U.S. Department of the Interior
Bureau of Land Management

Environmental Assessment

Pedro Mountain Geographic Unit
Grazing Permit Renewal

No. OR-030-08-004-EA

U.S. Department of the Interior
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Vale District/Baker Field Office
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1 Introduction

1.1 Decision to be Made and Location of Proposed Action

The Bureau of Land Management (BLM) proposes to modify grazing management practices, due to non-attainment of rangeland health standards, through the renewal of 10-year grazing permits for livestock producers in 10 allotments located in the Baker Resource Area (BRA), Vale District. The BLM believes modifications in grazing would be the appropriate action taken pursuant to 43 CFR § 4180.2. The allotments are located in Baker County, southeast of Baker City, in the Rye Valley area. These allotments are within the Pedro Mountain Geographic Unit (GU), which includes 17 grazing allotments and covers about 23,969 acres of public land as described in the Baker Resource Management Plan (USDI 1989a). See Maps 1 and 2 in this document for locations of the Pedro Mountain GU and allotments.

Terms and conditions for each grazing permit would be developed in conformance with the Standards for Rangeland Health and Guidelines for Livestock Management for Public Lands Administered by the BLM in the States of Oregon and Washington, or Standards and Guidelines (S&Gs, USDI 1997), the Baker Resource Management Plan or RMP management objectives, and the decisions resulting from this Environmental Assessment (EA). Refer to Appendix 1 for S&G descriptions.

Evaluations of each allotment, based on 2006 field inspections and other available information, were completed in 2007 to determine whether rangeland health standards were being met. These evaluations are available in the Baker Field Office. Determinations were made that seven allotments met all standards and guidelines, and livestock grazing on these seven allotments were authorized in a separate grazing decisions and with accompanying Determinations of NEPA Adequacy (DNAs) OR-030-07-007 and OR-030-08-004. The remaining 10 allotments which did not meet all standards and guidelines are addressed in this EA. See Table 1 for results. Prior to the 2007 grazing season and modified in 2011, interim livestock management guidelines were developed to make significant progress towards meeting rangeland health standards which is required by 43 CFR § 4180.2(c). A description of the interim management can be found in section 1.5 (Conformance with Existing Resource Management Plan, Management Objectives)

Table 1. Summary of Standards not met due to current livestock grazing.
***Not Met** Indicates the rating is due to current livestock grazing.

Evaluation and Determinations-Summary Table for Pedro Mountain Geographic Unit: Standards that are not being met due to current livestock grazing are labeled with an asterisk (*) and highlighted					
Allotment Number - Pasture Name	**Standard 1-** watershed function, uplands	**Standard 2-** watershed function, riparian	**Standard 3-** ecological processes	**Standard 4-** water quality	**Standard 5-** native, T&E, or locally important species
01072-Summit Spring	Met	**Not Met***	Met	Met	Met
01037-Rye Valley East Pasture	**Not Met ***	**Not Met ***	**Not Met ***	Met	**Not Met ***

Evaluation and Determinations-Summary Table for Pedro Mountain Geographic Unit: Standards that are not being met due to current livestock grazing are labeled with an asterisk (*) and highlighted					
Allotment Number - Pasture Name	**Standard 1-** watershed function, uplands	**Standard 2-** watershed function, riparian	**Standard 3-** ecological processes	**Standard 4-** water quality	**Standard 5-** native, T&E, or locally important species
01037-Rye Valley West Pasture	Met	**Not Met ***	**Not Met**	**Not Met ***	**Not Met**
01024-Upper Shirttail	Met	**Not Met ***	Met	**Not Met ***	Met
01020-Dixie Creek	Met	**Not Met ***	Met	**Not Met***	Met
01022-Bowman Flat	Met	**Not Met ***	**Not Met ***	**Met**	Met
01023-Rattlesnake Gulch	Met	**Not Met ***	Met	**Not Met ***	Met
01032-French Creek	**Not Met ***	**Not Met ***	**Not Met ***	**Not Met ***	**Not Met ***
01030-Hollowfield Canyon	Met	**Not Met ***	Met	Met	Met
01026-North Dixie Cr. Lower Pasture	Met	Met	Met	**Not Met ***	Met
Upper Pasture	Met	**Not Met ***	Met	**Not Met ***	Met
01027-Lost Basin	Met	**Not Met ***	Met	**Not Met ***	**Not Met ***

