

**United States Department of the Interior
Bureau of Land Management**

Environmental Assessment
DOI-BLM-ID-T030-2011-0025-EA

**LIVESTOCK GRAZING PERMIT RENEWAL
September 29, 2015**

Elkhorn Allotment

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Table of Contents

1.0 PURPOSE & NEED	5
1.1. Introduction: _____	5
1.2 Background: _____	5
1.3 Need for the Proposed Action: _____	6
1.4 Purpose(s) of the Proposed Action: _____	6
1.5 Conformance to BLM Land Use Plan _____	7
1.6 Relationship to Statutes, Regulations, or other Plans: _____	7
1.7 Identification of Issues _____	8
1.7.1 Livestock Grazing & Idaho Standards for Rangeland Health _____	8
1.7.2 Soils & Water Quality _____	8
1.7.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants _____	8
1.7.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species _____	9
1.7.5 Wetlands & Riparian Areas _____	9
1.7.6 Recreation & Visitor Services _____	9
1.7.7 Social & Economic Values _____	9
1.7.8 Climate Change _____	9
2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION	9
2.1 Introduction: _____	9
2.2 Proposed Action (Current Situation) – Issue Grazing Permit with Modified Livestock Numbers _____	9
2.2.1 Grazing Management under the Proposed Action _____	11
2.2.2 Rangeland Monitoring under the Proposed Action _____	11
2.3 Alternative 1 – No Action Alternative (Permitted Use) _____	12
2.3.1 Grazing Management under Alternative 1 _____	13
2.3.2 Rangeland Monitoring under Alternative 1 _____	13
2.4 Alternative 2 -No Grazing Alternative _____	13
2.4.1 Grazing Management under Alternative 2 _____	14
2.4.2 Rangeland Monitoring under Alternative 2 _____	14
2.5 Alternative 3 (Actual Use) – Issue Grazing Permit with Reduced Livestock Numbers, Reduced Season of Use and Reduced Permitted AUMs. _____	14
2.5.1 Grazing Management under Alternative 3 _____	16
2.5.2 Rangeland Monitoring under Alternative 3 _____	16
2.6.2 Alternatives Considered, but not Further Analyzed _____	16
2.6 Alternative Comparisons _____	16
3.0 AFFECTED ENVIRONMENT	17
3.1 Introduction: _____	17
3.2 General Setting: _____	17
3.3 Resources and Supplemental Authorities/Issues Brought Forward for Analysis _____	18
3.3.1 Livestock Grazing & Idaho Standards for Rangeland Health _____	18
3.3.2 Soils & Water Quality _____	22

3.3.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants <i>Ecological Site Descriptions</i>	24
3.3.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species	35
3.3.5 Wetlands & Riparian Areas	51
3.3.6 Recreation & Visitor Services	55
3.3.7 Social & Economic Values	55
3.3.8 Climate Change	58

4.0 ENVIRONMENTAL IMPACTS

59

4.1 Introduction	59
-------------------------	-----------

4.2 Proposed Action- Issue Grazing Permit with Modified Livestock Numbers	59
--	-----------

4.2.1 Livestock Grazing & Idaho Standards for Rangeland Health	59
4.2.2 Soils & Water Quality	60
4.2.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants	62
4.2.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species	65
4.2.5 Wetlands & Riparian Areas	70
4.2.6 Recreation & Visitor Services	72
4.2.7 Social & Economic Values	73
4.2.8 Climate Change	73

4.3. Alternative 1 - No Action (Permitted Use)	74
---	-----------

4.3.1 Livestock Grazing & Idaho Standards for Rangeland Health	74
4.3.2 Soils & Water Quality	75
4.3.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants	75
4.3.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species	77
4.3.5 Wetlands & Riparian Areas	78
4.3.6 Recreation & Visitor Services	79
4.3.7 Social & Economic Values	79
4.3.8 Climate Change	80

4.4 Alternative 2 – No Grazing	80
---------------------------------------	-----------

4.4.1 Livestock Grazing & Idaho Standards for Rangeland Health	80
4.4.2 Soils & Water Quality	81
4.4.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants	81
4.4.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species	83
4.4.5 Wetlands & Riparian Areas	84
4.4.6 Recreation & Visitor Services	85
4.4.7 Social & Economic Values	85
4.4.8 Climate Change	86

4.5 Alternative 3 – Reduce Grazing Permit to Actual Use Levels	87
---	-----------

4.5.1 Livestock Grazing & Idaho Standards for Rangeland Health	87
4.5.2 Soils & Water Quality	87
4.5.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants	89
4.5.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species	91
4.5.5 Wetlands & Riparian Areas	92
4.5.6 Recreation & Visitor Services	93
4.5.7 Social & Economic Values	93
4.5.8 Climate Change	94

4.6 Cumulative Impacts Analysis:	94
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4.6.1 Geographic & Temporal Boundaries of the Cumulative Effects Analysis	94
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4.6.1 Past Actions _____	98
4.6.2 Present & Reasonably Foreseeable Action Scenario (RFAS) Actions _____	99
4.6.2.1 Livestock Grazing & Idaho Standards for Rangeland Health _____	99
4.5.2.2 Soils & Water Quality _____	101
4.5.2.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants _____	103
4.5.2.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species _____	105
4.5.2.5 Wetlands & Riparian Areas _____	109
4.5.2.6 Recreation & Visitor Services _____	110
4.5.2.7 Social & Economic Values _____	111
4.6.3 Cumulative Impacts Summary: _____	113
5.0 CONSULTATION AND COORDINATION:	114
5.1 Introduction: _____	114
5.2 Persons, Groups, & Agencies Consulted: _____	114
5.3 Summary of Public Participation: _____	114
6.0 REFERENCES	116
7.0 Attachments	125
7.1 Map 1 – Elkhorn Allotment Boundary _____	125
7.2 Map 2 – Elkhorn Wildfire Map _____	126
7.3 Map 3 – Elkhorn Rangeland Health Assessment Sites _____	127
7.4 Plant List of all Species Discussed in Document _____	128
7.5 Plant list of all Species Identified during Upland Assessments _____	129

1.0 PURPOSE & NEED

1.1. Introduction:

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of renewing the term grazing permit in the Elkhorn Allotment as proposed by the Bureau of Land Management (BLM). This EA is a site-specific analysis of impacts expected with the implementation of the proposed action and alternatives. The EA assists the BLM in determining whether any “significant” impacts could result from the analyzed actions. “Significance” is defined by the National Environmental Policy Act (NEPA) and is found in 40 Code of Federal Regulations (CFR) 1508.27 (2010). An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a “Finding of No Significant Impact” (FONSI). If the decision maker determines that this project has “significant” impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a Decision Record (DR) may be signed approving the selected alternative, whether the proposed action or another alternative. A DR documents the reasons why implementation of the selected alternative would not result in “significant” environmental impacts (effects) beyond those already addressed in the 1981 Sun Valley EIS (USDI, 1981).

1.2 Background:

The action being analyzed is the renewal of the livestock grazing permit in the Elkhorn Allotment in accordance with the Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration [43 CFR 4180 (2005)], herein referred to as Fundamentals of Rangeland Health.

The term grazing permit for the Elkhorn Allotment is currently held by Denis Kowitz. The grazing permit allows for 266 head of sheep, 332 AUMs, and a season of use of May 15th through November 20th. An AUM is the amount of forage needed to sustain one cow and her calf, one horse, or five sheep or goats for one month. The permitted number of sheep, however, was a result of the BLM’s computer Rangeland Administration System (RAS), which automatically calculates livestock numbers based on season of use and AUMs, and in fact, the permittee has been turning out between 1000 to 1,500 sheep (1 to 2 bands) on a yearly basis and grazing for a shorter period of time. In other words, instead of grazing the entire season of use, the permittee has been authorized to graze 1 or 2 bands in the spring while going to the summer range on the National Forest then return in the fall with those bands as they go to their home place making use of the active 332 AUMs. The baseline condition analyzed in this EA will be based on the actual grazing use on the allotment since Denis Kowitz acquired the grazing permit in 1998.

1.3 Need for the Proposed Action:

The 2005 Fundamentals of Rangeland Health (43 CFR 4180.1) requires the BLM to assess resource conditions on allotments when grazing permits expire. The final Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management (USDI BLM, 1997), herein referred to as Idaho Standards for Rangeland Health or Rangeland Health, require the BLM to determine if public lands are achieving the standards and conforming to the guidelines. The BLM is also required to analyze the potential impacts of livestock crossing, herein referred to as trailing, through 43 CFR, 4130.6-4 Crossing Permits (2005).

The need for this action is established by the Taylor Grazing Act (TGA), the Federal Land Policy and Management Act (FLPMA), the Sun Valley Management Framework Plan (MFP), and the grazing regulations (43 CFR § 4130.1), which require that the BLM respond to applications to fully process and renew permits to graze livestock on public land. The underlying need for the proposed action is to respond to the permittee's application to renew the grazing permit in the Elkhorn Allotment and to incorporate Idaho Standards for Rangeland Health into the management of the allotment. Rangeland Health standards are used as management goals by the BLM for the betterment of the environment, protection of cultural resources, and sustained productivity of the range. They were developed with the specific intent of providing for the multiple-use of the public lands. The regulations direct that existing grazing management be modified through the term permit to ensure that Rangeland Health standards are achieved. Ultimately, the intent of the Fundamentals of Rangeland Health are to ensure that the resources within the allotment are meeting or are making significant progress toward meeting the standards.

1.4 Purpose(s) of the Proposed Action:

Based on the mandates of several authorities¹, the purpose of the proposed action is to continue to authorize livestock grazing use in the Elkhorn Allotment in a manner consistent with the laws and regulations governing these activities.

Decision to be made:

Through this environmental analysis, a decision will be rendered which will supersede the existing grazing permit for the Elkhorn Allotment and result in a specific season of use, number and kind of livestock, Animal Unit Months (AUMs), and management prescription. Based on the results of the NEPA analysis, the authorized officer will make an informed decision as to what terms and conditions to implement to renew grazing permits and authorize trailing permits.

¹ (a) The Taylor Grazing Act of June 28, 1934 as amended (43 U.S.C.315, 315a through 315r); (b) the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.) as amended by the Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.); (c) Executive orders transfer land acquired under the Bankhead-Jones Farm Tenant Act of July 22, 1937, as amended (7 U.S.C 1012), to the Secretary and authorize administration under the Taylor Grazing Act; (d) The Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.); and (e) Public land orders, Executive orders, and agreements authorize the Secretary to administer livestock grazing on specified lands under the Taylor Grazing Act or other authority as specified. [43 FR 29067, July 5, 1978, as amended at 49 FR 6449, February 21, 1984; 49 FR 12704, March 30, 1984; 50 FR 45827, November 4, 1985; 61 FR 4227, February 5, 1996]

1.5 Conformance to BLM Land Use Plan

Reissuing the grazing permit would be in conformance with the 1981 Sun Valley Management Framework Plan (MFP), as implemented by the record of decision for the 1981 Sun Valley Grazing EIS. This action would not result in a change in the scope of resource use or a change in the terms, conditions, and decisions of the approved plan.

Specifically, the proposed action and alternative 1, alternative 2 and alternative 3 conform to the following Land Use Plan objectives stated on page 1-1 of the Sun Valley Grazing EIS:

- To improve livestock forage production
- To maintain or improve wildlife habitat.
- To establish and/or maintain a diverse vegetation composition of grasses, forbs, and shrubs.
- To protect and provide for the needs of threatened, endangered, or sensitive plants and animals.
- To maintain or improve the visual quality of the landscapes.

1.6 Relationship to Statutes, Regulations, or other Plans:

The authorities referenced in footnote 1 on the previous page direct the BLM to authorize livestock grazing on public lands as part of the multiple-use management of natural resources. Through these authorities, and 43 CFR Part 4100, the BLM manages allotment resources and issues grazing permits and leases, hereinafter referred to as permits, for a term not to exceed 10 years.

The Elkhorn Allotment is meeting all applicable Rangeland Health Standards and the proposed action would result in continued compliance with those standards and with 43 CFR Part 4180. Management under the proposed action, alternative 2 and alternative 3 would result in the continued maintenance and improvement of the allotment. Utilizing management practices and the appropriate grazing authorization for meeting Idaho Standards for Rangeland Health will continue allotment management compliance with the long-range direction outlined in the Sun Valley EIS. Management under alternative 1, the no action alternative, may result the failure of rangeland health standards in the future.

The proposed action and alternatives are in accordance with the Archeological and Historic Preservation Act of 1960 (P.L. 86-523, 16 U.S.C. 469- 469c-2), as amended, and the National Historic Preservation Act (NHPA) of 1966 (P.L. 89-665; 16 U.S.C. 470 et seq.). Consultation with the State Historic Preservation Office has occurred as required.

Section 7 of the Endangered Species Act (ESA) of 1973 outlines the procedures for Federal interagency cooperation to conserve federally listed species and their designated habitats. Section 7(a)(2) of the ESA states that each Federal agency shall, in consultation with the Secretary, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of their habitats. Since there are currently no known federally listed species in the Elkhorn Allotment, the proposed permit renewal would not impact the continued existence of listed species. Consultation under the ESA is not needed for this proposal.

1.7 Identification of Issues

Issues for analysis were identified during public scoping with interested publics and the permittees. A Rangeland Health Assessment for the Elkhorn Allotment dated June 4, 2009 was mailed to interested publics and the permittee. No comments were received for the Elkhorn Allotment in regards to the Rangeland Health Assessment during that time.

Issues have also been raised through internal (BLM) review and interdisciplinary processes including meetings, personal communication, and an analysis record checklist. The analysis record checklist of all resources considered is located in the allotment Standards & Guidelines file in the Shoshone Field Office. This section is a list of issues relevant to this analysis.

1.7.1 Livestock Grazing & Idaho Standards for Rangeland Health

- The permittee has requested the grazing permit to correctly show the increased number of sheep that graze the allotment (1 or 2 bands), not an arbitrary number derived from the total grazing season. Livestock use occurs for a much shorter time within the season of use (normally spring use and fall use). How would this requested change to the permit impact the grazing allotment?

1.7.2 Soils & Water Quality

- There is some concern about the degree of mechanical impacts from livestock to the soil resource. Would these potential impacts allow the allotment to continue to make improvement in the future over and above those necessary to meet Rangeland Health Standards?

1.7.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants

- The current starting date for livestock grazing in the allotment is May 15th. From a phenological perspective, this use date is considered an appropriate start-date for grazing to occur on the native grasses such as bluebunch wheatgrass and Idaho fescue. What impacts will a continued May 15 starting date and the current authorized season of use (May 15 – November 20) have to the vegetation community?
- One rare plant, bug-leg goldenweed, has been identified in a neighboring allotment. Bug-leg goldenweed is listed as a Type 3 BLM Special Status Species plant. Even though this species tolerates livestock grazing, would the impacts to bug-leg goldenweed from livestock grazing as prescribed in the proposed action have a detrimental effect to it?
- Populations of cheatgrass are present in the allotment but how much of a threat do these infestations pose to this allotment's ability to provide a healthy, diverse, and productive wildlife habitat in the future?

1.7.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species

- Although no comments from the public were received through scoping for this allotment, the public in general has expressed concerns that livestock grazing has had/is having/may have significant negative effects to big game and their winter range, sensitive species and their habitat, the Greater sage-grouse and their habitat. How will livestock grazing affect the habitat and seasonal requirements of big game, BLM sensitive species and Greater sage-grouse?

1.7.5 Wetlands & Riparian Areas

- How will the authorization of livestock grazing affect intermittent and perennial streams, including the main perennial spring, Triumph Spring?

1.7.6 Recreation & Visitor Services

- At what level would recreationists and visitors to public lands be displaced by livestock grazing operations in the Elkhorn Allotment?

1.7.7 Social & Economic Values

- Healthy rangeland ecosystems can provide multiple goods and services that can increase the economic, social, and cultural well-being of individuals and communities. What impact does livestock grazing have on the socioeconomic values in Blaine County, Idaho, where the Elkhorn Allotment is located?

1.7.8 Climate Change

- Methane emission rates from livestock vary widely and depend on many variables. What are the approximate emissions from livestock for each alternative?

2.0 DESCRIPTION OF ALTERNATIVES, INCLUDING PROPOSED ACTION

2.1 Introduction:

The alternatives were developed based upon issues identified through internal scoping as well as public scoping and involvement. The alternatives were designed to address one or more of the identified issues as well as provide the opportunity for specific comparisons on which the decision maker can base a decision.

2.2 Proposed Action (Current Situation) – Issue Grazing Permit with Modified Livestock Numbers

Under this alternative, the BLM Field Manager would continue to authorize livestock grazing in the Elkhorn Allotment following the Fundamentals of Rangeland Health [43 CFR 4180.1(2005)] to continue meeting Rangeland Health Standards in the future. This permit would be issued for a term of ten years in accordance with present management.

The Elkhorn Allotment grazing permit would authorize livestock use as specified in Table 1. The grazing permit would be issued for the current active AUMs of 332 AUMs as well as the current season of use. The number of livestock allowed in this allotment would be increased to 2,500 head of sheep. When this higher numbers of livestock (two bands of sheep) is used, the total number of days would be reduced to 20 days between May 15th and November 20th so that the active 332 AUMs are not exceeded. Under this alternative, the total number of days that sheep can be present in the allotment will be capped at 50 days.

Historically, the Elkhorn Allotment has been grazed by sheep bands that were larger than 1,000 sheep and under these numbers; the allotment is meeting all standards. This alternative does include an increase in the sheep numbers to 2,500 sheep in order to allow one band to graze and another band to trail through on its way to or from the National Forest lands. The permittee has done this in the past and would like to continue to do so in the future. The permittee does not typically have two bands present at one time but would like the flexibility to do this in the future; especially in the case when wildfires are actively burning in neighboring allotments and he needs a way to trail out to of the way.

Annual flexibility in the sheep numbers would be authorized as long as grazing does not occur outside of the season of use, grazing does not exceed 50 total days, and the active 332 AUMs are not exceeded. This flexibility will allow the permittee to graze up to 2,500 head of sheep, in two bands, one large band, or any other combination as long as the number of sheep does not exceed 2,500 head. Since the permittee acquired the grazing permit in the Elkhorn Allotment, his sheep bands have typically consisted of 1,100 to 1,300 head of sheep. Denis Kowitz would be required to apply for a livestock trailing permit if livestock need to be taken through the allotment before or after the permitted season of use (May 15th to November 20th).

The actual season of use, in any year, may be shorter than the permitted season of use when any of the following conditions apply: 1) The vegetation in the allotment is not ready for grazing in the first of the season due to range readiness criteria described in 2.2.1; 2) The allotment has reached its active use of 332 AUMs, 3) removal of livestock is necessary to protect vegetative resources or 4) bighorn sheep are observed where contact with domestic sheep could occur.

The permit may be modified at any time should information collected subsequent to the permit renewal indicate changes in management are needed in order to be in compliance with Fundamentals of Rangeland Health, but only if NEPA is completed and a proposed and final decision are issued. The Elkhorn Allotment grazing permit would be issued for a term of ten years and would authorize livestock use up to 332 AUMs, the active AUM figure specified in Table 1. This table is also referred to as the Mandatory Terms and Conditions. Sheep numbers could fluctuate up to 2,500 head.

The permittee would also be required to rotate his grazing use between the east side and west side if they decide to graze in both the spring and the fall. What this means is that if Triumph Gulch is grazed in the spring of the year, it cannot be grazed again in the fall for any length of time. Watering in the gulch is permissible as long as the sheep resume grazing activities on the west side of the allotment. The same is true if the permittee decides to graze Decker Gulch in the spring; he cannot return to the west side of the allotment in the fall as well.

TABLE 1: Proposed Grazing Permit Authorization

Current Permittee	Allotment # and Name	Livestock #	Grazing Begin End	%PL	Active AUMs	Suspended AUMs	Total AUMs
Denis Kowitz	80224 Elkhorn	2,500 Sheep	05/15 to 11/20	100%	332	83	415

OTHER TERMS AND CONDITIONS:

- Grazing use shall be made in accordance with the Field Manager’s Decision dated September 29, 2015.
- Deviation from livestock number and begin/end date will be documented in the annual billing(s) and will not exceed 2500 sheep, 50 days or 332 AUMs annually.
- Range readiness guidelines will be adhered to by the permittee and the BLM Shoshone Field Office will inform the permittee when he can begin using the allotment. Range readiness is defined as when the soil is firm and the key species have four to six inches of growth, except for Sandberg’s bluegrass which needs to be in the three- to-four-leaf stage.
- No bedding of sheep will be permitted within 500 feet of Triumph Spring and associated drainage in order for the riparian area to maintain Proper Functioning Condition and continue meeting Idaho Standards for Rangeland Health.
- Hot season use (7/1 to 8/31) would only be authorized one year out of three in order to reduce use to riparian areas and enable the allotment to continue meeting land health standards. In the case of emergency, such as wildfires in neighboring allotments, this term and condition may be modified by the Authorized Officer.
- Sheep are also required to move to a different bed ground at a minimum of every 5 days or sooner if resource conditions dictate. Conditions that would warrant moving the bed ground sooner would be if use of key species is close to or exceeds the recommended 40% utilization levels on upland vegetation.
- Trailing of livestock outside the grazing begin/end date (05/15 to 11/20) would be permitted if applied for by the permit holder and authorized by the BLM authorized officer.

2.2.1 Grazing Management under the Proposed Action

Sheep are generally herded in bands, utilize steeper terrain, have more continuous movement and different forage requirements compared to cattle. They commonly graze in a “pass-through” fashion on their way to other allotments. Because of the herded management of sheep bands, topographic or infrastructure boundaries rather than fence lines may be more useful for determining grazing routes and sequences than the pasture boundaries that were established to control cattle.

The grazing permit would be issued with most of the same “Mandatory Terms and Conditions” and revise “Other Terms and Conditions” as described in Table 1 above. The only change to the “Mandatory Terms and Conditions” would be an increase to the number of livestock permitted to graze in the Elkhorn Allotment.

2.2.2 Rangeland Monitoring under the Proposed Action

Monitoring, as defined in 43 CFR 4100.0-5 (2005), means the periodic observation and orderly collection of data to evaluate: 1) effects of management actions; and 2) effectiveness of actions in meeting management objectives.

Nested frequency would continue to be collected at the key study site along with photos at the standard 3 foot by 3 foot photo plot. Proper Functioning Condition (PFC) would also continue to be collected at the riparian photo point presently located on Triumph Gulch. These sites would be read at a minimum of once per ten-year permit renewal cycle. This data will be combined with trend monitoring data collected in past years so that long-term rangeland trend can be determined.

There is one long term trend plot in the Elkhorn Allotment located in Peters Gulch on the north end of the allotment. This trend plot is located in an area of the allotment that can no longer be accessed by road due to the expansion of housing in Ketchum but numerous attempts over the past couple years to locate it by foot have not been successful. The baseline was established in 1976 and trend was read at this site in 1982, 1985, 1988 and 1991. Since this trend plot cannot be located, another plot was established in the summer of 2015 in Triumph Gulch. Data will be collected in 2016 that will establish another baseline for long-term trend in the Elkhorn Allotment.

2.3 Alternative 1 – No Action Alternative (Permitted Use)

Under this alternative, the BLM Shoshone Field Manager would continue to authorize livestock grazing in the Elkhorn Allotment incorporating the Fundamentals of Rangeland Health to meet Rangeland Health standards in the future with the same terms and conditions as the current permit. The permit would be issued for ten years as shown in Table 2 on the following page. The permit would be issued for the same number of livestock, kind of livestock, season of use, and same active AUMs. The permit holder would be required to limit the maximum number of sheep to 266 head. Other Terms and Conditions would be modified as described.

TABLE 2: Current Grazing Permit Authorization (no action alternative)

Current Permittee	Allotment # and Name	Livestock #	Grazing Begin End	%PL	Active AUMs	Suspended AUMs	Total AUMs
Denis Kowitz	80224 Elkhorn	266 Sheep	05/15 to 11/20	100%	332	83	415
<p>OTHER TERMS AND CONDITIONS:</p> <ul style="list-style-type: none"> In the Elkhorn Allotment, grazing on public land riparian areas will be managed to attain and maintain proper functioning condition. This management will leave adequate perennial herbaceous and woody vegetation by the end of the growing season to protect riparian areas from erosion, maintain streambank integrity, provide for sediment catchment and allow for diversity in vegetation structure and age class. <p>The new permit would add:</p> <ul style="list-style-type: none"> Grazing use shall be made with the Field Manager’s Decision dated September 29, 2015. Trailing of livestock outside the grazing begin/end date (05/15 to 11/20) would be permitted if applied for by the permit holder and authorized by the BLM Authorized Officer. <p>The new permit would eliminate the following “Other Terms and Condition” currently listed on the grazing permit:</p> <ul style="list-style-type: none"> The permit or lease is issued under the authority of section 137, public law 111-68 and contains the same mandatory terms and conditions as the expired or transferred permit or lease. This permit or lease may be cancelled, suspended, or modified, in whole or in part to meet the requirements or applicable laws and regulations. In the Elkhorn Allotment, authorization to deviate from the livestock numbers and season of use will be done in annual billing. Total AUMs authorized under the permit will not exceed those described in the permit. 							

2.3.1 Grazing Management under Alternative 1

The grazing permit would be issued with the same “Mandatory Terms and Conditions” and revise “Other Terms and Conditions” as described in Alternative 1 above.

2.3.2 Rangeland Monitoring under Alternative 1

The grazing permit would be issued with the same rangeland monitoring practices as stated in the proposed action.

2.4 Alternative 2 -No Grazing Alternative

Under Alternative 2, no grazing would be authorized on public lands within the Elkhorn Allotment for a term of 10 years. Applications for grazing permit renewal would be denied and no grazing permit would be offered. All 415 AUMs of permitted use in Elkhorn Allotment (332 AUMs active use; 83 AUMs suspension) would be cancelled and unavailable for livestock grazing on public lands. Upon expiration of the 10-year term, livestock grazing on the allotment would be reevaluated, with retention of preference (priority for grazing authorization) for approval of application for a grazing permit attached to current base property. Under this alternative, the BLM Shoshone Field Manager would issue a non-use grazing permit, discontinuing livestock grazing in the Elkhorn Allotment for a term of 10 years. After the permit expires, the allotment would be assessed and evaluated to determine whether livestock grazing would be re-authorized.

Even though livestock grazing would not be authorized on public lands within the allotment, a series of management actions would still occur. These actions include monitoring of the riparian systems, conducting long-term trend studies, monitoring utilization by big game species and issuing a livestock crossing permit in the Elkhorn Allotment so that Denis Kowitz could still have access to his neighboring grazing allotments on BLM-administered lands and National Forest lands to the north. The grazing permit would be issued as shown in Table 3 and the crossing permit would authorize the use shown in Table 4 below.

TABLE 3: No Grazing Permit Authorization

Current Permittee	Allotment # and Name	Livestock #	Grazing Begin End	%PL	Active AUMs	Suspended AUMs	Total AUMs
Denis Kowitz	80224 Elkhorn	0 Sheep	05/15 to 11/20	100%	0	0	0
<p>OTHER TERMS AND CONDITIONS:</p> <ul style="list-style-type: none"> Grazing use shall be made in accordance with the Field Manager’s Decision dated September 29, 2015. There is no livestock grazing authorized in the Elkhorn Allotment for a term of 10 years. The 332 Active AUMs and 83 Suspended AUMs are in “non-use” status for a total of 415 AUMs. Resumption of grazing and reactivation of the AUMs may occur in the future following the completion of NEPA and subsequent Decision. Trailing of livestock outside the grazing begin/end date (05/15 to 11/20) would be permitted if applied for the permit holder and authorized by the BLM authorized officer. 							

TABLE 4: Crossing Permit Authorization (no grazing alternative)

Current Permittee	Allotment # and Name	Livestock #	Trailing Begin End	%PL	AUMs	No. of days
Denis Kowitz	80224 Elkhorn	2,500 Sheep	05/15 to 07/01	100%	49	3
Denis Kowitz	80224 Elkhorn	2,500 Sheep	09/01 to 11/20	100%	50	3
OTHER TERMS AND CONDITIONS:						
<ul style="list-style-type: none"> Trailing of livestock outside the grazing begin/end dates (05/15 to 07/01 and 09/01 to 11/20) would be permitted if applied for by the permit holder and authorized by the BLM Authorized Officer only when the 99 AUMs on the Crossing Permit is not exceeded. 						

2.4.1 Grazing Management under Alternative 2

The grazing permit would be issued with for a term of ten years that would not allow the 332 AUMs to be activated or used. The grazing permit would be in “non-use” status. The “Other Terms and Conditions” would also be revised, as described in Table 4 above.

2.4.2 Rangeland Monitoring under Alternative 2

Under the no grazing alternative, the BLM Shoshone Field Office would monitor the allotment to ensure that unauthorized livestock grazing from neighboring allotments and/or private lands did not occur on public lands in the Elkhorn Allotment. The permit holder of the non-use grazing permit would still be required to maintain any range improvements assigned previously.

2.5 Alternative 3 (Actual Use) – Issue Grazing Permit with Reduced Livestock Numbers, Reduced Season of Use and Reduced Permitted AUMs.

Under this alternative, the BLM Field Manager would continue to authorize livestock grazing in the Elkhorn Allotment following the Fundamentals of Rangeland Health [43 CFR 4180.1(2005)] to continue meeting Rangeland Health Standards in the future. This permit would be issued for a term of ten years in accordance with present management.

The Elkhorn Allotment grazing permit would authorize livestock use as specified in Table 5 which is a reflection of his actual use. The grazing permit would be issued with reduced active AUMs of 210 AUMs as well as a reduced number of livestock and season of use from the proposed action and no action alternative. The active AUMs would be reduced from the current 332 AUMs to 210 AUMs; the highest amount the current permittee has actually used since he acquired the permit in 1998. The number of livestock allowed in this allotment would be decreased to 1,820 head of sheep; the highest number of sheep the current permittee has turned out since he acquired the permit in 1998. When this number of sheep is grazing the allotment, the total number of days that livestock could be present in the allotment would be reduced to 17 days so that the active 210 AUMs is not exceeded.

This alternative also has a change in the season of use and that would split the season of use to only allow a spring use season and a fall use season. The current season of use 5/15 to 11/20 would be changed so that the permit would allow grazing from 5/15 to 6/30 and from 9/1 to

11/20 disallowing any grazing to occur during the summer months of July and August.

Annual flexibility in the sheep numbers would be authorized as long as grazing does not occur outside of the seasons of use, livestock numbers do not exceed 1,820 head of sheep, and the active 210 AUMs are not exceeded. Denis Kowitz would be required to apply for a livestock trailing permit if livestock need to be taken through the allotment before or after the permitted seasons of use (May 15th to June 30th and September 1st to November 20th).

The actual season of use, in any year, may be shorter than the permitted season of use when any of the following conditions apply: 1) The vegetation in the allotment is not ready for grazing in the first of the season due to range readiness criteria described in 2.2.1; 2) The allotment has reached its active use of 210 AUMs, 3) removal of livestock is necessary to protect vegetative resources or 4) bighorn sheep are observed where contact with domestic sheep could occur.

The permit may be modified at any time should information collected subsequent to the permit renewal indicate changes in management are needed in order to be in compliance with fundamentals of Rangeland Health, but only if NEPA is completed and a proposed and final decision are issued. The Elkhorn Allotment grazing permit would be issued for a term of ten years and would authorize livestock use up to 210 AUMs, the active AUM figure specified in Table 5. This table is also referred to as the Mandatory Terms and Conditions. Sheep numbers could fluctuate up to 1,820 head.

TABLE 5: Alternative 3 Permit Authorization (Actual Use Alternative)

Current Permittee	Allotment # and Name	Livestock #	Grazing Begin End	%PL	Active AUMs	Suspended AUMs	Total AUMs
Denis Kowitz	80224 Elkhorn	1,820 Sheep	05/15 to 06/30 09/01 to 11/20	100%	210	205	415

OTHER TERMS AND CONDITIONS:

- Grazing use shall be made in accordance with the Field Manager’s Decision dated September 29, 2015.
- Deviation from livestock number and begin/end date will be documented in the annual billing(s) and will not exceed 210 AUMs or 32 days annually.
- Range readiness guidelines will be adhered to by the permittee and the BLM Shoshone Field Office will inform the permittee when he can begin using the allotment. Range readiness is defined as when the soil is firm and the key species have four to six inches of growth, except for Sandberg’s bluegrass which needs to be in the three- to-four-leaf stage.
- No bedding of sheep will be permitted within 500 feet of Triumph Spring and associated drainage in order for the riparian area to maintain Proper Functioning Condition and continue meeting Idaho Standards for Rangeland Health.
- Hot season use (7/1 to 8/31) could only be authorized in the case of emergency, such as wildfires in neighboring allotments, this term and condition may be modified by the Authorized Officer.
- Sheep are also required to move to a different bed ground at a minimum of every 5 days or sooner if resource conditions dictate. Conditions that would warrant moving the bed ground sooner would be if use of key species is close to or exceeds the recommended 40% utilization levels on upland vegetation.
- Trailing of livestock outside the grazing begin/end date (05/15 to 11/20) would be permitted if applied for the permit holder and authorized by the BLM authorized officer.

2.5.1 Grazing Management under Alternative 3

The grazing permit would be issued with reduced “Mandatory Terms and Conditions” and revise “Other Terms and Conditions” as described in Table 5 above.

2.5.2 Rangeland Monitoring under Alternative 3

The grazing permit would be issued with the same rangeland monitoring practices as stated in the proposed action.

2.6.2 Alternatives Considered, but not Further Analyzed

The BLM Shoshone Field Office ID Team did not consider other alternatives to fulfill the purpose and need for this permit renewal. There is an adequate range of alternatives describing changes in the number of sheep, changes in season of use and changes in permitted use.

2.6 Alternative Comparisons

This section describes the differences in the terms and conditions between all of the alternatives, such as livestock numbers, when grazing begins and ends, AUMs authorized and pounds of forage consumed (Table 6).

TABLE 6: Alternative Comparisons in Elkhorn Allotment Grazing Permit Renewal

Alternative	Livestock Number	# Days Livestock Can Graze	Season of Use	Active AUMS	Pounds of Forage Consumed	% Forage Consumed relative to total forage production (based on a low production year)	% Forage Consumed relative to total forage production (based on a high production year)
Proposed Action - Change in livestock numbers	1000 Sheep to 2500 Sheep	50 Days to 20 Days	05/15 to 11/20	332	262,280	18%	11%
Alternative 1 – No Action	266 Sheep	190 Days, or the whole season	05/15 to 11/20	332	262,280	18%	11%
Alternative 2 – No Grazing	0 Sheep	0	None	0		0%	0%
	2500 Trailing Sheep	3 3	05/15 to 07/01 09/01 to 11/20	99 Trailing AUMs	78,210	6%	3%
Alternative 3 – Actual Use	800 Sheep to 1820 Sheep	40 Days to 17 Days	05/15 to 06/30 09/01 to 11/20	210	165,900	12%	7%

Under the proposed action and Alternative 3, the number of days that livestock would be permitted to graze would depend on the number of sheep in each band making use of the allotment. This is the reason why those alternatives show a range in sheep numbers as well as the number of days the allotment could be grazed. The active 332 AUMs and 210 AUMs respectively, will not be exceeded.

