all project activity within a specific area, routes damaged by vehicles would be maintained or repaired to the condition they were in prior to treatment; all road repair work would occur within the existing road corridor.

Alternative 1: No Action

The No Action Alternative would renew the existing livestock grazing permit (#3600119) in the Dicks Creek Allotment for nine years (the base property lease has been renewed for a period of nine years), continuing the current grazing management, permitted season of use (May1 through May 31) and forage allocation (up to 55 AUMs of active preference and 0 AUMs suspended use). The permit would be issued

with the same terms and conditions as the expiring permit. See Table 2.2 for the current grazing management.

Livestock grazing within the Dicks Creek Allotment is described in the *Lakeview RMP/ROD* as an unknown grazing system (Table 5, page 49, as maintained). The Dicks Creek Allotment has been used during the late spring/early summer (May) annually. Using the allotment in this manner has provided the riparian vegetation the opportunity for regrowth on years receiving favorable precipitation.

Noxious weed treatment would continue under this alternative, but would be limited to the four herbicides: 2,4-D, dicamba, glyphosate, and picloram. Herbicides would be used to control legally designated noxious weeds only. No conifer fuel reduction treatments or new range improvement projects would be included under this alternative. Biological control agent *Phrydiuchus tau* (Mediterranean sage weevil) is present in the area, and would continue to be used to control Mediterranean sage under this alternative.

Table 2.2. Specified Grazing Conditions by Alternative

ALTERNATIVE	LIVESTOCK		GRAZING PERIOD		SUSPENDED USE (AUMs)	ACTIVE PERMITTED USE (AUMs)
	Number	Kind	Begin Date	End Date		
1 - No Action	55	Cattle	5/1	5/31	0	55
2 - Project Development/2-Year Rest Rotation	36*	Cattle	5/1	5/31	0	55
3- Project Development/3-Year Rest Rotation	36*	Cattle	5/1	5/31	0	55
4 - No Grazing	0	NA	NA	NA	55	0
5 – Standard Rest Rotation	26*	Cattle	5/1	5/31	0	55

*See discussion under Alternatives 2, 3 and 5.

Alternative 2: Project Development/2-Year Rest Rotation

This alternative would include renewing the 9-year permit, implementing an alternating 2-year rest rotation grazing system, constructing a reservoir, and maintaining a spring development and reservoir, and reducing conifer encroachment within the allotment. See Table 2.2 for proposed grazing management.

Permit Renewal

This alternative would renew the existing livestock grazing permit (#3600119) in the Dicks Creek Allotment for nine years, continuing the permitted season of use (May1 through May 31) and forage allocation (up to 55 AUMs of active preference and 0 AUMs suspended use). The permit would be issued with the same terms and conditions as the expiring permit (see Table 2.2).

Two-Year Rest Rotation Grazing System

Use periods in each pasture and livestock numbers may vary annually as outlined under the Management

Flexibility section (see Chapter II, A. Actions Common to All Alternatives); however, total permitted AUMs would not be exceeded.

A 2-year rest rotation grazing system would be implemented on the allotment where the Lower Pasture would be rested every other year, and the Upper Pasture would be grazed each year (Table 2.3). This rest rotation would begin in 2014, or the first grazing season following the final decision.

> *Year One:* Both pastures would be grazed during the month of May.
>
> *Year two:* The Upper Pasture would be used in conjunction with the Garner Field (private pasture), and the Lower Pasture would be rested.

Note: The Garner Field is an adjacent private land pasture that would be used along with the Upper Pasture of the Dicks Creek Allotment on year two. The Garner Field is not currently part of the Dicks Creek Allotment, nor would it become part of the Dicks Creek Allotment under this alternative.

Under this alternative, 36 AUMs would be used on an annual basis. Cattle numbers and/or length of time in each pasture would be adjusted to average 36 AUMs.

Table 2.3. Alternative 2, 2-Year Rest Rotation Grazing Management System

Year	Lower Pasture	Upper Pasture
One (2014)	Graze	Graze
Two (2015)	Rest	Graze

Alternative 3: Project Development/3-Year Rest Rotation

Permit Renewal

The permit renewal portion of this alternative would be the same as Alternative 2.

3-Year Rest Rotation Grazing System

Under this alternative, the allotment would be used on a three-year rest rotation system during the month of May. This rest rotation would begin in 2014, or the grazing season following the final decision.

> *Year One*: The Lower pasture would be used, or used with one of two private pastures, north or south of the Dicks Creek Allotment. The Upper Pasture would be rested.
>
> *Year Two*: The Upper and Lower Pastures would be used together.
>
> *Year Three*: The Upper Pasture would be used with an adjacent private pasture (Garner Field). The Lower Pasture would be rested.

Under this 3-year rest rotation system each pasture would receive rest every third year (Table 2.4).

Under this alternative, 36 AUMs would be used on an annual basis. Cattle numbers and/or length of time in each pasture would be adjusted to average 36 AUMs.

Table 2.4. Alternative 3 – Three-Year Rest Rotation Grazing Management System

Year	Lower Pasture	Upper Pasture
One (2014)	Graze	Rest
Two (2015)	Graze	Graze
Three (2016)	Rest	Graze

Alternative 4: No Grazing/No Treatment

Under this alternative, the current permit would not be renewed and livestock grazing would not be authorized on public lands within the allotment. Should this alternative be selected, this decision would be reevaluated after 9 years.

Existing range improvements within the interior of the pastures (existing reservoirs, wells, and troughs) would not be maintained for livestock grazing management purposes. However, portions of the pasture boundary fences would still be maintained in the future to allow livestock grazing to continue on adjacent lands. This alternative is being considered to provide a full range of alternatives and comply with grazing management permit renewal guidance (BLM 2000, 2008b).

Under this alternative the following activities or treatments would not occur: conifer treatment, range improvements, noxious weed treatment. No noxious weeds would be treated using herbicides on the allotment under this alternative. Biological control agent *Phrydiuchus tau* (Mediterranean sage weevil) is present in the area, and would continue to be used to control Mediterranean sage under this alternative.

Alternative 5: Standard Rest Rotation

Permit Renewal

The permit renewal portion of this alternative would be the same as Alternative 2.

Standard Rest Rotation Grazing System

Under this alternative, the allotment would be used on rest rotation system during the month of May. This rest rotation would begin in 2014, or the grazing season following the final decision.

Year One: The Lower Pasture would be rested and the Upper Pasture would be grazed.

Year Two: The Upper Pasture would be grazed and the Lower Pasture would be rested.

Under this alternative, each pasture would receive rest every other year (Table 2.5)

Table 2.5. Alternative 5 - Rest Rotation Grazing Management System

Year	Lower Pasture	Upper Pasture
One (2014)	Rest	Graze
Two (2015)	Graze	Rest

Under this alternative, approximately half (28) of the 55 AUMs would be used on an annual basis. This is because half of the allotment would be used each year. Cattle numbers and/or length of time in each pasture may be adjusted as described under the Grazing Management Flexibility under section A(1) above.

CHAPTER III - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section presents a description of the current environment within the allotments and a discussion of the potential changes resulting from implementation of the alternative management actions. An inter-disciplinary (ID) team has reviewed and identified the resources values and uses that potentially could be affected by the alternative actions. Those resources or uses identified as "not affected" or "not present" are listed in Table 3.1 and will not be discussed or further analyzed in this EA. The remainder of this chapter describes the potential direct, indirect, and cumulative effects on resources and uses that may result from each alternative.

Climate

Affected Environment:

The climate in the vicinity of the allotment is variable, but typical of the Northern Great Basin or high desert system. Mean annual precipitation ranges from 8-16 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.

Environmental Consequences:

Effects Common to Alternatives 1-5

Based on analyses contained in several recent permit renewal EAs, which analyzed between 0 and 329 AUMs of forage consumption annually, and are incorporated herein by reference in their entirety (BLM 2012a, 2012b), the continued utilization of up to 55 AUMs of forage would result in extremely small levels of greenhouse gas emissions and net carbon storage/loss, and would be similar to the extremely small levels previously analyzed. These levels would not have any significant effects on either regional or global greenhouse gas emissions or carbon sequestration processes, or have any scientifically verifiable effects on regional or global climate. Therefore, this issue will not be analyzed further.

Air Quality

Affected Environment:

Air quality in the area associated with Dicks Creek Allotment is generally good. No area or community in Lake County is considered a nonattainment area[1] for particulate matter meaning it is not in violation of national ambient air quality standards. Gearhart Wilderness Area, an area designated as a Federal Class 1 airshed under the Clean Air Act (42 U.S.C. § 7475 (d)(2)(B)), is within approximately 25 air miles of the Project Area. Designation as a Class 1 airshed allows only very small increments of new pollution above existing air pollution levels.

Table 3.1. Resources or Resource Uses that Would not be Affected

Elements of the Human Environment		Rationale
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 pastures or surrounding area.
ACEC	Not Present	There are no ACECs located 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.
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.
Special Status Plants	Not Present	Portions of the allotment was surveyed prior to the RHA, and found no bureau special status plant species. In 2013, the allotment was surveyed for special status species and none were found.
Wilderness	Not Present	No wilderness study areas or designated wilderness areas are located in 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.
Lands with Wilderness Character	Not Present	Since 2007, the BLM has been conducting wilderness inventory updates for public lands within the Lakeview Resource Area following current inventory guidance (USDI-BLM 2007a, 2008c, 2012a). In this process, an inter-disciplinary team reviewed the existing wilderness inventory information contained in the BLM's wilderness inventory files, previously published inventory findings (USDI-BLM 1979f, 1979g, 1979h, 1980a, and 1980b), and citizen-provided wilderness information (ONDA 2005). BLM conducted field inventory, completed route analysis forms, made unit boundary determinations, and subsequently evaluated wilderness character within each inventory unit. BLM recently completed wilderness character inventory updates for the Tucker Hill Area, which covers the Dicks Creek Allotment. BLM-administered lands in the allotment did not meet the size criteria or any of the exceptions to the size criteria. Therefore, BLM did not find wilderness characteristics to be present in the allotment (BLM 2011b). BLM hereby incorporates these findings by reference in their entirety. Based upon the results of this inventory update, there would be no impacts to lands with wilderness character.

Weather, as illustrated by wind, moves into the Project Area generally from the southwest or west and exits the Project Area to the northeast or east during the spring and summer months and changes to coming from the northwest during the winter and fall months. Periods of degraded air quality can occur, though typically these events are short-lived (less than 1 week). These events are usually associated with development of a stable air mass and/or cold air inversion over the Project Area. The greatest occurrence of such phenomena is during the winter months and less so during the spring and fall. Smoke from wildfires and to a lesser degree prescribed fires are also a considerable source of degraded air quality when they occur, primarily from particulate matter contained in smoke. Smoke from wood burning stoves, where residences occur near the analysis area, can cause periods of degraded air quality during the winter heating season, usually associated with the stable air and/or inversion phenomenon mentioned above.

Environmental Consequences:

Effects of Alternative 1 - No Action

Under the No Action Alternative no fuel treatments would occur. Potential for wildfires to occur would be greater where fuel treatments do not occur. The impact to air quality would be greater from a wildfire occurring in the area as wildfires typically have a longer ignition phase, or burn longer, consume more of the burnable biomass and produce more smoke and particulate matter than pile burning. The area in question would continue to amass woody debris in the absence of treatment.

Effects of Alternative 2: Project Development/2-Year Rest Rotation

Fuels reduction projects would produce smoke from pile burning fires and to a lesser degree dust from mechanical treatments. Impacts to air quality from pile burning would range from reduced visibility, to pneumonic irritation, and smoke odor affecting people in proximity to the Project Area when such treatments are underway. These impacts would be short-lived, the greatest impact would occur during the actual ignition or active burning phase, lasting from one to a few days depending on the size or number of piles to be ignited. Residual smoke produced from the burnout of large fuels, or slower burning fuel concentrations would occur, lasting for 1 to 3 days following the ignition phase. Impacts to air quality from mechanical treatments would be airborne dust generated while operating that would reduce visibility in the immediate Project Area, ceasing quickly when such operations stop.

A proximity analysis of the allotment for smoke impacts indicated that residences in the Crooked Creek Valley and highway 395 would potentially be impacted as they are located to the down drainage, respectively, of project center. The likelihood of substantial impact would be low mainly during nighttime inversions; the amount of impact would be dependent on atmospheric conditions at the time of ignition. The town of Lakeview is located 15 miles to the south and the community of Valley falls is located 7 miles to the north. There would be low potential to impact these communities. Prescribed fires are planned and implemented when atmospheric stability and wind conditions promote smoke dispersion into the atmosphere and/or transport out of the area. In addition they are planned when diurnal wind conditions limit the amount of smoke pooling in canyons and valleys. Air quality and smoke management is monitored by the State of Oregon, which coordinates burns in order to limit impacts.

Subsequent site-specific burn plans would include a contact list of residents, and/or other places of interest adjacent to the Project Area to communicate potential impacts.

[1] ***Non-attainment Area:*** An area that does not meet one or more of the National Ambient Air Quality Standards for pollutants designated in the Clean Air Act.

Gearhart Wilderness Class I airshed is unlikely to be impacted by smoke due to dominant wind vectors in the region that come from the north and northwest during the likely time of burning.

The areas of greatest impact from mechanical treatments would be the immediate project area and roads used in association with the project.

Effects of Alternative 3: Project Development/3-Year Rest Rotation

Under this alternative, effects would be the same as under Alternative 2: Project Development/2-Year Rest Rotation.

Effects of Alternative 4: No Grazing/No Treatment

Under this alternative, effects would be the same as under Alternative 1.

Effects of Alternative 5: Standard Rest Rotation

Under this alternative, effects would be the same as under Alternative 2: Project Development/2-Year Rest Rotation.

Soils and Biological Crusts

Affected Environment:

Soil information was compiled using data on file at the Lakeview District BLM Office. This data comes from the soil data component of the Ecological Site Inventory (ESI) conducted by BLM and Natural Resource Conservation Service personnel (see also NRCS 1990). This data is herein incorporated by reference in its entirety and is summarized in the following section.

There are three soil complexes present within Dicks Creek Allotment. However, the Winterim series, two map units, comprise 75% or more of the area (Map 3). The most dominant soil map unit within the allotment and its respective percentages are: Winterim very gravelly loam, 40 to 60 percent south slopes (see Table 3.2). They are deep, well drained with low water holding capacities (5 inches). Erosion potential, based on K factor rating system,
is severe.

Observed apparent trend (OAT) data was collected at the long-term photo monitoring sites within the allotment. OAT was used to determine trend indicators correlated to soil stability. These indicators are: surface litter, pedestals, and gullies. OAT data collected indicates stable soils within Dicks Creek Allotment; i.e. the majority of litter is collecting in place, there is little evidence of pedestaling, and gullies are absent from the allotment (Table 3.2).

Table 3.2. Dicks Creek Allotment Soil Associations

Soil Series	% Area*	Soil Map Unit
Winterim Very Gravelly Loam, 40-60% South Slopes	75	270G
Rogger Very Gravelly Fine Sandy Loam, 40-60% North Slopes	12	235G
Bullump-Nuss-Rock Outcrop Complex 30-50% South Slopes	12	35F

*values less than 1% of area are not displayed.

Biological soil crusts (BSCs) such as mosses, lichens, micro fungi, cyanobacteria and algae play a role in a functioning ecosystem and are one of at least 12 potential indicators used in evaluating upland watershed function. In addition to providing biological diversity, BSCs contribute to soil stability through increased resistance to erosion and nutrient cycling (Belnap *et al.* 2001). Lichen species diversity is poorly known in the Pacific Northwest (Root *et al.* 2011). Further, identification of BSCs at the species level is not practical for fieldwork, as it is very difficult and may require laboratory culturing (Belnap *et al.* 2001).

Studies by Ponzetti (2000) and Ponzetti and McCune (2001) examined BSC cover and composition at several locations in central and eastern Oregon in 1995. The studies compared species richness of crusts inside and outside of several exclosures to provide a grazed-verses-ungrazed comparison. Results of the study found that all of the sites had between one and six more taxa inside the ungrazed exclosures than in the grazed pastures, with one exception, which had three more species in the grazed transect. Generally, total crust cover was inversely related to vascular plant cover, as there is a positive relationship of crust cover to available soil surfaces. Differences in crust cover and species composition between study sites were most strongly related to soil pH, electrical conductivity, and the relative calcium carbonate content of the soil. Soil chemistry and climate differences were a stronger factor affecting cover and species composition than livestock exclusion. However, the study found a lower cover of biotic crusts, lichens, and species richness in grazed areas (Ponzetti and McCune 2001).

Environmental Consequences:

Effects of 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 soils due to compaction at waterholes and along trails (pages 4-35 to 4-36). Under these alternatives, 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 and compaction around watering sites, along trails and fence lines. These disturbances would increase the potential for soil erosion by wind and water.

The greatest impacts to soils and crust cover would continue to occur in livestock concentration areas near water sources and along cattle trails. In general, livestock would tend to concentrate within a quarter of a mile around existing water sources. In this case, the existing water development in the Upper Pasture is located in close proximity to the eastern allotment boundary fence (Map 2) and a quarter mile buffer represents approximately 73 acres that would continue to be impacted by concentrated grazing use. The loam soils would be the most susceptible to compaction. However, compaction impacts would only occur for about one month every year. Normal freeze and thaw activity would lessen the potential for long-term compaction.