1.2 Purpose and Need

The purpose of the action is to modify current livestock grazing practices on these allotments by adjusting timing and levels of livestock use so that significant progress can be made toward meeting the rangeland health standards where livestock grazing management practices and levels of grazing use (prior to the 2007 grazing season) have been identified as a significant factors in failing to achieve the rangeland health standards. The need for this action is to make significant progress towards meeting rangeland health which is required by 43 CFR § 4180.2 at the Geographic Unit. Allotment evaluations completed in year 2006 identified rangeland health standards were not being met in the 10 grazing allotments shown in Table 1, as described in the affected environment below.

1.3 Background

In accordance with public land grazing regulations 43CFR § 4130.2 grazing permits authorize use on the public lands and other BLM-administered lands that are designated in land use plans as available for livestock grazing. Permits specify the grazing preference, including active and suspended use. Public land grazing permits also specify terms and conditions. The term of a grazing permit authorizing livestock grazing on the public lands is 10 years, unless exceptions apply.

"Fine-scale" assessments and evaluations were conducted at the pasture level (Evaluations may be viewed on the Baker BLM website at www.blm.gov/or/districts/vale/plans/inventas.php). "Mid-scale" assessments occur at the geographic unit area (GU) scale. A prioritization schedule for initiation of assessments of grazing authorizations within geographic units of the BRA was

established in the Planning Update of February 2000. In following this schedule, permits were reviewed in the Pedro Mountain GU as described in Alternative 3.

1.4 Scoping and Responses to Assessment / Evaluation Comments

The BLM first established proposed priorities for GU evaluations and for preparations of Coordinated Activity plans in the Baker RMP (USDI 1989a). These plans would have addressed all resource issues in one plan. The Planning Update of February 2000 refined this direction to focus on the Healthy Rangelands Initiative. The Update established the schedule for evaluation of the GUs using the rangeland standards and guidelines process. The permittees for the Pedro Mountain allotments were informed about the field work being done in their allotments in 2006 and had the opportunity to be involved, which included rangeland utilization and trend monitoring, Proper Functioning Condition (PFC) assessments, and rangeland health assessments. The monitoring and assessments were done by multiple members of BLM's staff over many different trips to the allotments. The permittees did not participate in these data-gathering efforts.

Letters notifying the public, newspapers, permittees, other agencies, and tribal representatives regarding the process and the upcoming public meeting, were sent out in early November of 2007. The BLM offered to meet individually with the tribes involved. A public meeting was held on November 13, 2007 to provide an overview of the process, distribute the Evaluation and Determinations documents and to answer questions. BLM accepted comments on the Evaluation and Determinations document at the public meeting (and 30 days subsequent to it) and at individual meetings with the permittees in 2007 and 2008. Comments were received about some of the riparian zones, whether they were truly significant enough to be called riparian, and about the fencing and grazing date changes being recommended. No written comments or proposals were provided to BLM; only one permittee verbally proposed an alternative which is analyzed in section 2.3 Alternatives Considered but Not Analyzed in Detail.

1.5 Conformance with Existing Resource Management Plan, Management Objectives

Alternative 2, 2a and Alternative 3 conform to the Baker RMP. Alternative 1 does not conform to the Baker RMP because it does not meet the resource condition objectives for upland vegetation, riparian vegetation or wildlife and fisheries habitats (USDI 1986a pp69-72). Current livestock management does not follow Alternative 1 as interim livestock grazing management changes were made within one year after the final rangeland heath determinations and revised to include minimum stubble height targets in 2011. This interim management is the same as Alternative 3 with the exception(s) that no new fences have been authorized on public lands under the interim management. Monitoring conducted by the BLM indicates that interim management changes are resulting in movement towards meeting rangeland health. Therefore current livestock grazing is in conformance with the existing Baker RMP and with 43 CFR § § 4180.2.