The forage consumption estimates were derived from a BLM approved calculation based on an animal unit. An animal unit is a unit of measure for rangeland livestock equivalent to one mature cow for five sheep or five goats, all over 6 months of age. An animal unit is based on average daily forage consumption of 26 pounds of dry matter per day (BLM Utah website). It has been estimated from the ecological site descriptions that the Elkhorn Allotment is able to produce an average of 2 million pounds of forage annually in an average year. The forage production can fluctuate between 1.4 million pounds in dry years to 2.4 million pounds in above average precipitation years.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction:

This chapter presents the affected environment (i.e., the physical, biological, social and economic resources) of the allotment as well as the baseline for comparison of impacts and consequences described in Chapter 4.

3.2 General Setting:

The Elkhorn Allotment is located in Blaine County; approximately 2 miles southeast of Ketchum, Idaho (refer to Map 1). The elevation ranges from 5,000 feet in the drainage bottoms to 7,000 feet on the highest ridge. The Elkhorn Allotment borders privately-owned lands and U.S. Forest Service lands to the north, privately-owned lands to the east and the Indian Creek Allotment to the south. The Elkhorn Allotment is comprised of 2,774 public land acres managed by the BLM and 438 unfenced acres managed by the Idaho Department of Lands and 2,234 unfenced private acres. The Elkhorn Allotment has had several wildfires within the allotment boundary (Map 2).

Due to this allotment's close proximity to Ketchum, Hailey and the Wood River valley, this area receives heavy recreational use in the form of hunting, hiking, jogging, mountain biking and OHV use. The BLM land within the allotment has an Off-Highway Vehicle (OHV) classification as "Open". The Open classification is defined as an area where all types of vehicle use is permitted. Portions of the allotment, most south facing slopes, from Triumph Gulch to the Big Wood River are closed to all motorized vehicles from December 1st to April 30th. The purpose of the closure is to assist wildlife (primarily big game) during a period of high stress. The closure has been in place since 1982.

3.3 Resources and Supplemental Authorities/Issues Bought Forward for Analysis

During the analysis process, the ID Team considered several resources and supplemental authorities and determined that the resources discussed below would be affected by the proposed action or alternatives. The project file contains the ID Team analysis record checklist which is a complete list of resources and supplemental authorities that were considered and the reasons why some resources were not analyzed in detail.

3.3.1 Livestock Grazing & Idaho Standards for Rangeland Health

The Wood River Valley, which encompasses the Elkhorn Allotment, has had sheep grazing since the 1860s. According to the USDA National Agricultural Statistics Service (NASS), prior to World War II, the historical livestock use and sheep numbers in Idaho were substantially higher than what they are today. The number of sheep in Idaho has fluctuated since the 1900s but overall they have decreased from a record high of more than 2.4 million head of sheep in 1920, to 250,000 head of sheep in 2014. The lowest recorded number of sheep in Idaho was 210,000 head in 2009 (USDA NASS, 2012). The NASS does not have any data available after 2014.

According to the two main ecological site descriptions that encompass the allotment boundary, the average pounds of forage per acre in the Elkhorn Allotment are approximately 1,000 lbs/acre in an average year. What this equates to is 2.1 million lbs. of forage available on the 2,774 acres in the Elkhorn Allotment. The BLM calculates the use in AUMs, or the amount of forage needed to sustain five sheep. Please refer to Table 6 for a comparison of consumed forage between each alternative.

Originally, prior to the 1981 Sun Valley Grazing Environmental Impact Statement, both sheep and cattle were permitted in the Elkhorn Allotment. The cattle permit had 12 AUMs available for use and the sheep permit had 170 AUMs available for use. At that time, the inventoried grazing capacity of public land in the Elkhorn Allotment totaled 166 cattle AUMs and 429 sheep AUMs for a total of 595 AUMs which showed that the allotment was under-utilized. Following the Sun Valley Grazing EIS, the cattle AUMs were increased to 16 AUMs, the sheep AUMs were increased to 332 AUMs and 83 AUMs were put in Suspended Use in order to be reserved for deer in the summer and elk in the winter. Even under the lower stocking rate alternative in the EIS where some allotments did receive AUM reductions, the overall AUMs in the Elkhorn Allotment were still increased to match the proposed action.

The cattle permit was relinquished in 1987 and currently only sheep grazing is permitted in the allotment. The 1981 Sun Valley EIS identifies the grazing use dates in the Elkhorn Allotment for both cattle and sheep as beginning on 5/15 and ending on 11/10. Previously, the season of use was from 5/1 to 11/10, but was changed in 1981 because May 1st was considered too early for livestock to turn out based on plant phenology. The end the grazing season was also changed to 11/20 in the late 1980s in order to reflect the dates of neighboring grazing allotments.

The steep slopes in Elkhorn Allotment make it more suitable for sheep grazing than for cattle grazing since sheep are small, sure-footed and well-suited for travel through rough topography. Sheep prefer hillsides to the confining nature of riparian bottoms which is the case in the Elkhorn Allotment and offer several options for achieving proper management within grazing allotments. Sheep grazing may be more desirable than cattle use in some areas due to the herders' control over location, timing, degree, duration and frequency of use (TR-1737-20, 2006).

The Elkhorn Allotment consists of two main gulches; Peter's Gulch which is on privately-owned lands in the center of the allotment and Triumph Gulch which is on BLM-administered lands on the eastern side of the allotment. The perennial water is located in Peter's Gulch mostly in the form of springs and in Triumph Gulch, in the form of a stream. There are also two minor gulches in the allotment boundary; Decker Gulch located in the lower center of the allotment and Elkhorn Gulch located in the northwest panhandle of the allotment. Elkhorn Gulch is not accessible to livestock due to the steepness of slope and a rocky, steep ledge. The permittee also chooses to avoid the Elkhorn Gulch area in order to avoid conflicts with mountain bikes and his guard dogs. The use made by sheep in the allotment is spread throughout many of the slopes, ridge tops and draws but the permittee does not utilize Elkhorn Gulch in order to avoid conflicts between mountain bike users and his guard dogs. Typically, the Elkhorn Allotment receives light grazing use (21% to 39%) with some patches of moderate use (40% to 60%) in Triumph Gulch and Decker Gulch. These areas of moderate use are small and isolated.

Sheep sometimes graze the allotment in the early summer, but will always graze during the fall months. Denis Kowitz is permitted to graze in seven neighboring allotments, trail his livestock through six other grazing allotments and is also permitted to graze his livestock on three neighboring Forest Service allotments so he uses Elkhorn Allotment either before or after going to the National Forest for his summer range. Typically, most of the grazing use occurs for four to six weeks, from October to November while returning to their home place in Declo, Idaho. The 332 active sheep AUMs that are currently authorized have remained constant throughout all the previous authorizations. His band numbers, like most other sheep operators, have fluctuated throughout the years. According to his actual use reporting since 1998, the smallest sheep band number was 540 sheep and the largest sheep band number was 1820. When that 540 animal band occurred, it was an extenuating circumstance in which he gathered all of his dry ewes and brought them to Elkhorn until they could be bred again. Outside of that low number, his most common low range in sheep per band was 800 animals which is what will be analyzed in this EA. Occasionally, the permittee has had a need for an additional band of sheep to trail through the allotment. When this has occurred in the past, the use of the trailing band was typically two to five days. The BLM has been managing the sheep use to not exceed 40% utilization but typically the current permittee has kept his utilization at or below 30% utilization.

Denis Kowitz acquired this grazing permit in 1998 and is the current permittee in the Elkhorn Allotment. The total active AUMs for the Elkhorn Allotment are 332 AUMs and the season of use is 05/15 to 11/20. Even though the grazing permit shows season long use, the current livestock use has been by one band of sheep, averaging 1000 to 1,500 head, for 7-21 days in June and mid-October. Actual use data have been collected annually in the Elkhorn Allotment since 1975. The average actual use between 1975 and 2014 for sheep is 30% of the average active use

or 101 AUMs. The original actual use forms can be found in the Elkhorn Allotment Studies File at the Shoshone BLM Office. The current grazing permit authorization is shown in Table 2.

Rangeland Health evaluations were conducted in the Elkhorn Allotment in 2008 and supplemental data was collected in 2012. The findings of the Rangeland Health field evaluation, as applied in Idaho, are considered in this EA and the current permit would be renewed by incorporating the Fundamentals of Rangeland Health, or grazing management practices, into the management of the allotment with the necessary changes to meet the Idaho Standards for Rangeland Health. Periodic observations of the Elkhorn Allotment since 2012 have not shown any changes in the health and productivity of the allotment.

Under current livestock management, the Elkhorn Allotment is meeting all applicable Rangeland Health Standards and livestock grazing is in conformance with Guidelines for Livestock Grazing Management (Table 7 and Table 8). Standard 1 (Watersheds), Standard 2 (Riparian Areas and wetlands), Standard 3 (Stream Channel/Floodplain), Standard 4 (Native Plant Communities), Standard 7 (Water Quality) and Standard 8 (Threatened and Endangered Plants and Animals) are all meeting Rangeland Health and Standard 5 (Seedings) and Standard 6 (Exotic Plant Communities) do not apply to the Elkhorn Allotment.

Previously in 2008, Standard 2 (Riparian Areas and wetlands) and Standard 3 (Stream Channel/Floodplain) were not being met due to historic livestock grazing. Minor changes to the sheep grazing in that drainage have been made by the permittee since the early 2000s and when the PFC was re-read in 2012, the data showed that it is now meeting the PFC requirements. The changes that the permittee made over the years have contributed to the progress currently being made.

TABLE 7: Summary of Rangeland Health Assessment Determination

<i>Standard</i>	<i>Elkhorn Allotment Results</i>
Standard 1 – Watersheds	Meeting
Standard 2 – Riparian Areas and wetlands	Meeting
Standard 3 – Stream Channel/Floodplain	Meeting
Standard 4 – Native Plant Communities	Meeting
Standard 5 – Seedings	Does not Apply
Standard 6 – Exotic Plant Communities	Does not Apply
Standard 7 – Water Quality	Meeting
Standard 8 – Threatened and Endangered Plants and Animals	Meeting

According to the 2009 Idaho Bureau of Land Management Livestock Grazing Permit Renewal Desk Guide, if all applicable land health standards are being met, a determination document is not required to be completed.

TABLE 8: Evaluation Summary Sheet

Indicators	Attributes S = Soil & Site Stability H=Hydrologic Function B = Biotic Integrity	Degree of Departure from Ecological Site Description and/or Ecological Reference Area(s)				
		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
1. Rills	S, H					Site 1 Site 2 Site 3 Site 4
2. Water-flow Patterns	S, H					Site 1 Site 2 Site 3 Site 4
3. Pedestals and/or terracettes	S, H				Site 2 Site 3	Site 1 Site 4
4. Bare ground	S, H					Site 1 Site 2 Site 3 Site 4
5. Gullies	S, H					Site 1 Site 2 Site 3 Site 4
6. Wind-scoured, blowouts, and/or deposition areas	S				Site 2	Site 1 Site 3 Site 4
7. Litter movement	S				Site 2	Site 1 Site 3 Site 4
8. Soil surface resistance to erosion	S, H, B				Site 2	Site 1 Site 3 Site 4
9. Soil surface loss or degradation	S, H, B				Site 2	Site 1 Site 3 Site 4
10. Plant community composition and distribution relative to infiltration	H				Site 1 Site 2 Site 4	Site 3
11. Compaction layer	S, H, B					Site 1 Site 2 Site 3 Site 4
12. Functional/structural groups	B				Site 1 Site 4	Site 2 Site 3
13. Plant mortality/decadence	B					Site 1 Site 2 Site 3 Site 4
14. Litter amount	H, B					Site 1 Site 2 Site 3 Site 4
15. Annual production	B				Site 2	Site 1 Site 3 Site 4
16. Invasive plants	B			Site 4	Site 1	Site 2 Site 3
17. Reproductive capability of perennial plants	B				Site 2 Site 4	Site 1 Site 3
TOTAL		0	0	1	15	52

3.3.2 Soils & Water Quality

A rangeland health field assessment was conducted in the Elkhorn Allotment in July 2008 and additional data was collected in August of 2012. The assessment consisted of evaluating the key ecological site(s) found within the allotment.

Soils

The soils are quite complex in the Elkhorn Allotment and most of this is due to steep topography and aspect. There are two main ecological sites that are utilized by livestock in this allotment. Other ecological sites are present but are not as important from a livestock grazing standpoint due to dense trees or steep slopes. These two ecological sites are the North Slope Loamy 16-20" Mountain Big Sagebrush/Idaho Fescue and the South Slope Stony 12-16" Mountain Big Sagebrush/Bluebunch Wheatgrass.

The North Slope Loamy 16-20" mountain big sagebrush/Idaho fescue ecological site is associated with mountain sides on north, east and northwest exposures and slopes ranging from 20-60 percent. Most of the land in the Elkhorn Allotment that is comprised of this ecological site are on private or state lands but this ecological site is also a main inclusion of the South Slope Stony 12-16" site and is represented in Site 2. The average annual precipitation ranges from 16-20" and most of the precipitation comes when plants are dormant, from October through April, in the form of snow. The average frost-free period is only 45-60 days. The soils on this site are dark colored, gravelly loams, gravelly silt loams and clay loams over 40 inches deep and are derived from volcanic, metasedimentary, or granitic materials. Available water capacity and erosion hazard is moderate when the vegetation is scarce or removed.

The South Slope Stony 12-16" mountain big sagebrush/bluebunch wheatgrass ecological site usually occurs on steep mountain sides on south, south-east, or west aspects. Slopes are generally 20-60 percent and the soils are gravelly, very gravelly, or cobbly loams, and gravelly coarse sandy loams. Approximately one-third of the precipitation falls when plants are dormant, from October to April, primarily as snow. The water intake is moderate to rapid with well to excessive drainage while the available water capacity is low to medium. This ecological site is represented at sites 1, 3 and 4.

Site 1. South Slope Stony 12-16" Mountain Big Sagebrush/Bluebunch wheatgrass

Field measurements found that vascular plants provide 79% of the cover on average for this site, rock 6%, biotic crust 0%, litter in contact with soil 6%, and standing litter 0% with bare ground found on 9% of the transect points. Cheatgrass was found in this transect and was calculated to be 18% cover. Per the NRCS site guide, ground cover by litter, rock, and vegetation should be 75 to 90 percent. According to the NRCS site guide, this site has a higher percentage of vascular plants than what would normally be expected for the site, but it is still within the acceptable range.

Site 2. North Slope Loamy 16-20" Mountain Big Sagebrush/Idaho Fescue

Field measurements found that vascular plants provide 82% of the cover on average for this site, rock 3%, biotic crust 0%, litter in contact with soil 3%, and standing litter 0% with bare ground found on 12% of the transect points. Per the NRCS site guide, ground cover by litter, rock, and vegetation should be 75 to 90 percent. According to the NRCS site guide, the data indicate that

this site is within the acceptable range.

Site 3. South Slope Stony 12-16" Mountain Big Sagebrush/Bluebunch wheatgrass

Field measurements found that vascular plants provide 86.5% of the cover on average for this site, rock 0%, biotic crust 0%, litter in contact with soil 9.5%, and standing litter 1.5% with bare ground found on 2.5% of the transect points. Per the NRCS site guide, ground cover by litter, rock, and vegetation should be 75 to 90 percent. According to the NRCS site guide, this site has a higher percentage of vascular plants than what would normally be expected for the site, but it is still within the acceptable range.

Site 4. South Slope Stony 12-16" Mountain Big Sagebrush/Bluebunch wheatgrass

Field measurements found that vascular plants provide 89% of the cover on average for this site, rock 8%, biotic crust 0%, litter in contact with soil 2%, and standing litter 1% with bare ground found on 0% of the transect points. There was cheatgrass found in this transect and it was calculated to be 24% cover. Per the NRCS site guide, ground cover by litter, rock, and vegetation should be 75 to 90 percent. According to the NRCS site guide, this site has a higher percentage of vascular plants than what would normally be expected for the site, but it is still within the acceptable range.

The NRCS site guide also lists the specific native plants that would typically comprise the individual components or functional/structural groups (grass, forbs, or shrubs) of the potential natural plant community (PNC) for this ecological site. Functional/structural groups are a suite of plant species that are grouped together, on an ecological basis, because of similar shoot (height and volume) or root (fibrous vs. tap) structure, photosynthetic pathways, nitrogen fixing ability, or life cycle (Chapin 1993, Dawson and Chapin 1993, Solbrig et al. 1996). Functional/structural groups that would be expected in the Elkhorn Allotment include deep-rooted perennial grasses, shrubs, shallow-rooted perennial grasses, and forbs.

There is a direct correlation between the diversity of vegetation throughout the Elkhorn Allotment and the diversity in the depth of the roots of these various species. The abundance of deep rooted plants such as mountain big sagebrush, antelope bitterbrush, snowberry, chokecherry and to a lesser extent; arrowleaf balsamroot, bluebunch wheatgrass and basin wildrye reflect a stable soil resource that is resistant to erosion. There is also diversity among the medium rooted and shallow rooted plants such as Indian ricegrass, Idaho fescue, prairie junegrass, western yarrow, lupine and sticky geranium which also play a role in soil stability and it's resistance to erosion. Throughout the rangeland health evaluation and data collection process, it was observed that soil erosion was very limited throughout the allotment; even with the presence of steep slopes and granitic soils.

On all four of the rangeland health sites, there were also no terracettes present on the steep slopes. The presence of terracettes are important indicators of the movement of soil and water and/or by wind (Anderson 1974, Morgan 1986, Satterlund and Adama 1992, Hudson 1993). Terracettes are benches of soil deposition behind obstacles caused by water movement, not wind. As the degree of soil movement by water increases, terracettes become higher and more numerous and the area of soil deposition becomes larger. Visually, they can be seen from a long

distance away and appear to be thin, horizontal, or slightly sloping, trails that travel across the slopes.

Water Quality

A list of water quality limited streams and the known problems leading to their inclusion is published by the State Department of Environment Quality on a regular basis. The Shoshone BLM is currently using the 2012 Integrated Report. Triumph Spring is the only known perennial spring in the Elkhorn Allotment. This spring is within close proximity to Triumph Mine, but the tailings are located on a clay lens which decreases seepage and mine tailing movement. The Triumph Spring has been identified as not being a water quality limited water body by the Idaho Department of Environmental Quality (DEQ).

In Triumph Gulch, there are known adits that have been evaluated for environmental impacts to the area. There is an adit that is located approximately ½ mile north of the East Fork Road and on the east side of the valley. This site has a waste rock dump associated with it that has encroached upon the Triumph Gulch stream channel. This waste rock material has been screened and analyzed and does contain elevated metals such as lead, arsenic, cadmium, and Zinc.

Even though these metals are present they are not readily mobilized and pose little to no threat for releases to the environment. Given that this area is utilized for a very limited time by both people and livestock there will be minimal risks for ill health effects. The waste rock itself can contribute to the impairment and impact the stream during high flows due to erosion. Impacts to the stream would mainly be in the form of temporary sediment loading. Due to these reasons identified in this section, the Triumph Mine will not be discussed further in this environmental assessment.

3.3.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants

Ecological Site Descriptions

An ecological site is defined as a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation (USDA NRCS, 1997). All of the ecological sites were developed by the Natural Resources Conservation Service (NRCS) and each ecological site lists the site characteristics, plant communities, site interpretation and supporting information. Ecological site descriptions contain information about the ecological dynamics of each site and are used as the standard or reference for resource evaluations and assessments such as trend, similarity index, and rangeland health (Boltz, 2002).

The NRCS ecological site descriptions use dry weight (production) for a measure of community composition. The dry weight of plants for production calculates the amount of total annual plant production that is composed of forage species, or species likely to be used by grazing animals. It is a time consuming, but accurate method for quantifying herbage production for herbaceous species. The BLM used the line-point intercept method for percent composition by cover. Line-point intercept is a rapid, accurate method for quantifying soil cover; including vegetation, litter, rocks, and biotic crusts. Line-point intercept measurements are related to wind and water erosion, water infiltration, and the ability of the site to resist and recover from disturbance (USDI BLM, 1999). While each of these methods has its own values and weaknesses it should be

recognized that they are not directly comparable; and as such, do not directly correlate because one method is measuring plant weight while the other method is measuring composition. There is more similarity between the measurements for grasses than there is for the shrubs and forbs due to the difference in plant material.

The allotment contains both shrub steppe and coniferous forest plant communities. The shrub communities occupy about 90% of the allotment with forest communities comprising the remaining 10% of the allotment area. All of the plants discussed in this EA have been included in Attachment 7.2 which includes the common name and the genus species. The locations of where the rangeland health data were collected can also be viewed in Map 3.

There are two main ecological sites that are utilized by livestock in this allotment. Other sites are present but are not as important from a livestock grazing standpoint, due to dense trees or extremely steep slopes in excess of 60%. Rangeland Health field studies were conducted in the Elkhorn Allotment during 2008 and again in 2012. Four Rangeland Health Sites were selected for data collection because they represented the ecological sites well. The main ecological sites that are utilized by livestock include a North Slope Loamy 16-20" Mountain Big Sagebrush/Idaho Fescue and the South Slope Stony 12-16" Mountain Big Sagebrush/Bluebunch Wheatgrass.

The *mountain big sagebrush/Idaho fescue ecological site* is associated with mountain sides on north, east and northwest exposures and slopes range from 20-60 percent. The NRCS site guide description for this ecological site states that the visually dominant vegetation of the site should be Idaho fescue, bluebunch wheatgrass and mountain big sagebrush. Portions of the allotment within this ecological site are at a slightly higher elevation and more precipitation, which leads to the presence of more mountain shrubs. The visually dominant vegetation at the higher elevation ecological site should be mountain big sagebrush, mountain snowberry and Idaho fescue.

This lower elevation mountain big sagebrush/Idaho fescue ecological site potential natural plant community for grasses should be bluebunch wheatgrass and Idaho fescue; with lesser amounts of prairie junegrass, Nevada bluegrass, Thurber's needlegrass, basin wildrye, bottlebrush squirreltail, sedge, Sandberg bluegrass, oniongrass and Colombia needlegrass. Forbs in the potential natural plant community should be arrowleaf balsamroot, lupine, tapertip hawksbeard and geranium; with lesser amounts of helianthella, phlox, white stoneseed, aster, buckwheat, Indian paintbrush, penstemon, wild onion, mustard, western yarrow and milkvetch. Shrubs in the potential natural plant community should include mountain big sagebrush; with lesser amounts of serviceberry, mountain snowberry, Wood's rose, currant, chokecherry, rabbitbrush, mockorange, quaking aspen and antelope bitterbrush.

The *mountain big sagebrush/ bluebunch wheatgrass ecological site* is associated with mountain sides on south, west or southeast exposures and slopes range from 20-60 percent. The NRCS site guide description for the mountain big sagebrush/bluebunch wheatgrass ecological site states that the visually dominant vegetation of the site should be mountain big sagebrush and bluebunch wheatgrass.

The potential natural plant community for grasses should be bluebunch wheatgrass; with lesser amounts of Indian ricegrass, Nevada bluegrass, Colombia needlegrass, Sandberg bluegrass, bottlebrush squirreltail, sedge, and basin wildrye. Forbs in the potential natural plant community include tapertip hawksbeard; with lesser amounts of lupine, buckwheat, phlox, Hooker's balsamroot, Indian paintbrush, sticky geranium, helianthella, and milkvetch. Shrubs in the potential natural plant community include mountain big sagebrush and antelope bitterbrush; with lesser amounts of currant, green rabbitbrush, chokecherry, and mountain snowberry.

Long-Term Rangeland Trend

Trend is the direction of change in ecological status or in resource value rating observed over time. Trend in ecological status is described as "toward" or "away from" the potential natural community or as "not apparent". The BLM uses the nested frequency method for calculating the trend of canopy cover, frequency of occurrence, and composition of canopy cover. The nested frequency method tests for changes in vegetative cover of the species and/or in major ground cover classes (USDI BLM, 1999). A photo plot is typically used along with the nested frequency method as a reliable way of recording soil surface characteristics and the amount of ground surface covered by vegetation and litter.

Long-Term Trend Site #1

There is a long term trend plot in the Elkhorn Allotment located in Peters Gulch on the north end of the allotment. This trend plot is located in an area of the allotment that can no longer be accessed by road due to the expansion of housing in Ketchum. The BLM has attempted to locate the plot numerous times over three years by hiking in from the north end to no avail. Trend has been read at Site 1 in 1976, 1982, 1985, 1988 and in 1991. It has not been read since then due to its inaccessibility to the BLM. Another plot was established in the summer of 2015 and used in the future for indication of trend.

Overall, the Elkhorn Allotment had a static upward trend in 1982, 1985, 1988 and a static downward trend in 1991. A static trend is not necessarily a negative finding though; in the case of the Elkhorn Allotment, it shows that the allotment may have reached its potential and no further improvements can be made. The most common grass species found on the study site throughout the years have been Thurber's needlegrass, bluebunch wheatgrass, Sandberg's bluegrass, Nevada bluegrass, and Idaho fescue, bottlebrush squirreltail, Prairie junegrass, oniongrass and cheatgrass. The most common forb species found include lupine, Penstemon, arrowleaf balsamroot, sego lilly, thistle, buckwheat, aster, potentilla, goatsbeard, tapertip hawksbeard, western yarrow, rockcress, and diffuse knapweed. The most common shrub species found on the sites is mountain big sagebrush, green rabbitbrush and antelope bitterbrush.

Long-Term Trend Site #2

Due to the fact that Trend Site #1 can no longer be located after numerous attempts of finding it, another trend site was established in 2015 in the Elkhorn Allotment located in Triumph Gulch in the northeast portion of the allotment. This site has not been read yet but is scheduled to be read in 2016. Once this data is collected, it will establish another baseline in the Elkhorn Allotment.

Elkhorn Allotment Assessment Data

Mountain Big Sagebrush/Bluebunch Wheatgrass Ecological Site

Rangeland Health Site 1: located in an east facing slope in Triumph Gulch.

Cover data indicate that bluebunch wheatgrass, cheatgrass and mountain big sagebrush are the dominant plant species with lesser amounts of Nevada bluegrass, basin wildrye, lupine, arrowleaf balsamroot, snowberry, serviceberry, chokecherry, rabbitbrush and antelope bitterbrush. Many of the desired perennial grasses, forbs and shrubs native to the site are present and the plant species composition and abundance is similar to what has been described for the ecological site. Cheatgrass is one of the dominant species on this site due to past wildfires and historical livestock grazing prior to the 1980s (Map 2). These portions of the allotment that have cheatgrass present are isolated and found in areas with previous mining exploration, along the roadside and/or in previously burned areas. It is important to note where the soil or vegetation has not been disturbed, the native plant communities are able to out-compete the cheatgrass and maintain healthy plant communities. Some of the forbs that were not in the transect, but present on the site, can be viewed in Attachment 7.3.

Table 9: Rangeland Health Site 1 Line-Point Intercept Field Data

Life Forms	Species	Percent
Annual Grass	cheatgrass	18%
Native Perennial Grass	bluebunch wheatgrass	21%
	Sandberg bluegrass	1.5%
	basin wildrye	1.5%
Exotic Perennial Grass	None present in transect	0%
Annual Forbs	None present in transect	0%
Perennial Forbs	lupine	3%
	arrowleaf balsamroot	1.5%
Shrubs	mountain big sagebrush	14%
	antelope bitterbrush	9%
	chokecherry	5%
	serviceberry	1.5%
	snowberry	1.5%
	green rabbitbrush	1.5%
Trees	None present in transect	0%
Succulents	None present in transect	0%
Vegetation Total (from above)	All species	79%
Bare ground		9%
Rock		6%
Litter (in contact with soil)		6%
Litter standing		0%
Biotic crust		0%
TOTAL		100%

The ecological site description for this site states that composition by weight should be approximately 45% grasses, 15% forbs and 40% shrubs. At this site, the composition by percent cover is 42% grasses, 4.5% forbs and 32.5% shrubs.



Mountain Big Sagebrush/ Idaho Fescue Ecological Site

Rangeland Health Site 2: located on a west facing slope in Triumph Gulch.

This transect was located on an inclusion of the North Slope Loamy 16-20" Mountain Big Sagebrush/ Idaho Fescue site and South Slope Stony 12-16" Mountain Big Sagebrush/ Bluebunch wheatgrass site inclusion, which is why both bluebunch wheatgrass and Idaho fescue are present in such high numbers. Most of the characteristics of the site lean towards the North Slope Loamy site. Cover data indicate that bluebunch wheatgrass, basin wildrye and mountain big sagebrush are the dominant plant species with lesser amounts of Idaho fescue, prairie junegrass, Colombia needlegrass, Sandberg bluegrass, mountain brome, western yarrow, penstemon, lupine, arrowleaf balsamroot, sticky geranium, antelope bitterbrush, chokecherry, snowberry, Wood's rose, serviceberry and green rabbitbrush.

Many of the desired perennial grasses, forbs and shrubs native to the site are present and the plant species composition and abundance is similar to what has been described for the ecological site. Some of the forbs that were not hit in the transect, but present on the site, can be viewed in Attachment 7.3.

Table 10: Rangeland Health Site 2 Line-Point Intercept Field Data

Life Forms	Species	Percent
Annual Grass	None present in transect	0%
Native Perennial Grass	bluebunch wheatgrass	19.5%
	basin wildrye	8%
	Idaho fescue	4%
	prairie junegrass	1.5%
	Colombia needlegrass	1.5%
	Sandberg bluegrass	1.5%
	mountain brome	1.5%
Exotic Perennial Grass	None present in transect	0%
Annual Forbs	None present in transect	0%
Perennial Forbs	Western yarrow	3%
	penstemon	3%
	lupine	1.5%
	arrowleaf balsamroot	1.5%
	sticky geranium	1.5%
Shrubs	mountain big sagebrush	17%
	antelope bitterbrush	5%
	chokecherry	3%
	snowberry	3%
	Wood's rose	3%
	serviceberry	1.5%
	green rabbitbrush	1.5%
Trees	None present in transect	0%
Succulents	None present in transect	0%
Vegetation Total (from above)	All species	82%
Bare ground		12%
Rock		3%
Litter (in contact with soil)		3%
Litter standing		0%
Biotic crust		0%
TOTAL		100%

The ecological site description for this site states that composition by weight should be approximately 45 to 50% grasses, 15 to 30% forbs and 20 to 40% shrubs. At this site, the composition by percent cover is 37.5% grasses, 10.5% forbs and 34% shrubs.



Mountain Big Sagebrush/Bluebunch Wheatgrass Ecological Site

Rangeland Health Site 3: located on an east facing slope in unnamed gulch west of Triumph
Cover data indicate that bluebunch wheatgrass, prairie junegrass and mountain big sagebrush are the dominant plant species on the site with lesser amounts of Nevada bluegrass, basin wildrye, prairie junegrass, Colombia needlegrass, mountain brome, aster, sego lily, hawksbeard, phlox, chokecherry, snowberry and serviceberry. The ecological site guide reveals that the shrub component should be 10-15% for this site and, according to the data collected, it is within acceptable limits. Perennial grasses and forbs native to the site are present and the abundance is at what would be expected for the site. There was diversity and abundance of many forbs on this site as well but many were not accounted for in this transect (view species list: Attachment 7.3).

Table 11: Rangeland Health Site 3 Line-Point Intercept Field Data

Life Forms	Species	Percent
Annual Grass	None present in transect	0%
Native Perennial Grass	bluebunch wheatgrass	19%
	prairie junegrass	9.5%
	Sandberg bluegrass	4%
	basin wildrye	2.5%
	Colombia needlegrass	1.5%
	mountain brome	1.5%
Exotic Perennial Grass	None present in transect	0%
Annual Forbs	None present in transect	0%
Perennial Forbs	Aster	8%
	tapertip hawksbeard	1.5%
	longleaf phlox	1.5%
	Nuttall's sego lily	1.5%
Shrubs	mountain big sagebrush	25%
	Snowberry	7%
	Chokecherry	2.5%
	green rabbitbrush	1.5%
Trees	None present in transect	0%
Succulents	None present in transect	0%
Vegetation Total (from above)	All species	86.5%
Bare ground		2.5%
Rock		0%
Litter (in contact with soil)		9.5%
Litter standing		1.5%
Biotic crust		0%
TOTAL		100%

The ecological site description for this site states that composition by weight should be approximately 45% grasses, 15% forbs and 40% shrubs. At this site, the composition by percent cover is 38% grasses, 12.5% forbs and 36% shrubs.



Mountain Big Sagebrush/Bluebunch Wheatgrass Ecological Site

Rangeland Health Site 4: located on a west facing slope in unnamed gulch west of Triumph

Cover data indicate that bluebunch wheatgrass, cheatgrass and mountain big sagebrush are the dominant plant species with lesser amounts of Nevada bluegrass, Indian ricegrass, phlox, violet, aster, nose skullcap, antelope bitterbrush, grey horsebrush, snowberry and rabbitbrush. The ecological site guide reveals that the shrub component should be 10-15% for this site and, according to the data collected, it is within acceptable limits. Perennial grasses native to the site are present and the abundance is at what would be expected for the site but the native forbs are lower than what would be expected. The portions of the allotment that have cheatgrass present are isolated and found in areas with previous mining exploration, along the roadside and/or in previously burned areas. It is important to note where the soil or vegetation has not been disturbed, the native plant communities are able to out-compete the cheatgrass and maintain healthy plant communities. There was diversity and abundance of many forbs on this site, but many were not accounted for in this transect. Please refer to Attachment 7.3 for a complete list of all species identified.

Table 12: Rangeland Health Site 4 Line-Point Intercept Field Data

Life Forms	Species	Percent
Annual Grass	cheatgrass	24%
Native Perennial Grass	bluebunch wheatgrass	11.5%
	Sandberg bluegrass	9%
	Indian ricegrass	7%
Exotic Perennial Grass	None present in transect	0%
Annual Forbs	small-flowered blue-eyed Mary	2%
	tumble mustard	1%
Perennial Forbs	snapdragon skullcap	4%
	longleaf phlox	2%
	goosefoot violet	1%
	aster	1%
Shrubs	mountain big sagebrush	12.5%
	antelope bitterbrush	6%
	snowberry	5%
	gray horse-brush	2%
	green rabbitbrush	1%
Trees	None present in transect	0%
Succulents	None present in transect	0%
Vegetation Total (from above)	All species	89%
Bare ground		0%
Rock		8%
Litter (in contact with soil)		2%
Litter standing		1%
Biotic crust		0%
TOTAL		100%

The ecological site description for this site states that composition by weight should be approximately 45% grasses, 15% forbs and 40% shrubs. At this site, the composition by percent cover is 51.5% grasses, 11% forbs and 26.5% shrubs.



Noxious Weeds & Invasive Plants

On the uplands, populations of diffuse knapweed and cheatgrass are present in localized areas of the allotment. Diffuse knapweed is on the Noxious Weed list for the State of Idaho and cheatgrass is considered an invasive species. The BLM is actively controlling the noxious weed infestations in the Wood River Valley using both chemical and biological means. The chemical treatments are occurring along road sides while the biological control agents are used in areas off the main roads. The cheatgrass is present in the allotment in areas that have previously burned in wildfires but the populations do not appear to be expanding to other portions of the allotment.

BLM Sensitive Species

Bug-leg goldenweed is not known to occur in the Elkhorn Allotment but there is an unconfirmed occurrence within the neighboring allotment of Indian Creek Allotment. Bug-leg goldenweed is a perennial yellow composite that occurs in gravelly to heavy clay soils in ephemeral moist herbaceous meadows, swales, and weak drainages in bottomlands or hillsides, saddles dominated by herbaceous vegetation, drier edges of seeps, and occasionally on stony sites. These sites are usually in drier sagebrush communities or on the edges of conifer-aspen woodlands, with bug-leg goldenweed occurring between the moist communities dominated by sedges or rushes and the uplands where shrubs are dominant.