The amount of concentrated use along Dicks Creek was calculated as a 100-foot buffer along 1/2 mile of creek, for a total impact area of approximately 6 acres. The riparian trend photos generally indicate improving trends in riparian conditions on Dicks Creek, and show increases in native riparian vegetation, including willows, sedges and rushes, as well as stream channel narrowing and deepening, and increases in stream bank stability. However, these trends would be expected to decline with continued May use every year.

Cattle trails tend to be located along fence lines and near water sources. These trails are typically less than 5 feet wide. The pasture perimeter fence is approximately 4 miles representing approximately 2 acres (4 mi. x 5 ft. x 5,280 ft. per mi./ 43,560 $ft.^2$ per acre). BLM does not have a quantifiable means of

estimating disturbed acres associated with cross-country livestock trailing to water sources, but based on estimates associated with fencing, believes that it represents a very small percentage of the allotment.

In total, approximately 81 acres (22%) of the soils and BSCs on the allotment would continue to be impacted by concentrated livestock use near water sources and trailing under this alternative.

Conifers would continue a predicted transition to fully-developed woodlands. In time, this transition would decrease understory species, increasing bare ground and the chance of soil erosion.

Four herbicides authorized for use (2,4-D, dicamba, glyphosate and picloram) would continue to be used to control legally designated noxious weeds on the allotment. Of the noxious weeds occurring within the Dicks Creek Allotment, Mediterranean sage, would be treated using one the four currently authorized herbicides. Treating Mediterranean sage would decrease infestations and the opportunity for spread, while also decreasing competition with native vegetation. Biological control agent *Phrydiuchus tau* (Mediterranean sage weevil) is present in the area, and would continue to be used to control Mediterranean sage under this alternative. The continued use of the biological control agent would continue to decrease infestations of Mediterranean sage, and competition with native vegetation, within the Dicks Creek Allotment, especially when coupled with herbicide use. Use of the four above named chemicals would not be the most effective herbicide to control winter annual grasses (medusahead rye, (Africa wiregrass, and cheatgrass. Therefore, winter annual grasses would continue to compete or out compete native vegetation for available resources. Loss of perennial grasses, forbs, and shrubs would decrease the root holding capacity within the soil, increasing the chance of erosion.

Effects of Alternative 2: Project Development/2-Year Rest Rotation

Under Alternative 2, there would be some additional surface disturbance to soils and BSCs from vehicle traffic during reservoir construction and future maintenance of the proposed range improvements. The proposed reservoir would create an additional water source in the Upper Pasture. Based on the new reservoir's location near the pasture division fence, a quarter-mile buffer represents approximately 62 additional acres of concentrated livestock disturbance on top of the 81 acres of existing concentrated livestock use described under Alternative 1. A total of approximately 143 acres (39% of the allotment) would be subject to concentrated livestock use for one month or less. The acreage associate with cattle trails would be the same as described under Alternative 1.

The Lower Pasture would be used every other year with a decrease number of AUMs. This would reduce impacts to soils and BSCs, compared to Alternative 1. During grazed years, livestock would still tend to congregate around water sources and trail along fence lines and between water sources. The acreage of impacted soils and BSC would be similar to Alternative 1. The rest provided every other year in the Lower Pasture would allow opportunity for some soil and BSC recovery in these disturbed areas through natural processes, including frost heaving and plant maturation and reproduction.

Treating conifers would stop the natural progression of the site into fully-developed woodland lacking a healthy understory. Treating conifers would decrease competition for resources with grasses and shrubs, thus, promoting a healthy soil stabilizing understory.

Noxious weed treatments would decrease the potential for weeds to spread, and would decrease the opportunity for weeds to become established in new locations. Treating noxious weeds would decrease their ability to out compete perennial native vegetation. Perennial vegetation would have less resource competition, and would remain stable and /or improve across the allotment. A healthy perennial understory would increase root holding capacity, and decrease soil erosion potential. See Table 3.7 under the noxious weed section for a discussion of the effects Imazapac on soils and BSCs.

The proposed seeding with native and nonnative species would decrease the potential for bare ground and for noxious weeds to become established or spread. Promoting a health perennial grass understory would decreases the risk of soil erosion and provide a more stable environment for BSCs.

Effects of Alternative 3: Project Development/3-Year Rest Rotation

Each pasture would be rested every third year and AUMs would be decreased under this alternative. This would reduce impacts to soils and BSCs, compared to Alternatives 1 and 2. During grazed years, livestock would still tend to congregate around water sources and between and trail along fence lines. The acreage of impacted soils and BSC would be similar to Alternative 1. The rest provided every third year would allow opportunity for some soil and BSC recovery in these disturbed areas through natural processes, including frost heaving and plant maturation and reproduction. The effects of fuels reduction treatment, reservoir construction, noxious weed treatment, and seeding would be the same as described under Alternative 2.

Effects of Alternative 4: No Grazing/No Treatment

Under the No Grazing Alternative, little change to soils would occur on the allotment as a whole in the short-term (up to 5 years). Most of the existing concentrated livestock use areas (81 acres) associated with water sources and cattle trails would reclaim naturally with vegetation and BSCs from surrounding areas over the long term (5-9 years). Some of these trails may persist due to continued use by wildlife such as deer and pronghorn antelope. It is likely that interspace areas (bare spots between grass/shrub species) may be reduced across the allotment due the lack of cattle grazing. However, this change would likely be undetectable over the short-term.

No herbicide weed treatment would be implemented on the allotment, including the use of the four herbicides authorized for use (2,4-D, dicamba, glyphosate and picloram). Biological control agent *Phrydiuchus tau* (Mediterranean sage weevil) would continue to be used to control Mediterranean sage within the allotment. The continued use of the biological control agent would continue to decrease infestations of Mediterranean sage to some degree. The use of biological control agent by itself would not be an effective method to control weeds within the allotment. Without herbicide treatment, noxious weeds would continue to spread and compete or out-compete native vegetation. A loss of native perennial grasses, forbs, and shrubs would decrease the root holding capacity within the soil, increasing the chance of erosion. Compared to the other four alternatives, the allotment would likely experience a downward trend in soil conditions under this alternative.

Effects of Alternative 5: Standard Rest Rotation

Each pasture would be rested every other year. This would reduce impacts compared to Alternatives 1-3, and provide the allotment with more rest from livestock grazing. During the grazed years, livestock would still tend to congregate around and between water sources and trail along fence lines. The total acreage of impacted soils and BSCs would be similar to Alternative 1. However, the rest provided every other year would allow opportunity for some soil and BSC recovery in these disturbed areas through natural processes, including frost heaving and plant maturation and reproduction. The effects of fuels reduction treatment, reservoir construction, noxious weed treatment, and seeding would be the same as described under Alternative 2.

Special Status Aquatic Species and Habitat, Water Quality, and Riparian Vegetation

Affected Environment

Dicks Creek is the only perennial and/or fish-bearing stream in the allotment. No water quality data exists for Dicks Creek. However, Dicks Creek is not on Oregon's 303d list of water quality impaired streams. Approximately ½ mile of Dicks Creek flows through land administered by BLM, all of which provides habitat for redband trout. Redband trout is the only special status (sensitive) aquatic species known or thought to occupy habitat in the allotment. Redband populations within the allotment appear healthy and stable based on field reconnaissance and current habitat conditions.

Field reconnaissance and available data indicate that riparian vegetation on Dicks Creek throughout the allotment is generally in good condition. Riparian vegetation, including native rushes, sedges, and willows, indicates maintenance of riparian soil moisture characteristics. Streambank vegetation is generally comprised of plants that have root massed capable of withstanding high streamflow events. Adequate vegetative cover is generally present to protect streambanks during high flows. There are no documented noxious weed sites in the Dicks Creek riparian area, although some isolated sites may exist.

Proper Functioning Condition (PFC) assessments, photo monitoring (both on file at Lakeview BLM), and field reconnaissance generally indicate improving trends in fish habitat conditions throughout the allotment. Photos points established in the 1970's that were retaken more recently show increases in native riparian vegetation, including willows, sedges and rushes, as well as stream channel narrowing and deepening, and increases in streambank stability (see photos 1-3).

It should be noted that the recovery shown in photos 1-3 took place largely over a period of time when Dicks Creek received annual rest from grazing on a regular basis. From 1980-2001 (22 grazing seasons), Dicks Creek was rested approximately 15 times. The allotment has been grazed nine of the last 12 years, including each of the last five. The increase in use in recent years has resulted in more static conditions, with some extremely slight increases in bare ground becoming apparent in recent years (see photos 4-5), which has raised concern over the current grazing strategy.

In addition, western juniper is encroaching into some riparian areas and is increasing the risk of replacing riparian vegetation, which is better adapted to hold stream banks together and provide more shade. The continued encroachment of western juniper and (potential) subsequent loss of riparian vegetation would adversely affect water future quality, as well as redband trout and associated habitat.

Environmental Consequences:

Effects of Alternative 1: No Action

Under Alternative 1, no changes would be made to the current grazing or noxious weed treatment strategy. Annual early season grazing would lead to maintenance of current redband trout population and habitat, water quality, and riparian vegetation conditions at best, and a downward trend in these conditions at worst; this determination was made after analyzing conditions in the allotment after the recent reduction of annual rest described in the Affected Environment section above.

Integrated noxious weed treatments would be beneficial to aquatic resources by promoting native vegetation in the riparian area, which should help to restore historic conditions to the area, including flow regime and habitat conditions. Any sediment or flow related effects of creating bare ground would be negligible and immeasurable given the limited scope of the treatments. Any effects would be short-term in nature, and would be outweighed by the benefits of restoring native vegetation to the sites in the future.

Photo 1 – Dicks Creek 1976

Photo 2 – Dicks Creek 1993

Photo 3 – Dicks Creek 2011

Photo 4 – Dicks Creek 2005

Photo 5 – Dicks Creek 2012

The current noxious weed treatment strategy is capable of suppressing noxious weeds in riparian areas, but is not capable of eradicating them.

Effects of Alternative 2: Project Development/2-Year Rest Rotation

Alternative 2 would provide the most rapid rate of recovery of current redband trout population and habitat, water quality, and riparian vegetation conditions of the all of the alternatives, with the exception of Alternatives 4 (no grazing) and 5 (standard rest rotation). Rest provides an opportunity for riparian vegetation to recover and provides many advantages for riparian habitats (Howery *et al*. 2002). Alternative 2 provides rest for Dicks Creek every other year, which is more than Alternative 3 (every 3rd year).

Reservoir construction, and reservoir, trough and pipeline maintenance would all occur in the Upper Pasture which is entirely in upland areas, at least several hundred feet from Dicks Creek. Because of the physical separation of these activities from Dicks Creek, no direct impacts are possible. Construction and maintenance of these water developments would capture water that may eventually reach Dicks Creek, although any impacts would be minor due to the distance of the activities from the creek and the intermittent nature of flows in these upland areas. Any negative impacts would be outweighed by the benefits of improving cattle distribution in the Upper Pasture and the regular grazing rest Dicks Creek would receive.

Proposed conifer treatments would likely make more water available to Dicks Creek, thereby maintaining or improving current redband trout population and habitat, and water quality conditions. Removal of conifer would allow establishment and increased vigor of more desirable native riparian vegetation, which

would lead to increased bank stability, also improving fish habitat and water quality. The establishment and increased vigor of these plants would provide shade that would compensate for any loss of streamside juniper-created shade.

Noxious weed treatments and seedings would be beneficial to aquatic resources by promoting native vegetation in the area, which would help to restore historic conditions to the area, including flow regime and habitat conditions. Any sediment or flow related effects of creating bare ground would be negligible or immeasurable given the limited scope of the treatments. Any effects would be short-term in nature, and would be outweighed by the benefits of restoring native vegetation to the sites in the future. Using Imazapic in the adjacent uplands would have no direct impacts on fish, water quality, or riparian vegetation, as none would be used in riparian areas. Although, more effectively controlling noxious weeds in upland areas would reduce the risk of them spreading into riparian areas.

Effects of Alternative 3: Project Development/3-Year Rest Rotation

Alternative 3 would benefit current redband trout population and habitat, water quality, and riparian vegetation conditions when compared to Alternative 1 (current grazing strategy), but would not provide the rapid rate of recovery expected with Alternatives 2, 4, and 5. Alternative 3 provides Dicks Creek (Lower Pasture) rest from grazing every third year, compared to every other year with Alternatives 2 and 5, and every year with Alternative 4. Rest from grazing would benefit Dicks Creek (as described above in Alternative 2 discussion); however the more rest provided, the more benefit to riparian and aquatic resources would be expected. The effects of the proposed range improvements, conifer treatments, and noxious weed treatments would be the same as Alternative 2.

Effects of Alternative 4: No Grazing/No Treatment

Alternative 4 would provide the most rapid rate of recovery of current redband trout population and habitat, water quality, and riparian vegetation conditions of the all of the alternatives, as all grazing and water development related impacts would be alleviated. However, the benefits of conifer and noxious weed treatments would not be realized.

Effects of Alternative 5: Standard Rest Rotation

The effects of Alternative 5 would be very similar to Alternative 2 (described above) as the Lower (riparian) Pasture would receive rest from grazing every other year in both cases. Alternative 5 would provide some additional benefit to aquatic resources by reducing annual AUMs and providing additional rest to the Upper Pasture, which should improve upland watershed conditions, as well as current redband trout population and habitat, water quality, and riparian vegetation conditions at the most rapid rate of all the alternatives, with the exception of Alternative 4 (no grazing). The effects of the proposed range improvements, conifer treatments, and noxious weed treatments would be the same as Alternative 2.

Upland Vegetation

Affected Environment:

Ecological Site Inventory (ESI) vegetation data is not available for this allotment. However, the 2002 Rangeland Health Assessment (RHA) contains a list of species present within the allotment (BLM 2002). Plant species expected in the potential natural communities (PNC), as described in the Lake County Soil Survey (NRCS 1990), are a component of the existing plant communities in the allotment.

The dominant vegetation includes: western juniper (*Juniperus occidentalis*), ponderosa pine (*Pinus ponderosa*), snowberry (*Ceanothus velutinus*), mountain mahogany (*Ceracarpus ledifolius*), rubber rabbitbrush (*Chrysothamnus nauseosus*), bitterbrush (*Purshia tridentata*), Idaho fescue (Festuca idahoensis), bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg bluegrass (*Poa secunda*), and bottlebrush squirreltail (*Elymus elymoides*), and Baltic rush (*Juncus balticus*) (BLM 2002).

Upland long-term trend photo monitoring site, DC-1, indicates a loss of perennial grass species within the 3X3 plot between 1981 and 1988. Perennial grass species continued to decrease on areas around the 3X3 plot, continuing the downward trend through 2007. Livestock grazing has occurred in the allotment during the month of May without periodic growing season rest. This trend plot site has remained unchanged between 2007 and 2013.

An Interdisciplinary Team (ID) conducted an update to the RHA) for the Dicks Creek Allotment in 2013. The original assessment was conducted in 2002. The 2002 assessment found all applicable standards to be met. In 2013, standard 2, 4 and 5 were met. Standard 1 and 3 were not met due to the following factors: lack of periodic rest from livestock grazing, invasive weeds, and juniper/pine expansion (see Table 3.9).

Environmental Consequences:

<u>Effects Common to Alternatives 2, 3, and 5</u>

The impacts of grazing under a variety of grazing systems that provide periodic rest 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 their entirety. In summary, the vegetation composition of key species is expected to improve over time under rest rotation grazing systems (BLM 2003a; pages 4-5 and 4-9).

Conifers, especially western juniper, have encroached upon plant communities in the allotment to varying degrees. Sixty percent of the allotment is in Condition Class 2 (described in more detail under the Fire/Fuels Management section). The risk of loss of key ecosystem components is moderate. The proposed conifer treatment would prevent the allotment from transitioning into fully-developed woodland, and healthy understory would remain intact. Treatment is likely to improve conditions across the allotment, and insure that the allotment continues to achieve rangeland health standards.

Noxious weed treatment and seeding would decrease the potential for noxious weeds to expand or spread to new locations. Spraying and seeding would decrease the ability for noxious weeds to out compete perennial upland vegetation. Upland vegetation would have less resource competition and would remain stable and /or experience an upward trend across the allotment. A healthy perennial understory would also increase species diversity across the allotment. The potential effects of Imazapic on upland vegetation are described in Table 3.7.

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

Approximately 81 acres (22%) of the vegetation communities within the allotment would continue to be impacted by concentrated livestock use near cattle trails and water sources. May use, in years with favorable precipitation, would provide some opportunity for vegetative re-growth when favorable moisture for plant growth occurs outside the grazing period. Photo trend analysis indicates a downward trend through 2007. The site remains unchanged from 2007 through 2013. Lack of periodic rest from livestock grazing was one causal factor, along with noxious weed and juniper/pine expansion. This static or downward trend, with undesireable vegetative conditions, would be expected to continue under this alternative, and the allotment would be expected to continue not to meet standards 1 and 3.

Upland vegetation would continue a predicted transition to fully-developed woodlands, lacking a healthy diverse perennial understory. Perennial plant species would be lacking or absent from the understory, bare ground would increase, and the risk of erosion would increase. This transition to fully-developed woodland would result in a downward trend across the allotment.