The following resource condition objectives, allocations, and management actions for Pedro Mountain GU were identified in the Baker RMP and guide this document (USDI 1989a). This area contains 23,969 acres of public land.

Resource Condition Objectives:

Upland Vegetation

- Manage upland grass-shrub vegetation to achieve a mid-seral plant community.
- Improve habitat quality for deer, elk, grouse, and turkey.

Riparian Vegetation

- Enhance the riparian habitat along Dixie Creek and tributary streams by stabilizing the stream banks and by increasing the vegetation structure.

Wildlife and Fisheries Habitat

- Meet forage requirements for big game as recommended by ODFW.
- Improve habitat for fisheries.
- Maintain/enhance the fishery habitat for trout on Dixie

Allocations were identified as follows:

Upland Vegetation

- Restrict livestock grazing through seasons of use, utilization levels, and livestock numbers and distribution.
- Restrict livestock grazing for 3-5 growing seasons on all range rehabilitation projects.

Riparian Vegetation

- Restrict livestock use through seasons of use, utilization levels and livestock numbers.
- Exclude livestock grazing along identified stream segments, bogs and spring overflows where use is incompatible with riparian management objectives.

Wildlife and Fisheries Habitat

- Allow turkey transplants on Pedro Mountain.
- Allow Columbian sharp-tailed grouse transplants in suitable habitat in Mormon Basin.
- Develop grazing systems that enhance fishery habitat.
- Restrict livestock use through seasons of use, utilization levels and livestock numbers.
- Restrict development of additional roads.

Management Actions were identified as follows:

Upland Vegetation

- Continue to restrict livestock numbers and seasons of use through grazing management systems and allotment management plans.
- Monitor and evaluate grazing systems and adjust the systems and stocking levels as appropriate to maintain the upland vegetation objective.
- Defer livestock grazing for 3-5 growing seasons on all range rehabilitation project areas.

Riparian Vegetation

- Construct exclosure fences along Dixie Creek and tributary streams and around selected bogs and springs.
- Rip-rap the banks of identified stream segments.
- Plant shrubs in current riparian enclosures.
- Conduct riparian inventories on 3.0 miles of stream in this geographic unit.1.2 miles of existing riparian habitat on Dixie Creek will be improved.
- Establish monitoring studies on riparian vegetation in Dixie Creek.

Wildlife and Fisheries Habitat

- Provide suitable habitat for transplanting turkey and Columbian sharp-tailed grouse.
- Inventory 5.2 miles of fishery habitat.
- Use prescribed burning to create habitat diversity.
- Plant/seed deer winter range.
- Monitor fishery habitat condition and trend.

1.5.1 Definition of Terms

Critical Plant Growth Stage the period of time upland perennial grasses are very sensitive to livestock grazing. The Critical Plant Growth Stage occurs when the grass flower is beginning to emerge (boot stage) and last until seed development (soft dough stage). Depending on elevation and aspect, the Critical Plant Growth Stage can occurs from mid-May to late June; however, yearly variations occur depending on timing and amount of precipitation and temperature.

Non-Critical Plant Growth Stage the period of time upland perennial grasses are not sensitive to livestock grazing. The Non Critical Growth Stage occurs during two time periods; 1) in the spring when the grass blades emerges from the ground until the grass flower begins to emerge and 2) after seed development which occurs in the summer and last to the end of winter.

Deferred Rotation a grazing system that only allows grazing a pasture during the plant critical growth period a maximum of 2 years in a row.

Livestock Rest a grazing treatment where livestock grazing in a pasture or allotment does not occur for at least 12 consecutive months.