The elevation range of this species is approximately 4,500 to 7,500 feet. Populations occur in both undisturbed and disturbed communities with various levels of competition. Numerous sites have past as well as on-going disturbance, including road shoulders, fence lines, pastures, corrals, and abandoned fields and road rights-of-way. Bug-leg goldenweed blooms in July and August. Associated species include northern mule's-ears, Gairdner's yampah, death camas, checker-mallow, sego lily, western yarrow, aster, cinquefoil, Navarretia, tarweed, Great Basin wildrye, bluebunch wheatgrass, bottlebrush squirreltail, oatgrass, bluegrass, Idaho fescue,

mountain big sagebrush, early low (alkali) sagebrush, low sagebrush, and rabbitbrush; many of which are present in the Elkhorn Allotment.

Bug-leg goldenweed is endemic to the Camas Prairie, Bennett Hills, and the foothills of the Soldier, Smoky, Boulder, and Pioneer Mountains. Shallow disturbances such as scraping may be tolerated but deep disturbance (excavation for pipelines, cable burial, mining, right-of-way maintenance, trail or road construction, etc.) will kill plants. Other threats include competition with exotic species and sod-forming grasses. This species tolerates livestock grazing.

3.3.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species

Idaho BLM recently updated its special status species list. This list identifies 63 sensitive species as potentially occurring in the Shoshone Field Office. In addition to this list the U.S. Fish and Wildlife Service (USFWS) maintains a list of bird species of conservation concern and focal species. There are 15 species (Birds of conservation concern and focal species), which may occur in the Shoshone Field Office. This brings the total number of special status species which may occur in the Shoshone Field Office to 78. Amongst the 78 special status species, 32 are considered likely to occur in Elkhorn Allotment (Table 13, 14, 15). Of these, 8 species were removed from detailed analysis due to a lack of apparent impacts from the action (Table 16). A total of 26 special status species are considered likely to occur within the Elkhorn Allotment and are potentially impacted by the action.

TABLE 13: TYPE 1-INCLUDES SPECIES LISTED UNDER THE ENDANGERED SPECIES ACT (ESA) AS ENDANGERED (E) OR THREATENED (T), EXPERIMENTAL ESSENTIAL (XE) POPULATIONS, AND DESIGNATED CRITICAL HABITAT (CH).

Common Name	Scientific Name	General Habitat Use
1. Canada Lynx (T)	<i>Lynx canadensis</i>	Forest
2. Yellow-billed Cuckoo* (T)	<i>Coccyzus americanus</i>	Riparian Woodlands

TABLE 14: TYPE 2-IDAHO BLM SENSITIVE SPECIES: INCLUDES STATE DIRECTOR DESIGNATED SPECIES AS WELL AS FWS CANDIDATE SPECIES (C), FWS PROPOSED SPECIES (P), FWS EXPERIMENTAL NONESSENTIAL POPULATIONS (XN), AND SPECIES DELISTED FROM ESA THREATENED OR ENDANGERED STATUS WITHIN THE PAST 5-YEARS (D).

Common Name	Scientific Name	General Habitat Use
3. Redband Trout	<i>Oncorhynchus mykiss gairdneri</i>	Rivers and Streams
4. Wood River Sculpin	<i>Cottus leiopomus</i>	Rivers and Streams
5. Bald Eagle	<i>Haliaeetus leucocephalus</i>	Riparian, Forest
6. Golden Eagle	<i>Aquila chrysaetos</i>	Open Shrublands, limited Forest
7. Flammulated Owl	<i>Otus flammeolus</i>	Forest
8. Northern Goshawk	<i>Accipiter gentilis</i>	Forest
9. Greater Sage-grouse	<i>Centrocercus urophasianus</i>	Sagebrush

10. Cassin's Finch	<i>Carpodacus cassinii</i>	Montane shrublands
11. Green-tailed Towhee	<i>Pipilo chlorurus</i>	Montane shrublands
12. Lewis' Woodpecker	<i>Melanerpes lewis</i>	Riparian
13. Willow Flycatcher	<i>Empidonax trailii</i>	Riparian
14. Pygmy rabbit	<i>Brachylagus idahoensis</i>	Shrublands
15. Gray Wolf	<i>Canis lupus</i>	Forest or Shrublands
16. Wolverine	<i>Gulo gulo luscus</i>	Forest
17. Bighorn Sheep	<i>Ovis canadensis spp.</i>	Shrublands, limited Forest
18. Big brown bat	<i>Eptesicus fuscus</i>	Forest or Shrubland
19. Hoary Bat	<i>Lasiurus cinereus</i>	Forest
20. Little Brown myotis	<i>Myotis lucifugus</i>	Forest or Shrubland
21. Long-eared myotis	<i>Myotis evotis</i>	Forest
22. Long-legged myotis	<i>Myotis volans</i>	Forest
23. Pallid Bat	<i>Antrozous pallidus</i>	Shrubland
24. Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Forest
25. Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	Forest
26. Yuma Myotis	<i>Myotis yumanensis</i>	Forest
27. Townsend's Big-eared bat	<i>Plecotus [Corynorhinus] townsendii</i>	Forest or Shrubland
28. Northern Leopard Frog	<i>Rana pipiens</i>	Riparian
29. Boreal Toad	<i>Anaxyrus boreas</i>	Riparian

TABLE 15. NON-BLM SENSITIVE BIRD SPECIES OF CONSERVATION CONCERN.

Common Name	Scientific Name	General Habitat Use
30. Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>	Riparian, Forest
31. Black Rosy Finch	<i>Leucosticte atrata</i>	High elevation (Breeding), Shrublands (Winter)
32. Calliope Hummingbird	<i>Selasphorus calliope</i>	Riparian, Forest, Montane Shrubland

TABLE 16. RESOURCES CONSIDERED BUT REMOVED FROM DETAILED ANALYSIS.

Resource	Rationale
1. Canada Lynx (<i>Lynx Canadensis</i>)	<p>The Canada lynx is listed as a Threatened species under the ESA. The species is found in boreal and mesic forests, and is closely associated with the, its primary prey [snowshoe hare] (USDA 2007). Alternate prey, including many small mammals and grouse, are also important to lynx diets. In Idaho, lynx primarily occur in high elevation, cold forest habitats that support spruce, subalpine fir, whitebark pine, lodgepole pine, or moist Douglas-fir habitat. Canada lynx area associated with mesic forests, and “dry forests do not provide lynx habitat (USDA 2007, p. 371)”. Shrub-steppe habitats that occur adjacent to, or are intermixed with, cold forest habitats in Idaho are used to a limited extent by lynx for foraging and dispersal activities. Although Canada lynx have been documented throughout northern portions of the BLM Shoshone Field Office, none of the field office is designated as lynx critical habitat. Moreover, Elkhorn allotment is predominately a montane shrubland with inclusions of Douglas-fir. This area is generally not considered mesic. Annual precipitation is within the vicinity is not appreciable, and the consequence is a higher composition of shrubs. Trees are predominately restricted to north slopes. Douglas-fir patches within the allotment are considered to be dry. Based on current information the habitat characteristics provided for in Elkhorn Allotment are not considered to be consistent with suitable habitat. The combination of non-preferred habitat characteristics and the suspected very low, incidental use level of the project area by the species are expected to result in “No Effect” to the Canada lynx. A discussion of this species will not be carried through the analysis.</p>
2. Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	<p>On October 03, 2014 the western distinct population segment of the Yellow-billed Cuckoo was designated as “Threatened” under</p>

the provisions of the Endangered Species Act (79 FR 59991 60038). Prior to this listing the Yellow-billed Cuckoo was classified as a “Candidate” species. The U.S. FWS published a proposed rule to designate critical habitat on August 15, 2014 (79 FR 48547 48652), the comment period for this proposed rule was re-opened on November 12, 2014 for 60 days (79 FR 67154 67155). The proposed rule published on August 15, 2014 identified 546, 335 acres as proposed for critical habitat designation, which includes critical habitat units in Idaho (79 FR 48547 48652).

The proposed critical habitat unit encompassing the Big Wood River (Stanton Crossing Vicinity) is known to be occupied by Yellow-billed Cuckoos during the breeding season (79 FR 48547 48652). This critical habitat unit is the closest critical habitat unit to Elkhorn Allotment, which is approximately 20 miles from the proposed critical habitat. Range distribution maps indicate Yellow-billed Cuckoos have a limited distribution within Idaho, and are only present in North America during the breeding season (Hughes 1999, 79FR 59995 60038). Yellow-billed Cuckoos are known to breed in riparian habitat associated with large perennial lotic systems (79 FR 59991 60038; Groves et al. 1997, Gaines 1974) which support thick woody herbaceous vegetative communities (Gaines 1974; Groves et al. 1997, Hughes 1999), including cottonwood/willow complexes (Gaines 1974). Yellow-billed Cuckoo’s construct nests in the canopy of trees or shrubs (Hughes 1999; Groves et al. 1997). In one study in the Sacramento Valley of California, researchers inventorying a portion of the Sacramento River found Yellow-billed Cuckoos to only be present in close proximity to water and where dense woody herbaceous understory persisted (Gaines 1974). In addition to dense herbaceous understory, the extent of habitat (patch size) appears to be an important component of breeding habitat as

	<p>well (Laymon and Halterman 1989; Gaines 1974). For example, Gaines (1974) only identified Yellow-billed Cuckoos "...where the extent of riparian vegetation exceeded 300 m in length and 100 m in width."</p> <p>Information regarding cuckoo populations within Idaho indicates this species is rare; there are only 64 recorded observations in the state. Historic observations of the yellow-billed cuckoo within the BLM Shoshone Field Office are concentrated along the Big Wood River, and surveys conducted in 2003 and 2009 documented yellow-billed cuckoos along the Big Wood River and Silver Creek drainages, approximately 20 to 30 miles from the Elkhorn Allotment.</p> <p>The Elkhorn allotment is not considered to contain suitable YBC habitat. Elkhorn gulch does support woody herbaceous cover, but does not have adequate patch size or layers of woody herbaceous vegetation consistent with suitable components of YBC habitat. Furthermore, this riparian habitat is strongly influenced by anthropogenic features, including: a paved bike path and road. These anthropogenic features and human use thereof are thought to further reduce the potential for occupancy by YBC. Moreover, effects to YBC from the proposed action are not expected because domestic sheep do not use this portion of the allotment. Based on current information this action is expected to result in "No Effect" to the yellow-billed cuckoo.</p>
<p>3. Wolverine (<i>Gulo gulo luscus</i>)</p>	<p>Primary winter habitat is mid-elevation conifer forest; summer habitat is typically subalpine, high-elevation cirques. The wolverine occupies a large home range. There is one incidental observation of a wolverine within the allotment (IDFG 2014a). Wolverines are not expected to occur on the allotment other than incidentally while traveling to other habitats. Habitat conditions within Elkhorn Allotment are not consistent with preferred habitat. Seasonal livestock grazing removing a</p>

	<p>portion of available herbaceous vegetation is not expected to impact this species. Analysis of this species will not be considered in detail.</p>
<p>4. Pygmy Rabbit (<i>Brachylagus idahoensis</i>)</p>	<p>Pygmy rabbits historically occurred throughout the Snake River Plain in Idaho. Populations are now widely scattered across southern Idaho, likely as a result of reduced and fragmented sagebrush habitat arising from agricultural and urban development the past century as well as repeated wildfires. Suitable habitat is associated with deep, friable soils that support dense stands of tall sagebrush. Such areas do not occur in the Elkhorn Allotment, and no pygmy rabbits have been observed in or near the allotment. Pygmy rabbits are not expected to occur on the allotment. Impacts to this species are not expected because: (1) pygmy rabbits are not expected to occur on the allotment, and (2) the allotment is not considered to provide preferred habitat for this species. The action is not likely to affect the pygmy rabbit, and analysis of this species will not be considered in detail.</p>

<p>5. Bald eagle (<i>Haliaeetus leucocephalus</i>)</p>	<p>The American bald eagle was listed by FWS as Endangered in 1978 and downgraded to Threatened status in 1995. On June 28, 2007, the bald eagle was removed from ESA. The bald eagle is still protected by the MBTA and BGEPA. The bald eagle is a common winter visitor to the BLM Shoshone Field Office, found primarily along the Snake River and its principle tributaries. Bald eagles may make rare, incidental use of public land in the Elkhorn Allotment while wintering in the Big Wood River drainage. There are some incidental observations of bald eagles adjacent to the allotment (IDFG 2014a). However, the action is not expected to measurably impact this species because: (1) there are no known breeding territories within or adjacent to the allotment; (2) the allotment does not support suitable characteristics of preferred breeding habitat; (3) any incidental use of the allotment by bald eagles is expected to occur in the winter when domestic sheep are not on the allotment. Analysis of this species will not be considered in detail.</p>
<p>6. Northern leopard frog (<i>Rana pipiens</i>)</p>	<p>The Northern leopard frog is associated with permanent water sources during all life stages. Populations occur in a variety of wetland habitats, including marshes, pond margins, and slow moving sections of streams and rivers. The only perennial water source in Elkhorn Allotment is Elkhorn Gulch, a fast moving stream. The likelihood of the northern leopard frog occurring in or near the allotment is low, and no sightings of the species have occurred. There are no known incidental observations for this species within or adjacent to the allotment (IDFG 2014a). Moreover, Elkhorn Gulch is not grazed. Impacts to Northern Leopard frogs from seasonal livestock grazing are not anticipated.</p>

Threatened and Endangered Animal Species

An official species list was obtained through the USFWS Information, Planning, and Conservation Website on August 21, 2015. This list identified Canada lynx (Threatened) as potentially occurring in the Elkhorn Allotment, and should be considered in an effects analysis for the project. No critical habitats for listed species were identified in the project area. The Canada lynx was considered for analysis, but removed due to a lack of impacts, (Table 16).

BLM Sensitive Animal Species

Greater Sage-grouse

The USFWS recently completed a status review to list the Greater sage-grouse (sage-grouse) as Threatened or Endangered species under the ESA. In 2010 the USFWS determined that listing the sage-grouse was warranted for listing under ESA, but precluded by higher priority listing actions. This decision classified sage-grouse as a Candidate species under the ESA. In a subsequent settlement agreement, FWS was directed by the court to make a final listing determination by September 30, 2015. In light of the 2010 “warranted but precluded” finding, and USFWS conclusion that BLM and USFS land use plans were lacking in adequate regulatory mechanisms to conserve sage-grouse, the BLM and USFS embarked on an effort to amend land use plans across most of the west to incorporate land use allocations and other measures designed to conserve sage-grouse. A Record of Decision for these amendments was signed on September 21, 2015. After a thorough analysis of the best available scientific information and taking into account ongoing key conservation efforts, such as by BLM, USFS and others, and their projected benefits, the FWS on September 22, 2015 determined that the bird does not face the risk of extinction now or in the foreseeable future and therefore does not need protection under the ESA. The sage-grouse will continue to be managed as a BLM Sensitive Species in Idaho.

Sage-grouse are found primarily in habitats dominated by sagebrush, particularly big sagebrush; however they also utilize other sagebrush communities or patches as well, including low sagebrush, black sagebrush, and others for foraging. Sage-grouse require an extensive landscape of sagebrush of varying densities and heights, high levels of adequate perennial grass cover (preferably native) for nesting, and areas rich in forbs and insects during nesting and brood rearing (ISAC 2006). Productive nesting habitat requirements include a sagebrush canopy cover of 15 - 25%, sagebrush heights of 30 - 80 cm, and an average grass and forb cover height of 18 cm (Connelly et al. 2000, p. 977), among other factors. Summer brood rearing habitat includes riparian areas and wet meadows. Sage-grouse depend entirely on sagebrush during the winter for food and cover. The following are the seasonal sage-grouse use periods: (1) breeding season (lekking, nesting, early brood-rearing) [March 1 to June 15]; (2) late brood-rearing season [July to October]; (3) winter season [November to March] (BLM 2015).

Based on a review of IDFG lek data (2014b), there are no known sage-grouse leks within Elkhorn Allotment. The closest known lek is “5B186”, which is located approximately 1.5 miles south of the Elkhorn Allotment. The last count of this lek was in 1985, and birds were last observed on this lek in 1980. The management status of this lek is undetermined (IDFG 2014b). The nearest occupied lek sites (5B164 and 5B195) are located approximately 10 and 15 miles respectively, from Elkhorn Allotment. Birds have not been reported on lek 5B164 since 1977

(IDFG 2014b). Birds have been observed on lek 5B195 as recently as 2012 (IDFG 2014b). Elkhorn Allotment was not classified as preliminary general habitat, preliminary important, or preliminary priority habitat for sage-grouse (BLM 2012). Elkhorn Allotment is not within Priority or Important Habitat Management Areas formally delineated in the Idaho and Southwestern Montana Greater Sage-Grouse Approved Resource Management Plan Amendment (BLM 2015), but is about 3.5 miles northwest of a General Habitat Management Area. In 2000, Idaho BLM initiated the “Key Habitat Map” outlining areas of sagebrush used by sage-grouse at some point of the year, as well as potential restoration areas. The map has been updated annually by BLM with input from conservation partners, but the Elkhorn area has not been included to date. Elkhorn Allotment occurs about 1 mile north of Key habitat.

Portions of the BLM administered public land within the allotment are characterized as sagebrush/mountain shrub mix, which may provide for some suitable components of sage-grouse habitat. Other portions of the allotment are comprised by woodlands, or are sagebrush/mountain shrub mix with dispersed trees. The presence of trees and woodlands are expected to limit habitat suitability or preference by sage-grouse. The allotment is also characterized by steep slopes. The following slope metrics were calculated using National Elevation Data layers. Approximately 52 % of the allotment is in excess of 40% slope, 12 % of the allotment is ≤ 20 % slope, and only 2.5% of the allotment is ≤ 10 % slope.

Sage-grouse telemetry data from the Idaho Department of Fish & Game (2012) does show sage-grouse using portions of Elkhorn Allotment. Two sage-grouse males collared near Wedge Butte (approximately 30 miles from Elkhorn Allotment) in late winter/early spring were identified in Triumph Gulch and South of Elkhorn Allotment in late summer/fall. Use of the allotment and surrounding habitat by collared birds subsequent to September is unknown, since monitoring of collared birds ended in September. One of the Wedge Butte collared males did visit the historic lek (5B186) to the south of the allotment. These observations substantiate that seasonal use of the allotment by sage-grouse does occur to some extent by individual grouse. Sage-grouse habitat assessment worksheets completed for evaluation sites in the allotment also identify that some suitable components of breeding habitat are available in the allotment, including: adequate sagebrush and herbaceous cover, and spreading sagebrush growth form. Assessments for breeding habitat also identified marginal components as well. Worksheet comments for breeding habitat suggested that steep slopes would limit use by sage-grouse, but more gentle slopes may be used by sage-grouse. Overall, limited nesting may occur on allotment, but is not expected to be extensive. Sage-grouse assessments for late brood-rearing habitat suggested that conditions were marginal because succulent, green forbs were available. However, distribution was spotty or plant structure limited effective use of forbs. Comments on late brood-rearing habitat assessments also indicated that steep slopes would be expected to limit use. Of note is that the allotment does not occur within recently mapped/modeled nesting habitat (IDFG 2013) nor is the allotment within the North Magic Valley Local Working Group mapped habitat.

Assessments also identified suitable components of winter habitat, but overall conditions were considered marginal for winter habitat suitability. Worksheet comments for winter habitat assessments suggested that snow depth would likely be a limiting factor for winter use and that wind swept areas may be utilized, but not likely.

In summary the allotment is only expected to provide limited habitat for sage-grouse. Sage-grouse are expected to utilize habitats within the allotment to a minor degree, primarily during the late brood-rearing season, but breeding and winter season use would be limited. This is concluded because: (1) the allotment is located 15 miles from the nearest occupied lek that has had birds recently observed. This distance is great enough that the number of hens that may nest in the allotment is likely minimal. (2) Documented observations would substantiate that some use by sage-grouse does occur during the late brood-rearing season, and the allotment is generally characterized as higher elevation where forbs would be expected to be available later in the year. Recognizing that only males have been identified using the allotment during this timeframe, it is assumed that hens may use these same habitats for brood-rearing. (3) The allotment is not expected to provide winter habitat because snow accumulation would be greater than sagebrush height, and there are indications that birds utilizing seasonal habitats in and around Elkhorn Allotment are associated with seasonal habitat in the vicinity of the Wedge Butte during late winter/early breeding timeframe. Wedge Butte, located approximately 30 miles from Elkhorn Allotment, is known to support wintering sage-grouse. (4) The presence of trees (e.g. Douglas fir), and steepness of slope are expected to limit use within the allotment for all seasonal habitats. Sage-grouse have been documented to avoid steep slopes (Beck 1977, Harju et al. 2013).

Mammals

Gray Wolf

The gray wolf in Idaho, Montana, and portions of eastern Oregon, eastern Washington and north-central Utah (Northern Rockies Distinct Population Segment) was removed from the Endangered Species Act on May 5, 2011. By policy (Manual 6840), delisted species are classified as BLM sensitive species for five years following delisting. Gray wolves could occur, and have occurred in the Elkhorn Allotment during any season of the year. Wolves are most likely to occupy the allotment during late fall and winter when elk and mule deer are most abundant. Big game represents key forage species for wolves.

Mule Deer & Elk

Elkhorn Allotment provides important year-round habitat for elk and mule deer. The Sun Valley EIS has allocated 63 AUMs for deer months in the summer and 28 AUMs for elk months during the winter for a total of 91 AUMs set aside for big game use throughout the year. Utilization of these habitats has likely increased in recent decades as adjacent, lower elevation areas have undergone anthropogenic development. Mule deer and elk use occurs year-round on the allotment, with increased use occurring in late fall, winter, and early spring. Most wintering animals move to higher elevation habitats during the summer. Elkhorn Allotment is at the northern periphery of deer winter range in the valley. Mule deer use does occur here, but at low densities. Elk winter use of Elkhorn Allotment is assumed to have increased, because: (1) the elk population for the Pioneer Zone has been increasing and is above management objectives, and (2) a large private feed site in the valley discontinued winter feeding. It is assumed some of the elk visiting this site have returned to use winter habitats available in Elkhorn Allotment. Big game population trend counts conducted by IDFG in the general area of Elkhorn Allotment substantiate the importance of this area for wintering elk. During the PFC field tour of Triumph Gulch, it was noted by the ID Team that big game use this area extensively in the early spring

and fall, as well as Decker Gulch. Big game use and distribution information was provided by IDFG.

The 1981 Sun Valley Management Framework Plan (MFP) made formal forage allocations for both deer and elk in the Elkhorn Allotment. The Sun Valley Management Framework Plan (MFP) allocated 63 deer months of forage during the summer (May 1 to October 30) use period and 28 elk months of forage during the winter (November 15 to April 15) use period. There are six deer per AUM and 1.2 elk per AUM.

Bighorn Sheep

Elkhorn Allotment is located approximately ten air miles from the Pioneer Population Management Unit (PMU). IDFG defines a Population Management Unit as: “a population or groups of connected populations in similar habitats with similar management priorities (IDFG 2010)”. Scattered observations of Rocky Mountain bighorn sheep in the Pioneer Mountains have been documented in the past 20 years, including three in close proximity (0.75, 0.80, and 0.88 miles) to Elkhorn Allotment (IDFG 2013). Two of these observations are from 1993 and one is from 2006. All observations were in the fall (October 02 & November 01). Observations of bighorn sheep in the Pioneers PMU are sporadic and typically associated with young rams (IDFG 2010). The Pioneer PMU does not currently contain a source population of bighorn sheep, and it is unclear where the source populations for these sheep are located, but sheep inhabiting this PMU may be associated with the East Fork Salmon River population, or the Lost River population (IDFG 2010). Bighorn sheep data was provided to BLM by IDFG, and these data are referenced from a June 17, 2013 export.

Due to the lack of a permanent bighorn presence within the Pioneer PMU, a core herd home range has not been identified by the U.S. Forest Service for this unit. The nearest core herd home range is associated with the East Fork PMU, which is 26.7 miles from Elkhorn Allotment. This distance is too great to register with the Risk of Contact Tool, which is spatially limited to 22 miles. Core herd home ranges were delineated by the U.S. Forest Service to inform the Risk of Contact Tool where appropriate. The USFS defines a Core Herd Home Range in the Payette National Forest FSEIS (2010) as: “the area within which most herd individuals spend most (95 percent) of their time”. The Risk of Contact Tool is a GIS spatial model that provides a logical, documented process that quantifies the risk (percent probability) of a bighorn sheep intersecting a domestic sheep allotment, pasture, or trailing corridor (Murgoitio and Wilhelm 2014). The breeding season for bighorn sheep occurs in November (IDFG 2010, USDA 2010) and December (USDA 2010). Male bighorn sheep travel more frequently and at greater distances during this time (USDA 2010). Analysis of bighorn ram summer forays on the Payette National Forest suggested that the proportion of forays by rams decreased as the distance from core herd home range increased (USDA 2010). The greatest foray documented in this analysis was 35 km (USDA 2010). Foray is defined as: “A movement of a bighorn sheep outside of the core herd home range. Rams, in particular, make occasional long distance foray movements (USDA 2010)”.

Bighorn sheep are susceptible to respiratory diseases carried by domestic sheep. The effects of the respiratory disease complex on populations of bighorn sheep can take several forms, including high rates of all-age mortality (i.e., die-offs); high rates of mortality restricted to lambs,

especially during summer; and chronic, low-level, sporadic adult mortality. Some populations recover relatively quickly from disease events, while other populations experience long periods of chronic poor production (Ryder et al., 1992; Ryder et al., 1994; Cassirer & Sinclair, 2007). Pathogens associated with the respiratory disease complex appear to spread among interconnected populations of bighorn sheep, sometimes over a period of years, resulting in morbidity and mortality of numerous individuals and populations over time (Onderka & Wishart, 1984; George et al., 2008).

Bats

There is potential for the following bat species to occur within Elkhorn Allotment. The allotment does contain at least one mine adit that has been reported to be inhabited by bats, it has also been suggested that this adit may be utilized as a maternal roost and winter hibernacula (BLM 2000). If this site is not utilized as a hibernacula, bat species would be expected to migrate to off-site winter hibernacula. This would render utilization of habitats in Elkhorn allotment to spring, summer, and fall. Of the aforementioned species all are associated with either forest habitat or mixed shrub/forest habitat types, both of which are available in Elkhorn Allotment. Species associated with forest habitat include: Hoary bat, Long-eared myotis, Long-legged myotis, Western small-footed myotis, Silver-haired bat, and Yuma myotis (BCI 2015). Species associated with shrubland or forest habitat include: Big brown bat, little brown myotis, Pallid bat, and Townsend's big-eared bat (BCI 2015). Similar attributes common to all species include: insectivorous, roost during periods of inactivity-particularly during the day, active at night, and sensitive to disturbance at roost sites.

Townsend's big-eared bat

The Townsend's big-eared bat relies on shrub-steppe, coniferous forest, and riparian habitat for foraging activities. Townsend's big-eared bats would be expected to occur in Elkhorn Allotment during the spring, summer, and early fall. Females utilize maternity roost during this time, but males are solitary roosters during this season (BCI 2015). Both sexes utilize winter hibernacula during the winter season (BCI 2015). Roosts and winter hibernacula may include caves and mines (BCI 2015). Townsend's big-eared bats are predominately restricted to western North America, but do occur in portions of the mid-west (BCI 2015).

Big brown bat

Big brown bats have a fairly widespread distribution and will occupy a wide variety of habitats including forests, shrublands and anthropogenic features (BCI 2015). Roosting substrate includes trees and anthropogenic features (BCI 2015).

Hoary Bat

Hoary bats have a widespread distribution; occupied habitat is predominately forest habitats (BCI 2015). Hoary bats will migrate a considerable distance in the winter, including portions of South America (BCI 2015). Roosting substrate includes trees (BCI 2015) and caves (Wackenhut and McGraw 1998).

Little Brown Myotis

The little brown myotis is the most common bat species in North America (Wackenhut and McGraw 1998). The little brown myotis inhabits forested habitat, and has a broad range of

distribution (BCI 2015). Roost substrate includes trees, but maternity sites include anthropogenic features (BCI 2015) and caves (Wackenhut and McGraw 1998).

Long-eared Myotis

Range of distribution maps indicates that this bat is predominately restricted to western North America (BCI 2015). The long-eared myotis inhabits forest habitat (Wackenhut and McGraw 1998, BCI 2015). The long-eared myotis roosts in a variety of substrates, including anthropogenic features, caves (Wackenhut and McGraw 1998) and trees (Wackenhut and McGraw 1998, BCI 2015).

Long-legged Myotis

The long-legged myotis is common throughout its range of distribution (Wackenhut and McGraw 1998). Range of distribution maps indicate this species is distributed throughout western North America (BCI 2015). The long-legged myotis predominately inhabits forest habitat; roost substrate includes anthropogenic features (Wackenhut and McGraw 1998), trees, and rock crevices (BCI 2015, Wackenhut and McGraw 1998).

Pallid Bat

Range of distribution maps indicates that Pallid bats are predominately restricted to western North America (BCI 2015). Roost substrate consists of buildings (Herreid 1961, BCI 2015), rock crevices (Lewis 1994, BCI 2015), and bridges (Lewis 1994, BCI 2015).

Silver-haired Bat

Silver-haired bats are common throughout their range and inhabit most of the United States and southern Canada (BCI 2015). Roost substrate consists of trees (Wackenhut and McGraw 1998). Trees are utilized for maternity sites as well (BCI 2015).

Western Small-footed Myotis

The Western Small-footed Myotis has a relatively limited range of distribution, which is predominately restricted to the intermountain region and western periphery of the Dakotas (BCI 2015). Roost substrate includes rock crevices and trees (Wackenhut and McGraw 1998, BCI 2015); maternity sites include rock crevices (BCI 2015). Hibernacula sites have been identified in caves, mines (BCI 2015), and lava tubes (Wackenhut and McGraw 1998).

Yuma Myotis

The Yuma myotis inhabits forest, shrubland, and riparian habitats, and is associated with open water (Wackenhut and McGraw 1998). Range of distribution is predominately restricted to western North America (BCI 2015). Roost substrate consists of mines, caves, and anthropogenic features (BCI 2015). Maternity sites have been documented in trees (BCI 2015).

Migratory Landbirds

Riparian habitat type:

The following are the potentially impacted migratory landbird species associated with mesic montane shrublands and riparian areas.

Red-naped sapsucker

Red-naped sapsuckers inhabit coniferous, mixed coniferous and deciduous forests. There are several incidental observations of Red-naped sapsuckers adjacent to the allotment (IDFG 2014a). Red-naped sapsuckers are a cavity nester. Range distribution maps indicate that red-naped sapsuckers are only present in Idaho during the breeding season (Walters 2014).

Willow flycatcher

Willow flycatchers inhabit riparian shrubland habitats (Sedgwick 2000), particularly where willow composition and cover is greater (Sedgwick and Knopf 1992). Range distribution maps indicate that Willow flycatchers are only present in Idaho during the breeding season (Sedgwick 2000). There are several incidental observations of willow flycatchers adjacent to the allotment (IDFG 2014a). Willow flycatchers predominately forage on insects (Sedgwick 2000). Willow flycatchers construct nests in the canopy of willows (Sedgwick and Knopf 1992).

Williamson's sapsucker

Williamson's sapsuckers predominately inhabit coniferous forests (Dobbs et al. 2012). Range distribution maps indicate that Williamson's sapsuckers are only present in Idaho during the breeding season (Dobbs et al. 2012). There is one incidental observation of a Williamson's sapsucker adjacent to the allotment (IDFG 2014a). Williamson's sapsuckers forage on sap and insects (Dobbs et al. 2012). Williamson's sapsuckers are cavity nesters (Conway and Martin 1993). In a study conducted in mixed conifer forest in Arizona, researchers investigating habitat use of Williamson's sapsuckers identified that sapsuckers preferred nesting in aspen snags (Conway and Martin 1993).

Lewis' woodpecker

Lewis's woodpeckers inhabit deciduous and coniferous woodlands (Vierling et al. 2013). Range distribution maps indicate that Lewis's woodpeckers are only present during the breeding season (Vierling et al. 2013). Lewis's woodpeckers are cavity nesters. Lewis's woodpeckers forage on insects and fruits (Vierling et al. 2013). There are several observations of Lewis's woodpeckers adjacent to the allotment (IDFG 2014a).

Mixed shrub/conifer habitat type:

The following are the potentially impacted Migratory landbird species associated with mixed conifer habitats and/or montane shrublands.

Cassin's finch

Cassin's finches inhabit coniferous forests, including Douglas-fir (Hahn 1996). Elkhorn allotment contains some suitable habitat. There are numerous incidental observations of a Cassin's finch adjacent to Elkhorn Allotment (IDFG 2014a). Range distribution maps indicate Cassin's finches are only present in Idaho during the breeding season (Hahn 1996). Cassin's

finches construct nests high in the canopy of trees (Samson 1976). Cassin's finches predominately forage on buds, berries, and seeds (Hahn 1996).

Brewer's sparrow

Range distribution maps indicate that Brewer's sparrows are only present in Idaho during the breeding season (Rotenberry et al. 1999). The Brewer's sparrow is one of the more common sagebrush associated species in the Shoshone Field office. Brewer's sparrows are known to inhabit a variety of shrub habitats, but are particularly associated with big sagebrush. Elkhorn allotment is on the fringe of suitable habitat. Habitat characteristics on Elkhorn allotment are more indicative of a montane shrubland. Timbered portions of Elkhorn allotment would not provide suitable habitat. Brewer's sparrows may inhabit portions of allotment where sagebrush habitat is present. Incidental observations of this species are documented adjacent to Elkhorn Allotment (IDFG 2014a). Brewer's sparrows construct nest in the canopy of shrubs (Paige and Ritter 1999).

Green-tailed towhee

Green-tailed towhee's inhabit montane shrublands and open forest land (Dobbs et al. 2012). Range Distribution maps indicate that Green-tailed towhee's are only present in Idaho during the breeding season (Dobbs et al. 2012). There are no incidental observations of green-tailed towhees in or adjacent to Elkhorn Allotment (IDFG 2014a). Green-tailed towhee's construct well concealed nests in the canopy of shrubs and trees (Dobbs et al. 2012). Green-tailed towhees predominately forage on seeds and insects (Dobbs et al. 2002).

Black Rosy Finch

Characteristic breeding habitat for this species is high elevation mountainous terrain above the tree-line with sparse vegetation (Johnson 2002). Elkhorn allotment does not host habitat consistent with these components. Black Rosy Finches do migrate in elevation from breeding habitat to winter habitat. Winter habitats can consist of montane shrublands and open desert shrublands (Johnson 2002). Elkhorn allotment does provide for potential winter habitat. There numerous incidental observations of a black rosy finches adjacent to the allotment (IDFG 2014a).

Calliope Hummingbird

Range distribution maps indicated that Calliope humming birds is only present in Idaho during the breeding season (Calder and Calder 1994). There is one incidental observation of a Calliope hummingbird adjacent to the allotment (IDFG 2014a). Calliope hummingbirds inhabit cool montane areas (Calder and Calder 1994). Calliope hummingbirds nest in the canopy of trees (Calder 1971; Calder and Calder 1994), including Douglas-fir (Calder and Calder 1994). Calliope hummingbirds predominately forage on nectar and insects (Calder and Calder 1994).