Upland vegetation would continue to be in competition for available resources, or out competed by noxious weed species (specifically winter annual grasses). Loss of perennial grasses, forbs, and shrubs would decrease species diversity across the allotment. Mediterranean sage would continue to be treated under this alternative using biological control agents, and one of the four available herbicides.

Effects Alternative 2: Project Development/2-Year Rest Rotation

The impacts to the vegetative communities in the Upper Pasture would be similar to Alternative 1, because the pasture would continue to be used during the month of May on an annual basis. Reservoir construction would increase acres impacted by livestock concentration by about 62 to total 143 acres (39%) across the allotment. The construction of the reservoir would increase livestock distribution in the pasture. Vegetation would be impacted in the short-term during reservoir construction, but would be reseeded, and have minor if any long-term effects from construction. There would be some additional surface disturbance to vegetation from vehicle traffic during construction and future maintenance of the proposed range improvements. The Upper Pasture would not receive growing season rest, and would be expected to continue a trend similar to Alternative 1.

Upland vegetation in the Lower Pasture would receive growing season rest every other year. Plant communities would complete their lifecycles and would be expected to improve overall upland vegetation health, and make significant progress towards meeting all rangeland health standards.

Effects of Alternative 3: Project Development/3-Year Rest Rotation

Upland vegetation in each pasture would receive rest from livestock grazing one out of three years. On rested years, plants would receive full growing season rest, enabling plants to complete their life cycle and set seed. This alternative would maintain or improve trend across the allotment, and make significant progress toward meeting all rangeland health standards.

Effects of Alternative 4: No Grazing/No Treatment

Under this alternative, grazing would be limited to wildlife species and would not likely utilize all available forage on the allotment. Understory succession would move toward dominance by more shrub species over the 9-year analysis timeframe. 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 would potentially 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. In addition, conifers would continue to expand and transition more towards a woodland/forest habitat.

No noxious weed treatment would be implemented on the allotment, including the use of the four herbicides authorized for use (2,4-D, dicamba, glyphosate and picloram). Biological control agent *Phrydiuchus tau* (Mediterranean sage weevil) would continue to be used to control Mediterranean sage within the allotment. The continued use of the biological control agent would continue to decrease infestations of Mediterranean sage to some degree. The use of biological control agent by itself would not be an effective overall method to control noxious weeds within the Dicks Creek Allotment. Without

herbicide treatment, noxious weeds would continue to spread and compete, or out compete, with native vegetation. A loss of perennial grasses, forbs, and shrubs would decrease the root holding capacity within the soil, increasing the chance of erosion. The allotment would likely experience a downward trend in vegetation conditions under this alternative.

The benefits from conifer fuel reduction, noxious weed treatment, and seeding would not be realized. The allotment would likely continue to fail to meet rangeland health standards 1 and 3 into the foreseeable future.

Effects of Alternative 5: Standard Rest Rotation

Under this alternative, the effects from livestock grazing in both pastures would generally be the same as effects to the Lower Pasture described under Alternative 2. Upland vegetation in each pasture would receive rest from livestock grazing every other year. On rested years, plants would receive full growing season rest enabling them to complete their life cycle and set seed. This alternative is expected to improve trend across the allotment, and make significant progress toward meeting rangeland health standards.

Fire/Fuels Management

Affected Environment:

The allotment is located in Fremont Fire Management Unit (FMU). Suppression of wildfires is the primary fire management goal for this FMU. A number of fuel types are present in this FMU. Vegetation within the allotment consists of sagebrush communities that are being encroached by conifers, especially western juniper, in varying degrees. The area has a history of wildfire occurrence. Since 1984 the watershed that the Dicks Creek Allotment is in has more than a dozen fire starts. The majority of these fires were an acre or less in size and started naturally by lightning. The larger fires that have occurred in the surrounding area have all been human caused usually from motorized vehicles along Highway 395 to the east.

A Fire Regime Condition Class (FRCC) analysis was conducted for the allotment. The FRCC is a measurement used to determine how departed a geographic unit or plant community is from its historical fire regime or plant community structure. A Condition Class 1 represents an area where composition and structure of vegetation and fuels are similar to the natural (historic) regime. In other words, a Condition Class 1 represents what you would expect to find at the site prior to European settlement in the area. The risk of loss of key ecosystem components is low. A Condition Class 2 represents an area where composition and structure of vegetation and fuel are moderately altered from the natural regime. The risk of loss of key ecosystem components is moderate. A Condition Class 3 represents an area where composition and structure of vegetation and fuel are highly altered from the natural regime. The risk of loss of key ecosystem components is high. Table 3.3 summarizes the FRCC analysis for the allotment.

Table 3.3. FRCC Analysis for Dicks Creek Allotment

Condition Class 1	Condition Class 2	Condition Class 3
10%	60%	30%

Approximately 90 percent of the analysis area is either moderately or highly altered, as illustrated by the condition class and the expansion of juniper across most of the area present compared to historic estimates. To move the plant communities in the allotment toward a more appropriate fire regime,

the vegetation structure and composition over most of the area should be modified.

Environmental Consequences:

Effects of Alternative 1 - No Action

Fuel loadings would not be reduced under the No Action Alternative. Plant communities would continue on a predicted successional transition to fully-developed woodland/forest. Conifer dominated stands would continue to amass woody debris, present a crown fire hazard, which could damage other resource values. Firefighters would be placed at greater risk during future suppression efforts in environments with elevated fuel loads.

In areas being encroached upon by conifers, the size of most wildfires would remain small because of the reduced ability of the site to carry fire. This is caused by decreased understory herbaceous plants and shrubs (areas lacking ground fuel connectivity). However, under severe conditions[2] the risk of larger fires increases because of increased continuity of crown fuels. Fires under these conditions have potential to burn large areas and are difficult to suppress. Suppression actions under these conditions would rely primarily on indirect attack. This suppression tactic relies on line constructed (hand, dozer, etc.), or existing fuel breaks such as roads or streams, at some distance from the fire and unburned fuel between the fireline and flaming front is burned as part of the suppression operation. This tactic increases the area burned. Accumulation of fuels would also require a greater mop-up[3] effort following control of wildfire. Overall, the allotment would remain in a Condition Class 2 or 3 where the risk of large-scale, high-intensity wildfires and effects to human life and the environment reach their maximum.

Effects of Alternative 2: Project Development/2-Year Rest Rotation

The Proposed Action would reduce intensity and severity of wildfires and risk to firefighters by altering the continuity of fuels in the Project Area. Suppression actions would be able to employ more direct attack strategies minimizing acres burned in wildfires. Firefighters may rely more on natural fuel breaks and changes in fuels. Less fireline may need to be constructed to suppress wildfires.

Implementation of this alternative would lower the risk of a large-scale, high-intensity wildfire event occurring within the allotment. The overall FRCC rating of the allotment would likely change from a Condition Class 3 to a Condition Class 1 or 2 as open, shrublands increase across the landscape and closed-canopy juniper woodland stands are treated. Fire behavior in treated areas would be expected to have low rates of spread, low fire intensities, and low flame lengths immediately following fuel treatments.

Effects of Alternative 3: Project Development/3-Year Rest Rotation

Under this alternative, effects would be the same as under Alternative 2.

Effects of Alternative 4: No Grazing/No Treatment

Under this alternative, both over-story and under-story fuels would increase at a slightly greater rate than Alternative 1. The risk of future wildfires would be the greatest of all alternatives analyzed. Firefighters

[2] **Severe Conditions:** Severe conditions could include any or a combination of all of the following: high temperatures, low relative humidity, and high wind speeds.

[3] **Mop-up:** The work after the fire has been controlled to assure fire does not flare up again and escape control lines.

would be placed at greater risk during future suppression efforts.

Effects of Alternative 5: Standard Rest Rotation

Under this alternative, effects would be the same as under Alternative 2.

Noxious Weeds

Affected Environment:

The allotment was surveyed for noxious weeds and four following species were found: Mediterranean sage (*Salvia aethiopis)*, and *Medusahead* rye (*Taeniatherum caput-medusae)* along with the non-native invasive species African wiregrass (*Ventenata dubia)* and cheatgrass *(Bromus tectorum)* (Table 3.4). Mediterranean sage, a biennial, has been historically documented in the Crooked Creek drainage for decades. Mediterranean sage thrives in dry rangeland settings with disturbance. In the 1970s the biological control agent *Phrydiuchus tau* (Mediterranean sage weevil) was released in Oregon for the first time and the release area was with in the Lakeview Resource Area. This agent assists in suppressing Mediterranean sage two different ways; the adults feed on the leaves, and the larvae feed in the root crown and leaves. The biological agent can suppress some infestations; however it cannot eradicate infestations. Infestations can be controlled/eradicated through manual digging or chemical applications.

Table 3.4. Existing Noxious Weed Infestations and Preferred Treatment Method

Pasture	Known Invasive Weed Species	Estimated Acres	Preferred Herbicide for Control	Application Type	Application Timing
Upper and Lower	Medusahead Rye *(Taeniatherum caput-medusae)*	Throughout allotment	Imazapic (Uplands) Aquatic Glyphosate (riparian)	Broadcast Ground or Aerial Spot Spray Ground	October – November
Upper and Lower	African Wiregrass *(Ventenata dubia)*	2 acres	Imazapic (Uplands) Aquatic Glyphosate (riparian)	Broadcast Ground or Aerial Spot Spray Ground	October – November
Upper and Lower	Cheatgrass *(Bromus tectorum)*	Throughout allotment	Imazapic (Uplands) Aquatic Glyphosate (riparian)	Broadcast Ground or Aerial Spot Spray Ground	October-November
Upper Pasture	Mediterranean sage *(Salvia aethiopis)*	3 Acres	Tordon (Uplands) Aquatic 2,4-D or Glyphosate (Riparian)	Broadcast Ground Spot spray Ground	October or June
Lower Pasture	Canada thistle	.25 Acres	Aquatic 2,4-D or Glyphosate (Riparian)	Spot spray Ground	June

Winter annual grasses have been invading the Lakeview Resource Area for many years, including the Dicks Creek Allotment, however in the past ten years infestations have been greatly increasing. The three

winter annual grasses Medudsahead rye, Africa grass and cheat grass have high potential to spread rapidly through the allotment due to the multiple low density infestations that area scattered across the allotment. The common characteristics of to all three of the winter annual grasses within the Dicks Creek Allotment are as follows: rapid fall germination, root growth throughout the winter, prolific seed production, and accumulation of litter that decomposes slowly. Non-native winter annual grasses displace native perennial plants by germinating in the fall and winter while the favorable native species are dormant. This allows the winter annuals to reduce the available soil moisture and out-compete the native species by producing an ample amount of seed that has the ability to germinate at very high rates. Both Medusahead and African wiregrass create dense litter cover which leads to an accumulated thatch cover that will not allow other plants the nutrients they need to germinate in the spring. Both Medusahead and African wiregrass have extremely high silica content making them unpalatable as forage. Cheatgrass can be grazed in the spring prior to seed set, however once it matures, it also becomes less palatable. All three of the winter annual grass species have the ability to greatly reduce the forage carrying capacity for both livestock and wildlife.

Environmental Consequences:

Effects to Alternative 1 - No Action:

The continued grazing management would continue to have adverse effects on the allotment. With no rest rotation, the native perennial species would continue to decrease allowing invasive species to invade the allotment. Annual grazing would cause areas around watering sites, along trails and fence lines to be trampled and compacted leading to continuous disturbance. These disturbed areas would allow invasive species to invade the allotment.

Under the no action alternative noxious weed treatment would continue, but would be limited to four herbicides authorized for use: 2, 4-D, dicamba, glyphosate and picloram. Aquatic formulations are available for 2, 4-D and glyphosate. Herbicides would only be used to control legally designated noxious weeds. The only herbicide that controls medusahead rye is glyphosate and according to the BLM SOPs glyphosate would only be applied through selective ground based spot treatments on rangelands. Therefore, the medusahead rye within the Dicks Creek Allotment would not be effectively controlled under this alternative and would continue to invade the allotment leading to dense monoculture infestations. The other invasive winter annual grasses (cheatgrass and Africa wiregrass) could not be controlled under this alternative since at this time they are not designated as noxious weeds. Mediterranean sage would continue to be controlled through an integrated approach with treatments of 2,4-D or picloram along with annual digging. The biological control agents *Phrydiuchus tau* (Mediterranean sage weevil) would still continue to assist with control of the Mediterranean sage. The effects of treatment using these four herbicides on other resource values are described in Table 3.5.

Effects of herbicide use common to Alternatives 2, 3, and 5

Under Alternatives 2, 3, and 5, the additional herbicide Imazapic would be used to control the invasive winter annual grasses present in the allotment (Table 3.4). These species are Medusahead rye *(Taeniatherum caput-medusae), cheatgrass (Bromus tectorum),* and African Wiregrass *(Ventenata dubia). C*ontrolling these winter annual grass species would contain plants at existing sites and limit spread of new populations. Removing the current infestation would allow the native grasses to recover through both natural and assisted restoration measures. The removal of the juniper would also release more soil moisture which would allow the planned seeding a more favorable environment for germination. Through this integrated restoration effort, there would be a more weed resistant landscape created for the future. These alternatives would allow for effective control methods of invasive winter annual grass

Table 3.5. Effects of Using Existing Approved Four Chemicals

	2,4-D	Dicamba	Glyphosate	Picloram
Soils and Biological Crusts (see BLM 2010a: p.182-184)	*2,4-D* would have a very short half-life that averages 10 days in moist soil. 2,4-D would be readily broken into simpler components in alkaline soils but the break-down would be slower in acidic soils, which are typical on the Dick's Creek Allotment. Furthermore, most studies of the effects of 2,4-D on micro-organisms concluded that the quantity of 2,4-D reaching the soil from typical applications would probably not have a serious negative effect on most soil microorganisms (Bovey 2001).	*Dicamba* would be moderately persistent in soil. The half-life of dicamba in soil would typically 1 to 4 weeks. Under conditions suitable for rapid metabolism, the half-life would be less than 2 weeks. Metabolism by soil microorganisms would be the major pathway of loss under most soil conditions. The rate of biodegradation would increase with temperature and increasing soil moisture, and tends to be faster when soil is slightly acidic. Dicamba would slowly break down in sunlight. It is stable to water and other chemicals in the soil. Dicamba does not bind to soil particles and would be highly soluble in water. It is therefore highly mobile in the soil.	*Glyphosate would* bind tightly to soil particles. This binding would increase with increasing clay content, organic matter and decreasing soil pH across the Dick's Creek Allotment. Glyphosate would biodegrade by soil organisms and many use it as a source of carbon. There is no information that indicates that glyphosate would be harmful to soil microorganisms and may benefit some (Busse et al. 2004).	*Picloram* would break down primarily through photolysis and biodegradation mechanisms of dissipation (USDA 2000b). Picloram adsorbs to clay particles and organic matter, but if the soil contains little clay or organic matter, picloram would easily move by water. Picloram has been reported to remain active in soil at levels toxic to some plants for more than 1 year at typical application rates (SERA 2003b). The half-life of picloram in soil has been reported to vary from 1 month under favorable environmental conditions to more than 4 years in arid regions (USDA 2000b). Picloram can be persistent in plants. When plant parts containing picloram degrade, they may release it into the soil, where it can kill other plants.
Water Quality (see BLM 2010a: p. 184-185)	*2,4-D*: Some salt forms of 2,4-D are registered for use in aquatic systems. 2,4-D is a known groundwater contaminant38 although potential for leaching into groundwater is moderate by its being bound to organic matter and its short half-life. In **terrestrial** applications, most formulations of 2,4-D would not bind tightly with soils, and therefore would have a moderate potential to leach into the soil column and to move off site in surface or subsurface water flows (Johnson et al. 1995 cited in Tu *et al*. 2001	Dicamba would only be used outside of the riparian areas. *Dicamba*: Dicamba is a known groundwater contaminant, and has a high potential to leach into groundwater. The EPA has set health advisory concentration levels for dicamba (e.g., 300 µg/L for 1-day exposures	*Glyphosate*, would be applied to wetland and emergent aquatic vegetation. Strong adsorption to soil particles and organic matter slows microbial degradation, allowing glyphosate to persist in aquatic environments in bottom sediments (half-life of 12 days to 10 weeks) (Goldsborough and Brown 1993, Extension Toxicology Network 1996a, all cited in Tu et al. 2001). While glyphosate is very water soluble it would be unlikely to enter waters through surface runoff or subsurface flow because it binds strongly to soils, except when the soil itself is washed away by runoff; even then, it would remain bound to soil particles and generally	*Picloram* has potential to move off site through surface or subsurface runoff, and has been detected in the groundwater of 11 states (Howard 1991). Picloram does not bind strongly with soil particles and would not degrade rapidly in the environment (Tu et al. 2001). Concentrations in runoff have been reported to be great enough to damage crops, and could cause damage to certain submerged aquatic plants (Forsyth et al. 1997 cited in Tu et al. 2001). Picloram would only be used in the uplands where runoff into the stream would not be an issue, because of the potential negative effects described above. Picloram would have a positive effect on controlling biennial noxious weeds