2 Description of the Proposed Action and Alternatives

Alternative actions were formulated to make significant progress towards meeting management objectives and S&Gs which is required by 43 CFR § 4180.2(c). Three alternatives analyzed include: Alternative 1 (prior to interim management changes,1995 to 2006); Alternative 2, where a period of rest, or reduction of livestock (in pastures that do not meet standards) is implemented until standards are met; Alternative 2a same as Alternative 2 except rest and livestock reductions would be permanent and Alternative 3, where the BLM used the best available peer reviewed science shown to improve elements of rangeland health and resting the allotments from livestock grazing would not be required.

Alternative 1 – Grazing Management pre Interim Livestock Management (No Action Alternative)
The terms and conditions of grazing use would remain unchanged. The Animal Unit Months (AUMs) and season-of-use would remain at the current active use for each permittee. This would be as follows:

Table 2. Alternative 1 grazing use for Pedro Mountain GU allotments.

Allotment	AUMs Active	AUMs Private	AUMs Total	% Federal Range	Proposed Period of Use
Summit Spring #1072	358	0	358	100%	5/6-6/30, 10/5-11/30
Rye Valley #1037	263	11	274	96%	4/16-5/25, 10/24-11/30
Upper Shirttail Cr. #1024	111	30	141	79%	6/1-6/30, 10/1-11/1
Dixie Creek #1020	404	115	519	78%	6/1-6/30, 10/1-11/1
Bowman Flat #1022	65	18	83	78%	5/10-7/9
Rattlesnake Gulch #1023	92	61	153	60%	6/1-6/30, 10/1-11/1
French Creek* #1032 (Custodial allotment)	143	183	326	44%	Season long
Hollowfield Canyon #1030	42	50	92	46%	10/1-11/15
North Dixie Creek #1026	193	300	493	39%	6/1-6/30, 10/1-11/1
Lost Basin* #1027 (Custodial allotment)	281	1360	1641	17%	Season long

*AUMs on private land are not controlled by BLM on the custodial allotments and these AUMs are listed here for analysis purposes only.

Alternative 1 identifies the consequences of livestock grazing prior to the interim management changes. Details of the interim livestock management changes (grazing management after final determinations) are found in the affected environment.

Upland utilization targets would remain at moderate level and grazing during the critical plant growth stage would not be regulated under Alternative 1 in the Rye Valley, French Creek and Bowman Flat Allotments. Brewer et al. (2007) indicates that grazing management needs to take into consideration upland utilization and how many years in a row grazing occurs during the critical growing plant growth stage (boot to soft dough growth stage) to improve plant vigor which is an element of rangeland health. Therefore, the BLM expects that livestock management under Alternative 1 would not result in significant progress towards meeting Standards 1 and 3 since livestock grazing will not be deferred during the plant critical growth stage.

Alternative 1 would not set riparian stubble height/utilization targets, which is contrary to the best available science which has been shown to make significant progress towards meeting elements of riparian rangeland health (Clary and Leininger 2000). Therefore the BLM expects that livestock management under Alternative 1 will not result in significant progress towards meeting rangeland health for Standards 2 and 4.

The degree of not meeting rangeland health (Standards 1, 2, and 3) in three allotments was drastic enough to cause Standard 5 to fail. Standards 1, 2 or 3 will not make significant progress towards meeting rangeland health under Alternative 1; consequently livestock management under Alternative 1 will not make significant progress towards meeting rangeland health Standard 5.

2.1 Alternative 2 – Temporally Reducing Livestock Grazing in Pastures that do not meet Standards until Standards are met prior to Initiating New Grazing Systems

If this alternative is selected, the amount of livestock use and periods of use would be as shown in Table 3 until rangeland health standards are met; once standards are met livestock use would be the same as Alternative 3. The fencing projects identified in Table 4 would be required in order to rest the allotments. An interdisciplinary team would be used to determine when rangeland health standards are met and when livestock grazing would be re-authorized. The data used by the interdisciplinary team would include; a follow up rangeland health assessment, rangeland trend (plant frequency and ground cover) monitoring, and where appropriate multiple indicator monitoring.