Flammulated owl

Range distribution maps indicate flammulated owls would only be present in Idaho during the breeding season (Linkhart and McCallum 2013). There are no known nesting territories within Elkhorn Allotment (IDFG 2014a). Flammulated owls inhabit coniferous woodlands (Linkhart and McCallum 2013), including Douglas-fir (Bull and Anderson 1978). Flammulated owls

forage on insects (Linkhart and McCallum 2013). Flammulated owls are cavity nesters (Linkhart and McCallum 2013; Bull and Anderson 1978).

Golden eagle

Golden eagles may be present within the Twin Falls District year-round; however, there is an increase in presence during the winter due to winter transients. Golden eagles are common in some portions of the Twin Falls District, particularly in sagebrush habitats with suitable nesting substrate. Golden eagle breeding habitat consists of desert and montane shrublands, and grasslands (Kochert et al. 2002; Groves et al. 1997). Golden eagles typically construct nests on cliffs and trees (Groves et al. 1997). Golden eagles are known to construct multiple nest sites within a territory (McGahan 1968; Beechman and Kochert 1975). Within the District Golden eagles are most frequently observed nesting on large cliffs and rock outcrops. The golden eagle is protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. There are no known golden eagle breeding territories located within the Elkhorn Allotment. There are several incidental observations of golden eagles adjacent to Elkhorn allotment (IDFG 2014a). Some suitable nesting substrate is present within the allotment.

Golden eagles are known to forage on a variety of prey, including but not limited to: small mammals-particularly lagomorphs, snakes, upland game birds, other migratory birds, big game fawns (McGahan 1968) and carrion (Beechman and Kochert 1975). Golden eagles are sensitive to human disturbance (Pagel et al. 2010). Threats to golden eagles include but are not limited to: illegal shooting, pesticides, lead contamination, powerline collisions/electrocutions, habitat loss/fragmentation, and human disturbance (Kochert et al. 2002).

Northern goshawk

Northern goshawk breeding habitat includes coniferous woodlands (Squires and Reynolds 1997), particularly late-seral coniferous woodlands (Hayward and Escano 1989). Northern goshawks will also inhabit deciduous woodlands (Squires and Reynolds 1997). Northern goshawks forage on a variety of species, including small mammals and passerines (Squires and Reynolds 1997). Range distribution maps indicate that Northern goshawks are present in Idaho year-round (Squires and Reynolds 1997). There are no known nesting territories within Elkhorn Allotment, but there are two observations of Northern goshawks adjacent to the allotment (IDFG 2014a).

Amphibians

Boreal Toad

Range of distribution maps indicate that boreal toads are present throughout Idaho (Keinath and McGee 2005). Boreal toads inhabit a variety of habitats including, shrublands, forest, and riparian/wetland zones; breeding sites are ponds (Keinath and McGee 2005). Riparian/wetland zones also provide for overwinter sites (Campbell 1970). Hibernation may occur from October to May (Cambell 1970). The breeding season is May/June (Fetkavich and Livo 1998) and July (Keinath and McGee 2005). Boreal toads have been experiencing declines range wide due to a variety of impacts; principal causes include disease (e.g.chytrid fungus) and habitat alteration (Keinath and McGee 2005). There is an incidental observation of a boreal toad adjacent to Elkhorn Allotment (IDFG 2014a). This species may occur within the allotment. There are no known suitable breeding sites for this species within the allotment.

Fisheries

Interior Columbia River redband trout, a subspecies of the rainbow trout, is native to most of Idaho and are found in most rivers and streams below Shoshone Falls (Behnke 1992). Redband trout are found throughout the BLM Shoshone Field Office where suitable habitat exists. Redband trout habitats are diverse, ranging from low elevation desert streams to high elevation mountain streams. Like other species of trout, habitat needs include undercut banks, large woody debris, pool habitats with clean spawning gravels, and dense, overhanging, streamside vegetation.

In Idaho, resident populations of redband trout persist at some level in all major areas of historical distribution. Status reviews in Idaho, Oregon, and Montana report declines in redband trout populations (Thurow et al., 1997). Population declines can be attributed to habitat degradation and fragmentation, and non-native fish introductions into redband trout occupied streams. Redband trout are documented in the East Fork of the Wood River upstream and downstream of the South East Fork allotment, an adjacent allotment. Redband trout likely occur in the Elkhorn Gulch within the allotment as habitat is suitable.

The Wood River sculpin is an Idaho endemic species that historically occurred within streams and rivers in the Big Wood River and Little Wood River watersheds. Current distribution is limited to the Big Wood River watershed upstream of Magic Valley Reservoir and Upper Little Wood River watershed. Wood River sculpin are a benthic (bottom-dwelling) species that inhabits flowing waters ranging in size from small streams to medium-sized rivers. Wood River sculpin are often found occupying the same habitats as redband trout which is likely due to similar habitat requirements of clean, cool water and coarse streambed substrates (gravel and larger) which stream dwelling sculpin typically select for spawning and rearing (Meyer et al., 2008). Wood River sculpin have undergone declines in distribution within the historic range of the species. Water quality issues, habitat loss and degradation, and floodplain encroachment are likely factors contributing to the declines of Wood River sculpin.

Wood River sculpin are documented in the Big Wood River upstream and downstream of the Elkhorn Allotment and are likely to occur in Elkhorn Gulch within the allotment as suitable habitat exists. As livestock no longer access the Elkhorn Gulch within the allotment, no impacts will occur to fish or fish habitat along this stream.

3.3.5 Wetlands & Riparian Areas

There are two perennial riparian areas located on public lands in the Elkhorn Allotment; Triumph Gulch and Elkhorn Gulch. There are currently no spring developments or livestock troughs located on public lands in the Elkhorn Allotment. Triumph Gulch is located on the eastern side of the allotment and was rated as a lentic site. Elkhorn Gulch is located in the uppermost northwestern portion of the allotment and is completely inaccessible to livestock due to housing developments surrounding it on three sides as well as a steep, rock wall on the southern side of the stream. Due to these reasons, even though Elkhorn Gulch is a lotic site, it was not rated. A lentic site is typically a still body of water or a concentrated area of hydric soils that are nonmoving. Examples of lentic sites include, but are not limited to, springs, ponds, and lakes. There are other streams in the Elkhorn Allotment but they are intermittent and do not flow all year round or even every year.

Riparian areas can be rated at Proper Functioning Condition, Functioning at Risk with an upward, downward or static trend or Non-Functioning. PFC is the minimum requirement for achieving Standards 2 & 3 and a riparian area does not have to have achieved its potential in order to be functioning properly. The method for assessing PFC is a qualitative science-based process that considers both abiotic and biotic factors as they relate to physical function. The allotment also contains some intermittent springs located on relatively gentle slopes that support riparian vegetation but they have not been rated since they are not perennial streams with a reliable water source.

Triumph Spring

This perennial spring is located in the north eastern portion of the allotment and there is a subsequent stream that has water flowing mostly in late spring and early fall only. This perennial spring runs north to south. Parts of this spring area are under ground and parts are above ground with flowing water but all portions are on either BLM-administered lands or National Forest Lands. The riparian vegetation in the Elkhorn Allotment is dominated by Nebraska sedge, rush, and willows. Kentucky bluegrass is present in most areas and has contributed to streambank destabilization due to shearing from hooves. The dominant woody species present on the site is willow. This gulch bottom is the main trail route for sheep to trail into and off of the private lands located in the center of the allotment. There were other trail routes present in the areas surrounding the allotment but in the past decade they have become directly blocked off due to the housing developments surrounding the Elkhorn Allotment.

Triumph Spring was rated at FAR with no apparent trend in 2009. High utilization levels on Triumph Spring occurred in this allotment once in 2008. At that time the high utilization occurred, suggestions were made to the permittee on how to improve the riparian area and it was agreed that no bedding of sheep would occur in close proximity to Triumph Spring in the future. Since 2008, the permittee has made those changes and the utilization by ocular estimate has been slight to light use with minimal to no hedging of the willows by domestic sheep. Any utilization or hedging shown in the following photos was done by deer and/or elk since the sheep did not enter start using the Elkhorn Allotment until October 9th in 2012 when the photos were taken. Domestic sheep sometimes do trail through in the spring, but they did not trail through this spring.

The spring was again rated in 2012 and found to be at PFC and is currently meeting Standard 2 and Standard 3 of Idaho Standards for Rangeland Health. Most of the streambanks have developed and defined channels and stabilization of the streambanks was occurring. There was however portions present along the stream where improvement to the channels and streambank stabilization could still occur. The recruitment of willow seedlings and other desirable shrubs along the stream bank are increasing and the streambanks have adequate amounts of sedge and rushes in order to dissipate energy during high flow events. Populations of undesirable species such as Kentucky bluegrass will be monitored to ensure that expansion does not occur and that improvement of riparian areas continues.

Triumph Spring and stream system is in close proximity to Triumph Mine. This area also receives moderate recreation use in the form of motorcycles, ATVs, mountain bikes and hiking which occurs directly adjacent to and within the riparian area itself. While the road mostly parallels Triumph Spring, it is located largely at the very edge of the floodplain (at the toe of the slope), and has some influence on the riparian zone of the creek.



Triumph Gulch looking south



Triumph Spring looking north



Triumph Spring looking southeast, showing elk bed grounds

3.3.6 Recreation & Visitor Services

Recreation activities that occur within the Elkhorn Allotment include hiking, hunting, horseback riding, mountain biking, motorcycle and ATV use and driving for pleasure. Recreational use season is year-round however the highest use occurs in the spring, summer and fall. The majority of visitors reside within the Wood River Valley except during hunting season when hunters come from the Magic and Treasure Valleys. Prior to visiting public lands, most recreationists have a destination or route they intend to follow.

The BLM Shoshone Field Office has had an assistance agreement since 2004 with the Idaho Rangeland Resources Commission (IRRC) to address conflicts between recreationists and livestock operations. The principle purpose of this program provides a consistent message for education and awareness of multiple-use issues. Outreach to the public has and is being done using various forms of media including signs, kiosks, billboards, radio and television ads, pamphlets, website, posters, and booths at social events (i.e. county fairs). Information can also be found at: <http://idrange.org/>.

Outreach regarding how to interact with livestock operations is also being done through the Blaine County Recreation District summer trails website, <http://summertrailink.bcrd.org/>. This website includes information similar to the user ethics found at the IRRC site. It also includes when sheep bands are present and approximately how long they will be in the vicinity of popular high-use trails. This information is only available for the Croy Creek Trail network which is approximately 3 miles west of Hailey, ID. Therefore the sheep band and guard dog locations in the Elkhorn Allotment are not known by the public until they encounter them while participating in their recreation activity.

No Wilderness Study Areas exist within the project area. The BLM Wilderness Characteristics Inventory Manual 6310 requires that an area possess a certain size, 5,000 acres or contiguous to other public land that may assist with meeting the size criteria. The allotment does not meet the size criteria; therefore no additional analysis is required.

3.3.7 Social & Economic Values

Blaine County is the seventeenth-largest county in the state and covers 2,643 square miles. This county is also where the current permit holders who own the sheep maintain their base ranches. According to the Idaho Department of Labor, the population in this county has increased from 18,081 in 1997 to 21,329 in 2013. The 2014 data has not been released yet. This is a 10-year increase of 15.2 percent, making Blaine County one of the fastest growing counties in south central Idaho for the last decade. However, the 2013 population in Blaine County was 21,329 which was a slight decrease of .2 percent from the year 2010, compared to a 2.8 percent increase throughout the state of Idaho over that same time period.

The population density is 8.1 people per square mile, and most of the county residents enjoy a largely rural lifestyle. Residents of the Wood River Valley come to the public lands to recreate throughout the week and there is a higher density of users during the later summer through winter for the hunting and skiing seasons. In 2010, the median age in the county was 40.4 years, and close to the median age of 34.6 for the entire state. Almost a quarter of the county residents are under the age of 18 and 14.9 percent of residents are over the age of 65 which is very similar to the entire state (13.8 percent).

Economic profiles

As of December 2014, unemployment in Blaine County was 3.2 percent, compared to 3.7 percent in Idaho and 5.6 percent nationwide in the same year. Incomes are higher in Blaine County than in the rest of Idaho, possibly due to employment primarily in higher-paying sectors like tourism and business. In 2012 dollars, the per capita income for Blaine County was \$33,603, with a median household income of \$60,160; per capita income for the state was \$22,581 and median household income was \$47,015 (U.S. Census Bureau, 2014). Only 8.9 percent of people in Blaine County live below the poverty level, which is a lower rate than Idaho’s poverty rate of 15.1 percent. One of the possible reasons for this is that there is a much higher rate of individuals with a Bachelor's degree or higher (44 percent) than compared to the rest of the state (24.7 percent).

Economic Contribution of Livestock Grazing

The federal government manages 67 percent of the total land in Blaine County and of that; the BLM manages 35 percent of all public land in the county. The other federal agencies which manage these lands include the DOI Bureau of Reclamation, the DOI National Park Service, the DOI National Wildlife Refuge, and the Department of Agriculture Forest Service. The State of Idaho also manages 4 percent of the total land in Blaine County (refer to Table 17). Most of the public land in the county is managed for commodity production (timber harvest, crop and livestock production, and mining). In 2013, livestock cash receipts in the state of Idaho totaled \$1.7 billion, an increase of 7 percent over the previous year (Univ of Idaho Extension, 2013).

Table 17: Blaine County Land Ownership

Ownership	Acres	Percent
Bureau of Land Management	588,861	34.7
Bureau of Reclamation	3,797	0.2
National Park Service	222,431	13.1
National Wildlife Refuge	1,993	0.1
Forest Service	489,068	28.8
State of Idaho	60,190	3.6
Private	330,070	19.5
Total	1,696,410	100

The BLM collects annual grazing fees from the operators based on the number of AUMs the use on an annual basis. An AUM represents the amount of dry forage required to sustain one cow and her calf, one steer, one horse, five sheep, or five goats for one month. The BLM distributes 50 percent of the grazing revenues to range betterment projects, 37.5 percent remains in the U.S. Treasury, and 12.5 percent is returned to the state (43 USC Chapter 8A, 1934). Range betterment projects consist of water developments, seedings, fences, cattleguards, or any other structures that may be built in order to improve management.

According to the 2011 USDA Census of Agriculture, the most recent year the census was taken, (USDA NASS, 2015) 14,600 sheep and lambs were owned in Blaine County that year and in the state of Idaho, 250,00 sheep and lambs were owned that same year, totaling more than \$28.7 million. The sheep and lamb industry is strong in Idaho and currently the state is ranked number seven in the nation for value of sales in sheep and lamb (Idaho Agricultural Statistics, 2015).

The permitted grazing operation is based out of Cassia County but his livestock operation and many of his grazing allotments are within Blaine County, Idaho thus the income from the sales of those livestock goes to the counties in which the livestock operations are based. Livestock operation owners may still do business in Idaho, especially while the animals are actively grazing on the allotments, by purchasing supplies, equipment, and gasoline for vehicles, as well as visiting local establishments for food and entertainment. Indirect and induced economic effects to the regional economy include supply purchases (such as hay, equipment, etc.) and from the labor income expenditures by ranch employees and by employees of suppliers.

Non-market Values of Ranching

Most environmental goods and services (e.g., clean air and water, fish and wildlife habitat, recreational and aesthetic values) are not traded in markets, so it is difficult to place a monetary value on the protection or degradation of natural resources that provide these goods and services. In many cases, a method called hedonic pricing is used. The hedonic pricing method is used to estimate economic values for ecosystem or environmental services that directly affect market prices. It can be used to estimate economic benefits or costs associated with environmental quality including air pollution, water pollution, or noise. It can also be used to estimate environmental amenities such as aesthetic views or proximity to recreational sites. Hedonic pricing examines the amount of money that people would be willing to pay when the characteristics of the service change. For example, the value of the ecosystem services that support recreational activities (e.g., clean air and water that supports habitat for fish and wildlife, which in turn provides hunting, fishing, and wildlife watching opportunities) can be estimated by examining average expenditures for travel, equipment, and supplies for these recreational activities in an area.

Healthy rangeland ecosystems can provide multiple goods and services that can increase the economic, social, and cultural well-being of individuals and communities. To the degree that rangeland resources are degraded, an opportunity exists—through restoration of ecosystem health—to obtain these goods and services at a higher and more productive level. People may spend less time and money on recreational activities in areas where the natural resources have become degraded. However, degraded conditions caused by wildfires and livestock grazing-related activities can reduce wildlife habitat, muddy streams and rivers, and diminish scenic

values, all of which can lead to less recreation and thus less money spent in the county. The Elkhorn Allotment is currently meeting all of the applicable Rangeland Health Standards and it is valued by recreationalists as an important area to spend time. It provides many opportunities for recreation such as ORV use, fishing, hiking, hunting, horseback riding, camping, and wildlife-watching.

Other intangible values associated with ecosystems services include social values of natural resource use – the sense of community cohesiveness and belonging that comes from participating in recreational activities, as well as farming and ranching. Degraded conditions, as mentioned above and in the resource impact analysis sections of this EA, lessen the quality of the land and forage available for growing crops or feeding livestock, which can also have economic impacts on the producers of these goods in the counties adjacent to the Elkhorn Allotment. Ecosystems services also have value beyond providing for the uses discussed in this EA.

3.3.8 Climate Change

Methane emissions from enteric fermentation are the result of normal digestive processes in ruminant and non-ruminant livestock. Microbes in the animal digestive system breakdown food and emit non-energy methane as a by-product. More methane is produced in ruminant livestock than in other animals because of digestive activity in the large fore-stomach to break down grasses and other high-fiber feeds (Idaho Department of Environmental Quality (DEQ), 2008). Livestock manure may also produce Greenhouse Gases (GHGs) such as methane and nitrous oxide. When manure is handled as a solid or deposited on pasture, range, or paddock lands, it tends to decompose aerobically and produce little or no methane, although nitrous oxide emissions may occur (EPA, 2014b). Methane emission rates from cattle vary widely and depend on many variables (Johnson & Johnson, 1995); (DeRamus, Clement, Giampola, & Dickison, 2003). Estimates for grazing cattle typically range from 80 – 101 kilograms of methane per year per animal (EPA, 2009) or 6.7 - 9.2 kilograms of methane per month. These figures were used to calculate approximate emissions from livestock for each alternative.

This analysis assumes a methane emission rate of 8 kilograms of methane per AUM. Assuming methane has a global warming potential 25 times that of carbon dioxide [EPA, 2013], each AUM results in 0.2 t of CO₂e. Overall, changes in rangeland carbon storage as a result of changes in grazing practices are likely to be small and difficult to predict. Therefore, this analysis will assume that changes in grazing practices in the Elkhorn Allotment would not result in a significant change in total carbon storage. Differences in greenhouse gas emissions from livestock by AUMs range between 13 and 66 metric tons per year (Table 18).

Table 18: Greenhouse Gas Emissions from Livestock in the Elkhorn Allotment

Alternative	AUMs/ Year	Metric Tons CO2/ Year	% of Annual Idaho Greenhouse Gas Emissions	% of Annual U.S. Greenhouse Gas Emissions (Livestock)	% of Annual U.S. Greenhouse Gas Emissions	% of Global Greenhouse Gas Emissions
Proposed Action - Change in livestock numbers	332	66	0.00023	0.00003	0.00000097	0.00000015
Alternative 1 – No Action	332	66	0.00023	0.00003	0.00000097	0.00000015
Alternative 2 – No Grazing	99	20	0.000069	0.0000092	0.00000029	0.000000045
Alternative 3- Actual Use	210	42	0.000147368	0.000019718	0.00000062	0.000000096

4.0 ENVIRONMENTAL IMPACTS

4.1 Introduction

This chapter presents the potential environmental impacts that may occur if any of the alternatives were implemented in the Elkhorn Allotment. This section will mirror the issues identified in the ID Team analysis record checklist that can be found in the Elkhorn Standards & Guidelines file and presented in Chapter 1 of this environmental assessment. All known measures have been included in this assessment to limit impacts to other resources and the remaining environmental consequences described below are unavoidable.

4.2 Proposed Action- Issue Grazing Permit with Modified Livestock Numbers

4.2.1 Livestock Grazing & Idaho Standards for Rangeland Health

Under the proposed action, livestock use in the Elkhorn Allotment would reflect what is shown in Table 1. The allowable number of livestock in this allotment would be increased to 2,500 head of sheep in order to allow one band of sheep to graze the allotment while another band of sheep trails through if needed. Under this alternative, only 262,280 pounds of forage would be consumed by domestic sheep annually out of an estimated 2 million pounds of forage available in the Elkhorn Allotment.

Allowing the number of livestock to increase will shorten the season of use in the Elkhorn Allotment. If the permittee chose to have full numbers present in the allotment (2,500 head of sheep) the number of days that he could be in the allotment would be 20 days in order for him not to exceed his 332 AUMs. The permittee typically grazes fewer animals though and his band size fluctuates between 1,000 animals and 1,800 animals with the most common band size being approximately 1,300 head of sheep. If the permittee choose to run 1,000 head of sheep in the Elkhorn Allotment they could stay approximately 50 days, or about 7 weeks. According to the actual use, the permittee is usually in the allotment four to six weeks a year and only uses a portion of the allotment. Under this alternative, if the permittee choose to stay the whole 7

weeks with 1,000 head of sheep, he would have to use the east side of the allotment during one season and the west side during the other season. Instead of half of the allotment being rested from livestock use, that portion that would ordinarily receive rest would instead receive deferred use in the fall since some of the time in the allotment would be in the spring and some would be in the fall.

Grazing sheep in higher stocking densities has the potential to decrease grazing selectivity for palatable forage and increase uniform grazing throughout the landscape. This increase use of the allotment should not deter the Elkhorn Allotment from meeting Rangeland Health Standards in the future because even with these higher numbers, the utilization would still remain at or below 40% on native vegetation. Further discussion on the impacts to vegetation has been discussed in Section 4.2.3.

This alternative would allow the permittee maximum flexibility in livestock numbers but would limit the time he would be able to use the Elkhorn Allotment in the summer months between 7/1 and 8/31. There is an added Term and Condition on the permit that would only allow him to use the Elkhorn Allotment during the hot season one year out of three. The current permittee does not typically use the allotment during this season mainly because he has other grazing permits on the National Forest located north of Ketchum, Idaho and west of Hailey, Idaho. Another reason this is not an important season for him is because there are no range improvement projects located in the Elkhorn Allotment so water is either not available or not reliable outside of the spring or late fall.

4.2.2 Soils & Water Quality

All types of livestock grazing have the potential for minor amounts of soil compaction to occur as well as removal of vegetation in the form of grazing. These potential impacts should not prevent the allotment from meeting Rangeland Health Standard 1 (Watersheds) in the future though because the light to moderate utilization (0% to 40%) in the allotment along with the long-term monitoring in this alternative can help ensure that the Elkhorn Allotment continues meeting Rangeland Health Standards in the future.

The watershed condition in this allotment is adequate for maintaining soil stability and hydrologic cycling. The temporary presence of the sheep (3 to 7 weeks split between early spring use and fall use) currently allows for the soils to recuperate after short duration grazing events. This alternative also has a Term and Condition on the permit in which the permittee has to adhere to range readiness criteria which will not allow grazing use to occur while the soils are saturated and more susceptible to compaction.

No direct measurements have been conducted to determine if a change in soil loss has occurred following the 1981 Sun Valley Grazing EIS but no sign of excessive soil loss has been documented during the field assessment or since. The riparian areas do not have soil loss due to abundance of vegetation and this will be further discussed in the EA. The slopes in the Elkhorn Allotment have the potential to be erodible due to the gravel component, but under the current grazing management the slopes are stable and well vegetated throughout. This is not anticipated because the livestock grazing only occurs seasonally and soil erosion has not been observed to be an adverse consequence during the previous permit tenure. Recognizing this it is expected that

the continuance of livestock grazing in a similar manner would not be expected to contribute to soil erosion.

The prescribed utilization levels would remain at 40% which is an acceptable level in order to retain appropriate ground cover. The amount and distribution of bare ground is one of the most important contributors to site stability relative to the site potential, it is a direct indication of site susceptibility to accelerated wind or water erosion (Smith and Wischmeier 1962, Morgan 1986, Benkobi, et al. 1993, Blackburn and Pierson 1994, Pierson et al. 1994, Gutierrez and Hernandez 1996, Cerda 1999). All four rangeland health sites are below what should be expected for bare ground on the ecological site descriptions. The bare ground data shows that rangeland health sites 1 through 4 have 9%, 12%, 2.5% and 0% bare ground respectively, while the ESDs state the bare ground should be anywhere from 10 to 25%. The most common reason for lack of bare ground is the healthy, diverse shrub communities that provide cover. The current grazing use levels are yielding a healthy, diverse plant community and increasing the utilization by 10% should not deter the Elkhorn Allotment from meeting Standard 1 in the future.

The amount of vegetation removal is expected to increase slightly under the proposed action. Monitoring has shown that livestock utilization typically consists of 30% or less in the Elkhorn Allotment. Removal of vegetation reduces the amount of litter and nutrient cycling in the soil. Due to the prescribed slight to moderate utilization levels (0% to 40%), there is the potential for slight decrease in foliage cover for wildlife but this minor increase in utilization should not alter the composition of the vegetation communities due to the built in deferred rotation between the east side of the allotment and the west side of the allotment. The likelihood of this further decreasing nutrient cycling of minerals and plant nutrients and increasing compaction and erosion is low because under this alternative, the increased grazing use would encompass the whole 2,774 public land acres; not a portion of those acres which is the case under alternative 3, the actual use alternative.

Utilization of herbaceous matter by domestic sheep is not expected to result in adverse consequences for nutrient cycling of minerals and plant nutrients. This is concluded because livestock utilization rates up to 40% are not expected to be great enough to disrupt these processes. Although the proposed action allocates an increase in utilization, it is not expected that this increase would cause more than minor adverse consequences to soil and water quality. This is concluded because 40% utilization is moderate, and is only a slight increase from utilization rates associated with the previous permit. Moreover, evaluations of conditions from the previous permit did not show indications of these potential adverse consequences.

Continued livestock grazing in this allotment and the change in livestock numbers should not affect soil resources on public lands because these additional numbers are actually one band of sheep actively grazing while another band trails through quickly. This alternative offers the permittee flexibility to trail a band of sheep through the allotment while it is in use by another band. Past use has shown trailing sheep only takes about two to five days; thus limiting impacts to soils in the allotment.

Under the management described in the proposed action, the watershed condition in this allotment would remain adequate for maintaining soil stability and hydrologic cycling. The Elkhorn Allotment is currently meeting Standard 7 for Rangeland Health and grazing conforms to guidelines for livestock management. It has also been determined that nutrient, eutrophication and biological indicators are currently meeting the State water quality standard. The watersheds in the allotment are providing the proper infiltration, retention and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow. The data collected for rangeland health shows that the Elkhorn Allotment has adequate litter and standing dead plant material present for protection of the soil as well as for decomposition to replenish soil nutrients relative to site potential. The additional 10% (30% to 40%) utilization should not deter the Elkhorn Allotment from maintaining these Standards in future because not only will the use be spread out over the whole 2,774 acres in the Elkhorn Allotment, but the domestic sheep would only be consuming 262,280 pounds of forage annually out of an estimated 2 million pounds of forage available.

4.2.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants

The Elkhorn Allotment is currently meeting the Rangeland Health Standard 4 (Native Plant Communities) with an average band size of 1,300 sheep so the potential of this altering the native plant communities in the future is low. The additional band of sheep that may be present will only occur if the permittee has the need to trail another band through the allotment. Occasionally, there has been a need for this in the past and the use of the trailing band is typically two to five days.

Most of the grazing use occurs in the fall. Since the current permittee acquired the grazing permit in this allotment in 1998, he has used the allotment in late spring less than six times. This voluntary deferred use in the Elkhorn Allotment has also contributed to the overall health of the perennial vegetation and helped the reproductive capability of the perennial plants.

The Elkhorn Allotment is meeting Standard 4 (Native Plant Communities) with the permittee grazing sheep in large numbers, called bands. The change in the livestock numbers under the proposed action does not have the potential to change the dominant native vegetation in the allotment because these increased numbers actually reflect a typical band of sheep (1,300 head) plus an additional band (1,200 head) that would only use the allotment for about two to five days. In the past, this second band is trailing through the allotment quickly in order to get onto the National Forest lands to the north. The number of livestock allowed in this allotment would be increased to 2,500 head of sheep, at the permittee's request, in order to reflect flexibility in numbers. Allowing the number of livestock to increase will reduce the number of days within the season of use that grazing will be allowed based on the permitted number of sheep. The higher number of sheep for a shorter period of time, and a shorter duration of grazing has the potential to allow regrowth of vegetation for use in winter by big game.

High utilization levels and early season grazing do have the potential to alter the composition of the vegetative community, especially if high use levels occur in several subsequent years. Heavy defoliation reduces root growth, and thus a plant's ability to compete for water and nutrients placing it at considerable disadvantage with neighboring plants. Grazing an actively growing plant above a certain level (about 50%-60% utilization) will immediately curtail root growth because the plant no longer has the leaves to photosynthesize and produce carbohydrates needed to fuel root growth (Hendrickson 2006). The recommended utilization of slight to moderate use levels (21%-40%) will maintain, and may even increase the vigor and rate of establishment of grasses and forbs.

Sheep are herded to areas that have not been used the previous year; thus increasing the likelihood that plants are grazed in a "pass through" method. Since the sheep are actively herded, it increases the likelihood that the single plants will only be grazed once. Studies on native rangeland in the Intermountain West suggest that grazing bluebunch wheatgrass in spring and again in summer on arid rangelands is an unlikely practice because regrowth of the plant tends to be reduced (Sheley et al., 2009). Re-grazing of the same plants in this allotment has been relatively uncommon under the current management because the use on the allotment was attained through only using half of the available acreage. Under this alternative, the likelihood of plants being regrazed twice in a year are still low because the permittee would use one side of the allotment in the spring, and the other side of the allotment in the fall; thus ensuring that the half of the perennial plants receive deferred use every year.

Grazing sheep in higher stocking densities has the potential to decrease grazing selectivity for palatable forage and increase uniform grazing throughout the landscape. Historically this allotment has had bands of sheep graze in a pass through method, this proposed change in the number of livestock should not deter the allotment from maintaining a healthy, viable perennial plant community because the increased number of sheep will be for a short duration (20 days) and is not expected to cause adverse impacts which could lead to a downward trend in rangeland health. If the permittee requests to use the full numbers (2,500 sheep) a Term and Condition has been added to the permit that limits the days to a total of 20 days. The populations of perennial grasses and forbs have the potential to maintain their present populations due to the slight to moderate livestock utilization that is expected to occur even with the slight increase in grazing use. The Elkhorn Allotment currently has healthy, viable populations of native vegetation so the potential of the selection of the proposed action altering the native plant communities in the future is low.

The actual use in the Elkhorn Allotment has been at or below 210 AUMs since the late 1990s but only half of the allotment was utilized per grazing season. This increased use of about 120 AUMs (Total of 332 AUMs) under this alternative does not have the potential to impede the allotment from meeting Rangeland Health standards in the future because this use will not be concentrated on one side of the allotment or the other. Under this alternative, the whole 2,774 public land acres would potentially be utilized, increasing the consumption of forage from 165,900 lbs. /acre to 262,280 lbs. /acre out of 2 million lbs. available annually in the Elkhorn Allotment. A study by Clark in 2000 showed that when bluebunch wheatgrass received 38.9% utilization, the number of standing reproductive culms per bluebunch wheatgrass plant were not affected by grazing [compared to bluebunch wheatgrass that received no grazing] (Clark, 2000).

This study is pertinent to the development of this alternative because under this alternative, there should not be reduced reproductive capability of perennial plants. Adequate seed production is essential to maintain populations of plants when sexual reproduction is the primary mechanism of individual replacement at a site. All four of the Rangeland Health sites were rated as either none to slight or slight to moderate for Indicator #17, Reproductive Capability of Perennial Plants.

Range readiness criteria are a Term and Condition on the grazing permit. Most of the native grasses in the allotment would have more than 4-6 inches of new growth prior to turn out. Livestock would not be permitted to graze if the early season growth on the native vegetation is not adequate or if the soils are still saturated due to snow melt or spring rains.

Under this alternative, the sheep bands would typically select grasses in the early summer, forbs during the summer and into early fall and shrubs and dormant grasses during the fall. Season long grazing would not occur and native vegetation would not be continually grazed throughout its reproductive cycle. The number of days that the sheep could be present in the allotment has been capped at 50 days and is a Term and Condition on the grazing permit. Over time, this has the potential to maintain the present plant community composition with desirable, palatable vegetative species because the reproductive capability of the different vegetation types would not be compromised. Under this alternative, capping the grazing use at 50 days with the increase of 122 AUMs is not expected to have negative impacts to vegetation due to the amount of available forage present in the Elkhorn Allotment. As a result, this grazing treatment is likely to maintain or improve the long term trend in rangeland health and may directly affect if the Elkhorn Allotment is meeting Standard 4 (Native Plant Communities) of Rangeland Health in the future.

Under the proposed action, the increased grazing use is not expected to alter or change the existing vegetation because the existing condition and vegetation production are adequate to receive this level of utilization without adversely impacting conditions of the native plant communities. As a result, the overstory vegetation would continue to be dominated by mountain big sagebrush and the understory vegetation would continue to be dominated by native perennial grasses and forbs.

The populations of perennial grasses and forbs have the potential to maintain or increase their present populations due to the proposed slight to moderate utilization by livestock and dormant season use in the fall. Utilization of key species of native grasses, such as bluebunch wheatgrass and Idaho fescue, are able to recover more quickly when grazing does not exceed 40% or while they are dormant. The Elkhorn Allotment currently supports a healthy, productive and diverse native plant community and the native vegetation is being maintained to standards consistent with the NRCS ecological site descriptions. The utilization would increase under this alternative from 30% to 40% which should not deter the native vegetation from supporting a healthy, productive and diverse native plant community in the future.

Bug-leg goldenweed, a BLM Sensitive Species has not been found in the Elkhorn Allotment but due to the presence of many associated vegetative species the probability of this sensitive plant occurring in the allotment is high. Shallow disturbances such as scraping may be tolerated but deep disturbance (excavation for pipelines, cable burial, mining, right-of-way maintenance, trail or road construction, etc.) could be detrimental to populations. No projects are planned within the Elkhorn Allotment boundary at this time but in the last 120 years, large scale mining operations have occurred in the allotment; and more specifically Triumph Gulch. Other threats include competition with exotic species and sod-forming grasses. This species tolerates livestock grazing and the potential of the species decreasing under the proposed action is minimal.

All types of livestock grazing have the potential for minor amounts of soil compaction to occur as well as removal of vegetation in the form of grazing. These potential impacts should not deter the allotment from meeting Rangeland Health in the future though because the slight to moderate livestock utilization along with the long-term and short-term monitoring in this alternative can help ensure that the allotment continues meeting Rangeland Health in the future.

During the field assessment small, isolated populations of cheatgrass and spotted knapweed were identified within the allotment boundary. These two invasive species are prevalent in the Wood River Valley and are most common along roadsides in Triumph Gulch, in areas that have previously burned or in areas disturbed by historic mining activities. The current populations of native vegetation in the Elkhorn Allotment are healthy and productive which are expected to limit the spread of invasive species. The proposed action is not expected to alter the vegetative health of the system or its ability for weeds to spread.