	2,4-D	Dicamba	Glyphosate	Picloram
			unavailable (Rueppel et al. 1977, Malik et al. 1989, all cited in Tu et al. 2001).	such as Mediterranean sage. Picloram as the ability to persist in the soil and continue to control the weeds for several years with our reapplying additional herbicides.
Riparian Vegetation (see BLM 2010a: p. 211-212)	*2,4-D (aquatic)*: The principle hazard would be unintended spraying or drift to non-target plants; spot treatments applied according to the labeled rate do not substantially affect native aquatic vegetation or significantly change species' diversity (USDA 2005a, WA Dept of Ecology). Only Aquatic formulations will be used with in the riparian areas. Within the riparian areas aquatic 2-4,D can suppress broadleaf noxious weeds.	*Dicamba:* Not for use in Riparian Areas.	*Glyphosate* would be used along banks to control grasses, and herbaceous weeds and is approved for emergent aquatic vegetation in riparian areas. It may move into surface water with eroded soil particles (although it is unlikely it will dislodge from the particles and become active) where it rapidly dissipates from surface water by biodegradation and adsorption. Freshwater aquatic macrophytes and algae are reported to be susceptible to low amounts (20 mg/l concentrations).	Picloram: Not for use in Riparian Areas.
Fish (see BLM 2010a: p. 226-227)	*2,4-D* has formulations that are registered for use on aquatic vegetation. The toxicity of 2,4-D to fish is relatively low (Norris *et al*. 1991). Risk is greater under scenarios of direct application to water bodies or accidental direct spills. At the typical application rate, 2, 4-D would pose a low risk to fish. Routine (non-spill) acute and chronic exposure scenarios do not pose a risk to fish. Only Aquatic formulations would be used with in the riparian areas. The removal of broadleaf weeds would improve fish habitat by encouraging native, fibrous plants to establish.	*Dicamba* is not registered for use in aquatic environments and would not be used near riparian areas within the Dick's Creek Allotment. The Ecological Risk Assessment shows there would be a low risk to susceptible fish under the spill scenario at the maximum rate, and no risk to fish under other exposure scenarios. Off-site drift and surface runoff of dicamba also present no risk to fish.	*Glyphosate* would be a non-selective systemic aquatic herbicide that could control both broadleaf and grass species within riparian areas used for fish habitat. It would be applied as spot, application. In general, glyphosate would be immobile in soil, being readily adsorbed by soil particles and subject to microbial degradation (Norris et al. 1991). This immobility would reduce the potential for glyphosate to enter water bodies during runoff. Based on bioassays, technical grade glyphosate is classified as non-toxic to practically non-toxic in freshwater fish (EPA 1993). Some formulations would be more toxic to fish than technical grade glyphosate, however only non-toxic	*Picloram* acts as a plant growth regulator. It would not be used to control aquatic vegetation. The acute and chronic toxicity of picloram has been analyzed in various species of fish.

	2,4-D	Dicamba	Glyphosate	Picloram
			formulations would be used near fish bearing streams.	
Upland Vegetation (see BLM 2010a: p. 146-147)	*2,4-D* (salts and esters) would be used as a selective herbicide that kills broadleaf plants, but not grasses. The selectiveness allows for weeds control and native grass communities to flourish. 2,4-D has a long history of use and would be relatively inexpensive. Direct spraying of non-target plant species would be the highest potential for damage due to 2,4-D application. Drift could damage non-target broadleaf species close to the application site (much less than 100 feet).	*Dicamba* would be used as a selective, systemic herbicide that can affect some annual, biennial, or perennial broadleaf and woody species as well as annual grasses. Susceptible plants could potentially be damaged by direct sprays and drift. Wind erosion may cause impacts in arid regions (SERA 2004g). Drift has potential to cause damage to susceptible species at distances less than 100 feet from the application site. Vaporized or volatilized dicamba can affect non-target plants. Dicamba vapor has been known to drift for several miles following application at high temperatures (Cox 1994). Dicamba would be applied early in the day to prevent valorization.	*Glyphosate* would prevent plants from synthesizing three aromatic amino acids including a key enzyme, EPSP (5-enolpyruvylshikimate-3-phosphate). Glyphosate would be a non-selective, systemic herbicide that would damage all groups or families of non-target plants to varying degrees, most commonly from off-site drift. Plants susceptible to glyphosate would be damaged by drift up to 100 feet from the application site at the highest rate of application proposed. Species that are more tolerant are likely to be damaged at distances up to 25 feet (SERA 2003a). Non-target species are not likely to be affected by runoff or absorption from soil. Glyphosate strongly adsorbs to soil particles, which prevents it from being taken up from the soil by plant roots (Tu et al. 2001, SERA 2003a). Glyphosate may only be applied though spot spray application on rangelands which allows for control of small populations of invasive grasses and broadleaf weeds.	In the Pesticide Re-registration Fact Sheet–Picloram (1995), the EPA noted that *picloram* poses very substantial risks to non-target (broadleaf and woody) plants. The EPA also noted that picloram is highly soluble in water, resistant to biotic and abiotic degradation processes, and mobile under both laboratory and field conditions. They stated that there is a high potential to leach to groundwater in coarse textured soils with low organic material. Plant damage could occur from drift, runoff, and off-site where ground water is used for irrigation or is discharged into surface water (EPA 1995). Because picloram persists in soil, non-target plant roots can take up picloram (Tu et al. 2001), which would affect revegetation efforts. Lym et al. (1998) recommended that livestock not be transferred from treated grass areas onto susceptible broadleaf crop areas for 12 months or until picloram has disappeared from the soil without first allowing seven days of grazing on an untreated green pasture. Otherwise, urine may contain enough picloram to injure susceptible plants. To a lesser degree, this can occur with other active ingredients such as 2,4-D, glyphosate, and imazapic. Therefore, mitigation for use of picloram would be applied to Mediterranean sage after the grazing period is over.

	2,4-D	Dicamba	Glyphosate	Picloram
Wildlife (see BLM 2010a: p. 246-247)	*2,4-D* is one of the more toxic herbicides for wildlife of the foliar-use herbicides. The ester form is more toxic to wildlife than the salt form. Ingestion of treated vegetation is a concern for mammals, particularly since 2,4-D can increase palatability of treated plants (USDA 2006b) for up to a month following treatment (Farm Service Genetics 2008). Mammals are more susceptible to toxic effects from 2,4-D, and the sub-lethal effects to pregnant mammals were noted at acute rates below LD50. Birds are less susceptible to 2,4-D than mammals, and the greatest risk is ingestion of contaminated insects or plants. The salt form would be practically non-toxic to amphibians, but the ester form would be highly toxic. It presents low risk to honeybees but little information is available for other terrestrial invertebrates. Most of the local wildlife would not be affected since this is used as winter range and the herbicide application to broadleaf plants will take place early summer. 2, 4-D would only be used to assist in control of the small infestations of Mediterranean sage, which would be small spot spray applications.	*Dicamba*: No adverse effects on mammals are plausible for either acute or chronic exposures of dicamba. At the highest tested rate, there are adverse reproductive effects possible for acute scenarios consuming contaminated vegetation.	*Glyphosate* is a low toxicity herbicide, widely used for terrestrial applications and is approved for aquatic use. Toxicity to most wildlife groups is very low, so much so that NOAEL levels are used because the LD50 were not found at high doses in many cases. Glyphosate would only be used in a spot spray application therefore it has low potential to affect wildlife.	*Picloram*: Studies on birds, bees, and snails generally support picloram as relatively nontoxic to terrestrial animals. The few field studies indicated no change to mammal or avian diversity following picloram treatment. Variations in different exposure assessments have little impact to risk through ingestion, grooming or direct contact. No information was found in the literature about picloram's effect on reptiles (SERA 2003b).
Livestock Grazing	No herbicide application would take place during the grazing period; therefore there should be no adverse effects.			

species, which would not damage the native grasses present in the allotment if applied at the proposed rate (0.09375 lb. a.i.).

Under these alternatives, all noxious weed species would be controlled using the new herbicides approved for use on BLM, along with other integrated approaches including biological control and manual control methods. The effects of using the four existing approved herbicides would be similar to those described under the No Action Alternative (Table 3.4). The effects of using Imazapic on other resource values are described in Table 3.6.

Effects of range improvement common to 2, 3, and 5:

The maintenance of the reservoir and spring would result in better distribution of livestock across the allotment. The actual maintenance of the water developments would have potential to cause ground disturbance and would temporarily allow noxious weeds to establish in the disturbed areas, however the long term outcome would be beneficial to the plant community in the Dicks Creek Allotment.

Negative impacts from the mechanical disturbance and prescribed burning associated with removing the juniper would potentially lead to a release of additional annual grass species such as cheatgrass. However, the proposed plan would allow for annual grass control before and after the removal of the juniper, which would reduce the annual grass populations. The removal of the junipers would encourage native grass and forb species to reestablish naturally with the release of additional soil moisture, sunlight and space.

The re-seeding efforts after the juniper and annual grass removal should lead to a more diverse plant community that would create a more weed resistant landscape. The establishment of native species would take the place of the winter annual grasses which would lead to more carrying capacity across the allotment.

Effects to Alternatives 2: 2-year rest rotation:

The proposed restoration and reduced AUMs in this alternative would allow for the native species to recover in the lower pasture. This would allow for a more intact plant community that would have the ability to compete with noxious weeds. The removal of the juniper, control of weeds, and reseeding would lead to improved understory across the allotment. However, the upper pasture would have some negative effects from having no rest from livestock grazing over the 9 year life of the permit. The negative impacts would include lack of species diversity due to many of the species being grazed prior to flower annually, trampling and compaction at water development sites, fence rows, and along trails annually. This would potentially lead to additional noxious weed invasion in the upper pasture.

Effects to Alternative 3: 3 Year Rest Rotation:

The proposed rest rotation would allow for a more even grazing management across the allotment. Alternative 3 would allow rest in each pasture every three years. This would reduce the negative impact on the native vegetation compared to Alternative 1 and 2, which would allow the native vegetation to better outcompete the noxious weeds and annual grass species. During the grazing years livestock would still tend to congregate around water sources and trails along fence lines. The areas impacted by the disturbance would be similar to Alternatives 1 and 2. The rest provided every third year would allow opportunity for some native vegetation to recover and noxious weeds to have more competition.

Table 3.6. Potential Effects of Imazapic

Resource	Effect
Soils and Biological Crusts (see BLM 2010a: p. 182-184)	*Imazapic* would moderately persistent in soils and has would not move laterally with surface water. Most imazapic is lost through biodegradation. Sorption to soil would increase with decreasing pH and increasing organic matter and clay content. Sorption would be low with in the Dicks Creek Allotment since 75% of the area is Winterim Very Gravelly Loam.
Water Quality (see BLM 2010a: p. 184-185)	Imazapic would have low potential to leach into the groundwater. Imazapic would have high water solubility and negligible to slight potential for transport in surface runoff, due to its adsorption potential with soil and organic matter. It would be moderately toxic to fish, but is not proposed for aquatic use. In addition, imazapic would rapidly degraded by sunlight in aqueous solution, with a half-life of one or two days. Due to these characteristics and the SOPs that would be employed by the BLM, water resources impacts are not anticipated to be significant from proposed imazapic applications.
Riparian Vegetation (see BLM 2010a: p. 211-212)	Imazapic, an ALS-inhibitor, would be used as a selective, systemic herbicide. It would not be used for treatment of aquatic vegetation, but if needed could be used in riparian areas where the application could be monitored to ensure that the herbicide would not come in direct contact with water. The average half-life for imazapic in a pond is 30 days, and would be a shorter on the Dick's Creek Allotment since there is moving water. This herbicide has little tendency to bioaccumulate in fish (Barker et al. 1998 – 17 Sate PEIS). According to the manufacturer's label, imazapic has a high runoff potential from soils for several months or more after application. Accidental direct spray and spill scenarios generally pose no risk to fish or aquatic invertebrates when imazapic is applied at either the typical or maximum application rate. A Vegetation buffer around riparian areas to prevent runoff into the streams and the SOPs stated in the Record of Decision for the BLM Vegetation Treatments Using Herbicides on BLM Lands in Oregon (Page 36). The SOP states to use appropriate herbicide-free buffer zones for herbicide not labeled for aquatic use based on risk assessment guidance, with minimum widths from water of 100 feet for aerial, 25 feet for vehicle and 10 feet for hand spraying applications.
Fish (see BLM 2010a: p. 226-227)	Risk assessments show fish and aquatic invertebrates are not at risk from off-site drift or surface runoff of imazapic. When imazapic is used appropriately, it has no impact fish or aquatic invertebrates in streams or ponds. There is only a low chance of risk to stream aquatic invertebrates in the case of accidental direct spray. SOPs will be followed to assist in preventing these types of activities. The use of imazapic may have positive effects on fish and aquatic invertebrates when used to selectively target nuisance species in riparian zones.
Upland Vegetation (see BLM 2010a: p. 146-147)	Imazapic works by inhibiting the activity of an enzyme called acetolactate synthase (ALS), which is necessary for plant growth. Imazapic would be applied at a very low dose (6 ounces per acre or 0.094 lb a.e). Because of the high potency and longevity, this herbicide can pose a particular risk to non-target plants. Off-site movement of even small concentration of this herbicide can result in extensive damage to surrounding plants. Since imazapic will be applied early fall most of the native vegetation will be dormant from the long dry summers season. The key grass species listed above for the Dick's Creek Allotment are Thurbers needlegrass and bluebunch wheatgrass. Both of these species and are tolerant to Imazapic up to a rate of 12 ounces (0.1875 lb a.e.) per acre (which would be double the rate imazapic would be applying in the Dick's creek allotment). The majority of the other grass species and forbs will be tolerant to the proposed Imazapic.
Wildlife (see BLM 2010a: p. 246-247)	Imazapic, an ALS-inhibitor, is a selective, systemic herbicide. Direct spray of imazapic would not likely to pose a risk to terrestrial animals. Therefore, use of imazapic would primarily affect wildlife through habitat modification, since the Dick's Creek Allotments is such a small area habitat modification would not take place. Its use in forested rangeland and other wildlife habitat areas could benefit wildlife by controlling invasive plant species and promoting the establishment and growth of native plant species that provide more suitable wildlife habitat and forage.
Livestock Grazing (see BLM 2010a: p. 261)	Risk quotients for terrestrial animals were all below the most conservative LOC of 0.1, indication that direct spray or drift of imazapic would be unlikely to pose a risk to livestock (Table 3-14; ENSR 2005h.) Based on label direction, there are no restrictions on livestock use of treated areas, and since Imazapic would be applied in the fall there would be no effects the livestock that use the allotment.

Effect to Alternative 4: No Grazing/No Treatment:

Under Alternative 4, no herbicide or manual control measures would be taken to control noxious weeds or invasive annual grass species. The biological control agents that are already present *Phrydiuchus tau* (Mediterranean sage weevil) would continue to keep some of the Mediterranean sage suppressed. However, the Mediterranean sage plants and the weevils work in a ten-year cycle and without additional control efforts it is likely that the Mediterranean sage would quickly spread across the allotment. Even with the grazing removed, the native grasses and forbs would not be able to out-compete with the winter annual grass species. Due to the noxious weed species already present within the allotment, under this alternative the noxious weed species would be the dominant species in the allotment within 5 to 10 years without herbicide or manual control methods.

Effects to Alternative 5: Standard Rest Rotation

Effects from livestock grazing for both pastures would be the same as those described in the Lower Pasture in Alternative 2. The native vegetation in each pasture would receive rest from livestock grazing every other year. On rest years, native plants would be receive a full growing season and would be able to set seed. This alternative would improve the overall trend of the allotment; which would allow for a more weed resistant landscape to out-compete invasive grasses and noxious weeds.

Wildlife and Wildlife Habitat

Affected Environment:

The rangeland health assessment found Dicks Creek Allotment, was meeting the Rangeland Health Standards three and five relating to wildlife habitat (BLM 2002, 2013).

The Dicks Creek Allotment falls within the larger Oregon Department of Fish and Wildlife (ODFW) 2,202 square mile Interstate big game habitat management unit. The deer, bighorn sheep, and pronghorn antelope populations are relatively stable within this unit. Habitat quantity and quality do not appear to be limiting big game population size or health within the unit. Deer and pronghorn populations continue to fluctuate at or slightly above ODFW's population management objectives for the unit (ODFW 2003). The allotment comprises a small percentage of the unit and provides habitat capable of supporting mule deer and pronghorn antelope. There are currently 27 AUMs allocated for mule deer, pronghorn antelope, and other wildlife species within the allotment (BLM 2003b, page A-129). Based on previous consultation with ODFW biologists, this forage allocation is adequate to support big game population objectives.

There are numerous small mammals that occur within the area. Some of these include ground squirrels, chipmunks, yellow-bellied marmots, cottontails, bobcats, porcupines, badgers, wood rats, mice, voles and bats. All of the species above are common to pine-woodlands in various successional stages. Mountain lion and bear tracks have been observed within the allotment.

There are numerous amphibian and reptile species that may occur within the allotment including fence lizards, sagebrush lizards, gopher snakes, rattlesnakes, horned-lizards, and other common shrub-steppe species.