4.2.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species

Fisheries

Under the proposed action, no impacts will occur to redband trout or Wood River sculpin in Elkhorn Gulch. Livestock access to the Elkhorn Gulch and associated riparian area in the allotment is extremely difficult due to steep, rocky terrain. This area has not been utilized by livestock in recent history and will mostly likely not be used in the future due to the terrain and permittees wish to avoid recreation activities along the bike path on Elkhorn Road. Triumph Gulch within the allotment is currently rated at PFC and is meeting Rangeland Health Standards 2 and 3 but there is no connectivity to fisheries or to the Big Wood River. Under the proposed action, Triumph Gulch will remain at PFC and continue to meet standards 2 and 3 because even though this alternative proposes to increase utilization, the riparian areas are not expected to have increased use due to the season of use restrictions.

Redband trout and Wood River sculpin have not been documented in Elkhorn Gulch within the Elkhorn allotment, but are documented in a neighboring stream to the east, Cove Creek, and downstream in the East Fork of the Wood River which means that the likelihood of these two sensitive fish species occurring in Elkhorn Gulch is high. Both of these water sources are outside of the Elkhorn Allotment boundary.

Greater Sage-grouse

Domestic livestock grazing removes a portion of the herbaceous vegetation, such as forbs, grasses, and leader growth of shrubs. Utilization has the ability to alter the composition of the plant community. Under the proposed action, impacts to BLM sensitive species, including sage-grouse, could occur. Herbaceous cover is important to minimize exposure of nests to predators (Beck and Mitchell 2000). Removing a portion of the herbaceous matter could increase the exposure of nesting hens to predators. Grazing in the early season would be expected to result in increased utilization of native forbs and grasses, which is important for pre-laying hens, nesting, and early brood rearing. Under this alternative, sheep would be present for less time, but at greater numbers. Increasing the density of sheep could increase the risk of nest disturbance and trampling if grazing occurs during the sage-grouse nesting season (March 15- June 15).

Domestic sheep move through an allotment in a large group (i.e. herded). This characteristic results in animals being concentrated, which is expected to increase the risk that nests could be disturbed or trampled. However, this impact is only expected to be minor because Greater sage-grouse are only expected to nest in the allotment infrequently. This is concluded because certain habitat characteristics are expected to limit suitability for sage-grouse, including trees and steepness of slope. Moreover, the nearest occupied lek sites are approximately 10 and 15 miles from Elkhorn Allotment. The combination of these factors is expected to reduce the density and frequency of nesting in the allotment. Domestic sheep grazing in the fall would avoid impacts to the nesting season. Domestic sheep grazing in the fall may result in incidental flushing of sage-grouse. Greater sage-grouse are expected to be more resilient to disturbance in the fall because it is not a sensitive season, and juveniles are less susceptible to predation. The livestock permittee has predominately used the allotment in the fall.

Gray Wolf

Livestock grazing under the proposed action is not expected to measurably alter gray wolf use of the allotment. Depredation of domestic sheep by wolves may result in lethal control of wolves. Wolf attacks on cattle were observed during the spring of 2011 in the Cove and Flat Top Allotments. These allotments are approximately ten miles southeast of Elkhorn Allotment. The wolf pack which occupied the Elkhorn Allotment and surrounding areas was terminated by IDFG and Wildlife Services on private lands within the Flat Top Allotment in 2011. At present, wolves could occupy Elkhorn Allotment during any season of the year while searching for prey. Wolves have been known to occur in the vicinity of the allotment, and are expected to continue to inhabit portions of Elkhorn allotment and the surrounding landscape in the future.

Amphibians

As cited by Keinath and McGee (2005) livestock can cause mortality of boreal toads at breeding sites due to trampling and habitat degradation (Bartlet 1998, 2000). Livestock may also indirectly impact boreal toads by reducing hiding cover and increasing vulnerability to predators (Keinath and McGee 2005). High levels of fecal coliforms may adversely impact amphibians by altering microhabitat conditions (Pilliod and Wind 2008). Limiting use during the hot season (7/1-8/31, 2 out of 3 years) would reduce impacts to riparian areas by reducing the likelihood that livestock would congregate in riparian areas. Livestock are known to spend more time in and around riparian areas during the hot season. Prohibiting the bedding of sheep within 500 feet of Triumph Spring and the associated drainage would also help minimize potential adverse consequences to amphibians by limiting the utilization of preferred habitats. If occupied breeding

sites occur on the allotment boreal toads may be exposed to direct impacts from livestock grazing, should livestock grazing occur during the breeding season (e.g. May and June). The permittee has used the allotment predominately in the fall. Livestock grazing during the fall would reduce the risk of trampling and degradation of breeding habitat. Under the proposed action livestock can be present on the allotment during the breeding season. However, the aforementioned design features are expected to minimize the impacts of livestock grazing during the hot season. Perennial water sources in the Elkhorn Allotment are meeting Standards for Rangeland Health, and there are no known occurrences of livestock trampling or over-utilizing riparian vegetation within the last two decades. The proposed action is expected to result in a continuation of this and minimize potential adverse impacts to boreal toads.

Migratory Landbirds

Similar to impacts described under the sage-grouse sub-heading, livestock grazing which occurs in the breeding season has the potential to result in a reduction in cover and nest disturbance or nest trampling. Under the proposed action domestic sheep grazing would occur for a short period of time at greater numbers. Increasing the stocking density of livestock during the breeding season (March 1 to July 31) could increase the risk of impacts to active nest sites. The breeding season for migratory landbirds is broader than Greater sage-grouse due to the diversity in species, and the variation in nesting chronologies amongst these species. Livestock grazing during the nesting season may result in livestock incidentally trampling or disturbing active bird nests while foraging or traveling through the allotment. The potential for livestock to impact nests can increase with increased livestock stocking rates (Jensen et al. 1990). Most empirical evidence documenting nest trampling is associated with grazing regimes characterized by: short duration grazing, small pasture sizes, and high stocking density (Jensen et al. 1990). The proposed action alternative for Elkhorn Allotment is characterized by: no pastures, low stocking density (i.e. animals per hectare), and a longer grazing schedule. Although the animals per hectare on Elkhorn Allotment are not high, domestic sheep grazing is typically concentrated. Domestic sheep are gregarious, and are herded by dogs and herders. Consequently domestic sheep distribution through an allotment can be more concentrated even though stocking density (animals per hectare) is not high. The stocking density of sheep in Elkhorn allotment under the proposed action is the following: 0.45 animals/hectare at 1000 sheep to 1.13 sheep per hectare at 2500 sheep.

Most of the research analyzing nest trampling focuses on ground nesting birds. None of the potentially impacted species within Elkhorn Allotment nest on the ground; these species are shrub nesters or tree nesters (e.g. canopy and cavities). Tree nesting species are not expected to be impacted by livestock grazing because their nests are located outside of the grazing footprint. Shrub nesting species may be impacted, but impacts are expected to be minimized because shrub nesting species build well concealed nests in the canopy of shrubs. Also some occupied shrubs are expected to be outside the grazing height and travel footprint of domestic sheep, and would not reasonably be disturbed. Shrubs are also expected to represent an obstruction to travel. Most travel is expected to occur in the interspaces of shrubs. In addition to stocking density, livestock exposure is also expected to influence the threat of nest trampling. For the purpose of this analysis, livestock exposure is defined as days spent occupying the allotment during the breeding bird season. It is expected that increased exposure would increase the risk of nest trampling. This is concluded because hoof strikes and distance traveled by livestock would increase the longer

livestock are present within an allotment. However, increased exposure is expected to represent less of a risk for nest disturbance and trampling compared to increased stocking densities. This is concluded based on the aforementioned characteristics of nest placement in shrubs and the exposure of nests relative to travel obstructions. Design features which limit use during the hot season would reduce impacts to migratory landbirds associated with riparian habitats. A portion of the hot season overlaps with the breeding bird season. Prohibiting the bedding of sheep within 500 feet of Triumph Spring and the associated drainage would also help minimize potential adverse consequences to migratory landbirds by limiting the utilization of preferred habitats.

Livestock utilization of herbaceous matter would remove a percentage of the available cover. Cover is important for nest concealment and foraging habitat. A reduction in cover could increase the exposure of nests to predators and could alter the foraging by influencing microhabitat characteristics. This impact is expected to be minimal because livestock would only remove a portion of available herbaceous matter and domestic sheep are expected to primarily forage on graminoids. Domestic sheep have been documented to predominately graze graminoids, particularly during the spring and summer (Alexander et al. 1983, Beck and Peek 2005). Such that the potentially impacted species construct nests in the canopy of shrubs or trees, potential negative consequences are expected to be reduced. This is concluded because defoliation of shrubs would be less likely. Utilization of shrubs can occur during any season, but it is expected to be greatest in the fall after succulent forbs have senesced and full leader growth is available. Livestock utilization of shrubs in the fall would not directly impact nesting birds because it is outside the nesting season. Livestock utilization could result in the alteration of vegetative communities. The alteration of vegetative communities could adversely impact migratory landbirds by limiting suitable breeding habitat and foraging characteristics. However, the alteration of the vegetation community from the proposed action is not expected because there is no indication that current grazing practices have resulted in a negative trend.

Impacts on migratory landbirds from nest trampling/disturbance is expected to be minimized and not result in more than minor adverse impacts. This is concluded because: (1) avian species would not be expected to nest at great densities within the Allotment; (2) only a portion of the potentially impacted species are shrub nesters, and none are ground nester; (3) the potentially impacted shrub nesting species typically construct well concealed nests in the canopy of shrubs; (4) some of the shrubs utilized for nesting would be outside the grazing height and travel footprint of domestic sheep; (5) livestock would take the path of least resistance, which is expected to be interspaces of shrubs; (6) The alteration of vegetative communities is not anticipated.

Bats

Livestock grazing may impact bats by altering foraging habitat. The removal of herbaceous matter has the potential to influence the presence of insects. The proposed grazing strategy would result in the removal of a portion of the herbaceous matter. Limitations on forage consumption and limiting the presence of livestock in riparian areas is expected to maintain positive foraging conditions for bats. The alteration of vegetative communities from the proposed action is not expected because there is no indication that current grazing practices have resulted in a negative trend. Impacts to roost sites and potential winter hibernacula are not

expected. This is concluded because these sites occur in substrate that is outside the grazing footprint. Seasonal livestock grazing is only expected to result in minor adverse impacts to bats.

Big Game

Mule deer and elk utilize the Elkhorn Allotment primarily during the spring, fall, and winter. Studies have shown that carefully-managed, late-spring grazing by livestock can improve the forage quality of bluebunch wheatgrass and Idaho fescue on big game winter range (Clark et al. 2000). These species would likely exhibit social avoidance of sheep bands, particularly during mule deer fawning and elk calving. However, livestock would only be present on the allotment for a limited time. The permittee has traditionally used the allotment in the fall. Livestock grazing in the fall would avoid social impacts to big game during sensitive timeframes (e.g. spring and winter). Big game abundance within Elkhorn Allotment is greatest during the winter.

In a study conducted in Northeastern Nevada, researchers assessing the summer forage competition amongst big game (deer and elk) and livestock (domestic sheep and cattle) in aspen/sagebrush habitat identified that domestic sheep predominately foraged on graminoids, forbs were used to a lesser extent, and browse comprised little of their diet (Beck and Peek 2005). Beck and Peek (2005) also reported: a high consumption of forbs by deer and elk during the summer. Elk utilized high amounts of graminoids, whereas deer did not. Mule deer use of browse was second to forbs, and graminoids were not a substantial portion of summer mule deer diet (Beck and Peek 2005). In another study in Southwestern Montana, researchers studying the summer diet of domestic sheep in sagebrush/grass habitat also reported that domestic sheep predominately foraged on graminoids, and marginal use of forbs and browse was reported (Alexander et al. 1983).

Competition for forage resources amongst domestic sheep and elk could occur. Research would suggest that domestic sheep would predominately forage on graminoids. Utilization during the spring and summer would be expected to result in greater utilization of graminoids and forbs. Grazing in late summer and fall would be expected to increase utilization of browse, because more leader growth would be available and succulent forbs would have senesced. Consequently, this would increase competition for shrubs. Shrubs (i.e. leader growth) are important forage for wintering big-game. Utilization of shrubs by big game would increase in the winter because shrubs are comprised of key nutrients (e.g. protein). Also during this time forbs have senesced and grass is dormant. Grass availability would also be reduced during times of snow accumulation. Domestic sheep use of leader growth in the fall removes that forage (% consumed) from being available to big game. Leader growth lost in the fall cannot be replaced until the subsequent growing season. Forage competition is only expected to be minor because, domestic sheep would only remove a portion of the available herbaceous material, and although utilization of shrubs by sheep may increase in the fall, it is expected that graminoids would still comprise the majority of their diet. These characteristics are expected to reduce the loss of valuable browse.

Bighorn Sheep

The Pioneer PMU, which is located about 10 air miles from the Elkhorn Allotment, does not currently contain a source population of bighorn sheep and IDFG is not managing for a source population of bighorn sheep. Contact with bighorn sheep could occur in the Elkhorn Allotment until mid-November while domestic sheep are present. There are observations of bighorn sheep in close proximity to Elkhorn Allotment. The date of these observations also overlaps the grazing season of the proposed action. These observations substantiate that there is potential for interaction between domestic sheep and bighorn sheep. The risk of interaction is expected to be greater during the rut. During the rut in November and December, bighorn rams increase the frequency and distance of exploratory forays from the source population home range, so the likelihood of encountering domestic sheep is higher compared to the rest of the year (USDA 2010). The proposed action would allow domestic sheep to graze on Elkhorn allotment from 05//15 to 11/20, but would be restricted to no more than 50 days of use or 332 AUMs. The presence of domestic sheep on the allotment during the rut may increase the risk of disease transmission to bighorn sheep. This is concluded because male bighorn sheep travel further distances and more frequently during the rut (USDA 2010), and observation of bighorn sheep observed within the Pioneer PMU are typically males (IDFG 2010).

Design features and best management practices have been adopted to minimize the potential for interaction between domestic sheep and bighorn sheep, and minimize adverse consequences if interactions were to occur. Design feature # 4 on page 10 of this EA under the Proposed Action subheading states that: “The actual season of use, in any year, may be shorter than the permitted season of use when any of the following conditions apply: ... bighorn sheep are observed where contact with domestic sheep could occur.” In addition to this a separation response plan has been developed between the BLM and the grazing permittee.

In addition to the aforementioned design features, the lack of a permanent bighorn sheep presence and distance from a source population of bighorn sheep are expected to minimize the risk of interaction between domestic sheep and bighorn sheep. This is concluded because Elkhorn allotment is located 26.7 miles from a source population of bighorn sheep. Due to the extensive distance from a source population of bighorn sheep, a risk of contact calculation was not considered feasible because it was outside the spatial parameters of available models. The distance from a source population of bighorn sheep is expected to appreciably reduce the risk of contact.

4.2.5 Wetlands & Riparian Areas

The Elkhorn Allotment is currently meeting the Rangeland Health Standard 2 (Riparian Areas & Wetlands) and Standard 3 (Stream Channel & Floodplain). Triumph Gulch is experiencing an upward trend in overall riparian health and it is at Proper Functioning Condition. The proposed action is expected to continue improvement of this perennial water source as a result of the limited authorized use. Under the proposed action, no bedding of sheep will be permitted within 500 feet of the drainage in order for the creek to continue making progress in meeting Idaho Standards for Rangeland Health. A Term and Condition has also been included on the permit that states that hot season use (7/1 to 8/31) would only be authorized one year out of three in order to reduce use to riparian areas and enable the allotment to continue meeting land health standards.

By having the sheep bands continue to graze the Elkhorn Allotment for short a short duration either during the spring and or in the fall; the riparian areas have the ability to recover from grazing more quickly. Sheep, unlike cattle, are actively herded within the allotment; thus decreasing the likelihood of livestock loitering in the riparian zone. What livestock operators do to encourage livestock to not loiter in the riparian zone while they are in a pasture is more important than either season of use or length of time in the pasture per se (USDI 1997).

High utilization levels and early season grazing do have the potential to alter the composition of the vegetative communities in riparian areas, especially if high use levels occur in several subsequent years. Subsequent years of high utilization levels have the potential to reduce vigor and reproductive capability of vegetation, thus leading to an increase in aggressive, undesirable species. These high use levels have only occurred once in this allotment in the past 15 years when previously, sheep were permitted to bed down in close proximity to Triumph Gulch. This has since changed through modification of the sheep bed grounds in 2008. This activity has ceased and the high use levels observed in 2008 have not occurred since. A continuation of slight to moderate utilization has the potential to promote healthy populations of desirable vegetation needed to sustain wetland characteristics. By allowing short duration livestock use periods, the riparian vegetation could receive deferred rest throughout the grazing season because the livestock would come and go for short periods of time.

Most of the grazing use occurs in the fall. Since the current permittee acquired the grazing permit in this allotment in 1998, he has used the allotment in late spring less than six times. This deferred use in the Elkhorn Allotment has also contributed to the overall health of the perennial vegetation and helped the reproductive capability of the perennial plants.

Under the proposed action, the potential to improve the riparian vegetation over time in and around Triumph Gulch would likely increase because the riparian areas will have deferred use every other year. The grazing use in the fall has the potential to improve the riparian area as a whole because most plants have completed their growth cycle and grazing would not adversely affect plant development; soils are drier which reduces the probability of compaction and bank trampling; and generally there is less impact on wildlife habitat (USDI BLM, 1997).

Another advantage to dormant season use is that for many herbaceous species seed set has already occurred, and defoliation will have less impact than during earlier development stages. There is a possibility that the browsing of woody vegetation by domestic sheep during the late fall would remain the same or increase slightly under this alternative since sheep dietary needs change during that time. During the late fall, there is also reduced palatability and nutrition of the dormant forbs and grasses which is another reason that sheep select wood browse. Under this alternative, some browsing of the shrubs by domestic sheep are anticipated but not expected to exceed acceptable limits.

Under the proposed action, the overstory vegetation would continue to be dominated by willows and the understory vegetation would continue to be dominated by sedges, rushes and riparian obligate forbs. Kentucky bluegrass will still be present in the riparian areas under this alternative but should not expand or increase due to slight to moderate livestock utilization. Over the last decade, livestock have attained slight to moderate utilization limits and under this alternative,

there is a high probability that this will sustain healthy, viable populations of vegetation in and around the spring. The physical changes to Triumph Gulch will continue or increase under this alternative as well due to the reduced grazing use during the hot season (7/1 to 8/31). These physical changes include reduced erosion, increased sediment filtering, improved water retention and improved channelization. The populations of perennial sedges and rushes have the potential and the spring will be more able to reach its potential. Potential is defined as the highest ecological status a riparian-wetland area can attain given no political, social, or economical constraint, and is often referred to as the potential natural community or PNC (USDI TR 1737-15 1998).

4.2.6 Recreation & Visitor Services

Most if not all issues associated with livestock operations and recreationists are specifically related to the guard dog's livestock operator's use as a non-lethal means to protect sheep from predators. There have been no formal complaints to the BLM Shoshone Field Office regarding these conflicts however it is a constant topic of discussion during informal discussions with recreationists.

The increased sheep numbers under this alternative should not deter recreational opportunities from occurring because the change is only a second band of sheep trailing through the allotment for duration of two to five days. Most of the recreational use occurs along roadways and the sheep use mostly occurs on the hills and ridge tops where people are a less frequent occurrence.

Potential Impacts to recreationists from the presence of guard dogs include displacement and visitor health and safety. This is the existing condition currently happening in the Elkhorn Allotment; and more specifically, Triumph Gulch. Most recreationists have a destination or a specific route they intend to follow. If they are aware that sheep bands and guard dogs may be present they may select another location to recreate however the majority of sheep band guard dog locations are not known by the public until they encounter them while participating in their recreation activity.

When the interactions occur the recreationist tend to turn around and choose another location or route to recreate or pass through or by the band of sheep. This can be a visitor health and safety issue depending on several related factors. Those factors include the type of activity or transportation mode the recreationist is using, knowledge and experience of how to interact with sheep band guard dogs, temperament of individual guard dogs and if the sheep herder is present and has the ability to control the guard dogs. Most negative interactions seem to be associated with mountain bikes however all forms of non-motorized recreation activities and motorized activities where the individual is not enclosed in a vehicle seem to be more susceptible to negative interactions. These interactions include being intimidated, chased and/or bitten by a dog. These negative interactions have various degrees of impact on the visitor's experience.

The current permittee has had to manage how his guard dogs interact with recreationalists in neighboring allotments west of Bellevue, Idaho. In the past, individual guard dogs that have shown aggression towards people on mountain bikes have been removed from the band of sheep and placed on his home ranch. The BLM Shoshone Field Office has been working with the

Idaho Rangeland Resource Commission and the Blaine County Recreation District to address these issues through information and education.

The presence of sheep bands during the fall may also displace deer and elk. During the hunting season, an indirect effect may occur from displacement of big game which could decrease a hunter's ability to be successful in this particular area.

4.2.7 Social & Economic Values

At the current rate of \$1.69 per AUM, the Elkhorn Allotment can generate \$561.08 per year from active-use AUMs (based on the current number of AUMs authorized in the proposed action and alternative 1). Even though this is a small amount, the Elkhorn Allotment is one of many grazing allotments that are used as a route to and from other neighboring grazing allotments in the general vicinity by the permittee. The Elkhorn Allotment is of importance for Denis Kowitz since he has a band of sheep in it for four to six weeks every year.

Under the proposed action, there are not any anticipated negative social or economic impacts to the permittee in the Elkhorn Allotment and, in fact, this alternative is the most beneficial to the permittee in this regard since it allows him the most flexibility. This allotment is currently meeting all of the applicable Rangeland Health Standards and no adverse changes to the grazing permit are needed at this time. The only changes to the grazing permit that are being analyzed under this alternative have been requested by the livestock permittee and should benefit the livestock operation overall. These changes to the terms and conditions of the grazing permit under this alternative have been analyzed are not expected to cause the Elkhorn Allotment to not meet Idaho Standards for Rangeland Health in the future.

4.2.8 Climate Change

Land uses and/or land management activities that increase the ability of vegetation and soil to sequester carbon can help mitigate the effects of climate change. Such activities include improving/restoring riparian and wetland areas, improving age class diversity, health, and resiliency of forests, mitigating the size and intensity of wildfires, and maintaining/improving livestock grazing management.

Livestock grazing can affect rangeland carbon levels, through changes in plant community and changes in ecosystem processes, but the effects have been variable and inconsistent among the ecosystems studied [Schuman, Ingram, Stahl, Derner, Vance, & Morgan, 2009]. Some studies have found that grazing can result in increased carbon storage compared to no grazing, because of increased plant turnover and changes in plant species composition [Follett, Kimble, & Lal, 2001]. Many changes in rangeland carbon from different grazing practices do not result in substantial changes in total ecosystem carbon, but are redistributions of carbon, for example, from above-ground vegetation to root biomass [Derner & Schuman, 2007].

Continuing to permit 332 AUMs for grazing use under the proposed action would result in methane emissions of 66 t of CO₂e per year (Table 18). Activities in Idaho accounted for 28.5 million metric tons (Mt) of CO₂e emissions in 2011; U.S. emissions of GHGs from livestock totaled approximately 213 Mt of CO₂e [EPA, 2014a]; U.S. emissions of all GHGs totaled 6.8

billion metric tons (Bt) of CO₂e [EPA, 2014a]; global emissions of all GHGs totaled 43.8 Bt of CO₂e [World Resources Institute, 2014]. Emissions under this alternative would represent 0.00023% of Idaho's annual GHG emissions, 0.00003% of the annual U.S. GHG emissions from livestock, 0.00000097% of the annual U.S. emissions of all GHGs, and 0.00000015% of the global emissions of all GHGs. There would be a negligible impact to climate change.

4.3. Alternative 1 - No Action (Permitted Use)

4.3.1 Livestock Grazing & Idaho Standards for Rangeland Health

The no action alternative will reflect what is shown in Table 2. Under this alternative, only 262,280 pounds of forage would be consumed by domestic sheep annually out of an estimated 2 million pounds of forage available in the Elkhorn Allotment. This permit would not incorporate a change in the number of livestock and would be capped at 266 head of sheep. What this means for the sheep operator is that this small band of sheep would be present in the allotment from May 15th until November 20th every year.

The topography in the Elkhorn Allotment is steep, and there are a limited number of ways to access the available water. The allotment is basically two canyons on either side of a wide basin that consists of privately owned land and State lands. The same paths would need to be used continually for six months by the sheep in order to water daily. Due to these reasons, this alternative would be the most challenging for the Elkhorn Allotment to remain meeting Idaho Standards of Rangeland Health in the future.

Since the permittee acquired the allotment in 1998, the actual use has mostly been slight to light (0% to 30% utilization) but under the no action alternative, utilization levels are expected to be reached more quickly because the sheep, even in fewer numbers, will be utilizing the riparian areas and uplands for a longer period of time, including through the hot season of July 1st to August 31st every year. There would be no deferred use as with the proposed action and no combination of deferred use with rested use as with alternative 3. Re-grazing individual plants throughout the season and potentially inhibiting regrowth of vegetation would occur on an annual basis. There would also be a disproportionate amount of utilization levels along the paths most traveled which would lead to the sheep having to leave the allotment sooner once the use in those areas exceeds 40%. If high utilization levels of vegetation were to occur, they are most likely to alter the composition of the vegetative community, especially if these high use levels occurred in several subsequent years.

This alternative would be the most labor intensive from a livestock grazing standpoint because it would need weekly to biweekly monitoring by the livestock permittee and by the BLM in order to ensure that the utilization standards are not being exceeded.

4.3.2 Soils & Water Quality

Under the no action alternative, the presence of 266 head of sheep present in the Elkhorn Allotment for 190 days has the potential for unacceptable levels of soil erosion to occur. The sheep would be present in the allotment for a much longer time than under any other alternative. The probability of the sheep continually traveling over the same areas, creating more livestock trails, and increasing erosion, soil loss or compaction is high. Livestock, especially sheep, are habitual animals and tend to use the same path repeatedly during the course of grazing.

Even though sheep are habitually herded by dogs and herders, sheep still have a tendency to habitually use some portions of the allotment more than other portions, thus trampling and grazing those well-traveled areas. This is especially true since the same routes are used to access watering areas since the steep, rocky topography limits the available routes in the Elkhorn Allotment.

Under this alternative, the season long presence of livestock may inhibit the vegetation's ability to produce adequate litter and standing dead plant material needed to protect the soil because there will be areas of the allotment that will receive more livestock use than others. This could lead to the soil being compacted in those well-traveled areas as well as decreasing the ability for litter to accumulate. A reduction in litter decomposition could occur which would affect the quantity of the soil nutrients relative to site potential. The Elkhorn Allotment may not meet Standard 1 in the future and the likelihood of the watershed in the allotment not being able to provide for the proper infiltration, retention and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow is high.

A smaller number of sheep would be present in the allotment from May until November frequenting areas more than once which could further increase compaction of the soils. The Elkhorn Allotment has never been grazed by less than 300 head of sheep for the full grazing season. All types of livestock grazing have the potential for minor amounts of soil compaction to occur as well as removal of vegetation in the form of grazing but under this alternative, accelerated erosion may occur due to the increase in livestock trails and terracettes on the steep slopes.

4.3.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants

The rangelands where the Elkhorn Allotment is located have been utilized by livestock for decades due to the rolling topography and accessibility to livestock. The allotment is typically used either in the spring or fall or both since this route is one of the quicker and easier trailing routes to get from BLM lands to US Forest Service Lands. This unlikely to change in the future. With the historical livestock use throughout this allotment, the native plant communities are still intact and the appropriate plant species are present and adequate according to the NRCS site guide description for the allotment.

Under the no action alternative, the sheep numbers would be capped at 266 head, with the result being that sheep would likely be in the allotment from May 15th through November 20th. There would be updates made to the terms and conditions of the permit and the grazing permit would resemble what is shown in Table 2. The vegetation in highly traveled areas may not continue to

be dominated by mountain big sagebrush, native perennial grasses and forbs in the future because the plants have a higher probability of becoming stressed from continual, season long grazing. The livestock would most likely graze the same plants repeatedly throughout the grazing season and minimal regrowth of native vegetation would occur. The potential increase in soil compaction under the no action alternative could prohibit root growth and plant vigor of native plants in the future and could lead to the Elkhorn Allotment not meeting Rangeland Health in the future.

Under this alternative, even if high use levels do not occur, the composition of the vegetative community may still be altered because the sheep could have the opportunity to be more selective of palatable forage across the landscape. Sheep will readily consume grass-dominated diets when grasses are succulent or when other forages are unavailable. Sheep tend to consume more forbs as forb availability increases. Plant parts that are tender, succulent, and readily visible are usually selected over those that are course, dry and obscure (Burritt & Frost, 2006). What this means under this alternative is that if a smaller group of sheep were present in the allotment from May 15th to November 20th every year, they would continually and systematically select vegetation at its peak time when the plants are trying to grow and produce seed. Over time, the composition of the plant community has the potential to become populated with undesirable, less palatable vegetative species which could lead to a “downward trend” in rangeland health. This could directly affect if the Elkhorn Allotment meets Standard 4 (Native Plant Communities) of Rangeland Health in the future.

Bug-leg goldenweed, a BLM Sensitive Species has not been found in the Elkhorn Allotment but due to the presence of many associated vegetative species the probability of this sensitive plant occurring in the allotment is high. If season long grazing were incorporated in the Elkhorn Allotment, as described in this alternative, the potential of exotic species and sod-forming grassing to expand are higher because the reproduction capability of perennial bunch grasses may be compromised with season-long grazing in those corridors that are heavily traveled. Exotic Species and sod-forming grasses are both threats to the survival of bug-leg goldenweed. This species tolerates livestock grazing but the potential of the species maintaining viable populations under the no action alternative is slight since the native vegetation on the site would be stressed from continual grazing.

There are populations of cheatgrass and spotted knapweed in the allotment boundary. These known populations of undesirable plants may increase under the no action alternative because the native plants may be stressed from repeated grazing. Encroachment of noxious weeds will continue to occur under the no action alternative and may expand more rapidly than under the proposed action.

4.3.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species

Fisheries

The no action alternative will have the greatest impact on riparian health, and directly, fisheries as opposed to the proposed action. With the sheep being present in the allotment for 190 days, the likelihood of some of the sheep accessing Elkhorn Gulch, where fish are present, is high because the sheep would be more willing to access steeper terrain for fresh forage and a fresh water source. The proposed action has sheep present for shorter periods of time limiting conflicts with fisheries and decreasing the likelihood of streambank shearing, vegetation trampling and excess sediment in the streams. All of these actions could decrease water quality and temperature, thereby decreasing habitat for fisheries on Elkhorn Gulch.

Wildlife

Under the no action alternative domestic sheep would be on the allotment for an extended period of time but at less numbers. Specifically, the no action alternative would permit 266 sheep for the entire season of use from 05/15 to 11/20.

Greater sage-grouse

The impacts of the no action alternative are expected to be similar to those identified under the proposed action. One principal difference is that the no action would have a reduced stocking density relative to the proposed action. A decreased stocking density is expected to reduce the risk of nest trampling and disturbance. The livestock density under the proposed action is 0.12 animals per hectare. Livestock exposure would increase under this alternative, but the consequence of this is expected to be less than impacts from greater stocking densities. Nest disturbance and trampling would only be a concern during a portion of the grazing season from March 1 to June 15. Similar to the description under the proposed action grazing by domestic sheep may negatively impact sage-grouse habitat by reducing the ground cover of herbaceous vegetation preferred by sage-grouse. A decrease in herbaceous cover would reduce concealment and security cover for sage-grouse chicks and may increase exposure to predators. This may result in reduced nest success. Impacts to habitat under this alternative are considered largely the same, because the permitted AUMs and utilization rates do not change.

Gray Wolf

Impacts to wolves under the no action may increase under the no action. The no action would authorize domestic sheep grazing during the entire permitted season from 5/15 to 11/20. Increasing the season of use is expected to increase the potential that depredations of domestic sheep could occur. An increase in depredations of domestic sheep could result in increased lethal control of wolves.

Amphibians

Under the no action alternative the impacts of the no action are expected to be similar to those identified under the proposed action. The potential for interactions with boreal toads would be expected to increase. This is concluded because there are no design features for avoidance of riparian areas similar to the proposed action. Also, the proposed action would be season long and livestock would be present during the breeding season. However, the reduction of sheep is expected to minimize these impacts and livestock grazing outside of the breeding season would not result in these impacts.

Migratory landbirds

Under the no action alternative the impacts of the no action are expected to be similar to those identified under the proposed action. One principal difference is that the no action would have a reduced stocking density relative to the proposed action. A decreased stocking density is expected to reduce the risk of nest trampling and disturbance. The livestock density under the proposed action is 0.12 animals per hectare. Livestock exposure would increase under this alternative, but the consequence of this is expected to be less than impacts from greater stocking densities. Nest disturbance and trampling to migratory landbirds would only be a concern during a portion of the grazing season from March 1 to July 31. Similar to the description under the proposed action grazing by domestic sheep may negatively impact breed bird habitat by reducing the ground cover of herbaceous and forb species preferred by sage-grouse.

Bats

Under the no action alternative the impacts of the no action are expected to be similar to those identified under the proposed action.

Big game

Impacts to big game from the no action are expected to be similar to the impacts described under the proposed action. Under the no action the stocking density would be reduced but the season of use is greater. A reduced stocking density is not expected to notably result in a difference to vegetative resources. This is concluded because the percent utilization and AUMs would be the same under this alternative. Reducing the stocking density may reduce the potential big game to avoid domestic sheep use areas due to social intolerance. This is assumed because the stocking density would be notably less than under the proposed action. Conversely, this impact could still occur but for more time.

Bighorn Sheep

Under the no action alternative the potential for interaction between domestic sheep and bighorn sheep is expected to be greater. This is concluded because domestic sheep would be present on the allotment for a greater amount of time.

4.3.5 Wetlands & Riparian Areas

Under the no action alternative, the grazing permit would resemble what is shown in Table 2. The sheep numbers would stay at 266 head and would stay in the allotment season long from May 15^h through November 20th. If the BLM chose this alternative which limits the livestock number to 266 head of sheep, the livestock would have to utilize the riparian areas repeatedly throughout the grazing season which could inhibit regrowth of the riparian vegetation.

During the PFC field tour of the Triumph Gulch, it was noted by the ID Team that big game use this area extensively in the early spring and fall and to a lesser extent along Decker Gulch and Peter's Gulch. Under this alternative, the domestic sheep, mule deer and elk would all be present and competing for the same riparian areas and water source which has the potential for heavier utilization and more trampling of plants to occur. Due to these reasons, the no action alternative will have the greatest impact on riparian health than any other alternative which could lead to the allotment not meeting Standard 2 (Riparian Areas & Wetlands) and Standard 3 (Stream Channel & Floodplain) in the future.

4.3.6 Recreation & Visitor Services

Under this alternative, the allotment would have livestock grazing during the entire growing season, which may adversely affect recreational opportunities in the Elkhorn Allotment because by having the livestock present season long, it increase the chance that a conflict may arise. Domestic sheep occupying the allotment continually from May 15th to November 20th could deter recreational users from choosing to use the Elkhorn Allotment, in favor of areas that only have livestock present seasonally.

If the BLM chose this alternative and began enforcing 266 head of sheep, the livestock would have to utilize the riparian areas repeatedly throughout the grazing season which could inhibit regrowth of the riparian vegetation. It is typically the riparian areas that are the driver in recreational hiking and biking and if these areas become degraded, it could in turn lead to people to choose to go to other areas that are more esthetically pleasing to view.

4.3.7 Social & Economic Values

At the current rate of \$1.69 per AUM, the Elkhorn Allotment can generate \$561.08 per year from active-use AUMs (based on the current number of AUMs authorized in the proposed action and alternative 1). Even though this is a small amount, the Elkhorn Allotment is one of many grazing allotments that are used as a route to and from other neighboring grazing allotments in the general vicinity by the permittee. The Elkhorn Allotment is important for Denis Kowitz since he has a band of sheep in it for four to six weeks every year grazing the public lands, private lands and State lands as a whole.

Under the no action alternative, there could be some social or economic impacts to the active livestock permittee in the Elkhorn Allotment. This alternative would only allow up to 266 sheep to graze in the allotment and the time of the grazing activity would be extended to 190 days. Having a smaller band of sheep for a much longer period of time would be detrimental to the permittee financially because he would have to hire a sheep herder for this single allotment, instead of hiring a sheep herder for a general area and move through various grazing allotments in which they have active preference. It would also require the permittee to use his guard dogs, herding dogs and work horse for the whole season which would be cost prohibitive for such a small group of animals. This would, in general, disrupt his entire operation because he would still need another herder and more dogs to work with the remaining sheep that would not be permitted to graze in the Elkhorn Allotment, subsequently doubling his costs for this single band.

As stated previously throughout the impacts analysis section for this alternative, grazing a small band of sheep for a longer period of time would not benefit the many resources in the Elkhorn Allotment. Overall, the Elkhorn Allotment may not be able to provide an atmosphere of opportunity for recreation such as ORV use, fishing, hunting, horseback riding, camping, and wildlife-watching in the future and people may spend less time and money on recreational activities in the Elkhorn Allotment where the natural resources have become degraded. Degraded conditions caused by livestock grazing-related activities can reduce wildlife habitat, increase sediment load in streams and rivers, and diminish scenic values, all of which can lead to less recreation and thus less money spent in the county.

4.3.8 Climate Change

There would be no change in greenhouse gas emissions from livestock in the Elkhorn Allotment between the proposed action and alternative 1 due to the fact that AUMs remain the same under both alternatives. The number of animals between alternatives does change but that is not how emissions are calculated. Greenhouse gas emissions from livestock are calculated through AUM usage.

4.4 Alternative 2 – No Grazing

4.4.1 Livestock Grazing & Idaho Standards for Rangeland Health

Under the no grazing alternative, livestock use in the Elkhorn Allotment would not occur for a term of ten years. All 332 active AUMs would be placed into non-use status and the permittee would not be allowed to actively graze the allotment during the term of the permit. Since the Elkhorn Allotment is an important trail route for the current permittee, trailing livestock through the allotment would be allowed and authorized. Trailing use has the potential to increase under this alternative due to the fact that the current livestock permittee, Denis Kowitz, would still need to trail through this allotment in order to access other grazing allotments on their livestock grazing permit as well on National Forest Lands to the north. Under this alternative, only 78,210 pounds of forage would be consumed by domestic sheep annually out of an estimated 2 million pounds of forage available in the Elkhorn Allotment.

Denis Kowitz is permitted to graze in seven neighboring allotments, trail his livestock through six other grazing allotments and is also permitted to graze his livestock on three neighboring Forest Service allotments so in order to get from one location to another, trailing through the Elkhorn Allotment would be unavoidable. Therefore, under this alternative, trailing use for two days would be authorized and permitted for as many as 2 bands of 2,500 sheep per year. This trailing of livestock through the allotment differs from active grazing because each time a sheep operator trails through the Elkhorn Allotment the band will be required to move a minimum of five miles per day. The Elkhorn Allotment would also only have two days of livestock use as opposed to 20 days of grazing under the proposed action.

The allotment is currently meeting all Rangeland Health standards with active livestock grazing Elkhorn Allotment. This situation would be no different from the proposed action being analyzed in this EA. Idaho Standards for Rangeland Health would again be read in the allotment during the next grazing permit renewal process.

4.4.2 Soils & Water Quality

No direct measurements have been conducted to determine if a change in soil loss has occurred following the 1981 Sun Valley Grazing EIS but no sign of excessive soil loss was documented during the field assessment. The slopes in the Elkhorn Allotment have the potential to be erodible due to the gravel component but under the current grazing management the slopes are stable and well vegetated throughout. There is no active erosion occurring now in the allotment, and under no grazing, the rate of erosion is not expected to change.

The amount of vegetation removal would decrease under the no grazing alternative. Removal of vegetation reduces the amount of litter and nutrient cycling in the soil. There is the potential for the amount and distribution of ground cover, including litter to increase, reducing compaction, and erosion which would increase nutrient cycling of minerals and plant nutrients more so than under any other alternative in this EA.

The current watershed condition in this allotment is adequate for maintaining soil stability and hydrologic cycling. The cessation of livestock grazing in the allotment has the potential to slightly decrease soil loss, compaction, and degradation, but under the present management the Elkhorn Allotment is meeting Standard 1 with the presence of livestock grazing. Watersheds in the allotment are providing the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform and provide for proper nutrient cycling, hydrologic cycling and energy flow.

The allotment has adequate litter and standing dead plant material present for protection of the soil as well as for decomposition to replenish soil nutrients relative to site potential. If active livestock grazing was not permitted in the Elkhorn Allotment, the allotment would continue to meet the Standard 1 of Rangeland Health in the future.

4.4.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants

Under the no grazing alternative, the overstory vegetation would continue to be dominated by mountain big sagebrush and the understory vegetation would continue to be dominated by native perennial grasses and forbs. The populations of perennial grasses and forbs have the potential to maintain or increase their present populations if all livestock grazing was removed from the allotment for a term of 10 years.

There are many studies that have been conducted over the years looking at what the impacts are with grazing livestock as opposed to not grazing livestock in relation to rangeland health. Early studies of the effects of protection from grazing, such as that by Costello and Turner (1941), showed substantial differences between grazed and protected areas.

Release from the rather heavy grazing during the previous 50 or more years [approximately 1890 to 1940 during Costello's study] often resulted in rapid vegetation changes in the exclosures. Newly established exclosures [in the past 20 or so years] often show small or no differences between grazed and ungrazed areas, especially in arid and semi-arid rangeland communities. In the last 50 years [approximately 1950 to 2000 for Laycock's study], reduced grazing intensities and better management have improved or stabilized vegetation conditions outside as well as

inside the exclosures, resulting in little differences between grazed and ungrazed areas (Laycock, 1994).

In summation, these studies have found that heavy grazing caused range deterioration while light grazing promoted stability or improvement to the range. Moderate livestock grazing was typically the most preferred, from a livestock production standpoint, but the results of moderate livestock grazing from the various studies was not consistent in either improving or harming rangelands. These studies were done in many different plant communities and weather conditions and with different kinds of livestock. All showed that light grazing was not a catalyst in causing changes to watershed conditions and vegetation conditions (Box & Malechek, 1987).

The Elkhorn Allotment is an example of an area that had heavy livestock use from the late 1800s through the early 1900s but has since shifted to light or moderate use in the last 20 years. Comparing the allotment to other lands that have had excessive livestock use continually would not be an accurate depiction of what would happen if livestock were removed in this situation. More specific to Idaho rangelands, one study found no improvement over a 45-year period in three exclosures dominated by big sagebrush in southwestern Idaho (Sanders & Voth, 1983).

There are many concepts of stable states and thresholds of range condition and in most models all possible states of vegetation can be arrayed on a single near-linear continuum from heavily grazed or early-successional communities in poor range condition to ungrazed, climax communities in excellent condition. The Multiple Stable State model, which corresponds with NRCS ecological site descriptions, assumes that more than one stable state can exist and that plant succession does not move along a linear line. A Great Basin study stated that major ecological changes could shift the condition of a site to a new condition; however, the changes caused by protection from grazing did not move the [plant] communities to a different vegetation condition or stage (Laycock, 1991).

Past studies have shown that to remove heavy grazing from a site will provide a large increase in vegetation production and possibly improvement for the short term following the removal of grazing. However, in the long term following the removal of heavy grazing from an area, there is little to no measurable difference in the ecological condition of a site that is being lightly grazed and one that has had grazing completely removed. This supports the theory that although a major disturbance can cause a site to shift to a new ecological condition, simply removing that disturbance does not ensure that the previous condition will be regained. Generally, outside influences such as restoration are required to return a degraded site to anything resembling the desired condition. It should be noted that there are not any degraded ecological sites in the Elkhorn Allotment. The allotment currently supports a healthy, productive and diverse native plant community and the native vegetation is being maintained to standards consistent with the NRCS ecological site descriptions.

Livestock grazing by sheep has the potential to decrease grazing selectivity for palatable forage and increase uniform grazing throughout the landscape. The populations of perennial grasses and forbs have the potential to maintain or increase their present populations due to the cessation of livestock grazing. Elkhorn Allotment is currently meeting the Rangeland Health standard for native plant communities with livestock grazing so the potential of the no grazing alternative to

drastically improve the native plant communities in the future is low. If livestock grazing was not permitted in the Elkhorn Allotment, the allotment would continue to meet Rangeland Health standards in the future. This situation would be no different from the proposed action.

Under the no grazing alternative, the cessation of livestock grazing for a ten-year term could potentially increase the likelihood of wildfire in the Elkhorn Allotment. Livestock consume vegetation, and also tend to graze some areas more intensely than others creating patchy vegetation that reduces the continuity of fuel loads and the fires that might burn those fuels (Taylor, 2006). Overall, without fuel reduction occurring, in the form of livestock grazing, the fine fuels have the potential to build and increase the likelihood of the fires ability to travel faster through the Elkhorn Allotment. This buildup of fine fuels could make the wildfires more difficult to control. The Elkhorn Allotment is in very close proximity to many homes in the surrounding area of Ketchum, Idaho and many homes surround the allotment boundary.

Bug-leg goldenweed, a BLM Sensitive Species, may occur in the Elkhorn Allotment. Shallow disturbances such as scraping may be tolerated but deep disturbance (excavation for pipelines, cable burial, mining, right-of-way maintenance, trail or road construction, etc.) could be detrimental to populations. Under the no grazing alternative, impacts to populations of this sensitive species would be less than any other alternative.

4.4.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species

Fisheries

The no grazing alternative would eliminate any potential impacts to redband trout, Wood River sculpin or their habitats that may occur from livestock grazing in Elkhorn Gulch. Any improvement in fish habitat under the no grazing alternative would likely not be measureable because sheep are unable to access this portion of Elkhorn Gulch due to the steep, rocky topography.

Wildlife

Livestock grazing would not be authorized on Elkhorn Allotment under this alternative, except for trailing. Removing livestock grazing on the allotment would increase forage and cover availability to wildlife. This would avoid potential impacts that could result from a reduction in cover, such as exposure to predators and forage competition. The no grazing alternative may also improve riparian habitats and stream channel stability, which would promote suitable habitat for riparian associated species. It should be noted, however, that the perennial water sources in the Elkhorn Allotment are meeting Rangeland Health, and there are no known occurrences of livestock trampling or over-utilizing riparian vegetation within the last two decades. Under this alternative vegetative communities would be expected to progress toward the reference state or potential native plant community at a greater rate. Some impacts from herbivory during trailing could occur, but these impacts are expected to be nominal. This is concluded because livestock would be actively trailing through the allotment and time spent grazing would be limited. Impacts from trailing would be localized because sheep would not be distributed throughout the allotment.

The no grazing alternative is expected to improve nesting, brood rearing, and foraging habitat for migratory landbirds and Greater sage-grouse by curtailing the adverse impacts identified in the other alternatives. Most migratory landbird species that occupy shrub steppe habitats, such as those found in the Elkhorn Allotment, are thought to respond negatively to heavy, season-long grazing (Bock et al., 1992). This study also found that migratory bird species respond positively or show no change in response to grazing by livestock. However, heavy utilization and season-long grazing do not occur in the Elkhorn Allotment.

The no grazing alternative is expected to reduce competition between livestock and big game for forage. This is concluded because livestock utilization of vegetation resources would not occur under this alternative. Trailing of livestock would still occur under this alternative, so some competition between livestock and big game may occur. Livestock trailing would only be permitted for six days, so these impacts are expected to be negligible. The risk of contact amongst domestic sheep and bighorn sheep is possible under the no grazing alternative due to trailing. However, the risk of contact is expected to be reduced due to the limited number of days trailing can occur. Reducing the number of days domestic sheep are present and implement best management practices from separation response plans are expected to make the risk of contact negligible.

4.4.5 Wetlands & Riparian Areas

The selection of the no grazing alternative has the potential to allow Triumph Gulch to continue to improve and have the ability to meet Standard 2 and Standard 3 of Rangeland Health standards in the future. High utilization levels have occurred in this allotment by livestock grazing once in 2008 but since that rare occurrence, sheep bands have not bedded overnight adjacent to Triumph Gulch. Under the no grazing alternative, the recruitment of healthy populations of desirable vegetation needed to sustain wetland characteristics will continue.

Under the no grazing alternative, the overstory vegetation would continue to be dominated by willows and the understory vegetation would continue to be dominated by sedges, rushes and riparian obligate forbs. If livestock grazing was not permitted, the Elkhorn Allotment would continue to meet the riparian standards of Rangeland Health in the future. This situation will be no different from the proposed action analyzed in this EA other than further improvements would occur more rapidly than under any other alternative.

The populations of perennial sedges and rushes have the potential to increase over time under the no grazing alternative and Triumph Gulch will reach its potential more quickly than under any other alternative proposed. Any progress in reaching potential on Elkhorn Gulch would remain the same under this alternative because this perennial stream is inaccessible to livestock. Potential is defined as the highest ecological status a riparian-wetland area can attain given no political, social, or economical constraint, and is often referred to as the potential natural community or PNC (USDI BLM, 1998). It should be noted that a riparian area does not have to have achieved its potential in order to be functioning properly.

Kentucky bluegrass and diffuse knapweed will still be present in the allotment under this alternative but should not expand or increase because the more desirable native plants are currently able to maintain their populations and keep the undesirable plants in check.

4.4.6 Recreation & Visitor Services

The no grazing alternative eliminates livestock operations within the Elkhorn Allotment thus eliminating most of the potential conflicts between recreationists and livestock operations and guard dogs. There still may be two days a year that conflicts may arise while the permittee trails through the allotment on his way to other grazing lands.

4.4.7 Social & Economic Values

This alternative would cancel all authorized active AUMs on the allotment for a period of 10 years. By not being allowed to graze this allotment, the possibility that the permittee would have a socioeconomic impact would be greatest under this alternative. The permittee would have to relocate their livestock to other federal grazing allotments, privately-owned lands or state lands where they hold leases; thereby increasing impacts to the resources on those lands. The permittee would also likely purchase supplies from stores closer to the new grazing locations, so income from taxes and sales in these communities would drop, and the income from the livestock sales would go to those other counties where the remaining grazing lands are located. In the case of closing the Elkhorn Allotment to grazing for a period of ten years, the current permittee may not have to go so far as to sell their livestock, and/or close the ranch completely but this scenario would impact one of his bands of sheep for four to six weeks during the summer and other range would have to be found in the vicinity.

Ranchers have a wide range of options available to them in terms of how they respond to changes in the permitted number of AUMs on their range allotments. Depending on the length of their allowed grazing season and the specific change in permitted AUMs, a rancher might choose to increase or decrease herd size, change grazing months, retain or sell animals at their headquarters, lease new ground or cancel one or more leases on private rangeland, switch to irrigated pasture, adjust feed lot contracts, completely change operation types, and so on. Given the number of uncertain variables and the range of possibilities, it is not feasible to anticipate how individual ranches will react to changes in their specific grazing permits. Also unknown are any and all associated business decisions made in response to prevailing markets, federal and state agricultural policies, and personal values.

BLM acknowledges that as a result of any changes in permitted AUMs, there are likely to be multiplier effects within the economy that serves the associated ranching community. Because it is not possible to quantify the specific monetary impacts on individual ranches, it is also not possible to accurately estimate the resulting multiplier effects. It is possible, however, to state qualitatively, for example, that a reduction in AUMs would result in a corresponding reduction in regional economic activity if ranches choose to reduce livestock numbers and then in turn reduce their spending within the regional economy. The converse is also true.

The no grazing alternative calls for a 100 percent reduction in AUMs on the Elkhorn Allotment for a term of ten years. In some cases, as described below, some operators could incur additional costs from alternative forage options due to changes in livestock numbers or management practices. These costs could include:

- Different AUM fees from the most recent data: Private land AUM fees in 2013 were approximately \$15.50/AUM in Idaho, plus transportation costs (IDL 2014). AUM fees on state-owned land in 2012 are \$5.25/AUM in Idaho. The 10-year (2002-2011) average market value of an AUM in Idaho is \$12.67/AUM, which is an estimate based on survey indications of monthly lease rates for private, non-irrigated grazing land.
- Feeding hay on the ranch instead of grazing on pastures: The operators would need 156 lbs. dry forage/month for each ewe/lamb pair if the band of sheep were moved back to the ranch instead of to the Elkhorn Allotment. The 10-year (2003-2012) average price for alfalfa hay was \$138/ton in Idaho. This means that the operator would spend up to \$12/month (\$144/year) on dry forage for each ewe/lamb pair.

There may be other costs associated with changes in livestock numbers or management practices that could affect the operator's bottom line and the community as a whole. It is possible that the operator might find that such a large percentage of the band would need to be moved or sold that operating the ranch would no longer be economically feasible. Any cuts in AUMs would lead to increased expenses for grazing and/or feed that could be detrimental to the viability of the ranch. This could lead to losses in jobs, income to the community, and tax revenue for the county and state. Denis Kowitz has his home ranch in Declo, Idaho but many of his grazing allotments are in many different counties, including Cassia, Lincoln and Blaine County.

However, not all socioeconomic impacts could be negative. Land on the allotments could be more available for recreational opportunities, which could bring more money to the stores, restaurants, and hotels that provide goods and services for people from the Wood River Valley who come to hunt, fish, camp and watch wildlife throughout the area. Most residents, as well as those visiting from other counties, purchase their goods outside of Blaine County. Thus, although some recreation fees could be collected, the influx of recreation to the county would not add much to the revenue from sales or taxes.

4.4.8 Climate Change

Removing livestock use would result in no methane emissions from active livestock grazing on the Elkhorn Allotment. Methane emissions from livestock on adjacent BLM-administered allotments, private and State lands would still be present within Blaine County.

However, under this alternative, the permittee would still need to maintain the Elkhorn Allotment as a trail route to and from his other grazing allotments in the vicinity. Under the no grazing alternative, a crossing permit would be issued for 99 AUMs and would result in methane emissions of 20 t of CO₂e per year (Table 18). Emissions under this alternative would represent 0.000069474% of Idaho's annual GHG emissions, 0.000009296% of the annual U.S. GHG emissions from livestock, 0.000000291% of the annual U.S. emissions of all GHGs, and 0.000000045% of the global emissions of all GHGs. There would be a negligible impact to climate change.

4.5 Alternative 3 – Reduce Grazing Permit to Actual Use Levels

4.5.1 Livestock Grazing & Idaho Standards for Rangeland Health

Under alternative 3, livestock use in the Elkhorn Allotment would reflect what is shown in Table 5. The allowable number of sheep in this allotment would be increased to 1,820 head, the highest number of sheep the current permittee has turned out, in order to more accurately reflect how the allotment has been utilized by the current permittee since he acquired the grazing permit in 1998. The number of livestock on the grazing permit now is a result of the BLM's billing calculation process, in which the number of livestock was automatically generated according to the season of use, percent public land in the allotment and active AUMs. The number of livestock on the grazing permit under the current situation is the result of a computation, not an actual livestock grazing management decision. This detail would be corrected in the both the proposed action and alternative 3 and would reflect the allotment being grazed by an actual band of sheep. Under this alternative, only 165,900 pounds of forage would be consumed by domestic sheep annually out of an estimated 2 million pounds of forage available in the Elkhorn Allotment.

The number of sheep being proposed reflects one band of sheep actively grazing the allotment. Allowing the number of livestock to increase will shorten the season of use in the Elkhorn Allotment. Grazing sheep in higher stocking densities has the potential to decrease grazing selectivity for palatable forage and increase uniform grazing throughout the landscape. Under this actual use alternative, the permittee does not utilize the whole allotment. He typically uses the east side of the allotment one year and the west side of the allotment the following year. Even with only using a portion of the allotment, utilization does not exceed 30% use. Historically this allotment has had bands of sheep graze in a pass through method so this change in the number of livestock reflects what the permittee has actually used.

4.5.2 Soils & Water Quality

All types of livestock grazing have the potential for minor amounts of soil compaction to occur as well as removal of vegetation in the form of grazing. These potential impacts should not prevent the allotment from meeting Rangeland Health Standard 1 (Watersheds) in the future though because the allotment is currently meeting this standard under the scenario described in this alternative. The continued slight to light utilization (0% to 39%) in the allotment along with the long-term monitoring in this alternative can help ensure that the Elkhorn Allotment continues meeting Rangeland Health Standards in the future.

Historically, the Elkhorn Allotment has been grazed by sheep bands that were larger than 1,000 sheep. Under the historical livestock numbers, the allotment is meeting Standard 1 (Watershed) and there is no need for the grazing permit to limit the number of sheep to fewer than 300 head for a longer period of time. Under the present management, which includes a band of sheep (1,820 sheep) for less time, the watershed condition in this allotment is adequate for maintaining soil stability and hydrologic cycling. The temporary presence of the sheep currently allows for the soils to recuperate after short duration grazing events.

No direct measurements have been conducted to determine if a change in soil loss has occurred following the 1981 Sun Valley Grazing EIS but no sign of excessive soil loss has been documented during the field assessment or since. The riparian areas do not have soil loss due to abundance of vegetation and this will be further discussed in the EA, specifically in Wetlands & Riparian Areas sections of this document. The slopes in the Elkhorn Allotment have the potential to be erodible due to the gravel component but under the current grazing management the slopes are stable and well vegetated throughout. Unacceptable levels of soil erosion due to livestock grazing as a result of the alternative 3 are not expected because it is a continuation of the current situation.

The amount of vegetation removal is expected to stay the same under this alternative. Monitoring has shown that livestock utilization typically consists of 30% or less in the Elkhorn Allotment but only a portion of the allotment is grazed each year. The current permittee rotates his use by year and either uses the east side or the west side annually. Removal of vegetation reduces the amount of litter and nutrient cycling in the soil. Due to the continued slight to light utilization levels (0% to 39%), there is the potential for the amount and distribution of ground cover to increase over time, reducing compaction and erosion, which would increase nutrient cycling of minerals and plant nutrients.

Continued livestock grazing in this allotment and the change in livestock numbers should not affect soil resources on public lands because these are the numbers of animals that have currently been grazing in the Elkhorn Allotment. It has been common practice for the Elkhorn Allotment to be grazed by sheep bands that were larger than 1,000 sheep. Under the present sheep numbers, the allotment is meeting Standard 1 and there is no need for the grazing permit to limit the sheep to less than 1,820 head.

All types of livestock grazing have the potential for minor amounts of soil compaction to occur as well as removal of vegetation in the form of grazing. These potential impacts should not deter the Elkhorn Allotment from meeting Rangeland Health Standard 1 in the future though because the allotment is not expected to change because this is approximately the same amount of use that has occurred for the last 20 years and the soils and water quality have not been negatively impacted from livestock grazing. The slight to light livestock utilization (0% to 39%) along with the long-term and short-term monitoring in this alternative can help ensure that the allotment continues meeting Rangeland Health standards in the future.

Under the present management, the watershed condition in this allotment is adequate for maintaining soil stability and hydrologic cycling. The Elkhorn Allotment is currently meeting Standard 7 for Rangeland Health and grazing conforms to guidelines for livestock management. It has also been determined that nutrient, eutrophication and biological indicators are currently meeting the Idaho State water quality standard. The watersheds in the allotment are providing the proper infiltration, retention and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling and energy flow. The data collected for rangeland health shows that the Elkhorn Allotment has adequate litter and standing dead plant material present for protection of the soil as well as for decomposition to replenish soil nutrients relative to site potential.

4.5.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants

The Elkhorn Allotment is currently meeting the Rangeland Health Standard 4 (Native Plant Communities) with approximately 1,820 head of sheep so the potential of this altering the native plant communities in the future is low. Permitting bands of sheep to graze throughout different seasons also has the potential to allow regrowth of vegetation to occur, thus ensuring that use by wintering big game continues. The spring turn out date would remain at May 15th under this alternative as well. In order for livestock to turn out in May, range readiness criteria would have to be met in order for a Standard 4, Native Plant Communities, of Idaho Standards for Rangeland Health to continue to be met in the future.

The sheep bands will be present during different seasons which will change what type of vegetation they select to graze. What this means under this alternative is that if a larger group of sheep were present in the allotment at different times and during different seasons, they would typically select grasses in the early summer, forbs during the summer and into early fall and shrubs and dormant grasses during the fall. No one type of vegetation would be used repeatedly during the same time of year; especially since under this alternative only about half of the allotment is used each year. Over time, this has the potential to maintain the present plant community composition with desirable, palatable vegetative species which would maintain or improve the long-term trend in rangeland health as well as allow the Elkhorn Allotment to continue meeting Standard 4 of Rangeland Health in the future.

Under alternative 3, the overstory vegetation would continue to be dominated by mountain big sagebrush and the understory vegetation would continue to be dominated by native perennial grasses and forbs. The populations of perennial grasses and forbs have the potential to maintain or increase their present populations due to continued slight to light utilization by livestock and dormant season use in the fall. Also, under this alternative, half of the allotment would receive deferred use by livestock because the permittee would be required to rotate his grazing use year by year. Utilization of native grasses, such as bluebunch wheatgrass and Idaho fescue, are able to recover more quickly when grazed lightly or while they are dormant. The Elkhorn Allotment currently supports a healthy, productive and diverse native plant community and the native vegetation is being maintained to standards consistent with the NRCS ecological site descriptions.

The Elkhorn Allotment is meeting Standard 4 (Native Plant Communities) with the permittee grazing sheep in large numbers, called bands. The change in the livestock numbers under alternative 3 does not have the potential to change the dominant native vegetation in the allotment because these are the numbers that typically graze currently. The number of livestock allowed in this allotment would be increased to 1,820 head of sheep in order to reflect what has actually been used recently. Allowing the number of livestock to increase will reduce the number of days within the season of use that grazing will be allowed based on the permitted number of sheep. The higher number of sheep for a shorter period of time, and a shorter duration of grazing has the potential to allow regrowth of vegetation for use in winter by big game.

Sheep are herded to areas that have not been used the previous year; thus increasing the likelihood that plants are grazed in a “pass through” method. Since the sheep are actively herded, it increases the likelihood that the single plants will only be grazed once. Studies on native rangeland in the Intermountain West suggest that grazing bluebunch wheatgrass in spring and again in summer on arid rangelands is an unlikely practice because regrowth of the plant tends to be reduced (Sheley et al., 2009). Re-grazing of the same plants in this allotment has been relatively uncommon under the current management. Since the current permittee acquired the grazing permit in this allotment in 1998, he has used the allotment in late spring less than six times. This voluntary deferred use in the Elkhorn Allotment has also contributed to the overall health of the perennial vegetation and helped the reproductive capability of the perennial plants.

Grazing sheep in higher stocking densities has the potential to decrease grazing selectivity for palatable forage and increase uniform grazing throughout the landscape. Historically this allotment has had bands of sheep graze in a pass through method so this proposed change in the number of livestock is actually a continuation of the current situation. The populations of perennial grasses and forbs have the potential to maintain or increase their present populations due to the slight to light livestock utilization which is the historic and current situation. The Elkhorn Allotment is currently meeting the vegetation Rangeland Health standard with these higher numbers of livestock so the potential of the selection of this alternative altering the native plant communities in the future is low.

Range readiness criteria will be adhered to in the allotment. Most of the native grasses in the allotment would have more than 4-6 inches of new growth prior to turn out. Livestock would not be permitted to graze if the early season growth on the native vegetation is not adequate or if the soils are still saturated due to snow melt or spring rains.

Under this alternative, the sheep bands would be present for a limited time during different seasons which would change the type of vegetation they select to graze. What this means is that if a larger group of sheep were present in the allotment during different seasons, they would typically select grasses in the early summer, forbs during the summer and into early fall and shrubs and dormant grasses during the fall. Season long grazing would not occur and native vegetation would not be continually grazed throughout its reproductive cycle. Over time, this has the potential to maintain the present plant community composition with desirable, palatable vegetative species because the reproductive capability of the different vegetation types would not be compromised. This grazing treatment is likely to maintain or improve the long term trend in rangeland health and may directly affect if the Elkhorn Allotment is meeting Standard 4 (Native Plant Communities) of Rangeland Health in the future.

Bug-leg goldenweed, a BLM Sensitive Species has not been found in the Elkhorn Allotment but due to the presence of many associated vegetative species the probability of this sensitive plant occurring in the allotment is high. Shallow disturbances such as scraping may be tolerated but deep disturbance (excavation for pipelines, cable burial, mining, right-of-way maintenance, trail or road construction, etc.) could be detrimental to populations.

No projects are planned within the Elkhorn Allotment boundary at this time but in the last 120 years, large scale mining operations have occurred in the allotment; and more specifically Triumph Gulch. Other threats include competition with exotic species and sod-forming grasses. This species tolerates livestock grazing and the potential of the species decreasing under this alternative is minimal.

All types of livestock grazing have the potential for minor amounts of soil compaction to occur as well as removal of vegetation in the form of grazing. These potential impacts should not deter the allotment from meeting Rangeland Health in the future though because the slight to light livestock utilization along with the long-term and short-term monitoring in this alternative would help ensure that the allotment continues meeting Rangeland Health in the future.

During the field assessment small, isolated populations of cheatgrass and spotted knapweed were identified within the allotment boundary. These two invasive species are prevalent in the Wood River Valley and found in the Elkhorn Allotment along roadsides, in previously burned areas and/or in areas that have previously been disturbed by historic mining activities. The populations of invasive, non-native species have the potential to remain static or decrease under this alternative with the continued slight to light utilization levels because having a healthy native vegetation community reduces the ability of noxious weeds to spread. This area has been and will continue to be closely monitored for potential expansion into neighboring areas. Many attempts have been made in the past to eradicate them through chemical and biological means with some success.

4.5.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species

Fisheries

Under this alternative, no impacts will occur to redband trout or Wood River sculpin in Elkhorn Gulch. Livestock access to the Elkhorn Gulch and associated riparian area in the allotment is extremely difficult due to steep, rocky terrain. This area has not been utilized by livestock in recent history and will mostly likely not be used in the future due to the terrain and permittees wish to avoid recreation activities along the bike path on Elkhorn Road.

Triumph Gulch within the allotment is currently rated at PFC and is meeting Rangeland Health Standards 2 and 3 but there is no connectivity to fisheries or to the Big Wood River. Under this alternative, Triumph Gulch will remain at PFC and continue to meet standards 2 and 3.

Redband trout and Wood River sculpin have not been documented in Elkhorn Gulch within the Elkhorn allotment, but are documented in a neighboring stream to the east, Cove Creek, and downstream in the East Fork of the Wood River which means that the likelihood of these two sensitive fish species occurring in Elkhorn Gulch is high. Both of these water sources are outside of the Elkhorn Allotment boundary.

Wildlife

Impacts to wildlife from the actual use alternative are expected to be largely synonymous to the impacts of the proposed action. The reduction in AUMs would authorize livestock in the same area and for the same season, but total forage consumption (210 AUMs) and maximum allowable livestock numbers (1820 sheep) would be reduced (i.e. – 122 AUMs and-680 sheep).

Impacts from grazing domestic sheep on the same unit of area and during the same season would cause similar impacts to wildlife. Reducing forage consumption and the maximum number animals is expected to increase herbaceous cover and would reduce the stocking density. Decreasing the amount of herbaceous cover that is consumed by domestic sheep is expected to increase cover, including: nesting cover, thermal cover, and forage. Consequently it is expected that nesting avian species relying on cover could be more successful than under the proposed action. Competition for forage resources amongst big game would be reduced. The livestock stocking density under the actual use alternative would range from 0.45 animals per hectare (1000 sheep) to 0.82 animals per hectare (1820 sheep). The range in stocking density is slightly reduced in the actual use alternative at full numbers. The reduction in numbers and stocking density may reduce the potential for nest disturbance and trampling relative to the proposed action.

4.5.5 Wetlands & Riparian Areas

The Elkhorn Allotment is currently meeting the Rangeland Health Standard 2 (Riparian Areas & Wetlands) and Standard 3 (Stream Channel & Floodplain). Triumph Gulch is experiencing an upward trend in overall riparian health and it is at Proper Functioning Condition. Alternative 3 is expected to continue improvement of this perennial water source as a result of the limited authorized use. Under alternative 3, no bedding of sheep will be permitted within 500 feet of the drainage in order for the creek to continue making progress in meeting Idaho Standards for Rangeland Health.

The season of use has also been augmented in this alternative and does not allow any livestock use between July 1st and August 31st in order to ensure that the riparian areas continue meeting Rangeland Health in the future. By having the sheep bands continue to graze the Elkhorn Allotment for a short duration during the spring and again in the fall; the riparian areas have the ability to recover from grazing more quickly. Sheep, unlike cattle, are actively herded within the allotment; thus decreasing the likelihood of livestock loitering in the riparian zone. What livestock operators do to encourage livestock to not loiter in the riparian zone while they are in a pasture is more important than either season of use or length of time in the pasture per se (USDI 1997).

A continuation of slight to light utilization has the potential to promote healthy populations of desirable vegetation needed to sustain wetland characteristics. By allowing short duration livestock use periods, the riparian vegetation could receive deferred rest as well as full rest throughout the grazing season because the livestock would only be using a portion of the allotment every year.

Under alternative 3, the potential to improve the riparian vegetation over time in and around Triumph Gulch is high because these are the livestock numbers that graze in the allotment currently and the riparian areas have been continually improving. The grazing use in the fall has the potential to improve the riparian area as a whole because most plants have completed their growth cycle and grazing will not adversely affect plant development; soils are drier which reduces the probability of compaction and bank trampling; and generally there is less impact on wildlife habitat (USDI BLM, 1997). Another advantage to dormant season use is that for many herbaceous species seed set has already occurred, and defoliation will have less impact than

during earlier development stages. There is a possibility that the browsing of woody vegetation by domestic sheep during the late fall would remain the same under this alternative since sheep dietary needs change during that time. During the late fall, there is also reduced palatability and nutrition of the dormant forbs and grasses which is another reason that sheep select wood browse.

Under alternative 3, the overstory vegetation would continue to be dominated by willows and the understory vegetation would continue to be dominated by sedges, rushes and riparian obligate forbs. The main reason for this is because only a portion of the allotment is grazed each year and whole areas of the allotment would receive either rest or deferred grazing. Kentucky bluegrass will still be present in the riparian areas under this alternative but should not expand or increase due to slight to moderate livestock utilization. Over the last decade, livestock have attained slight to moderate utilization limits and under this alternative, there is a high probability that this will sustain healthy, viable populations of vegetation in and around the spring.

The physical changes to Triumph Gulch will continue or increase under this alternative as well. These physical changes include reduced erosion, increased sediment filtering, improved water retention and improved channelization. The populations of perennial sedges and rushes have the potential and the spring will be more able to reach its potential. Potential is defined as the highest ecological status a riparian-wetland area can attain given no political, social, or economical constraint, and is often referred to as the potential natural community or PNC (USDI TR 1737-15 1998).

4.5.6 Recreation & Visitor Services

The impacts to recreation and visitor services under alternative 3 are very similar to what was disclosed in the proposed action. The only exceptions are that there would only be one band of sheep present in the allotment at a time and there would be no livestock present in the allotment from July 1st to August 31st.