The Migratory Bird Treaty Act of 1918 identifies migratory birds regardless of their status as common or rare. Common migratory species observed or expected to occur based on species range and vegetation in the allotment include American robin, Dark-eyed junco, Mourning dove, Townsend's solitaire, and the Mountain bluebird. Other bird species suspected to occur within the allotment are the Great horned owl, Barn owl, Short-eared owl, American kestrel, California quail, Raven, various waterfowl and shorebirds, and many other common shrub-steppe bird species.

Birds of Conservation Concern for the Great Basin Region: The 1988 amendment to the Fish and Wildlife Conservation Act, mandates the U.S. Fish and Wildlife Service (USFWS) to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA). The list contained in *Birds of Conservation Concern 2008* (USFWS 2008) is the most recent effort to carry out this mandate. While all of these bird species are a priority for conservation action, the list makes no finding with regard to whether they warrant consideration for ESA listing. The goal is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation actions. In accordance with Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds," these lists have been consulted.

The Bird Conservation Plan and BCC species list for the project area was reviewed. Those species and habitats that are within the project area are incorporated and effects disclosed in this analysis. Table 1 displays a list of the Migratory Birds of Conservation Concern (BCC) and Game Birds below Desired Condition (GBBDC) in the Dicks Creek Allotment that are known or likely to be present in the Planning Area and could be affected by the proposed actions.

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

Golden and bald eagles are given special protection under the Bald Eagle Protection Act of 1940 (as amended).

Game birds below desired condition (GBBDC) are game bird species identified by the ODFW and USFWS that represent species whose population is below long-term averages or management goals, or for which there is evidence of declining population trends.

Refer to Table 3.7 for a list of wildlife species with special management designation(s) (excludes common migratory species except where otherwise designated) potentially occurring in the allotment. Common names for avian species have been standardized and are used for avian species throughout this document; taken from the ABA Checklist of birds available at: http://www-personal.umich.edu/~bbowman/birds/updates/abalist1.html (accessed 8/29/13).

Special Status Wildlife Species

Affected Environment:

The Bureau policy and guidance on special status species is to conserve those species and the ecosystems upon which they depend (BLM 2008d). The allotment has the potential to provide habitat for a number of special status species. However, there are no known Federally listed Threatened or Endangered, proposed or candidate species, or proposed or designated critical habitat found within the allotment.

Table 3.7. Wildlife Species with Special Management Designations

Species and Designation	Preferred Habitat	Special Status Species	Birds of Conservation Concern	Migratory Birds	Focal Species	Game Birds Below Desired Condition	Eagle Act	Known or Potential Habitat	Affected by Proposed Actions In
Avian Species									
American Peregrine Falcon	Wide range of habitats, nests on cliff ledges, bridges, quarries.	x (delisted)	x	x				yes	**none**
Bald Eagle	Associated with large bodies of water, forested areas near the ocean, along rivers, and at estuaries, lakes and reservoirs.	x (delisted)	x	x			x	yes	**yes**
Flammulated Owl	Associated with ponderosa pine forests and mixed conifer stands with a mean 67% canopy closure, open understory with dense patches of saplings or shrubs.		x					yes	**yes**
Lewis's Woodpecker	Ponderosa Pine, Cottonwood riparian or Oak habitats with an open canopy, brushy understory, dead and down material, available perches and abundant insects.		x					yes	**yes**
Mourning Dove	Habitat generalist					x		yes	**none**
Sage Sparrow	Found in se. and c. OR Associated with semi-open evenly spaced shrubs 1-2 m high in big sage up to 6,800 ft.		x	x				yes	**none**
Virgina's Warbler	In OR likes high elevation steep-sloped, xeric, pinion- juniper and oak woodland habitats, and reported affinity for mountain mahogany stands.		x					yes	**none**
White-headed Woodpecker	Mixed conifer forests (< 40 % canopy cover) dominated by old growth Ponderosa Pine and open habitats where standing snags and scattered tall trees remain.	x	x					yes	**yes**
Williamson's Sapsucker	E. Cascades, mid to high elevation, mature open and mixed coniferous - deciduous forests. Snags are a critical component.		x					yes	**yes**
Mammal Species									
Fringed myotis	Trees, snags, buildings, caves, cliffs, and bridges.	x OR-SEN						yes	**yes**
Pallid Bat	Arid regions/rocky outcroppings	x						yes	**yes**

Insects									
Western Bumblebee	Areas with appropriate flowering plants	x OR-SEN						yes	yes

FC – Candidate for listing under the Endangered Species Act
FE – Federal Endangered Species
FT – Federal Threatened Species
OR-SEN – State of Oregon Sensitive Species
Delisted – formerly federally listed species

Greater Sage-Grouse

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 Findings which noted that that listing the greater sage-grouse range-wide is warranted, but precluded by higher priority listing actions.

Preliminary Priority Habitat (PPH) comprises areas that have been identified as having the highest conservation value for maintaining sustainable Greater Sage-Grouse populations. Preliminary General Habitat (PGH) comprises areas of occupied seasonal or year-round habitat outside of priority habitat. These areas have been identified by the BLM in coordination with respective state wildlife agencies and in Oregon are similar to ODFW's Core and Low Density habitat categories. The ODFW developed Core Areas with the goal of conserving 90% of Oregon's greater sage-grouse population with emphasis on highest density and important use areas which provide for breeding, wintering and connectivity corridors for greater sage-grouse (ODFW 2011a, p. 82). Based on this habitat data the allotment does not fall within the identified PPH or PGH areas. Based on ODFW's most recent sage-grouse lek data, there are no known leks within the allotment. The nearest occupied lek (Red Knoll Reservior, LA1121-01) is located approximately 7 miles from the allotment boundary. The Dicks Creek allotment does not occur within the ODFW sage-grouse action areas; the closest sage-grouse action areas include: Tucker hills (approximately 2.5 miles) and Warner (approximately 8 miles). The allotment does not appear to provide suitable sage-grouse habitat. Therefore, this species would not be affected by any of the alternative proposals and will not be addressed further in this analysis.

Bats

Four Bureau Sensitive Species of bats are known to occur within the Lakeview Resource Area. These include the fringed myotis, pallid bat, spotted bat, and the Townsend's big-eared bat. None of these species are considered juniper woodland dependent species, but they have been known to forage in open juniper woodlands. Fringed myotis may roost during the day in cavities within old-growth juniper and aspen trees. Roost sites for pallid, spotted, and Townsend's big-eared bats are generally in open caves, mines, and old buildings. Research on activities that may change landscapes to benefit or adversely affect different bat species are poorly represented in the literature (Chung-MacCoubrey 1996). The effects of grazing, fire suppression, urbanization, etc. can only be speculated based on the effects of these activities on known resource requirements of bats.

Roosting and wintering (hibernacula) habitat for these species is limited throughout the allotment. There are no known caves, adits, shafts, or outbuildings on the allotment capable of providing hibernacula for bats. Habitat is unknown on adjacent private lands. Use of the area by these species is likely limited primarily to foraging activities. Water developments can allow resident species, including species of concern, to extend their distribution into otherwise suitable habitat that remained unused because of the lack of free-standing water (James *et al*. 1999; Lynn *et al*. 2006; Bleich 2008, 2009). Some bats are dependent on free-standing water and many, if not all species of bats, probably require free-standing water on occasion (Rabe and Rosenstock 2005). Availability of surface water sources may limit distributions of bats in desert environments (Rabe and Rosenstock 2005), and water developments likely

have expanded the distribution of bats, particularly in areas where suitable roosts are present (Rosenstock *et al*. 1999).

Kit Fox and Pygmy Rabbits

Kit fox and pygmy rabbits, both BLM sensitive species, are also known to occur within the Lakeview Resource Area. The only documented kit fox observation was on the far eastern edge of the Resource Area near Beaty Butte. Kit foxes are associated with sparser greasewood vegetation communities (Verts and Carraway 1998) that are not found in the allotment. According to the information available from ODFW at http://www.dfw.state.or.us/species/mammals/coyotes_wolves_foxes.asp, kit foxes occur in Deschutes, Klamath, and the southern half of Harney and Malheur counties. The potential for the presence of kit foxes is very low as the allotment occurs in Lake County and lies outside of the northern range of the kit fox. Pygmy rabbits prefer friable soil conditions necessary for burrowing (Verts and Carraway 1998) which is limited to deep soil, big sagebrush sites that are not found within the allotment. Further, no pygmy rabbits or evidence of pygmy rabbits have been found in the allotment. Therefore, kit fox and pygmy rabbits will not be carried forward for further analysis.

Raptors

There are no known bald eagle nests or nesting habitat within the allotment, although they are occasional visitors to the area. Bald eagles occasionally feed on scattered carrion within the allotment. The closest known bald eagles nest is approximately 2.3 miles from the south boundary of the allotment and the last record of activity was in 1989. There are no known golden eagle nests or nesting habitat within the allotment.

Peregrine falcons have been observed in allotment area, in part due to releases from the Crump and Summer Lake hack sites; however, no nesting has been documented within the allotment. For this reason the peregrine falcon is not carried forward in this analysis.

Insects

The western bumblebee may occur on the allotment and is suspected to occur on the Lakeview Resource Area, but no records documenting their occurrence on the Lakeview Resource Area exist. Therefore, they will not be carried forward for further analysis.

Environmental Consequences:

Potential impacts to wildlife species are summarized in the Table 3.8.

Effects common to Alternatives 1 and 4

Under these alternatives, conifers would continue a predicted transition to fully-developed woodlands. Increasing juniper dominance will likely result in the die-off of shrubs and a reduction or die-off of native grasses and forbs. The ensuing loss of shrubs, grasses, and forbs reduces species richness and diversity and results in a loss of habitat value (cover, forage) for many wildlife species as well as a loss of forage for livestock.

Effects of Alternative 1: No Action

Current grazing management has achieved Rangeland Health Standard 5 for wildlife habitat. Approximately 81 acres of the wildlife habitat within the allotment would continue to be impacted

Table 3.8. Potential Impacts to Wildlife Species

Species	General Habitat Requirements	Potential Impacts to Species	
		Alternatives 1 and 4	Alternatives 2, 3 and 5
GAME BIRDS			
Mourning Dove	Habitat generalist	Continuous overstocked canopy within the stands would preclude the development of forage species.	Variable density thinning would retain mature old growth juniper trees when they occur to reestablish juniper savanna like habitat.
BIRDS OF CONSERVATION CONCERN (BCC)			
Flammulated Owl	Associated with ponderosa pine forests and mixed conifer stands with a mean 67% canopy closure, open understory with dense patches of saplings or shrubs.	Stands would continue to be unsuitable because of the lack of understory development until suppression mortality created gaps and edge habitat allowing for the development of forage habitat.	Variable density thinning would create more diverse stand conditions and accelerates growth of larger trees that may become snags. Forest gaps would increase understory growth, contributing to increased insect production. Increased forest edge habitat would also enhance foraging opportunities.
Lewis's Woodpecker	Ponderosa Pine, Cottonwood riparian or Oak habitats with an open canopy, brushy understory, dead and down material, available perches and abundant insects.	Stands would continue to be unsuitable because of the lack of understory development until suppression mortality created gaps and edge habitat allowing for the development of forage habitat.	Variable density thinning would create more diverse stand conditions and accelerates growth of larger trees that may become snags. Forest gaps would increase understory growth, contributing to increased insect production. Increased forest edge habitat would also enhance foraging opportunities.
White-headed Woodpecker	Mixed conifer forests (< 40 % canopy cover) dominated by old growth Ponderosa Pine and open habitats where standing snags and scattered tall trees remain.	Stands would continue to be unsuitable because of the lack of understory development until suppression mortality created gaps and edge habitat allowing for the development of forage habitat.	Variable density thinning would create more diverse stand conditions and accelerates growth of larger trees that may become snags. Forest gaps would increase understory growth, contributing to increased insect production. Increased forest edge habitat would also enhance foraging opportunities.
Williamson's Sapsucker	E. Cascades, mid to high elevation, mature open and mixed coniferous - deciduous forests. Snags are a critical component.	Stands would continue to be unsuitable because of the lack of understory development until suppression mortality created gaps and edge habitat allowing for the development of forage habitat.	Variable density thinning would create more diverse stand conditions and accelerates growth of larger trees that may become snags. Forest gaps would increase understory growth, contributing to increased insect production. Increased forest edge habitat would also enhance foraging opportunities.
Sage Sparrow	Found in se. and c. OR Associated with semi-open evenly spaced shrubs 1-2 m high in big sage up to 6,800 ft.	Continuous overstocked canopy within the stands would preclude the development of forage species.	Treatments will help restore habitats by removing encroaching, shade tolerant species and reducing dense and decadent overstocked habitats.
Virgina's Warbler	In OR likes high elevation steep-sloped, xeric, pinion- juniper and oak woodland habitats, and reported affinity for mountain mahogany stands with dense tall shrub component. Virginia's warblers nest on the ground under dense shrubs.	Stands would continue to be unsuitable because of the lack of understory development until suppression mortality created gaps and edge habitat allowing for the development of forage habitat nest habitat.	The treatments will open up the understory component of the forest while maintaining untreated patches of mountain mahogany throughout. The treatment areas will have the potential to improve dense tall shrub habitat suitability throughout the overstocked areas.
EAGLES			
Bald Eagle	Associated with large bodies of water, forested areas near the ocean, along rivers, and at estuaries, lakes and reservoirs.	High density of trees would limit the stand's ability to create diverse, multi-storied stands. Large trees or snags containing large limbs or structural characteristics to support a nest would be slow to develop.	Benefit from treatments of heavy thinning and gap creation which would best create conditions fostering the development of suitable nesting and roosting habitat, including large overstory trees and multi-layered canopy.

Species	General Habitat Requirements	Potential Impacts to Species	
		Alternatives 1 and 4	Alternatives 2, 3 and 5
OTHER WILDLIFE SPECIES OF CONCERN			
Fringed myotis	Occupies middle elevations in desert, grassland, juniper woodland and montane forest habitats near rocky outcrops. Roosts in caves, mines, rock crevices, buildings and other protected sites. Nursery colonies occur in caves, mines, and sometimes buildings. The availability of roost sites is more important than the surrounding habitat.	Rocky outcrops would continue to be unsuitable precluding adequate roost sites.	Variable thinning of juniper may expose rocky outcrops with the potential to create conditions fostering the development of suitable roost sites. Water development may extend distribution into more suitable summer habitat.
Pallid Bat	Arid regions roosts in rock crevices, shallow caves, overhangs, and man-made structures. The availability of roost sites is more important than the surrounding habitat. The availability of roost sites is more important than the surrounding habitat.	Rocky outcrops would continue to be unsuitable precluding adequate roost sites.	Variable thinning of juniper may expose rocky outcrops with the potential to create conditions fostering the development of suitable roots sites. Water development may extend distribution into more suitable summer habitat.
Western Bumblebee	Areas with appropriate flowering plants	Site would continue to be unsuitable because of the overstocked stand conditions and lack of open understory development.	Tree removal would create openings where flowering vegetation important for foraging would persist.
BIG GAME			
Mule Deer	Spring and summer ranges are most typically mosaics of meadows, aspen woodlands, alpine tundra-subalpine forest edges, moist forest habitats or montane forest edges. Montane forests and juniper woodlands with early seral shrub understory are often favored winter ranges.	Forage quality on winter ranges will continue to be impacted by juniper encroachment and conversion to juniper woodland reducing shrub-steppe habitat and browse components on winter ranges.	Variable thinning will open the forest canopy to increase understory production of browse species while leaving a mosaic of untreated areas for cover.
Pronghorn Antelope	Associated with open shrub-steppe communities or stands with only scattered juniper trees.	Native shrubs, grass and forb species will continue to be suppressed due to juniper expansion.	Variable thinning would maintain or restore shrub-steppe habitats to proper functioning condition.

by concentrated livestock use near cattle trails and water sources. The allotment has adequate habitat to support an appropriate assemblage of migratory birds and current livestock grazing does not appear to be affecting this habitat.

Current livestock grazing use (both stocking rates and grazing schedule) does not appear to be limiting wildlife habitat within the majority of the allotment. Rangeland Health Standard 5 would continue to be met and the allotment would continue to provide adequate quality wildlife habitat that is capable of supporting an appropriate assemblage of pine-woodland wildlife species. However, juniper expansion would be expected to continue (in the absence of wildfire) and may lead to a decline in wildlife habitat diversity, including loss of understory shrubs, forbs, and grasses and subsequent conversion of sagebrush-bitterbrush shrublands to juniper woodland habitat.

Effects of Alternative 2: Project Development/2-Year Rest Rotation

The impacts of this alternative on wildlife habitat would be approximately 62 acres of additional ground disturbance associated with new range improvement construction and concentrated livestock use. The impacts of these additional disturbances would be offset by improved livestock distribution across the allotment. The vegetation communities in the allotment contain a diversity of native grasses, forbs, and shrubs that would be maintained by more dispersed grazing and the rest provided under this alternative. In turn, wildlife habitats would be maintained across the allotment. In particular, the rotational grazing system would provide increased forage availability for wildlife, as well as increased residual nesting habitat for ground-nesting birds across the majority of the allotment.