4.5.7 Social & Economic Values

At the current rate of \$1.69 per AUM, the Elkhorn Allotment can generate \$354.90 per year from active-use AUMs (based on the current number of AUMs authorized in alternative 3). Even though this is a small amount, the Elkhorn Allotment is one of many grazing allotments that are used as a route to and from other neighboring grazing allotments in the general vicinity by the permittee. The Elkhorn Allotment is of importance for Denis Kowitz since he has a band of sheep in it for four to six weeks every year grazing the public lands.

Under alternative 3, there could be minor anticipated social or economic impacts to the permittee in the Elkhorn Allotment due to the decrease in AUMs and in season of use. This allotment is currently meeting all of the applicable Rangeland Health Standards and no adverse changes to the grazing permit are needed or necessary at this time. The grazing permit would not have any flexibility for the permittee, nor would any of his requests be granted that would have benefited the livestock operation overall.

4.5.8 Climate Change

Land uses and/or land management activities that increase the ability of vegetation and soil to sequester carbon can help mitigate the effects of climate change. Such activities include improving/restoring riparian and wetland areas, improving age class diversity, health, and resiliency of forests, mitigating the size and intensity of wildfires, and maintaining/improving livestock grazing management.

Livestock grazing can affect rangeland carbon levels, through changes in plant community and changes in ecosystem processes, but the effects have been variable and inconsistent among the ecosystems studied [Schuman, Ingram, Stahl, Derner, Vance, & Morgan, 2009]. Some studies have found that grazing can result in increased carbon storage compared to no grazing, because of increased plant turnover and changes in plant species composition [Follett, Kimble, & Lal, 2001]. Many changes in rangeland carbon from different grazing practices do not result in substantial changes in total ecosystem carbon, but are redistributions of carbon, for example, from above-ground vegetation to root biomass [Derner & Schuman, 2007].

Continuing to permit 332 AUMs for grazing use under alternative 3 would result in methane emissions of 66 t of CO₂e per year (Table 18). Activities in Idaho accounted for 28.5 million metric tons (Mt) of CO₂e emissions in 2011; U.S. emissions of GHGs from livestock totaled approximately 213 Mt of CO₂e [EPA, 2014a]; U.S. emissions of all GHGs totaled 6.8 billion metric tons (Bt) of CO₂e [EPA, 2014a]; global emissions of all GHGs totaled 43.8 Bt of CO₂e [World Resources Institute, 2014]. Emissions under this alternative would represent 0.00023% of Idaho's annual GHG emissions, 0.00003% of the annual U.S. GHG emissions from livestock, 0.00000097% of the annual U.S. emissions of all GHGs, and 0.00000015% of the global emissions of all GHGs. There would be a negligible impact to climate change.

4.6 Cumulative Impacts Analysis:

Cumulative impacts, as defined in 40 CFR 1508.7 (2010), are the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

4.6.1 Geographic & Temporal Boundaries of the Cumulative Effects Analysis

Cumulative impacts include past actions, present actions, and reasonably foreseeable actions in context with the geographic boundary and temporal scope or timeframe of each environmental resource affected by the Proposed Action and Alternatives. The geographic and temporal boundaries for each resource analyzed in this EA are shown in Table 19. Since there are only negligible direct or indirect impacts to fisheries and climate change, they will not be carried forward in the cumulative impacts section of this EA.

Table 19. Geographic & Temporal Boundary for the Cumulative Impact of Analyzed Resources

Resource	Geographic Boundary	Temporal Boundary
Livestock Grazing & Idaho Standards for Rangeland Health	Elkhorn Allotment	Effects of the Proposed Action or Alternatives would occur over the term of the grazing permit, which is issued for a ten-year period. At or around the end of that time period, Idaho Standards for Rangeland Health would be re-evaluated. As such, the timeframe for analysis of this issue is approximately 10 years.
Vegetation including Invasive, Non-native Species	Elkhorn Allotment	Effects of the Proposed Action or Alternatives would occur over the term of the grazing permit, which is issued for a ten-year period. At or around the end of that time period, Idaho Standards for Rangeland Health would be re-evaluated, which would also include monitoring and data collection on the health or status of the vegetation in the allotment. Monitoring of noxious weed species would be ongoing during the ten-year period. As such, the timeframe for analysis of vegetation is approximately 10 years.
Soils & Water Quality	Elkhorn Allotment	Effects of the Proposed Action or Alternatives would occur over the term of the grazing permit, which is issued for a ten-year period. At or around the end of that time period, Idaho Standards for Rangeland Health would be re-evaluated, which would also include monitoring and data collection on the condition or status of the soil resource in the allotment. As such, the timeframe for analysis of soils and water quality is approximately 10 years.
Water Quality	Big Wood Watershed	Effects of the Proposed Action or Alternatives would occur over the term of the grazing permit, which is issued for a ten-year period. At or around the end of that time period, Idaho Standards for Rangeland Health would be re-evaluated, which would also include monitoring and data collection on the condition or status of water resources in the allotment. This data is collected and maintained by Idaho Department of Environmental Quality.
Wildlife, including BLM Sensitive Species	<p>Wildlife Resources, Excluding Big Game: Southern Boundary: That portion of Blaine County starting at the Blaine /Lincoln County Line. Western Boundary: Follows the Blaine/Lincoln County Line west to State Highway 75, then north to highway 20, then west along highway 20 to the ridge above willow creek, then north to the USFS forest boundary, then north along the interface of the USFS boundary to the furthest northern extent of the Shoshone Field Office administered public land</p>	<p>Effects of the Proposed Action or Alternatives would occur over the term of the grazing permit, which is issued for a ten-year period. At or around the end of that time period, Idaho Standards for Rangeland Health would be re-evaluated, which would also include monitoring and data collection on the condition or status of resources in the allotment.</p> <p>Greater sage-grouse, and other wildlife: The cumulative impact analysis area (CIAA) for wildlife, excluding big game, was stratified using the breeding range for migratory sage-grouse populations. Connelly et al. (2000), identify important breeding habitat for migratory Greater sage-grouse as the area within 11 miles from lek sites. This metric is also incorporated in the 2015 Habitat Assessment Framework (Stiver et al. 2015). To identify the breeding range of Greater sage-grouse which may occupy Elkhorn Allotment, the allotment was buffered by 11 miles to identify occupied leks within that distance. These leks are considered potentially impacted leks within the breeding range of Greater sage-grouse that may inhabit Elkhorn Allotment. Those potentially impacted leks were then</p>

	<p>(BLM) at North Fork. Eastern Boundary: Blaine/Lincoln County line east to highway 26, then along highway 26 to the Little Wood River, then North along the Little Wood River to the furthest northern extent of the Shoshone Field Office administered land (BLM) at the Forest boundary. Northern Boundary: The furthest northern extent of Shoshone Field Office BLM administered public land between the aforementioned western and eastern boundaries, adjacent to the National Forest System boundary.</p> <p>CIAA for Big Game: The CIAA for Big Game includes game management units 36, 48, 49, and that portion of unit 50 west of highway 93.</p>	<p>buffered by 11 miles. This area is considered to represent the potential breeding range for those leks based on the aforementioned metric. It should be noted that sage-grouse hens may nest in excess of this (Connelly et al. 2000). There is no data documenting use of the allotment by sage-grouse hens for nesting or brood rearing. However, IDFG telemetry data has identified male sage-grouse utilizing habitat on and adjacent to Elkhorn Allotment. To account for this the CIAA was expanded to include that portion of the landscape south to the Blaine County/Lincoln County line. This expansion incorporates the landscape in the vicinity of Wedge Butte. Greater sage-grouse captured in the vicinity of Wedge Butte during the late winter/early breeding timeframe were documented to utilize habitats within Elkhorn Allotment during the late-brood rearing timeframe. That portion of the landscape in the vicinity of Wedge Butte provides suitable winter and breeding habitat for Greater sage-grouse.</p> <p>This CIAA incorporated USFS administered land, but these lands were removed from the analysis area because those portions of the landscape are predominately not comprised of suitable Greater sage-grouse habitat. Specifically that portion of the landscape is generally characterized by woodlands and steep slopes. It is acknowledged that some sagebrush habitats are available within this area and Greater sage-grouse use of those habitats may occur. However, it is expected that the density and frequency of use would be very limited.</p> <p>This CIAA boundary captures seasonal habitats which have similar attributes to the habitat characteristics that are available on Elkhorn Allotment. Similar attributes include: elevation, topographic variation, aspect, and vegetative characteristics. That portion of the landscape at the southern portion of this boundary does not share these similar attributes; However, the southern boundary captures that portion of the landscape in the vicinity of Wedge Butte, which does provide important seasonal habitats.</p> <p>This analysis identified a landscape of approximately 402,822 acres. In addition to Greater sage-grouse this CIAA is considered to represent an adequate area of coverage for other sensitive wildlife species analyzed in this assessment, excluding big game. This is concluded because the breeding range for Greater sage-grouse is greater than the other species analyzed. Migratory landbirds do exhibit greater seasonal movements between non-breeding seasonal habitats than sage-grouse. However, an attempt to capture seasonal migrations of migratory landbirds was not considered feasible because the distance traveled is too great. It is not considered possible to differentiate the impacts of the proposed action and alternatives when compared with the cumulative impacts of such an enormous geographic area.</p> <p>Big Game: The CIAA are for big game is different than the aforementioned boundary because big game exhibit seasonal movements which are opposite of those identified for Greater sage-grouse.</p> <p>The CIAA for Big Game encompasses an area of approximately</p>
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		<p>1,994,030 acres. The CIAA for Big game was bounded to the identified geographic description because elk have been documented to travel south from the Stanley Basin to winter in the vicinity of the Big Wood River Valley. Elk have also been documented to migrate from the Copper Basin to winter in the vicinity of the Big Wood River Valley. Both respective areas are captured within the scope of this geographic boundary. It is also reasonably assumed that elk which inhabit seasonal habitats in between these two geographic locations could migrate to winter habitats in the vicinity of the Big Wood River Valley. This CIAA boundary is considered adequate because it captures the furthest extent of known seasonal elk movements for elk which may utilize seasonal habitats available in the vicinity of the Big Wood River Valley, including Elkhorn Allotment.</p> <p>Relevance: The selection of these analysis areas was determined to be appropriate, because they are not too broad to dilute any potential cumulative effects of the action, or too small to avoid other relevant actions which may cumulatively affect the same resources as the action. It is logical to choose an analysis area that is biologically relevant to the impacted species. Incorporating a landscape consistent with documented seasonal movements of potentially impacted species captures this and provides meaningful context and relevance for an informed analysis of actions which may be cumulatively affecting the same resources which are directly or indirectly affected by the proposed action and alternatives.</p> <p>Both respective CIAA's for wildlife are considered adequate to account for the impacts of the proposed action and alternatives. This is concluded because these analysis areas are substantiated by documented seasonal movements of potentially impacted sensitive resources. Beyond these boundaries it considered that impacts would be too difficult to identify, quantify, and would largely be speculative. The Elkhorn Allotment consists of 5,446 total acres of public, private, and state land. This area comprises approximately 1.35 percent and 0.27 percent of the Greater sage-grouse and big game CIAA.</p>
<p>Social & Economic Values</p>	<p>Blaine County</p>	<p>Effects of the Proposed Action or Alternatives would occur immediately regardless of which action decision is made, i.e., either permit renewal or a 'no grazing' decision. Therefore, the timeframe for analysis is 1 year after a decision is rendered.</p>

4.6.1 Past Actions

This area was first managed by the General Land Office (GLO) in coordination with the Grazing Service and described as arid, broken, mountainous, or grazing in character. Many settlers depended on this remaining public domain to help support their livestock. The local ranchers grazed these lands in conjunction with their private ranch lands and it was on a first-come, first-serve basis. “The first Europeans found a continent with vast rangeland, ranges that had evolved through eons of grazing by animals similar to their domestic animals. Yet within a few decades they found that managing the balance of grazing animals and vegetation was radically different in the new-found West than in the swards, meadows, and pastures of their homelands” (Box & Malechek, 1987).

All public lands had unregulated grazing which led to severe soil erosion and depletion of native vegetation in many areas and the problem went mostly unsolved until the implementation of the Taylor Grazing Act of 1934. The Taylor Grazing Act sought to stop injury to the public grazing lands [excluding Alaska] by preventing overgrazing and soil deterioration; to provide for their orderly use, improvement, and development; [and] to stabilize the livestock industry dependent upon the public range through lease of the public domain to stock raisers (USDI BLM, 1988). The act also stated that these public lands adjacent to the land owners or homesteaders had preference in attaining issuance of a lease for a term of 10 years which is still the timeframe used today.

The Grazing Service dealt mainly with grazing policy while the GLO managed settlement, land sale, land exchange and mineral rights but there was some redundancy between the two agencies. Due to the considerable costs of World War II, Department of the Interior (DOI) officials sought a way to combine the two agencies. In 1946, the DOI formed the Bureau of Land Management and grazing on public lands was formalized and regulated. The BLM manages its public lands by dividing areas into grazing allotments which can be managed as a unit.

The Wood River Valley, which encompasses the Elkhorn Allotment, has had sheep grazing since the 1860s. Prior to World War II, the historic livestock use and sheep numbers in Idaho were substantially higher than they are today. In the early 1900s, there were numerous reports in the Great Basin of being able to count the sheep bands on the mountains by the dust clouds, and that little forage was available for any of them (Box & Malechek, 1987). The number of sheep in Idaho fluctuated through the 1900s but overall they have decreased from a record high of over 2.4 million head of sheep in 1920 to 235,000 head of sheep currently.

The historic Triumph Mine was previously discussed in depth in Section 3.3.2 but will also be disclosed under this section as well. The historic Triumph Mine is located within the Elkhorn Allotment and this mine was a very productive mine that has a lot of soil disturbance associated with it as well as mine tailings. The tailings are located on a clay lens which decreases seepage and mine tailing movement. Because of that, this spring has been identified as not being a water quality limited water bodies by the Idaho Department of Environmental Quality (DEQ).

In Triumph Gulch there are known adits that have been evaluated for environmental impacts to the area. There is an adit that is located approximately ½ mile north of the East Fork Road and on the east side of the valley. This site has a waste rock dump associated with it that has encroached upon the Triumph Gulch stream channel. This waste rock material has been screened and analyzed and does contain elevated metals such as lead, arsenic, cadmium, and Zinc. Even though these metals are present they are not readily mobilized and pose little to no threat for releases to the environment. Given that this area is utilized for a very limited time for both people and livestock there will be minimal danger for ill health effects. The waste rock itself though can become impairment and impact the stream when the waters are flowing by the erosional processes.

Adjacent to the Elkhorn Allotment, in the Indian Creek Allotment, a recent disposal of public land was finalized in 2010 to Blaine County under the Recreation and Public Purposes Act. Included in that sale was 243 public acres in Ohio Gulch for Blaine County to expand the Ohio Gulch transfer station as well as provide areas for recreational use. The Ohio Gulch transfer station provides basic waste management activities and is permitted to accept only non-hazardous waste according to Idaho Department of Environmental Quality requirements. The expansion was needed in order to increase the land available for construction and demolition debris disposal; which would also allow for an increase area for compaction and temporary storage of other solid waste waiting to be transferred to a regional landfill. There has also been an expansion of the area used for sorting recyclable material. The Ohio Gulch transfer station expansion has extended the life expectancy of the landfill to 30-40 years instead of reaching its full capacity in less than 2 years.

4.6.2 Present & Reasonably Foreseeable Action Scenario (RFAS) Actions

4.6.2.1 Livestock Grazing & Idaho Standards for Rangeland Health

As stated previously in Section 3.2, General Settings, the Elkhorn Allotment is located in Blaine County; approximately 5 miles northeast of Hailey, Idaho. It is surrounded mostly by other public lands and private lands. Elkhorn Allotment is north of the Indian Creek Allotment, west of South East Fork Allotment, south of the USDA National Forest lands and east of Highway 75. Very rarely is livestock found in the Elkhorn Allotment from outside areas and livestock trespass has not been an issue in the past.

The Elkhorn Allotment typically has one band of sheep graze in the early summer or early fall and another band graze in the fall (refer to Section 3.3.1). The active AUMs authorized in the allotment are 332 sheep AUMs. The Elkhorn Allotment has had seven documented wildfires occur between 1963 and 2001 but there may have been more wildfires prior to 1963 that were not documented.

The Elkhorn Allotment is meeting all Idaho Standards for Rangeland Health and current livestock management is in conformance with guidelines for livestock grazing management. Under the proposed action which would implement a change to the livestock numbers, the sheep would be present in larger numbers for a shorter period of time. It also allows up to two bands of sheep in the allotment, one actively grazing and another trailing through over the course of two days to five days. There may be an increase in utilization levels from 30%, the current level, to

40% and the whole allotment would be grazed instead of a portion of the allotment, which is the case in alternative 3. These small changes in utilization and use pattern mapping should not have cumulative or residual impacts for other resources.

For this resource, the effects of implementing the proposed action when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary, will add less to the cumulative effects of alternative 1, but more to the cumulative effects of alternative 2, and equal to the effects of alternative 3.

Under the no action alternative, the number of livestock would be capped at 266 head of sheep for the whole season of May 15th to November 20th every year. The same paths would need to be used continually by the sheep in order to water daily since there are only a few water sources located on public lands within the Elkhorn Allotment. Due to these reasons, this alternative would be the most challenging for the Elkhorn Allotment to remain meeting Idaho Standards of Rangeland Health in the future and would also be the most labor intensive for the BLM and the permittee. This allotment would need weekly or biweekly monitoring done in order to ensure that the utilization does not exceed 40%. Over time, this alternative may have residual impacts to the other resources such as wildlife habitat, riparian health and vegetative health which could further impact if the recreational opportunities in the allotment if people start to avoid this area in favor of other areas that do not have constant interactions with sheep and guard dogs. This alternative may also have cumulative impacts to the socio economics of the livestock permittee because it really is not feasible to expect that the permittee to hire a sheep herder to stay with 1/5 of a band of sheep. It would be financially draining for the permittee because ordinarily, that herder would be taking care of 1,000 to 1,800 head of sheep.

For this resource, the effects of implementing the no action alternative when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary, will add more to the cumulative effects of the proposed action, alternative 2, and alternative 3.

Under the no grazing alternative, not permitting Denis Kowitz to graze the Elkhorn Allotment has the potential to change utilization patterns of livestock grazing on other allotments that this operator is permitted in. Overall, Denis Kowitz typically grazes his allotments lightly because he has the flexibility to be able to have many options on where they graze. Currently, the permittee only uses a portion of his permitted use on all of his grazing allotments on BLM, as well as on the National Forest. In the future, livestock utilization may increase from light use to moderate use in neighboring allotments.

While increased utilization, as described under the proposed action, may not impact the Elkhorn Allotment since there are not any other foreseeable changes or increases in the other known land uses, this may not be the case for the other grazing allotments in the area. If this allotment were no longer able to be grazed, the changes in livestock grazing in other allotments may impact the health of other resources such as soils, vegetation, wildlife habitat and riparian areas. Over time, this change could affect if these neighboring allotments are able to meeting Standards of Rangeland Health in the future. If livestock grazing were not permitted in the allotment, the Elkhorn Allotment would continue to meet Rangeland Health standards in the future.

Under the no grazing alternative, the cessation of livestock grazing for a ten-year term could potentially increase the complexity of wildfire in the Elkhorn Allotment. Livestock tend to graze some areas more intensely than others creating patchy vegetation that reduces the continuity of fuel loads and the fires that might burn those fuels (Taylor, 2006). Overall, without fuel reduction occurring, in the form of livestock grazing, the fine fuels have the potential to build and increase the likelihood of the fires ability to travel faster through the Elkhorn Allotment. This buildup of fine fuels can lead to more erratic, unpredictable fire behavior which will make the wildfires more difficult to control.

If the permittee were to lose other grazing allotments in the area as well, due to the selection of this alternative for other grazing permit renewals, the socioeconomic impact on the current permit holder, the people they employ, the businesses where the operator purchases supplies, and the communities that are supported by livestock operation activities could be substantial.

For this resource, the effects of implementing the alternative 2 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary, will add less to the cumulative effects of the proposed action and alternative 1, and less to the effects of alternative 3.

Under alternative 3, there would not be any cumulative or residual impacts from livestock grazing in the Elkhorn Allotment. This is almost a certainty because this alternative is the current situation and has been occurring since 1998. Under this alternative, the allotment is meeting all applicable standards for rangeland health and the allotment is providing habitat for diverse populations of wildlife.

For this resource, the effects of implementing the alternative 3 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary, will add equal to the cumulative effects of the proposed action, but less to the cumulative effects of alternative 1, and more to the effects of alternative 2.

The BLM currently does not have any range improvement projects planned within the Elkhorn Allotment or within any neighboring allotments.

4.5.2.2 Soils & Water Quality

The cumulative effects analysis area (CEAA) for upland soils and watershed is the extent of the Elkhorn Allotment. This is an appropriate scale for assessing cumulative soil environmental effects because soil productivity is a site-specific attribute of the land and is not dependent on the productivity of an adjacent area. Similarly, if 1 acre of land receives incremental soil impacts – i.e., reduced soil porosity, water holding capacity, aeration, long-term productivity, etc. – and a second management activity is planned for that same site, then cumulative effects to soil are possible. The CEAA was selected because the effects of grazing management on upland soils, as well as hydrologic function and energy flow, only apply within the allotment boundary. With increasing distances from the allotment, it becomes difficult to determine impacts due to the dilution effect that comes with increased acreage.

Through erosional and depositional processes, upland soils provide the sediment that enters riparian areas and is transported within stream systems throughout the watershed and beyond. While the watershed level was initially considered to serve as the CEAA for upland soils, soil and hydrologic function are site-specific.

Alternative 1 would limit the livestock numbers to 266 sheep and the season of use would be a continuous season from May 15th until November 20th every year. Season-long grazing, even with reduced livestock numbers, may lead to cumulative impacts to soils and water quality over time since these resources lack a season of rest and/or deferment under this alternative. The same routes would need to be used throughout the season which has the potential to lead to soil compaction in these high use areas overtime.

For this resource, the effects of implementing Alternative 1 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be more to the cumulative effects of the proposed action, Alternative 2, and Alternative 3.

Alternative 2 would eliminate all grazing in the Elkhorn Allotment for a term of 10 years (Section 2.4) and would be the most beneficial for soils to maintain desired conditions because soil impacts would decline and only be affected by recreational grazing (i.e., from equestrian use), livestock trailing and wildlife. This alternative would provide for the most unimpeded and rapid improvement of the small, isolated parcels of soils affected by livestock grazing but would not eliminate soil impacts resulting from other uses.

Site productivity would increase and mechanical damage to the soil surface from livestock hoof action would cease. Extended rest from livestock grazing would enhance perennial plant vigor and production, along with subsequent reproduction and establishment. The increased canopy cover, surface litter, above-ground structural material, and fibrous root matter would aid in protecting the soil from both wind and water erosion. However, increased surface fuels may elevate the potential for higher soil burn severities in the event of a fire.

Natural processes of recovery would be achieved through cycles of wetting and drying, shrinking and swelling, freeze and thaw, root growth, and bioturbation of compacted layers, which would provide additional soil organic matter. Increases in residual vegetation, energy flow and nutrient cycling, ground cover, and soil stability would be greater over the long term. The implementation of Alternative 2 is expected to maintain or improve soil and upland watershed health over the existing condition. The Elkhorn Allotment is currently meeting Rangeland Health Standard 1 and the Sun Valley Grazing EIS objectives because proper nutrient cycling, hydrologic cycling, energy flow, and soil and hydrologic function are consistently being maintained throughout the allotment.

For this resource, the effects of implementing alternative 2 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be less to the cumulative effects of the proposed action, Alternative 1 and Alternative 3.

Under alternative 3, there would not be any cumulative or residual impacts from livestock grazing in the Elkhorn Allotment. This is almost a certainty because this alternative is the current situation and has been occurring since 1998. Under this alternative, the allotment is meeting all applicable standards for rangeland health and the allotment is providing habitat for diverse populations of wildlife. There would be very negligible cumulative impacts to soils and water quality under the proposed action and alternative 3. The direct and indirect impacts of implementing these actions are limited in intensity and the direct and indirect impacts known because these two alternatives are basically the continuation of the current management with the exception of minor changes.

For this resource, the effects of implementing the alternative 3 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be equal to the cumulative effects of the proposed action, less to the cumulative effects of Alternative 1, but more to the cumulative effects of Alternative 2.

4.5.2.3 Vegetation, including BLM Sensitive Species, Noxious Weeds & Invasive Plants

The vegetation resource cumulative impacts analysis area (CEAA) was set to the Elkhorn Allotment boundary, which covers 5,446 total acres of public, private, and state land. Past, present and reasonably foreseeable future actions outside the Elkhorn Allotment boundary will have little direct or indirect impact on vegetation resources in the Allotment and similarly, effects to vegetation resources under each alternative analyzed will not extend beyond the Allotment boundaries. Plants are not transient over long distances because they are rooted in the soil. An exception to this is wind-distributed seeds that can travel extended distances. Indirect effects of actions affecting vegetation resources are spatially confined to a short distance from the action.

The Elkhorn Allotment has had mining and livestock grazing occur within the boundaries for well over 100 years. The mining activities have ceased but the adits and mine tailings have impacted small areas of vegetation in the Triumph Gulch drainage; specifically where the mine tailings occur. The historic livestock grazing were at levels that haven't occurred since the 1970s and it would be prudent to state that a decrease of 50% to 90% of livestock grazing activities has occurred over the past 100 years. Even with these cumulative past actions, the Elkhorn Allotment is meeting Standard 4 – Native Plant Communities and the allotment is providing healthy, productive rangelands.

Present and future cumulative impacts may occur in regards to noxious weeds and invasive plants. Most of the parcels of land in the Wood River Valley have populations of spotted knapweed, diffuse knapweed and Canada thistle and it is possible the weeds were spread through many means such as vehicles, recreation, livestock trailing, construction and development and wind. Many attempts have been made in the past to eradicate them through chemical and biological means with limited success.

Under the proposed action, there are not any anticipated cumulative effects to vegetation from livestock grazing because the only changes to the permit include a change in the livestock numbers allowing a band of sheep to actively graze the allotment while another band trails through the allotment (over the course of two to five days). These elevated numbers would only be present for less than a week and should not add to the cumulative or residual impacts in the Elkhorn Allotment. The season of use will stay the same under this alternative but there will be a limit on the amount of time the livestock could be present between July 1st and August 31st which will help maintain the vegetation communities in the allotment.

For this resource, the effects of implementing the proposed action when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be less to the cumulative effects of Alternative 1, but more to the cumulative effects of Alternative 2, and equal to the effects of Alternative 3.

Alternative 1 would limit the livestock numbers to 266 sheep and the season of use would be a continuous season from May 15th until November 20th every year. Season-long grazing, even with reduced livestock numbers, may lead to cumulative impacts to vegetation over time since these resources lack a season of rest and/or deferment under this alternative. The same routes would need to be used throughout the season which has the potential to lead to individual plants being grazed multiple times over the course of the year in these high use areas overtime. For this resource, the effects of implementing Alternative 1 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be more to the cumulative effects of the proposed action, Alternative 2, and Alternative 3.

Under alternative 2, the no grazing alternative, no livestock grazing would occur in the allotment and there would be 0 permitted AUMs other than 99 AUMs allowable for trailing sheep. Not only would there be no cumulative impacts to vegetation from livestock grazing but the direct and indirect impacts to vegetation from livestock grazing would be negligible. Eliminating livestock disturbance, as proposed in alternative 2, would reduce the risk of weed infestation and its associated adverse impacts on soil stability and nutrient cycling though other vectors for seed dispersal remain and would continue the need for weed control programs coordinated by multiple entities.

For this resource, the effects of implementing alternative 2 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be less to the cumulative effects of the proposed action, Alternative 1 and Alternative 3.

Under alternative 3, there would not be any cumulative or residual impacts to vegetation from livestock grazing in the Elkhorn Allotment. This is almost a certainty because this alternative is the current situation and has been occurring since 1998. Under this alternative, the allotment is meeting all applicable standards for rangeland health and the allotment is providing healthy, diverse populations of native perennial plants.

There would be very negligible cumulative impacts to vegetation under the proposed action and alternative 3. The direct and indirect impacts of implementing these actions are limited in intensity and the direct and indirect impacts known because these two alternatives are basically the continuation of the current management with the exception of minor changes.

For this resource, the effects of implementing the alternative 3 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be equal to the cumulative effects of the proposed action, less to the cumulative effects of Alternative 1, but more to the cumulative effects of Alternative 2.

4.5.2.4 Fish & Wildlife; including Threatened, Endangered Candidate & BLM Sensitive Species

Both respective CIAA's for wildlife resources are predominately comprised of federally administered public lands. These lands are comprised of timber and rangelands. Perennial grasslands do occur within these geographic areas, but are attributed to early seral conditions (i.e. post fire). Some agriculture development does occur in the vicinity of the Big Wood River Valley. Housing residences are present throughout the Big Wood River Valley. Recreation services and associated infrastructure are located throughout both CIAA's, but are most concentrated in the Big Wood River Valley.

Greater sage-grouse Habitat and Leks within the Sage-grouse CIAA

There are 181,669 acres of preliminary priority and 73,257 acres of preliminary general habitat within the sage-grouse CIAA. There are 58 leks within the sage-grouse CIAA, including: 14 unoccupied, 19 undetermined leks, 22 occupied, and 3 not verified.

Big Game Habitat

There are 115, 839 acres of documented year-round habitat, and 28,387 acres of winter habitat within the Big game CIAA. Additional seasonal habitats are available that are likely not accounted for based on the spatial extent of utilized GIS layers. This area covers four game management unit boundaries, including GMU's 36, 48, 49, and 50 (i.e. west of highway 93).

Past, Present and Reasonably Foreseeable Activities

Recreation Services

The Wood River and Sawtooth Valleys are popular recreation destinations. These general geographic areas contain a large percentage of public lands, including several wilderness areas and the Sawtooth National Recreation Area. Camping, hiking, skiing, mountain biking, hunting, and fishing are all popular activities. Activities vary seasonally with most camping, hiking, mountain biking, and fishing occurring in the summer. Hunting activities are primarily restricted to September and October. The frequency and density of user days associated with recreation services is expected to increase in proximity to the Wood River Valley and associated communities (i.e. Ketchum, Hailey, and Bellevue). The southern portion of the sage-grouse CIAA is expected to be the least visited portion of the landscape for recreation services for both CIAA's. The Wood River Valley and associated communities are expected to provide the densest recreation activities. Impacts from infrastructure and trail development associated with recreation services have already manifested. Human activity associated with these activities

would be expected to result in disturbance to sensitive wildlife resources from noise pollution and social intolerance. These impacts may result in behavioral alterations and influence fitness and reproductive success. Species sensitized to human presence would be expected to avoid areas during times of human activity. Impacts to wildlife resources from recreation activities are expected to increase as density and frequency of use increases.

Livestock Grazing

Livestock grazing is the primary land authorization which occurs within each respective CIAA. There are 103 BLM livestock grazing allotments within the Big Game CIAA. Additional allotments are available on USFS administered land within the Big Game CIAA. The sage-grouse CIAA does not contain any USFS administered allotments, but there are 57 BLM grazing allotments which occur within the sage-grouse CIAA. Livestock grazing also occurs on private land within each of these respective CIAA's. The Big Game CIAA predominately occurs on USFS administered land. Livestock grazing which occurs on USFS administered land is primarily domestic sheep. There have not been any range improvement projects recently implemented on BLM managed lands and there are no plans to develop any in the near future. Livestock grazing in Elkhorn Allotment should not be affected by RMP amendments that reflect new conservation measures for Greater sage-grouse because the allotment does not contain any preliminary general habitat, preliminary important, or preliminary priority sage-grouse habitat.

Agriculture Development

Cultivated agriculture land is present throughout both CIAA's. The CIAA for sage-grouse contains more cultivated agriculture land. Impacts from agriculture on special status species have already manifested. Adverse consequences of this development on special status species would have occurred when these lands were cleared. These altered lands may still contribute to adverse impacts to special status species by reducing habitat availability and decreasing habitat continuity.

Wildfire

Wildfire has burned 76,062 acres (19%) and 148,603 acres (7%) within the Greater sage-grouse and big game CIAA's within the last 15 years, respectively. Wildfire has resulted in changes in vegetation composition. Recently burned areas would be characterized as early seral habitat. This alteration can have both positive and negative consequences to wildlife. Fire could promote regeneration of aspen communities which would be a benefit to big game for browse. Conversely wildfire also removes late seral stands of sagebrush which is imperative for the survival of Greater sage-grouse and other sagebrush obligate species.

Past, Present, and Future Actions

Past Actions

Past actions include all of the aforementioned activities. These activities have cumulatively altered or influenced the landscape, resulting in the current baseline habitat conditions provided for currently.

Present Actions

Present actions are considered to be synonymous with past actions. These activities still occur on the landscape. Recreation services are expected to have increased in popularity recently. For example, mountain biking appears to have increased in popularity and trail networks have been developed in response to this demand in the Big Wood River Valley.

Future Actions

All of the aforementioned past and present actions are expected to continue. Popularity of recreation services is expected to increase, particularly in proximity to the Big Wood River Valley. A general increase in recreation services would be expected to increase commensurate with general population growth and peak economic activity. Each of these actions would individually result in impacts to wildlife resources, potentially including avoidance, loss of habitat, and habitat alteration if development of new trails and infrastructure occurs. The impacts of the proposed action and alternatives when compared to the incremental impacts of cumulative actions are expected to only result in minor adverse consequences to wildlife resources. This is concluded because proposed livestock grazing is expected to only have minor direct and indirect impacts to wildlife resources, and the addition of the incremental impacts from past, present, and future actions area also expected to have minor adverse impacts to wildlife resources.

Cumulative impacts to Wildlife Resources from the Proposed Action and Alternatives

Proposed Action Alternative

Under the proposed action alternative, the permittee is expected to graze 1000 to 2500 head of sheep in the Elkhorn Allotment for 50 to 20 days in a row, respectively. Refer to Table 6 for a description of domestic sheep herbivory relative to production estimates. The presence of domestic sheep in the allotment would increase the potential for interaction between wolves and domestic sheep, which may result in depredation of domestic sheep. The potential for this interaction would be greater the longer domestic sheep are on the allotment. Depredation of domestic sheep would likely result in lethal control of wolves. This risk is expected to be similar on other adjoin allotments within the respective CIAAs. The CIAAs cover a broad geographic range and the likelihood for depredations to occur within these broad geographic areas is likely, particularly within the big game CIAA. This is concluded because these analysis boundaries overlap occupied gray wolf habitat and active grazing allotments. Currently, under the proposed action; which would continue to allow the permittee to utilize 332 AUMs, there have not been any instances of lethal control of predators in the Elkhorn Allotment. As such it is not expected that the proposed action would not appreciably contribute the risk of lethal control of wolves cumulatively.

The risk of interaction amongst bighorns sheep on the allotment could occur as well. The potential for interaction between bighorn sheep and domestic sheep is expected to increase the longer domestic sheep are on the allotment, with a greater potential for this interaction to occur in the fall. Within the CIAA boundary for big game additional domestic sheep allotments are available on USFS administered land. It is expected that the potential for interaction of domestic sheep and bighorn sheep on allotments within the respective CIAAs would be analyzed during the permit renewal process for each respective allotment. Under the proposed action impacts to bighorn sheep are expected to be limited because of the great distance separating the allotment from the nearest source population.