Negative impacts from disturbance and fuel treatments on mule deer habitat would be minimal and short term within the allotment. Removing conifers and burning the material would also remove some of the bitterbrush browse currently available over the short-term. However, retention of most shrubs within the stands would retain foraging habitats while reducing competition between forage species and conifers. Positive impacts would occur on the majority of mule deer winter range currently impacted by conifer encroachment.

Impacts to pronghorn antelope would be minimal in the short term due to disturbance during project activities. Pronghorn habitat would benefit over the long-term as conifers are removed from foraging areas and hiding cover for predators is reduced.

Minor negative impacts from both pile burning and mechanical treatments would occur to other small mammal and non-game bird species would occur. This alternative would maintain pre-settlement juniper, as well as some post-settlement stands. Pine densities would be reduced to more site appropriate levels. Habitat for cavity nesting bird species would be preserved through treatment activities designed to maintain old-growth trees. Habitat mosaics would be created which would support both woodland and shrub-steppe dependent wildlife habitats. Miller *et al*. (2005) found that bird species diversity was at its highest in mid-successional juniper stands (containing diverse communities of shrub, grass, and forb species) and that wildlife species diversity decreased as juniper stands progressed to a closed woodland, late-successional stage with little or no understory. Miller *et al*. (2005) documented that shrub-steppe mid-successional transitional juniper communities contain a high degree of vertical diversity and are attractive to wildlife. These early and mid-successional juniper communities are used by 83 species of birds and 23 species of mammals. Opening juniper stands would improve food and cover for small mammals by increasing shrub and herbaceous recruitment and seed production.

Reservoir and spring maintenance would result in better distribution of livestock and more distributed grazing. Forage resources would be more capable of recovery following rest periods. It is possible that the size of riparian habitat available for wildlife would increase, as these areas are able to capture more available water from surrounding lands.

Treatment of conifers would reduce the competition with understory species (grasses, forbs, and shrubs). Reducing or removing conifers would encourage establishment of seedlings or the reoccupation of the understory by native grasses, forbs, and shrubs due to less competition for space, sunlight, soil water, and soil nutrients.

Seeding of the treatment areas would also promote the re-occupation of the site by diverse and productive plant communities and would enhance habitat value for many wildlife species.

The effects of Imazapic on wildlife and wildlife habitat are described in Table 3.7 in the noxious weed section.

The allotment would continue to provide adequate quality wildlife habitat that is capable of supporting an appropriate assemblage of wildlife species and Rangeland Health Standards 5 would continue to be met over the 9-year life of the permit. This alternative is expected to maintain or improve habitat trend across the allotment, and make progress toward meeting other rangeland health standards (1 and 3).

<u>Effects of Alternative 3: Project Development/3-Year Rest Rotation</u>

Under this alternative, impacts to wildlife habitat, including big game, nongame bird and mammals, raptor, migratory bird, and special status species habitat, would generally be similar to Alternative 2. The

installation of rotational grazing systems would provide increased forage availability for wildlife, as well as increased residual nesting habitat for ground-nesting birds across the majority of the allotment. However, increasing the length of time between grazing Upper and Lower Pastures (compared to Alternative 2) would increase the potential for vegetation and forage resources to recover. The impacts from project construction, maintenance, conifer treatment, weed treatment, and seeding would be similar to Alternative 2.

Effects of Alternative 4: No Grazing/No Treatment

Under the no grazing alternative there would be very little change in the existing quality of wildlife habitat, including big game, nongame bird and mammals, raptor, and migratory bird habitat, in the short-term compared to the no action alternative. The existing sagebrush habitat formerly impacted by livestock trailing and concentration near existing water sources would improve over the long-term. Generally, this would provide some increased forage availability for wildlife species, as well as some increased nesting habitat for ground nesting birds. However, conifer juniper expansion would be expected to continue (in the absence of wildfire) and negatively impact sagebrush dependent species over the long-term.

In the short-term (up to 5 years), the allotment would continue to provide adequate quality wildlife habitat that is capable of supporting an appropriate assemblage of wildlife species and Rangeland Health Standard 5 would continue to be met. However, without invasive weed treatment and re-seeding, perennial vegetation would continue to be in competition for available resources. The loss of perennial grasses, forbs, and shrubs is expected to continue in portions of the allotment which would, in turn decrease wildlife species and habitat diversity across the allotment over the long-term.

Effects of Alternative 5: Standard Rest Rotation

Under Alternative 5, a rest rotation would be implemented where the impacts to wildlife habitat, including big game, nongame birds and mammals, raptors, migratory birds, and special status species habitat would generally be similar to Alternatives 2 and 3.

About half of the allotment would be in use each year which would reduce AUMs from 55 to 28; thus, reducing competition between livestock and other wildlife for available forage resources. The rest provided by this alternative would allow an opportunity for the vegetation around natural or developed water sources to recover. Additionally, rested pastures would provide forage for emergency use during severe drought years, and provide opportunities to implement relatively long-term rangeland improvement practices (e.g., burning, reseeding, conifer treatment, weed management) during scheduled rest periods. This alternative would maintain or improve habitat trend across the allotment, and make progress toward meeting other rangeland health standards (1 and 3).

Livestock Grazing Management

Affected Environment:

Dicks Creek Allotment is a management category “M” or “maintain” allotment. One permit exists (#3600119) authorizing livestock use in this allotment. The current permit dates for this allotment are from May 1 through May 31; livestock use preference is 55 AUMs of active use and 0 suspended use. Cattle numbers can fluctuate annually as long as the 55 AUMs of total active use on the allotment are not exceeded. Both Upper and Lower Pastures have been used on an annual basis during May since approximately 2002. Prior to 2002, the allotment was rested 15 out of the previous 22 years.

In 2002, an Interdisciplinary Team (ID) conducted a rangeland health assessment (RHA) within the allotment. The ID team found that all applicable standards were met (BLM 2002). In 2013, an ID team conducted a review of the 2002 findings and found that standards 2, 4, and 5 are continuing to be met. However, Standards 1 and 3 are not currently being met due to lack of periodic rest from livestock grazing, presence of invasive weeds, and juniper/pine expansion. The 2002 RHA and 2013 update are summarized in Table 3.8, and are incorporated by reference herein their entirety (BLM 2002; 2013).

Environmental Consequences

Effects of Alternative 1: No Action

Under the No Action Alternative, the allotment would continue to be utilized during the month of May with 55 AUMs. Actual use, utilization, and climate data have been summarized in the allotment monitoring file and indicate that livestock grazing levels are sustainable. Long-term trend monitoring plots and professional judgment indicate a stable trend across the allotment.

The average utilization for each pasture has exceeded the 50% utilization standard twice in the last ten years. The average actual use for both pastures, over the last 10 years, was 50 AUMs. Grazing levels would remain at or below 55 AUMs under this alternative.

Grazing management under this alternative would be expected to continue not to meet rangeland health standards.

Conifers would continue a predicted transition to fully-developed woodland/forest. Over the long-term, this would decrease the density of understory species, increasing bare ground and the chance of soil erosion.

Four herbicides authorized for use (2,4-D, dicamba, glyphosate and picloram) would continue to be used to control legally designated noxious weeds on the allotment. Of the noxious weeds occurring within the Dicks Creek Allotment, Mediterranean sage, would be treated using one the four currently authorized herbicides and biological control agent. Treating Mediterranean sage would decrease infestations and the opportunity for spread, while also decreasing competition with native vegetation. Use of the four above named chemicals would not be the most effective herbicide to control winter annual grasses (medusahead rye, (North Africa grass, and cheatgrass . Therefore, winter annual grasses would continue to compete or out-compete native vegetation for available resources. Loss of perennial grasses, forbs, and shrubs would decrease the root holding capacity within the soil, increasing the chance of erosion.

Effects of Alternative 2: Project Development/2-Year Rest Rotation

This alternative provides a 2-year rest rotation system for the allotment where the Lower Pasture is rested every other year. The year the Lower Pasture is rested, the AUMs utilized are likely to be lower than the permitted 55 AUMs. This decrease of AUMs is because only half of the allotment would be utilized the year the Lower Pasture is rested. The permittee would need to replace the lost forage elsewhere, or buy hay. The additional cost to replace this forage would be at the permittee's expense. These costs are discussed further in the social and economic section. Providing periodic growing season rest for the Lower Pasture would be expected to make significant progress toward meeting the rangeland health standards. Effects to the Upper Pasture would be the same as Alternative 1, with an increased likelihood

Table 3.9. Rangeland Health Assessment Summary for Dicks Creek Allotment (BLM 2002, 2013)

Standard	2002 Assessment	2013 Assessment	Comments
1. Watershed Function – Uplands	Met	Not Met	Cheat grass, medusahead rye, Mediterranean sage, and North Africa grass are present throughout the allotment. Long-term trend photo monitoring analysis indicates western juniper and ponderosa pine has increased across the allotment. There has also been recruitment of pine and juniper seedlings. Long-term trend photo monitoring site, DC-1, indicates a loss of perennial grass species within the 3X3 plot between 1981 and 1988. Perennial grass species continued to decrease on areas around the 3X3 plot, continuing the downward trend through 2007. Livestock grazing has occurred in the allotment during the month of May without periodic growing season rest. This site has remained unchanged between 2007 and 2013. This site is not currently meeting this standard due to: lack of periodic rest from livestock grazing, invasive weeds and juniper/pine expansion.
2. Watershed Function Riparian/ Wetland Areas	Met	Met	Dicks Creek was rated in Proper Functioning Condition (PFC) in 1997. A field visit in 2001 indicated a continuation of the PFC status. Although a formal PFC was not conducted in 2013, recent field visits indicate that Dicks Creek is currently in PFC, and meeting standard 2.
3. Ecological Processes	Met	Not Met	Cheat grass, medusahead rye, Mediterranean sage, and North Africa grass are present throughout the allotment. Juniper/Pine has expanded across the allotment. Livestock grazing has occurred in the allotment during the month of May without periodic growing season rest. Long-term trend photo monitoring analysis indicates this site is not meeting this standard due to the following factors: lack of periodic rest from livestock grazing, invasive weeds and juniper/pine expansion.
4. Water Quality	Met	Met	No water quality data exists for Dicks Creek. The 2002 RHA stated that Dicks Creek is not on Oregon's 303d list of water quality impaired streams. Dicks Creek has not since been added to the Oregon's 303d list of water quality impaired streams, and therefore, continues to meet this standard in 2013.
5. Native, T/E, and Locally Important Species	Met	Met	The 2002 RHA stated surveys for sensitive and endangered plants have been conducted and none have been found. In 2013, all of the allotment was surveyed, and no sensitive or endangered plants were found. The deer and elk populations are healthy and stable in number. Habitat quantity and quality do not appear to be limiting population size or health. The allotment also provides habitat for numerous small and nongame birds and mammals common to the Great Basin. There are no known sage grouse leks or habitat found within the allotment or pygmy rabbit habitat. The allotment also provides habitat for raptors and other species; no critical habitat or limitations have been identified for any of these species which include wintering bald eagles, various sensitive bat species, or Peregrine falcons. The only listed or sensitive aquatic species in the allotment is redband trout (sensitive), which occupy habitat in Dicks Creek. The redband population in Dicks Creek is thought to be stable based on meeting standards 2 and 4 above.

of some improvement associated with implementing the proposed range improvement projects.

Proposed range improvements associated with this alternative provide livestock with additional water sources, and would improve distribution, especially in the Upper Pasture. Reservoir construction and spring maintenance would increase the ability of the Upper Pasture to be used independently of the Lower Pasture, of which contains a perennial water source.

Short-term effects of conifer treatment (before burning) would increase difficulty for livestock to navigate or be herded through the allotment. Long-term effects for livestock associated with conifer treatment would be beneficial. Treatment would reduce competition between conifers and understory species (grasses, forbs and shrubs), increasing vigor, and promoting a stable livestock forage base on the allotment.

Treating noxious weeds and seeding would decrease the opportunity for noxious weeds to become established and/or spread or out-compete perennial vegetation. Perennial vegetation would remain stable or experience an upward trend across the allotment. A healthy perennial understory would also continue to provide a stable livestock forage base in the allotment. The allotment would be rested from livestock grazing for two growing seasons after seeding occurs. This would provide the seedlings opportunity to become established. There would be a short-term loss of AUMs, and for those two years, the permittee would need to find alternate feed, hay or pasture (see social and economic values section below for a cost estimate). In the long-term, spraying coupled with seeding would be very beneficial to livestock grazing and associated forage base. The effects of Imazapic to livestock grazing are described in Table 3.7 of the noxious weed section above.

Grazing and other management actions under this alternative would improve vegetation and other resource conditions and make some progress in meeting rangeland health standards in the Lower Pasture over the 9-year life of the permit. While the Upper Pasture would benefit from proposed range improvement and treatment projects, it would not receive scheduled rest. At best, this grazing management would only maintain current vegetation and other resource values and multiple uses on the Lower Pasture. For these reasons, this alternative would be consistent with the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b), the grazing regulations, and FLPMA on the Lower Pasture, but would not be consistent on the Upper Pasture.

Effects of Alternative 3: Project Development/3-Year Rest Rotation

Under this alternative, each pasture would be rested every three years. Only 36 AUMs of forage would be utilized on average each year. The permittee would have to replace the lost forage elsewhere, or buy hay. The additional cost to replace this forage would be at the permittee's expense. These costs are discussed further in the social and economic section. Livestock grazing management would maintain or improve vegetation and other resource values and multiple uses across the allotment. The effects of conifer fuel reduction treatments, reservoir construction, spring maintenance, noxious weed treatment, and seeding would be the same as those described under Alternative 2.

Grazing and other management actions under this alternative would make significant progress in meeting all rangeland health standards over the 9-year life of the permit, but at a slower rate as compared to Alternative 5. For these reasons, this alternative would be consistent with the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b), the grazing regulations, and FLPMA.

Effects of Alternative 4: No Grazing/No Treatment

Under this alternative, grazing would no longer be permitted within the allotment. The permittee would need to replace 55 AUMs of lost forage with private land forage or hay in the general vicinity. The additional cost to replace this forage would be at the permittee's expense. These costs are discussed further in the Social and Economic section.

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

Vegetation would continue towards a predicted transition to fully-developed woodland/forest, lacking a healthy diverse perennial understory. In the long-term, a decline in perennial plants would decrease the forage base for wildlife. Biological control agent *Phrydiuchus tau* (Mediterranean sage weevil) would continue to be used to control Mediterranean sage which would decrease infestations to some degree. Perennial vegetation would continue to be in competition for available resources, or be out-competed. Loss of perennial grasses, forbs, and shrubs would decrease species diversity and the wildlife forage base the long-term.

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 Dicks Creek Allotment, which is open and available to grazing use (Page 47, Table 5; Map G-3).

Effects of Alternative 5: Standard Rest Rotation

Under this alternative, each pasture would be rested every other year. Approximately half (28) AUMs would be used each year. This alternative would provide a sustainable forage base of 28 AUMs over the 9-year term of the permit. However, the permittee would need to replace the lost forage elsewhere, or buy hay. The additional cost to replace this forage would be at the permittee's expense. These costs are discussed further in the social and economic section. The effects of conifer fuel reduction treatments, reservoir construction, spring maintenance, noxious weed treatment, and seeding would be the same as those described under Alternative 2.

Grazing and other management actions under this alternative would be expected to make significant progress in meeting all rangeland health standards over the 9-year life of the permit. Livestock grazing management would improve the vegetation and resource values and multiple uses. With every other year rest on each of the pasture, this alternative would provide the allotment with the most accelerated rate of improvement compared to the other alternatives. For these reasons, this alternative would be consistent with the *Lakeview Resource Management Plan/Record of Decision* (BLM 2003b), the grazing regulations, and FLPMA.

Native American Traditional Practices

Affected Environment:

The allotment is within a larger landscape which was probably used historically by either The Klamath or Northern Paiute Tribes. The allotment is small, but could contain places where culturally important plants could be collected, game could be hunted, or religious practices occur. BLM is not aware of any specific locations where such activities have occurred in the allotment. However, tribal members often will not reveal specific areas of cultural or religious importance to BLM and there may be no physical indications of their presence on the landscape. Some tribal members may even consider the entire landscape to be sacred. The appropriate tribes will have an opportunity to review this EA and notify BLM of potential areas within the allotment that may be important to them.

Environmental Consequences Common to All Alternatives:

Based upon currently available information, there are no known areas of traditional practices (religious or other) which have been identified within this allotment as important to, or currently used by native Americans. Therefore, none of the alternatives would have any impact upon such sites.

Cultural Resources

Affected Environment:

There are no known archaeological or cultural sites in the allotment. However, there has been no systematic survey for cultural resources. The fact that cultural surveys have not been completed on the area 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 is estimated at $800 to $1080 per acre based upon current costs for contract survey work. Surveying the 366 acres within the allotment would cost approximately $293,000 to $395,000 and is considered to be exorbitant.

The terrain in the allotment is steep and other than small areas surrounding natural water sources such as along Dicks Creek and springs in the area, no such sites would be expected. However, it will be necessary to conduct a survey of the proposed range improvement project and treatment areas prior to the implementation of these activities. As stated in the project design features, appropriate measures will be employed (see BMPs in Chapter 2) to avoid or minimize impacts to any sites that may subsequently be located in these areas.

Environmental Consequences:

<u>Effects Common to Alternatives 1, 2, 3, and 5</u>

It is unknown to what extent livestock trampling may currently be impacting cultural resource sites within the allotment. There have been very few studies of livestock impacts to cultural resources, but based on field observations by BLM cultural resources staff over the last 38 years on known cultural resource sites in the Lakeview Resource Area, concentrated livestock use can impact cultural materials located in the soil profile. These effects could include ground cover removal, surface scuffing, and hoof shear. Cultural materials within the top 12 inches of soil are the most susceptible to exposure and trampling damage, potentially resulting in reduced site integrity. The deepest disturbance is typically seen at wet sites located in congregation areas (near water sources and trailing areas) where concentrated hoof shear and soil layer mixing is common. Artifacts can be mixed between layers of the soil profile, moved both vertically and horizontally, or broken and chipped. Dispersed grazing, on dry uplands away from water sources may cause light hoof shear and surface scuffing.

Maintenance of existing range developments would have little or no additional impact upon cultural resources beyond those that may have occurred when the improvement was originally constructed.

Effects of Alternative 1: No Action

This alternative would continue grazing at its present level and time of year. While no known sites are located within the allotment, if they are present the presence of livestock on sites would produce some undetermined level of trampling and surface site disturbance. If livestock are within a site area while the soil is damp, hoof punching may be severe and would disturb and mix any subsurface deposits. This would be especially true at any spring locations where sites are often located.

Effects of Alternative 2: Project Development/2-Year Rest Rotation

The potential impacts of livestock grazing on unknown cultural sites would be similar to or slightly less than Alternative 1, due to 1 year of rest provided in 1 of the 2 pastures. Construction of a new reservoir and maintenance of the existing spring development and trough system could result in both new or continued disturbance of sites, if any are actually present near these areas. The cutting of juniper/pine by hand crews would not generally impact cultural resources. However, machine cutting/piling and burning this material could have an impact upon sites if present. This potential impact could be adequately mitigated if only chain saws are used near cultural sites and cut material is hand-piled and burned away from cultural sites. The reseeding of burned areas, if done by hand or with an ATV mounted spreader, would also not impact cultural resources which might be present. The treatment of weed sites using backpack sprayer, ATV, or aerial methods would not cause substantial additional ground disturbance and, therefore, would not have any impacts on cultural resources, if present.

Effects of Alternative 3: Project Development/3-Year Rest Rotation

The effects for this alternative would be the same as for Alternative 2 except for the rest rotation. Increasing the length of time between grazing any portion of the allotment would decrease the potential for long-term cumulative trampling of any sites which might be present on the allotment. The impacts from project construction and maintenance, juniper/pine treatment, and weed treatments would be the same as Alternative 2.

Effects of Alternative 4: No Grazing/No Treatment

This alternative would remove the potential for any impacts to cultural resources which might be present within the allotment associated with livestock grazing use.

Effects of Alternative 5: Standard Rest Rotation

The impacts from project construction and maintenance, juniper/pine treatment, and weed treatments would be the same as Alternative 2.

Recreation

Affected Environment:

Recreation within Dicks Creek Allotment is managed for multiple activities, opportunities, and experiences (see map R-3, BLM 2003b). Primarily, recreation within the allotment is managed for Semi-Primitive Motorized experiences. 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 and few isolated structures. As there are no developed recreation sites and only one motorized route within the allotment, recreation is concentrated along Dicks Creek Road (County Road 2-12). The

allotment provides some opportunities for solitude, where a visitor could avoid the presence of others. Topographic and vegetative screening can be found across the allotment.

The allotment is also open to Off-Highway Vehicle (OHV) use on roads, trails, and cross country travel (see map R-7, BLM 2003b). The principal recreation activity in this allotment is big game (e.g., elk, mule, deer, and antelope) hunting. Other recreation activities may occasionally occur in the allotment including: fishing for redband trout, OHV riding, wildlife viewing, photography, camping, hiking, backpacking, horseback riding, and target shooting.

Environmental Consequences:

Effects of Alternative 1: No Action

The No-Action Alternative would continue to have both positive and negative impacts to recreation opportunities, activities, and experiences across the allotment. Current recreation activities and would remain constant. Opportunities providing for a moderate degree of solitude and naturalness would remain. Existing water developments, such as the developed spring and associated reservoir, would continue to provide benefits to users viewing or hunting wildlife. Conversely areas within close proximity to the above mentioned developments and gravel road would continue to negatively impact or displace recreation experiences for those seeking primitive and unconstrained recreation, and a high degree of solitude and naturalness.

Effects of Alternative 2: Project Development/2-Year Rest Rotation

Alternative 2 would have a slightly positive impact to recreational experiences and opportunities within the allotment by improving the ecological condition of the lower pasture and by providing a period where the sights and sounds of cattle could be avoided for those users seeking a more natural recreational experience.

The proposed developments under Alternative 2 would have moderately beneficial or moderately detrimental impacts to recreational experiences depending on the user group. Increased access to water and an invigorated understory of grasses, forbs, and shrubs would benefit users pursuing wildlife viewing and hunting opportunities. Conversely, areas within close proximity to water developments would also be undesirable for those seeking isolation, closeness to nature, or naturalness due to the negative physical and visual impacts of the facilities themselves and increased use by permittees and livestock.

Recreational experiences would also be negatively impacted by vegetation treatments in the short-term due to resulting hand and mechanical piling making cross-country travel on foot, horse, and ATV more difficult. The sights and sounds of equipment and the resultant smoke produced during burn periods would also be a deterrent for those wishing to recreate in the area during those times. However, in the long-term, visitor user would not be expected to be negatively affected as the positive impacts of vegetation restoration activities would likely increase game habitat and populations, thereby increasing the potential for wildlife dependent recreation activities. Additionally, the area would be restored to a more historic ecological condition benefiting those visitors seeking naturalness. The loss of vegetative screening from tree thinning treatments, creating a more open stand, would be the main lasting long-term negative impact on recreation to users seeking solitude.

Effects of Alternative 3: Project Development/3-Year Rest Rotation

Impacts to recreation from proposed range developments and vegetation treatments would be similar to Alternative 2. The proposed rest rotation would extend similar beneficial impacts (as Alternative 2) to

both the Lower and Upper Pastures and, therefore, would be moderately more beneficial to users recreating in the allotment than Alternative 2.

Effects of Alternative 4: No Grazing/No Treatment

This alternative would enhance some recreation activities, opportunities, and experiences in the allotment, while possibly diminishing others over the 9-year life of the permit. Naturalists and primitive recreationists' experiences in these areas would be moderately enhanced by the removal of livestock grazing due to the absence of the sights and sounds of cattle, the improved ecological condition of the allotment (near cattle trails and watering/ gathering areas), and the potential for existing facilities to be deemphasized and begin to blend into the landscape due to lack of use. Conversely, this alternative would reduce opportunities and experiences for wildlife viewers and hunters, if existing water developments become less effective at holding water for wildlife due to lack of maintenance.

Effects of Alternative 5: Standard Rest Rotation

Under this alternative, impacts to recreation from range developments and vegetation treatments would be similar to Alternative 2. The forge allocation and rest rotation proposed within Alternative 5 would be moderately more beneficial than Alternative 3, as there would be fewer total livestock in the area and users would be able to avoid the sights and sounds of cattle in alternating pastures two years out of three. Users would generally experience a more natural, healthy, landscape due to an increased rest compared to Alternatives 1, 2, or 3.

Visual Resources

Affected Environment:

Topographically, the allotment is located on the bottom third of a south facing slope at the north edge of Crooked Creek Valley. Dicks Creek is located in the southwest corner of the allotment (Map 2). Elevation in the unit ranges from 5,360 to 4,630 feet. Views looking out from the allotment include Crooked Creek Valley and the surrounding Warner Mountains. The overstory is dominated by western juniper and ponderosa pine (refer to Upland Vegetation section). Observable developments in the area include approximately: 1 mile of county road, 4 miles of fence, 1 spring development and associated reservoir, and 250 feet of buried pipeline (Map 2).

The allotment is currently managed according to Visual Resource Management (VRM) class IV. 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 IV is designated to provide for management activities that allow "major modification of the landscape" (BLM 2001, page 290). Though management activities may be allowed to dominate the view and become the focus of viewer attention, efforts should be made to minimize the impact of proposed projects by carefully locating activities, minimizing disturbance, and designing the projects to conform to the characteristics of the landscape.

The allotment is very visible from Highway 395. All other BLM parcels in the surrounding area that are visible from the highway corridor (of which the allotment is the largest and most visible), are managed according to VRM Class III objectives. 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 (BLM 2001, page 290).

A more recent Scenic Quality Inventory (July 2013) found the allotment has relatively high scenic quality due to landscape character and associated landform, vegetation, color, adjacent scenery, water, and scarcity (see visual resource inventory file).

The allotment is also within the 3 mile scenic corridor along State Highway 395. *Note:* the entire allotment can be seen and is a focal point while traveling along the scenic corridor. Management direction requires "all developments, land alterations, and vegetation manipulations within a 3 mile buffer… of all major routes and recreation use areas to be designed to minimize visual impacts (unseen areas within these zones will not be held to this standard)… All projects will be designed to maximize scenic quality and minimize scenic intrusions" (BLM 2003b, page 88.)

Environmental Consequences:

Effects of Alternative 1: No Action

The No-Action Alternative would continue to have low impacts to the existing visual quality of the allotment due to the low density and magnitude of observable developments and disturbances from livestock use. Conifers would continue to encroach into open areas, slowly decreasing the visual diversity of the allotment. In the event of a stand-replacing wildfire, the visual impacts would be immediate, negative, and visible to the casual observer in the short-term. However, visible impacts due to fire would be perceived as natural to most viewers. Overall, visual objectives for VRM IV and the scenic corridor would continue to be met under this alternative.

Effects of Alternative 2: Project Development/2-Year Rest Rotation

In the short-term, cut and leave areas would visually result in reddish-brown patches across the landscape as needles from felled trees would turn color after only a couple months. Red needles could persist up to four years before falling off. In the long-term, felled trees would lose their bark, turn grey and slowly blend into the landscape. Skeletons would likely remain for decades or until consumed by the next fire cycle or decomposition occurs. Cut and lopped units would be less visually obtrusive as felled trees would be cut into pieces four feet or less in height.

Cut and burn units, in the short-term, would also visually result in reddish-brown patches across the landscape. However, red needles in these units would only persist for two years until piles are burned. Upon burning, a visual change in texture or density would occur as felled trees and burn piles are consumed. Resulting conditions would appear natural to the casual observer, particularly in units with mature leave trees. If possible, burning would be conducted in the late fall or winter to shorten the timeframe, for which segments of the landscape would appear black. Winter snow accumulation would cover blackened areas through the winter, while spring green up would rapidly convert the landscape back to natural colors shortly after snowmelt.

In the short-term, Alternative 2 would result in moderate changes in "*texture*" and "*color*" near slash piles, although in the long-term these impacts would dissipate. However, visual impacts associated with "*line*" would likely be low by following project design features (see Chapter 2) associated with blending unit boundaries to create openings common in nature, such as rounded and irregular shapes versus straight lines with abrupt edges and corners. Additionally, disturbances resulting from equipment/vehicle tracks and project construction areas would be reseeded where feasible, to mimic the "*color, texture, and lines*" of the surrounding landscape.

Impacts across the allotment would meet VRM objectives for Class IV, as well as adequately minimize potential visual impacts to the scenic corridor. In the long-term, visual resources and aesthetic character should be enhanced as additional shrubs and grasses become established, in combination the retention of large diameter ponderosa pine and junipers, creating a varied visual landscape as seen from within the allotment and while traveling along the scenic corridor.

Effects of Alternative 3: Project Development/3-Year Rest Rotation

The effects to visual quality would be similar to Alternative 2. However, Alternative 3 would provide a rest period to both pastures, allowing ecological conditions in both pastures to recover around denuded areas, thus slightly improving visuals compared to Alternatives 1 or 2. Visual objectives for VRM class IV and the scenic corridor would continue to be achieved.

Effects of Alternative 4: No Grazing/No Treatment

The No-Grazing Alternative would enhance visual resources to a low – moderate degree, as the allotment currently possess a low density observable developments (listed above) and disturbances from livestock. During the life of the permit, visual quality would improve slightly as ecological conditions slowly improve, particularly around water developments, cattle trails, fences, and gathering areas. Visual resources could be further improved if existing developments within the allotment were removed. Regardless, visual resource objectives for VRM class IV and the scenic corridor would continue to be achieved.

Effects of Alternative 5: Standard Rest Rotation

Under this alternative, effects to visual quality would generally be similar to Alternatives 2 and 3. However, the increased rest and reduced forage allocation would allow ecological conditions to slightly improve visual quality near concentration areas compared to Alternatives 2 and 3. Overall, visual objectives for VRM IV and the scenic corridor would continue to be met.

Social and Economic Values

Affected Environment:

The economy of Lake County is based primarily on agriculture (including livestock grazing and associated feed production industries), timber, and government sectors. The most common is the raising of cattle and calves for beef production. In 2011, an estimated 98,000 head of cattle and calves were in Lake County (Oregon Agricultural Information System 2011). In 2011, Lake County ranchers sold an estimated $35,000,000 worth of cattle. The allotment supports approximately 55 cattle on an annual basis for one month of the year. Approximately 47 calves can be produced annually for market (85% calving rate). In addition, ranching is an important as a social lifestyle within Lake County.

Environmental Consequences:

Effects Common to Alternatives 1-5

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

Effects of Alternatives 2, 3 and 5

The range improvements proposed under Alternative 2, 3, and 5 could potentially provide a one-time influx of approximately $2,000 in income to surrounding businesses and communities from project construction activities. These alternatives may also have a return on these investments in terms of efficiency and increased production, and possibly increased calving rates. It is not possible to quantify these benefits to the permittee and their operation, but they do represent a tangible benefit.

Effects of Alternative 1

Under this alternative, the Federal Government would continue to collect grazing fees (55 AUMs * $1.35/AUM = $74.25) from the permittee annually. The rancher/permittee would continue to graze 55 cattle and produce approximately 47 calves each year, contributing less than .0004% to the total county-wide cattle production.

Based on the current price of a 500-pound stocker calf at $147/cwt (100 lbs. of live weight) (Shasta Livestock Auction Yard Market Report, August 23, 2013) the permittee would generate a gross income of approximately $6,909. This is an estimate that would vary every year depending on the price of beef and the weight/condition of the calves at the time of sale.

Effects of Alternative 2

Under Alternative 2, the Lower Pasture would be rested every other year. The permittee would have to either locate other suitable pasture lands to purchase or lease, or feed hay for the year the Lower Pasture is rested. The current cost of hay is approximately $145/ton (Oregon weekly hay report, 2013) and assuming it takes 25 lb/day/cow, the additional cost per day would be approximately $34.60. This would result in approximately $1,073 in additional costs to feed the permittee's 19 cows for 1 month, 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 cost (every other year) to the rancher would be approximately $281.20 (19 AUMs * $14.80).

Effects of Alternative 3

Under Alternative 3, the pastures would be rested every third year. The permittee would have to either locate suitable pasture lands to purchase or lease, or feed hay two out of three years. Using the same calculations as described under Alternative 2, the additional cost per day would be approximately $34.60. This would result in approximately $1,073 in additional costs to feed the permittee's 19 cows for 1 month, not including transportation costs of moving the hay to the ranch. The additional cost (two of three years) to the rancher for private pasture would be approximately $281.20.

Effects of Alternative 4: No Grazing/No Treatment

A minimum annual loss of $74.25 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. This would result in additional costs to the rancher. The additional cost of feeding hay per day would be $99.70. This would result in approximately $3,090 in additional costs to feed the permittee's 55 cows for one month, not including transportation costs of moving the hay to the ranch. The additional annual cost to the rancher to rent private land would be approximately $814 (55 AUMs * $14.80). If the rancher could not secure other suitable pasture land or could not afford these increased costs, then approximately 47 calves would no longer be produced annually in Lake County, resulting in less than a .0004% annual reduction in county-wide cattle production. Although this is a very small percentage of the total county livestock production,

it would result in the loss of one small operating ranch.

Effects of Alternative 5: Standard Rest Rotation

Under Alternative 5, one of the two pastures would be rested every other year. The permittee would have to either locate suitable pasture lands to purchase or lease, or feed hay each year. Using the same calculations as described under Alternative 2, the additional cost per day would be approximately $56.19. This would result in approximately $1,517 in additional costs to feed hay to the permittee's 27 cows for 1 month, not including transportation costs of moving the hay to the ranch. The additional annual cost to the rancher for renting private pasture would be approximately $399.60.

Cumulative Effects

Analysis Scale and Timeframe

For the purposes of this analysis, cumulative impacts are generally addressed at the allotment scale. However, since Dicks Creek is a relatively small allotment, activities on immediately adjacent private and Forest Service lands were also considered. 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 RMP/ROD* (Appendix E, BLM 2003b) and other activity plans. However, the analysis spatial scale could vary somewhat 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 RMP/ROD*. 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 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 that have occurred within the allotment as part of past or on-going management activities. These include: livestock grazing and management, road construction and maintenance, weed treatment, seeding, and range improvement project construction and maintenance.

The 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. Historic grazing under the Grazing Service and then under the early days of the BLM (created in 1946) was generally in much higher numbers and the pattern of grazing use was generally more intense than what occurs today.