The combined effects of recreation services, residential development, agriculture, wildfires, and weed infestations in the respective CIAA's are expected to have contributed to changes in special status species and big game use in the general area of the allotment over time. Consequently, it is expected that the importance of more remote blocks of public land has increased. Big game use occurs year-round on the allotment with greater use occurring in the late fall, winter, and early spring. Sage-grouse use occurs predominately during the late brood rearing season. Competition for forage amongst big game and domestic sheep is only expected to result in minor adverse consequences. This is concluded because domestic sheep would only remove a portion of the herbaceous matter; approximately 11 and 18% (refer to Table 6).

The majority of migratory landbirds would be present only during the breeding season. The breeding season is a sensitive season for migratory birds, because adverse consequences have the potential to impact productivity. The breeding season for migratory landbirds can overlap the grazing season. It is assumed that adjoining allotments with the CIAAs would be subject to a similar grazing season of use. Although the grazing season overlaps the breeding season of migratory landbirds, it is expected that impacts to migratory landbirds would not result in more than minor adverse impacts. This is concluded because livestock would only consume a portion of the available herbaceous matter, and are not expected to occur at great stocking densities. Grazing outside the breeding season is not expected to result in impacts to migratory landbirds. This is concluded because livestock would not be expected to remove so much herbaceous matter that the composition of the vegetative community is altered. Consequently alterations to habitat are not expected. For example, within Elkhorn Allotment livestock are only estimated to remove approximately 11 and 18% of the available herbaceous matter. The range of utilization of herbaceous matter would be variable amongst allotments within the respective CIAAs. However, it is assumed that the % utilization of herbaceous matter on these allotments would be limited as well. The implications of domestic sheep grazing under the proposed action alternative when added to the past, present, and reasonably foreseeable future is not expected to result in more than minor adverse consequences to wildlife habitat and use thereof. This is concluded because the proposed action is not expected to result in more than minor adverse impacts to wildlife resources directly or indirectly. These impacts when added to the cumulative impacts of past, present, and reasonably foreseeable actions are not expected to exceed minor adverse consequences.

No Action Alternative

Under the no action alternative, the permittee could be authorized to graze 266 head of sheep in the Elkhorn Allotment for 190 days in a row. Refer to Table 6 for a description of domestic sheep herbivory relative to production estimates. The cumulative impacts of these alternatives are expected to be largely similar to the proposed action. This is concluded because the AUMs are the same under this alternative as the proposed action. However, the no action does allocate livestock on the allotment for greater time. Increasing the time spent on the allotment would be expected to increase the potential for exposure to bighorn and sheep and wolves. Although the potential for increased exposure is there, it is not expected to be great given the great distance between the allotment and a source population of bighorn sheep. Similar to the proposed action this alternative is only expected to cumulatively result in minor adverse impacts to wildlife resources.

No Grazing Alternative

Under the no grazing alternative, the permittee would not be authorized to graze livestock in the Elkhorn Allotment, except for trailing. Trailing of 2500 sheep would be authorized for six days total. Refer to Table 6 for a description of domestic sheep herbivory relative to production estimates. A small band of sheep present in the allotment for a long duration would create potential that gray wolves could depredate domestic sheep. Depredation would likely result in lethal control of wolves. Given the limited number of days livestock would be on the allotment it is considered unlikely that a depredation event would occur. This concluded because domestic sheep would be actively moving through the allotment and would be accompanied by guard dogs and herders. This alternative does have potential for risk of contact with bighorn sheep. However this risk is expected to be minimal because domestic sheep would only be on the allotment for a short time and would be attended by guard dogs and herders. These features are expected to reduce the likelihood that an interaction could occur. Cumulatively a reduction of exposure on Elkhorn Allotment could reduce the likelihood of an interaction with gray wolves or bighorn sheep if it results in a net decrease of livestock presence within the CIAAs. Conversely, it could result in an increase in exposure if the loss of time on Elkhorn Allotment is compensated for by spending more time on other allotments, and those allotments are in closer proximity to occupied bighorn sheep and gray wolf habitat. Impacts to other wildlife resources from a reduction would decrease consumption of herbaceous matter. A decrease in consumption of herbaceous matter would be expected to increase cover and forage for special status species and big game. This could result in positive benefits to wildlife resources locally and cumulatively if it results in a net increase cover within the respective CIAAs.

Actual Use Alternative

Under the actual use alternative, the permittee could be authorized to graze 1000 to 1820 head of sheep in the Elkhorn Allotment for 32 to 17 days in a row, respectively. Refer to Table 6 for a description of domestic sheep herbivory relative to production estimates. The consequence of this alternative is expected to be similar to the effects of the proposed action as it concerns the time and potential for exposure. The actual alternative would be expected to decrease impacts to wildlife resource relative to the consequences of cover and forage. The actual use alternative would allocate less AUMs. A reduction in AUMs could have positive impacts to wildlife resource by decreasing consumption of herbaceous matter and increasing cover and forage availability for wildlife. This impact could cumulatively reduce adverse impacts to wildlife resources if the reduction in AUMs locally results in a net decrease in AUMs within the respective CIAAs.

4.5.2.5 Wetlands & Riparian Areas

The water and riparian resource CEAA was set to the four IDEQ 5th field HUCs (watersheds) that incorporate and extend beyond the Elkhorn Allotment boundary. The watersheds comprise assessment units that were established to incorporate groups of similar streams with the same stream order, and with similar land use practices, ownership, or land management.

The watersheds that make up the CEAA include the Big Wood Watershed. The BLM chose this CEAA because the direct and indirect effects of grazing management on riparian resources, as well as on specific impacts such as stream sediment and water temperature, would be experienced within these IDEQ 5th field HUCs. Outside of this area, however, direct and

indirect effects of the grazing scheme would not be experienced and/or would be too small to create identifiable cumulative effects.

The Elkhorn Allotment has had mining and livestock grazing occur within the boundaries for well over 100 years. The mining activities have ceased but the adits and mine tailings have impacted small areas in the Triumph Gulch drainage; specifically where the mine tailings occur. Historic livestock grazing was at levels that haven't occurred since the 1970s, and a decrease of 50% to 90% of livestock grazing activities has occurred over the past 100 years. Even with these cumulative past actions, the Elkhorn Allotment is meeting Standard 2 - Riparian Areas & Wetlands and Standard 3 - Stream Channel & Floodplain and the Triumph Gulch is providing a healthy, productive perennial stream.

The cumulative effects to riparian and wetlands are very similar to the cumulative effects to vegetation discussion (Section 4.5.2.3). The alternatives are also very comparable to the differences between each alternative and how the alternatives compare to each other.

There have not been any range improvement projects implemented on BLM managed lands in regards to a spring development in Triumph Gulch and there are no plans to develop any in the near future. There are already springs developed in the center of the allotment on Idaho Department of Lands and privately-owned lands so the need to develop other springs on public lands is small.

4.5.2.6 Recreation & Visitor Services

The vegetation resource cumulative impacts analysis area (CEAA) was set to the Elkhorn Allotment boundary, which covers 5,446 total acres of public, private, and state land. Past, present and reasonably foreseeable future actions outside the Elkhorn Allotment boundary will have little direct or indirect impact on recreation resources and visitor services in the Allotment and similarly, effects to these resources under each alternative analyzed will not extend beyond the Allotment boundaries. Most of the recreational activities begin and end on BLM administered land in the Elkhorn Allotment but some do extent onto the National Forest lands such as hunting and motorized vehicle usage.

The time that livestock spend in the allotment have the largest impact on recreational resources because the more time the livestock are present increases the likelihood that a conflict could occur. There have not been any specific complaints made to the BLM regarding livestock grazing in the Elkhorn Allotment in regards to recreational use as of yet.

Under the proposed action, the total number of days that livestock can be present in the allotment has been capped at 50 days and this is a Term and Condition on the grazing permit. Under alternative 1, the no action alternative, the number of allowable days that livestock can be present in the Elkhorn Allotment is 190 days, or the whole grazing season. Under alternative 2, the no grazing alternative, all active AUMs would be in non-use status but the permittee would be permitted to trail a band of sheep through the allotment over the course of three days. Under alternative 3, the actual use alternative, the total number of days that livestock can be present in the allotment has been capped at 32 days and this is a Term and Condition on the grazing permit.

For this resource, the effects of implementing the no action alternative when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be more to the cumulative effects of the proposed action, alternative 2 and alternative 3.

For this resource, the effects of implementing the no grazing alternative when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be less to the cumulative effects of the proposed action, alternative 1 and alternative 3.

The Shoshone Field Office is currently working with Blaine County to develop a North Highway Travel Plan and future recreational trails and roads may be either closed, moved, improved or developed. The Elkhorn Allotment may be affected by the travel plan but it is unknown as of yet what may be proposed in this allotment.

4.5.2.7 Social & Economic Values

The scope of this analysis covers Blaine County and a portion of Cassia County because, although the Shoshone Field Office manages the Elkhorn Allotment within the direct and indirect effect analysis area, the permittee applying for the permit maintains a base ranch near Declo, Idaho in Cassia County.

Past actions taken and future actions considered regarding grazing permit renewals will affect the socioeconomic conditions in both counties because they influence decisions the operators make regarding their ranches. Future Decisions are anticipated for the Final Muldoon Canyon Allotment Grazing Permit Renewal but no changes in AUMs or grazing management practices have been determined for those Allotments as of the time of this analysis. Denis Kowitz is also not a permittee in the Muldoon Canyon Allotment. The cumulative effects analysis in those upcoming permit renewal processes will be addressed in those environmental documents and will include the effects of implementing any decisions in the Elkhorn Allotment.

There are not any foreseeable cumulative impacts for social and economic values under the proposed action; however, there may be some for the no action alternative, the no grazing alternative as well as the actual use alternative. Under the no action alternative, the permittee would still be authorized to graze in the Elkhorn Allotment but the terms and conditions of the grazing permit could be financially straining. The permittee would have to hire a herder for the whole grazing season, or 190 days, and this herder would only be managing 266 head of sheep which is one fifth the size of an average band of sheep. The cost of having a very small band of sheep in the Elkhorn Allotment for a long period of time would not be favorable and may lead to the permittee abandoning the grazing permit in favor of other allotments and areas where he could have a larger band of sheep.

Cumulative impacts to socio economics may occur under the no action alternative. Over time, this alternative may have residual impacts to the other resources such as wildlife habitat, riparian health and vegetative health which could further impact if the recreational opportunities in the allotment if people start to avoid this area in favor of other areas that do not have constant interactions with sheep and guard dogs. This alternative may also have cumulative impacts to

the socio economics of the livestock permittee because it really is not feasible to expect that the permittee to hire a sheep herder to stay with 1/5 of a band of sheep. It would be financially draining for the permittee because ordinarily, that herder would be taking care of 1,000 to 1,800 head of sheep.

For this resource, the effects of implementing alternative 2 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be more to the cumulative effects of proposed action, but less to the cumulative effects of Alternative 3, with the most cumulative effects with the selection of alternative 2.

Cumulative impacts to socio economics may occur under the no grazing alternative since it would cancel all authorized active AUMs on the allotment for a period of 10 years. By not being allowed to graze this one allotment, the possibility that the permittee would have a substantial socioeconomic impact would be high since it is an allotment that he can depend on for four to six weeks of forage for one band of sheep during the summer. If the permittee were to lose other grazing allotments in the area as well due to the selection of this alternative, the socioeconomic impact on the current permit holder, the people they employ, the businesses where the operator purchases supplies, and the communities that are supported by livestock operation activities could be substantial.

Under the no grazing alternative, by not permitting Denis Kowitz to graze the Elkhorn Allotment, the potential of increasing grazing use on other grazing allotments that this permittee has is high. Currently, the permittee only uses a portion of his permitted use on all of his grazing allotments on BLM, as well as on the National Forest. In the future, livestock utilization may increase from light use to moderate use in neighboring allotments, thereby changing the impacts of livestock grazing activities in those other allotments. Currently, Denis Kowitz under-utilizes his permitted use on many of his grazing permits, private and State land holdings. The no grazing alternative may lead them to fully utilize their other grazing lands, including their private and State land holdings. Many of their other private and State lands are within PPH habitat for sage-grouse and crucial winter range for mule deer and elk. This increased use in other areas could alter wildlife use patterns in the Wildhorse Allotment, Bullion Allotment, Rota Run Allotment, West Bellevue Allotment and Timmerman Hills Allotment. This may alter native plant populations in those areas and cause an increase in vegetation removal which could lead to more soil erosion and noxious weeds and invasive species.

For this resource, the effects of implementing alternative 2 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be more than the cumulative effects of any other alternative analyzed in this EA.

Cumulative impacts to socio economics may also occur under the actual use alternative since it would reduce the authorized active AUMs on the allotment from 332 AUMs to 210 AUMs. This alternative also reduces the season of use and reduces the flexibility the permittee would have in case of emergency such as wildfires. The reduction of AUMs in this allotment, coupled with the reduced season of use may influence the permittee's management of his other grazing allotments in the future.

If the permittee were to lose other grazing allotments in the area as well due to the selection of this alternative, the socioeconomic impact on the current permit holder, the people they employ, the businesses where the operator purchases supplies, and the communities that are supported by livestock operation activities could be substantial.

For this resource, the effects of implementing alternative 3 when added to the residual effects of the past actions and the effects of foreseeable future actions within this analysis boundary will be more than the cumulative effects of the proposed action, but less than the cumulative effects of Alternative 1, and less than the effects of Alternative 2.

4.6.3 Cumulative Impacts Summary:

When considered with past, present, and reasonably foreseeable future actions, there are no known incremental effects of the proposed action, alternative 2 and alternative 3. The no action alternative, or alternative 1, may have incremental negative impacts from livestock grazing, Idaho Standards for Rangeland Health, soils, water quality, vegetation, wetlands & riparian areas, recreation which would in turn contribute to impacts to recreation and visitor services since there may be less interest to recreate in an area that sheep and guard dogs present from the spring to the fall every year.

5.0 CONSULTATION AND COORDINATION:

5.1 Introduction:

The issue identification section of Chapter 1 identifies those issues analyzed in detail in Chapter 4. The interdisciplinary review provides the rationale for issues that were considered but not analyzed further. This review is located in the allotment Standards & Guidelines folder. The issues were identified through the public and agency involvement process described in sections 5.2 and 5.3 below.

5.2 Persons, Groups, & Agencies Consulted:

TABLE 20: LIST OF ALL PERSONS, AGENCIES & ORGANIZATIONS CONSULTED FOR PURPOSES OF THIS EA

Name	Purpose & Authorities for Consultation or Coordination	Findings & Conclusions
Denis Kowitz	Permittee	No comments received
Audubon Society, Prairie Falcon Chapter	Interested Public	No comments received
Blaine County Commissioners	Interested Public	No comments received
Committee for the High Desert	Interested Public	No comments received
ICL Public Lands Office	Interested Public	No comments received
Idaho Chapter Wild Sheep Foundation	Interested Public	Was not an Interested Public at the time of scoping
Idaho State Dept. of Agriculture	Government Agency	No comments received
Idaho State Dept. of Environmental Quality	Government Agency	No comments received
Idaho Department of Fish & Game	Government Agency	No comments received
Shoshone-Bannock Tribes	Tribal Government	No comments received
Western Watersheds Project	Interested Public	No comments received
Wildlands Defense	Interested Public	Was not an Interested Public at the time of scoping
	Interested Public	No comments received
Paul McClain	Interested Public	No comments received
Jim Prunty	Interested Public	Was not an Interested Public at the time of scoping
Mel Quale	Interested Public	No comments received
David Skinner	Interested Public	No comments received

5.3 Summary of Public Participation:

During preparation of the EA, a Rangeland Health Field Assessment for the Elkhorn Allotment was completed in 2008 and sent to permittees and interested publics on June 4, 2009. There were no public comments were received for the Elkhorn Allotment in regards to the Rangeland Health Assessment.

Along with the Rangeland Health Field Assessment, the public was notified of the upcoming livestock grazing permit renewal in the Elkhorn Allotment through a scoping package that was sent to permittees and interested publics on August 24, 2012. There were no public comments received from this scoping package either.

5.4 List of Preparers

TABLE 21: List of BLM –Shoshone Field Office Reviewers

Name	Title	Review Date
Joanna Tjaden	Rangeland Management Specialist	05/29/2015
Jesse Rawson	Wildlife Biologist	06/04/2015
Scott Maclean	Fisheries Biologist	06/15/2015
Lynn Pettingill	Vegetation	06/04/2015
Lisa Cresswell	NEPA Coordinator/ Archeologist	06/04/2015
Brian Thrift	District NEPA Coordinator	06/18/2015
James Barnum	Supervisory NRS	06/04/2015
Codie Martin	Shoshone Field Manager	06/20/2015

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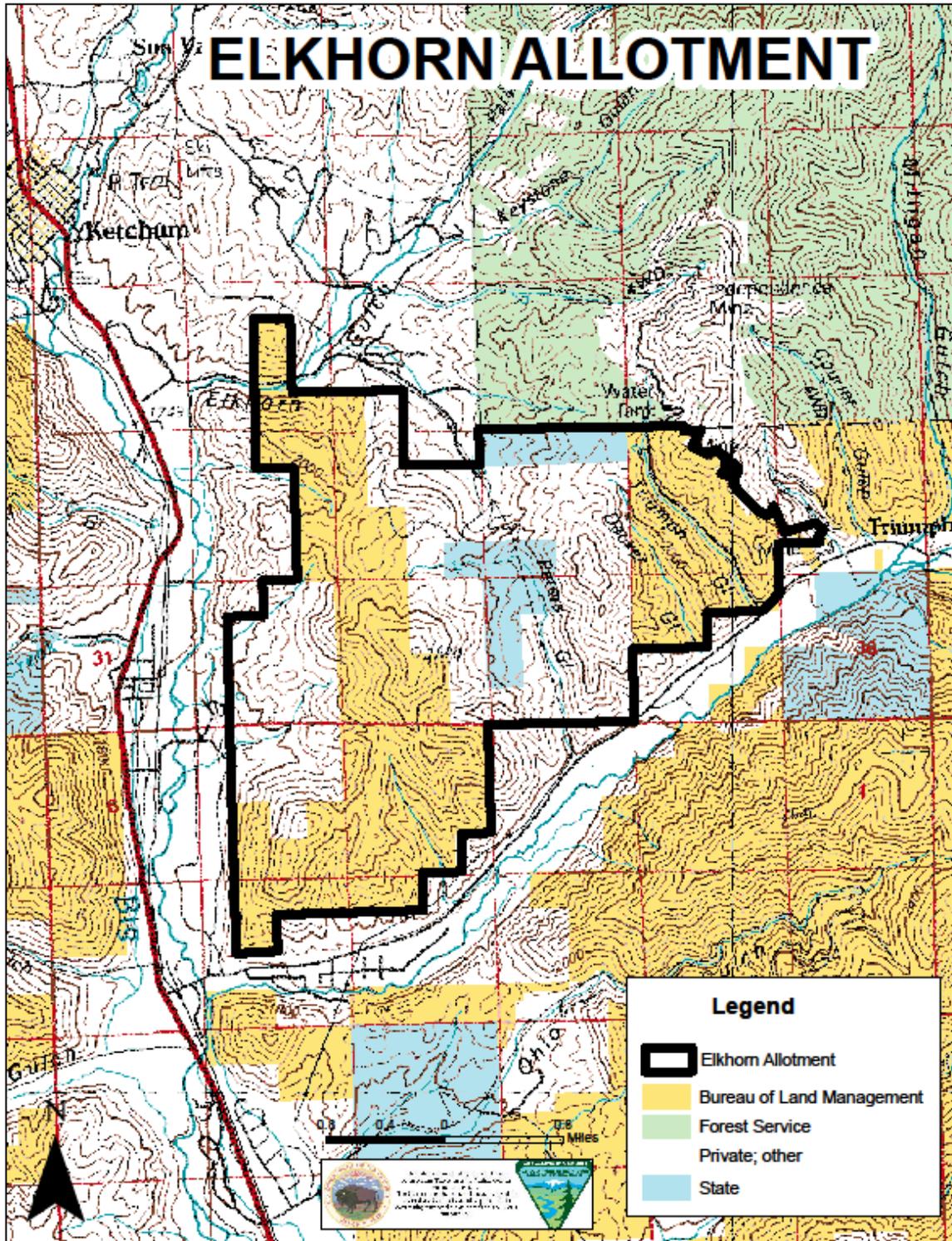
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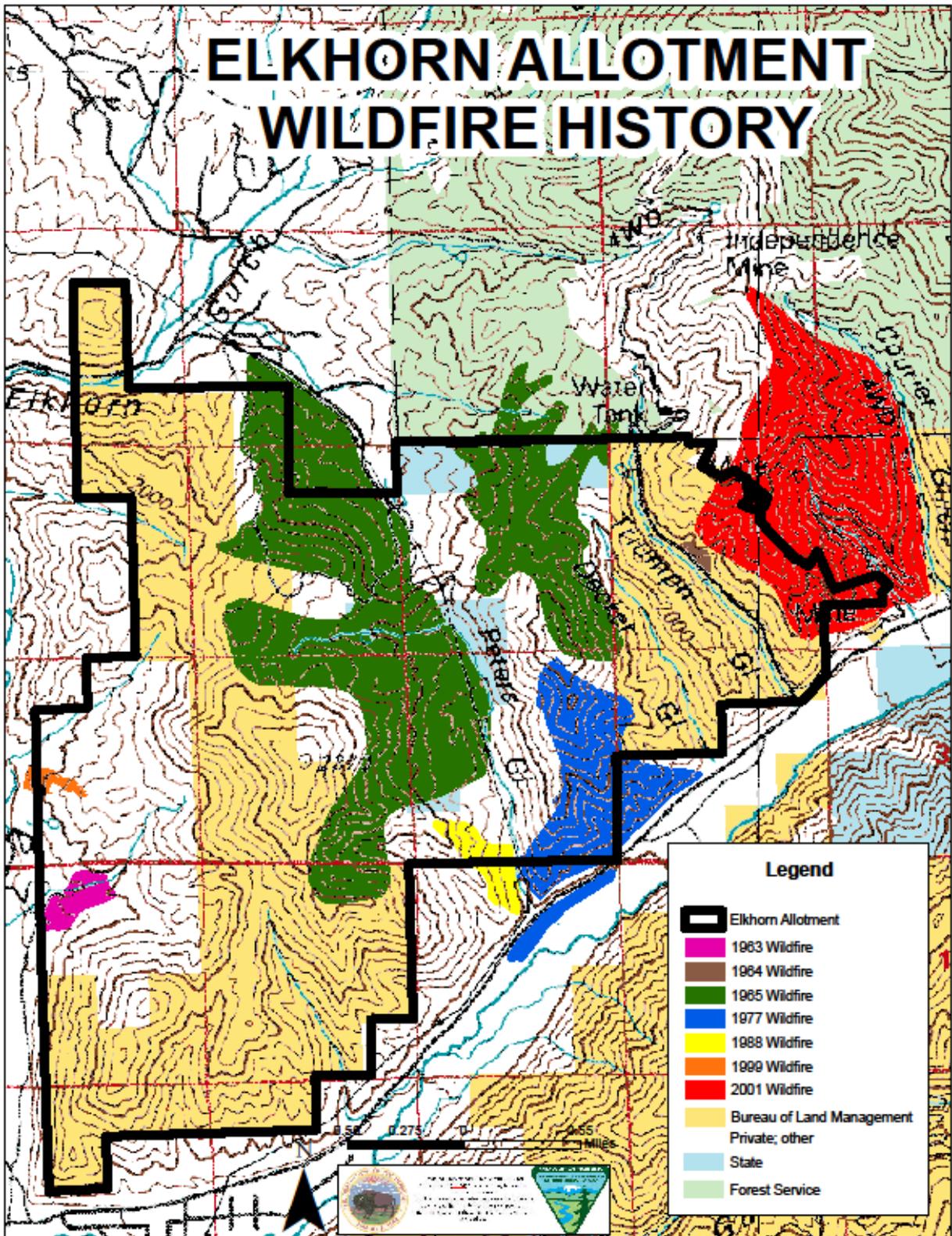
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7.0 Attachments

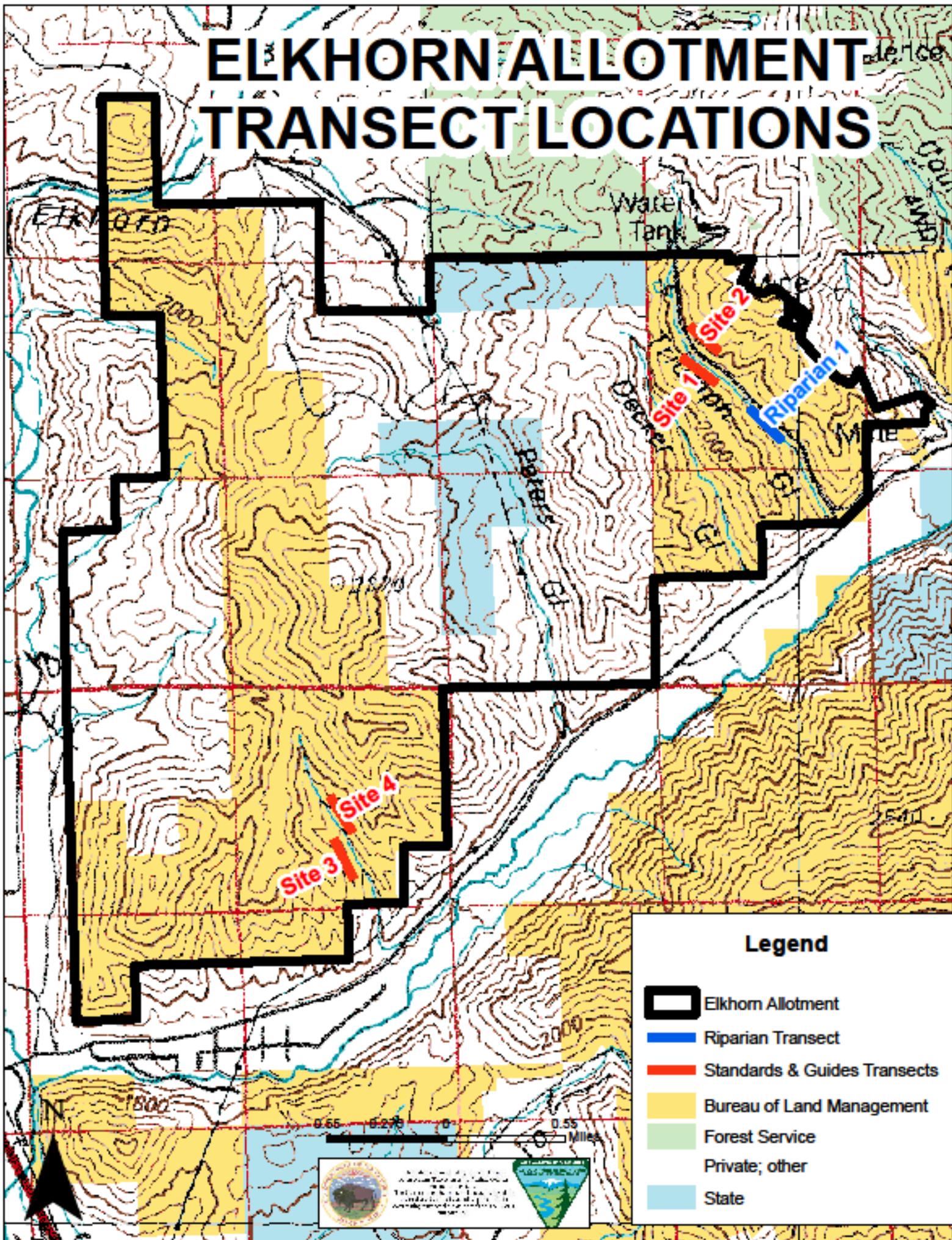
7.1 Map 1 – Elkhorn Allotment Boundary



7.2 Map 2 – Elkhorn Wildfire Map



ELKHORN ALLOTMENT TRANSECT LOCATIONS



7.4 Plant List of all Species Discussed in Document

Common Name	Scientific Name
GRASSES	
basin wildrye	<i>Leymus cinereus</i>
bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>
bottlebrush squirreltail	<i>Elymus elymoides</i>
cheatgrass	<i>Bromus tectorum</i>
Colombia needlegrass	<i>Stipa colombiana</i>
Idaho Fescue	<i>Festuca idahoensis</i>
Indian ricegrass	<i>Acnatherum hymenoides</i>
Kentucky bluegrass	<i>Poa pratensis</i>
Nevada bluegrass	<i>Poa nevadensis</i>
Nebraska sedge	<i>Carex nebrascensis</i>
oatgrass	<i>Arrhenatherum spp.</i>
oniongrass	<i>Melica bulbosa</i>
prairie junegrass	<i>Koeleria macrantha</i>
rush	<i>Eleocharis spp.</i>
Sandberg bluegrass	<i>Poa secunda</i>
FORBS	
arrowleaf balsamroot	<i>Balsamorhiza sagittata</i>
aster	<i>Aster spp.</i>
bug-leg goldenweed	<i>Pyrocoma insecticuriis</i>
buckwheat	<i>Eriogonum spp.</i>
checker-mallow	<i>Sidalcea spp.</i>
Death camas	<i>Toxicoscordion venenosum</i>
diffuse knapweed	<i>Centuarea diffusa</i>
Gairdner's yampah	<i>Perideridia gairdneri</i>
helianthella	<i>Helianthella ssp.</i>
Hooker's balsamroot	<i>Balsamorhiza hookeri</i>
Indian paintbrush	<i>Castilleja spp.</i>
long-leaf phlox	<i>Phlox longifolia</i>
lupine	<i>Lupinus spp.</i>
milkvetch	<i>Astragalus spp.</i>
mustard	<i>Salix spp.</i>
Navarretia	<i>Brewerii</i>
Nuttall's sego lily	<i>Calochortus nuttallii</i>
northern mule's-ears	<i>Wyethia amplexicaulis</i>
penstemon	<i>Penstemon spp.</i>
potentilla (cinquefoil)	<i>Potentilla spp.</i>
rockcress	<i>Arabis spp.</i>
sticky geranium	<i>Geranium viscosissimum</i>
tapertip hawkbeard	<i>Crepis acuminata</i>
tapertip onion	<i>Allium acuminatum</i>
tarweed	<i>Madia ssp.</i>
thistle	<i>Cirsium spp.</i>
western yarrow	<i>Achillea millefolium</i>
wild onion	<i>Allium ascalonicum</i>
white stoneseed	<i>Lithospermum spp.</i>
SHRUBS	
antelope bitterbrush	<i>Purshia tridentata</i>
chokecherry	<i>Prunus virginiana</i>

currant	<i>Ribes ssp.</i>
early low (alkali) sagebrush	<i>Artemisia arbuscula</i>
gray horsebrush	<i>Tetradymia canescens</i>
mockorange	<i>Philadelphus microphyllus</i>
mountain big sagebrush	<i>Artemisia tridentata vaseyana</i>
mountain snowberry	<i>Symphoricarpos oreophilus</i>
tall green rabbitbrush	<i>Chrysothamnus viscidiflorus</i>
Western serviceberry	<i>Amelanchier alnifolia</i>
willow	<i>Salix spp.</i>
Wood's rose	<i>Rosa woodsii</i>
TREES	
Douglas-fir	<i>Pseudotsuga menziesii</i>
quaking aspen	<i>Populus tremuloides</i>

7.5 Plant list of all Species Identified during Upland Assessments

Common Name	Scientific Name
GRASSES	
bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>
bottlebrush squirreltail	<i>Elymus elymoides</i>
cheatgrass	<i>Bromus tectorum</i>
Great Basin wildrye	<i>Leymus cinereus</i>
Idaho fescue	<i>Festuca idahoensis</i>
Indian ricegrass	<i>Acnatherum hymenoides</i>
Japanese brome	<i>Bromus japonicus</i>
oniongrass	<i>Melica bulbosa</i>
Prairie junegrass	<i>Koeleria macrantha</i>
Sandberg bluegrass	<i>Poa secunda</i>
Thurber's needlegrass	<i>Stipa thurberiana</i>
western needlegrass	<i>Stipa occidentalis</i>
FORBS	
arrowleaf balsamroot	<i>Balsamorhiza sagittata</i>
bushy birdbeak	<i>Cordylanthus ramosus</i>
checker lily	<i>Fritellaria atropurpurea</i>
cushion buckwheat	<i>Eriogonum ovalifolium</i>
elegant aster	<i>Aster perelegans</i>
false-yarrow	<i>Chaenactis douglasii</i>
goosefoot violet	<i>Viola purpurea</i>
hoary aster	<i>Machaeranthera canescens</i>
Holboell's rockcress	<i>Arabis holboellii</i>
Hood's phlox	<i>Phlox hoodii</i>
hot-rock penstemon	<i>Penstemon deustus</i>
lowly penstemon	<i>Penstemon humilis</i>
loose penstemon	<i>Penstemon laxus</i>
mountain tansymustard	<i>Descurania richardsonii</i>
narrow-leaf collomia	<i>Collomia linearis</i>
nine-leaf lomatium	<i>Lomatium triternatum</i>
Nuttall's sego lily	<i>Calochortus nuttallii</i>
pale agoseris	<i>Agoseris glauca</i>
panicled death-camas	<i>Zigadenus paniculatus</i>
prickly lettuce	<i>Lactuca serriola</i>

Rocky Mountain helianthella	<i>Helianthella uniflora</i>
rosy pussy-toes	<i>Antennaria microphylla</i>
sicklepod rockcress	<i>Arabis sparsiflora</i>
silky lupine	<i>Lupinus holosericeus</i>
snapdragon skullcap	<i>Scutellaria antirrhinoides</i>
small-flowered blue-eyed Mary	<i>Collinsia parviflora</i>
silverleaf phacelia	<i>Phacelia hastata</i>
spreading stickseed	<i>Hackelia patens</i>
stemless goldenweed	<i>Haplopappus acaulis</i>
sticky cinquefoil	<i>Potentilla glandulosa</i>
sulfur buckwheat	<i>Eriogonum umbellatum</i>
tapertip hawksbeard	<i>Crepis acuminata</i>
thistle (native)	<i>Cirsium</i> sp.
tumblemustard	<i>Sisymbrium altissimum</i>
western gromwell	<i>Lithospermum ruderale</i>
western groundsel	<i>Senecio integerrimus</i>
western hawkweed	<i>Hieracium albertinum</i>
white-stemmed mentzelia	<i>Mentzelia albicaulis</i>
wild blue flax	<i>Linum perenne</i> var. <i>lewisii</i>
woolypod milkvetch	<i>Astragalus purshii</i>
yellow paintbrush	<i>Castilleja flava</i>
yellow salsify	<i>Tragopogon dubius</i>
SHRUBS	
antelope bitterbrush	<i>Purshia tridentata</i>
chokecherry	<i>Prunus virginiana</i>
gray horse-brush	<i>Tetradymia canescens</i>
gray rabbitbrush	<i>Chrysothamnus nauseosus</i>
mountain big sagebrush	<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>
mountain snowberry	<i>Symphoricarpos oreophilus</i>
tall rabbitbrush	<i>Chrysothamnus viscidiflorus</i>
western serviceberry	<i>Amelanchier alnifolia</i>
willow	<i>Salix</i> spp.
TREES	
Douglas-fir	<i>Pseudotsuga menziesii</i>
quaking aspen	<i>Populus tremuloides</i>

This list does not include plants observed during riparian assessments and is not exhaustive. Taxonomy is based on Hitchcock and Cronquist's *Flora of the Pacific Northwest*.