Based on a GIS analysis of current disturbance-related data, there are approximately 1.1 miles of constructed county road (totaling about 2 acres), 4 miles of fence (with associated trailing disturbance), and 250 feet of buried pipeline (where surface has revegetated; see photos in project file) currently exist in the allotment. Other past actions within the allotment have included construction of one spring development and associated small reservoir (Map 2). There are approximately 81 acres of disturbance associated with concentrated livestock use and about 83 acres total of past or on-going ground disturbance.

All of these past activities have affected or shaped the landscape within the allotment into what it is today. Current resource conditions are described further in the "Affected Environment" portions of Chapter 3 earlier in this document, as well as in the Rangeland Health Assessment(s) for the allotment (BLM 2002, 2013), herein incorporated by reference in their entirety.

Reasonably Foreseeable Future Actions

The *Lakeview RMP/ROD* (Appendix E3, page A-146, BLM 2003b) does not list any other known or potential future project proposals within the allotment.

Approximately 1.1 mile of County Road 2-12 crosses the allotment under a right-of-way. BLM assumes that the county would continue to maintain this road on an as-need basis. This on-going disturbance would generally be limited to the existing road prism and would not involve any additional new disturbance.

The U.S. Forest Service manages the Simms Allotment directly north of the Dicks Creek Allotment and also manages the Swamp Creek and the Mill Flat Allotments, which are within the same general planning area as the Simms Allotment. The Forest Service is in the process of preparing a separate EA for their Swamp Creek and Mill Flat Grazing Allotments Project. However, this proposal is still in the planning stages. The alternatives have not been finalized, nor has a final decision been made. BLM cannot speculate at this time as to what the alternative actions or final decision will be and, therefore, cannot address this proposal further within this cumulative effects analysis. However, the environmental effects of this proposal will be addressed at a later date within a Forest Service NEPA document.

Cumulative Effects Common to Alternatives 1 – 5

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 any of these values/issues.

For purposes of this analysis, total acres of concentrated 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 of Alternative 1: No Action

There would be no additional cumulative surface disturbance effects associated with this alternative beyond those already described as direct effects earlier in Chapter 3 (see Table 3-10).

Table 3.10. Cumulative Acres of Concentrated Surface Disturbance

	Alternative 1 – No Action	**Alternative 2 – Two Year Rest Rotation**	**Alternative 3 – Three Year Rest Rotation**	**Alternative 4 – No Grazing/No Treatments**	**Alternative 5 – Standard Rest Rotation**
Past/Present Actions	83	83	83	83	83
Estimated Area of New Disturbance or Recovery	0	62	62	-81	62
Cumulative Total	83	145	145	2	145

Cumulative Effects Common to Alternatives 2, 3, and 5

The incremental cumulative effects of continued grazing between 23 and 55 AUMs each year, coupled with reservoir construction, range improvement maintenance, noxious weed treatment, and fuels reduction treatments, when added to past, present, and reasonably foreseeable future actions would result in an incremental increase of 62 acres of concentrated disturbance and associated impacts to soils, BSCs, upland vegetation, wetland and riparian vegetation, cultural resources, and wildlife and special status species habitat over the 9-year life of the permit (see Table 3.10).

Cumulative Effects of Alternative 4: No Grazing/No Treatment

The impacts of removal of grazing and conducting no vegetation treatments, when added to past, present, and reasonably foreseeable future actions, would result in an incremental decrease in areas of concentrated ground disturbance of approximately 81 acres and associated impacts to soils, BSCs, upland vegetation, wetland and riparian vegetation, cultural resources, and wildlife and special status species habitat over the 9-year life of the permit (see Table 3-10).

CHAPTER IV - INDIVIDUALS, GROUPS, AND AGENCIES CONSULTED

Agencies and Individuals Consulted

Grazing Permittee
Oregon Department of Fish and Wildlife

In addition, this EA was made available for a 30-day public comment period. Interested public, groups, and tribal interests were notified of this review opportunity. A complete mailing list is contained in the project file.

CHAPTER V - REFERENCES

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Appendix A - Grazing Treatment Descriptions

Early – (Approximately March 1 to April 30) – This treatment provides the plants an opportunity to recover after utilization of early plant growth. By removing livestock before all spring and summer precipitation occurs, the plants would be able to store carbohydrates, set seed, and maintain their vigor. This "early" treatment can be used every year with little effect on the plant.

The dates of April 1 to April 30 are a guideline for the "early" treatment. Early use must take place before grass plants are in the boot stage. There must also be enough soil moisture in the ground to provide for regrowth after grazing. Therefore, flexibility in the early treatment would allow for use prior to April 1 but generally not after April 30, and will depend on climate.

Graze – (Approximately May 1 to July 1 to 15) – This treatment allows for grazing during the critical growth period of most plants. Carbohydrate reserves are continually being utilized because the green parts of the plant are continuously being removed by livestock. Pastures that are under the "graze" treatment will generally experience some other treatment the following year so as not to repeat graze treatments.

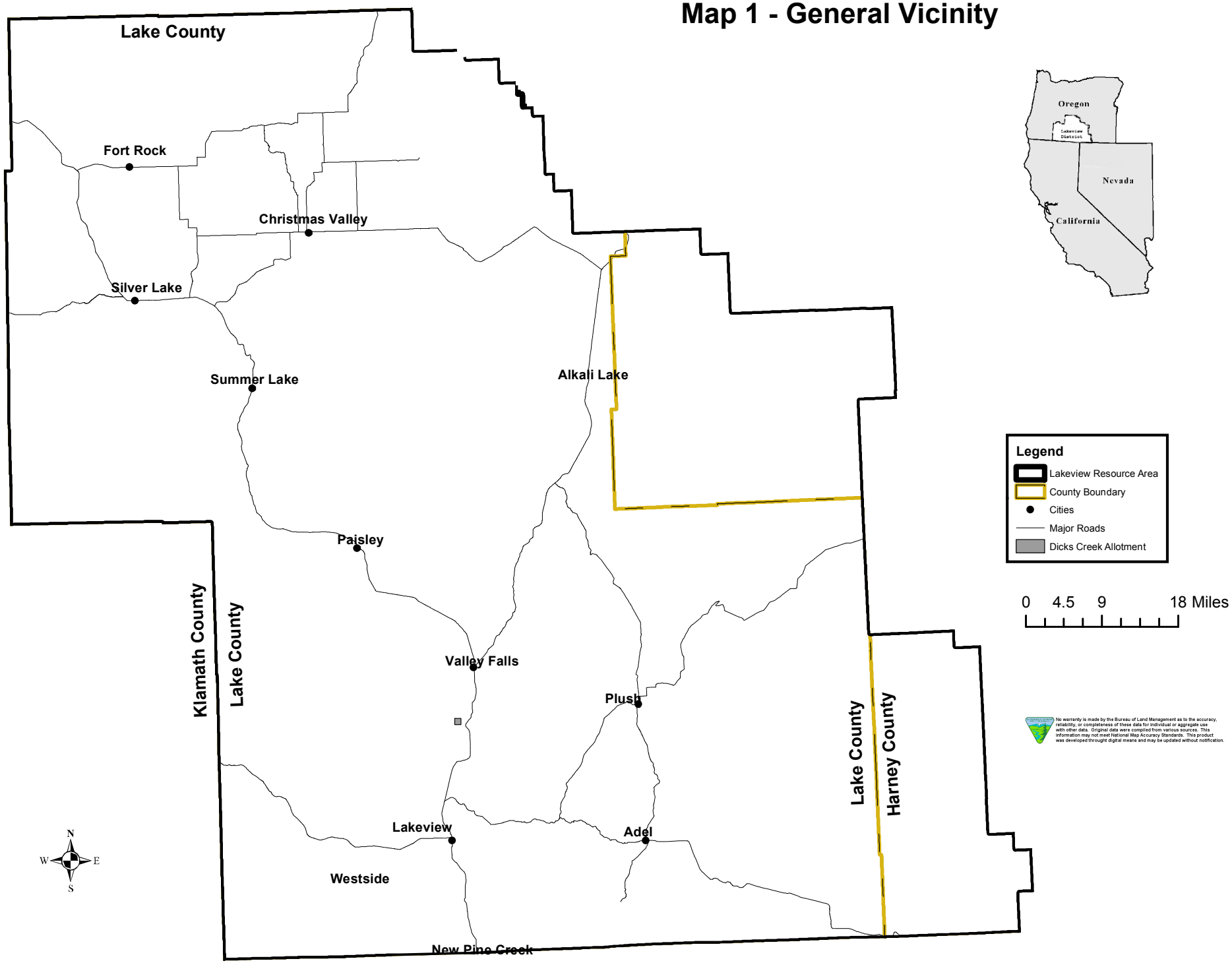
Defer – (Approximately July 1 to 15 to October 31) – Grazing during this treatment will not begin until after most plants have reached seed ripe and have stored adequate carbohydrate reserves. This treatment will assist in meeting the objectives by providing all plants an opportunity to complete their life cycles and produce the maximum amount of cover and forage.

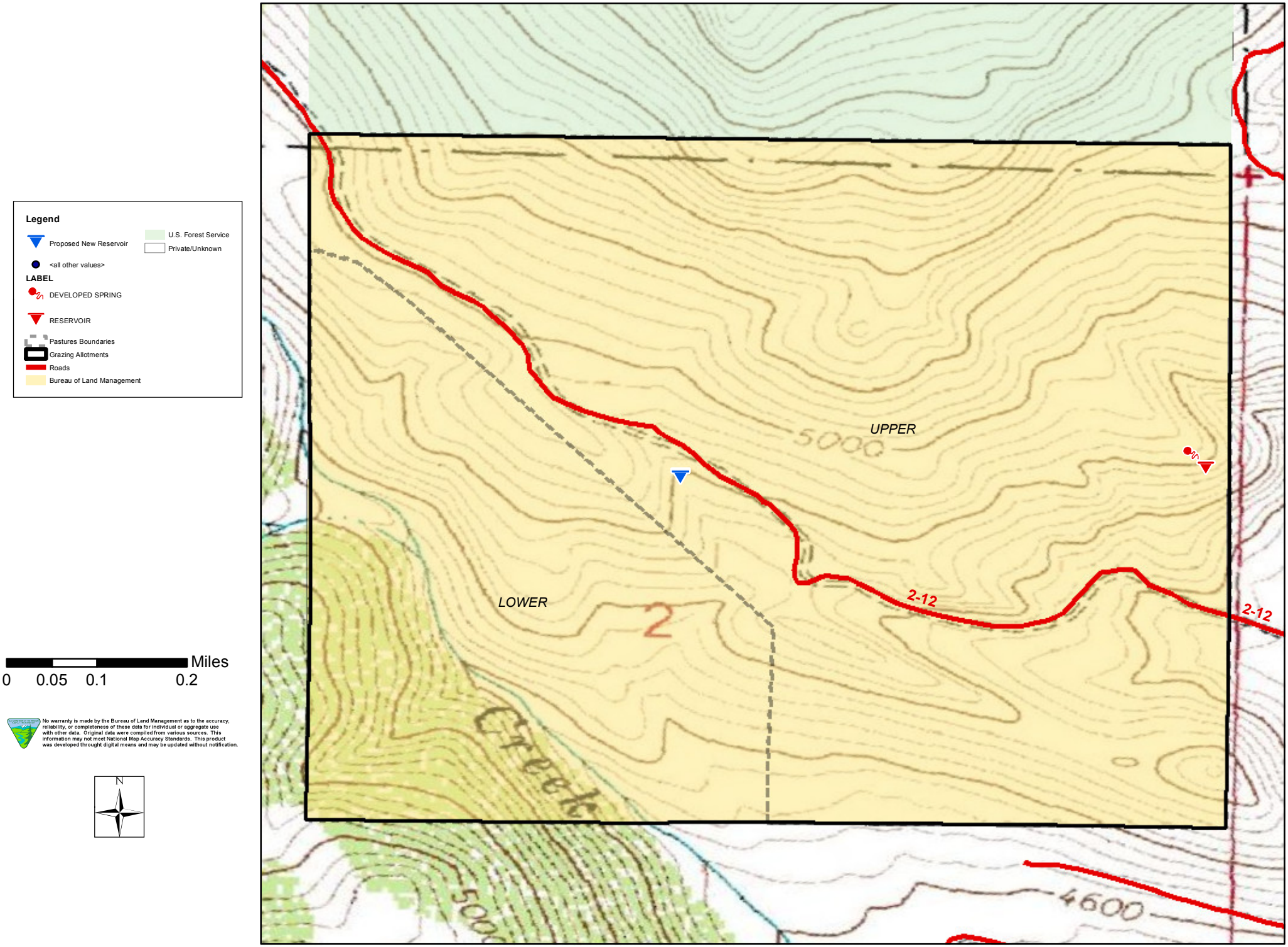
Winter – Grazing during this treatment will occur when most plant species are dormant. Most plants will have completed their life cycles and stored maximum carbohydrates for the next growing season.

Rest – This treatment provides the plants a full year of growth in the absence of grazing. They are allowed to store maximum carbohydrate reserves, set seed, and provide carryover herbage for the following year's turnout.

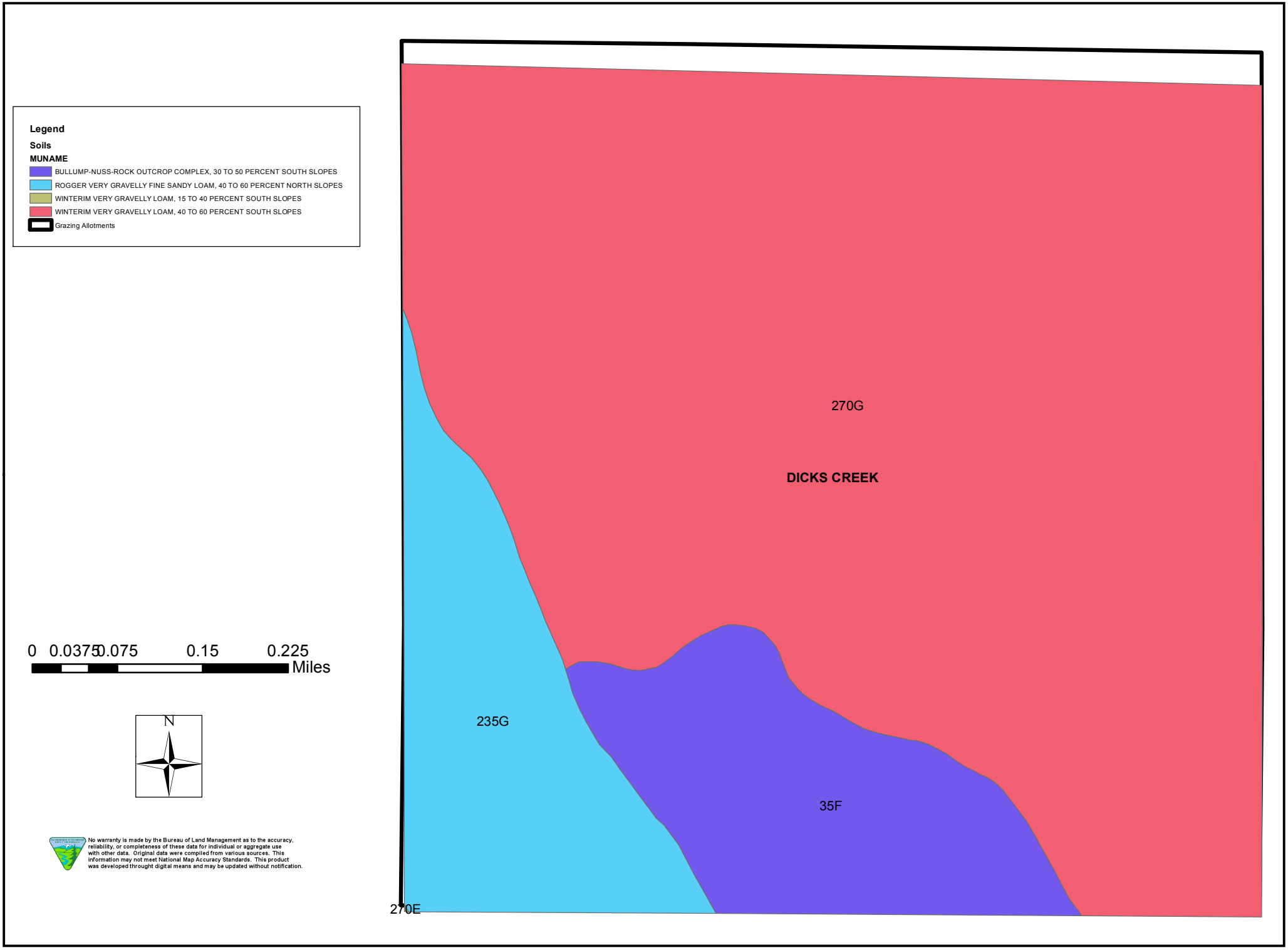
These dates are approximations based on general plant phenology. Year-to-year variation in phenology will occur based on climatological phenomena.

Map 1 - General Vicinity





Map 2 - Land Status and Existing and Proposed Range Improvements in the Dicks Creek Allotment



Map 3 - Soils in the Dicks Creek Allotment