Table 3. Alternative 2 Reduced grazing use for Pedro Mountain allotments.

Allotment	AUMs Active	AUMs Private	AUMs Total	% Federal Range	Proposed Use
Summit Spring #1072	0	0	0	100%	Rest
Rye Valley #1037	0	11	0	96%	Rest
Upper Shirttail Cr. #1024	0	30	30	79%	Exchange-of-use
Dixie Creek #1020	0	115	115	78%	Exchange-of-use
Bowman Flat #1022	0	18	0	78%	Rest
Rattlesnake Gulch #1023	0	48	48	60%	Exchange-of-use
French Creek #1032	0	183	183	44%	Exchange-of-use
Hollowfield Canyon #1030	0	50	50	46%	Exchange-of-use
North Dixie Creek #1026	0	300	300	39%	Exchange-of-use
Lost Basin #1027 (Custodial allotment)	281	Not specified on permit; actually 1360	1,641	Calculated as 100% on permit: actually 17%	4/20 to 10/31

<u>Explanation of above table</u>

- Alternative 2 consists of only the number of AUMs available from private land (The BLM would authorize livestock grazing as exchange-of-use). Some public land use would inevitably occur with the exchange-of-use because there are no fences between the private and public land. However, the BLM expects that the level of livestock use on public lands would be slight (6-20 percent forage utilization).

- Allotments with less than 20 AUMs exchange-of-use are shown as zero AUMs under Alternative 2. Authorizing any use in these allotments would make little sense with so few AUMs, except for possibly exchange-of-use being authorized just for trailing through (300

cows would use 20 AUMs in only two days). Unless there is a need for trailing through, these allotments would be left out of the grazing rotation during the years of rest.

Exchange-of-use/ private land issues

The grazing permittees in the Pedro Mountain GU EA have varying amounts of intermingled unfenced private land within their allotments. The estimated grazing capacities of these private lands are added to the estimated grazing capacity of the public lands to determine the amount of livestock use that can be allowed. In some cases, the private lands make up high percentages of the total amount of livestock use. The private land use is authorized as either exchange-of-use or as percent federal range, so that there is no charge for grazing use that takes place on the private land. Either way, the permittee agrees to confine his livestock to the number, kind (sheep, cows, goats or horses), periods of use, and areas of use authorized by BLM. The BLM recognizes the private landowner's share of the land base in these allotments. In the allotments with significant percentages of private land, BLM's decision making involves a high degree of coordination, cooperation, and consultation with the permittees.

The BLM expects that this alternative would provide 1-15 years of reduced livestock use, with the amount of use limited to the number of AUMs available from private land only. This temporary change in grazing would result in 1,683 fewer AUMs on public lands per year being available for cattle grazing during this period. Approximately 70% fewer AUMs would be used in the nine allotments subject to reductions, with the stocking rates being based on private land carrying capacity only. The Lost Basin Allotment, which is 83% private land grazing, would be the only one with no reduction in AUMs of grazing, but this allotment's aspen and riparian zones would receive added protection through the proposed projects and specified period of use for Upper Reagan Creek, which will make significant progress towards meeting standards 1,2 and 5.

Significant Progress towards Meeting Rangeland Health

To make significant progress towards meeting upland rangeland health (Standards 1 and 3) livestock grazing would be temporarily placed in non-use in Rye Valley, Bowman Flat and Summit Spring Allotments and reduced to private land capacity in Upper Shirttail. Dixie Creek, Rattlesnake Gulch, French Creek, Hollowfield Canyon and North Dixie Creek Allotments until rangeland health standards are met. The BLM expects that excluding or reducing livestock grazing to the capacity of the public land will make significant progress towards meeting upland rangeland health (Standards 1 and 3) because livestock upland utilization and deferment would be more restrictive than the minimum recommended in Brewer et al. (2007). These reductions in grazing use will be enforced until rangeland health standards are met. Once all rangeland health standards are met livestock management would be set consistent with Brewer et al. (2007) recommendation which has been shown to improve plant vigor of bluebunch wheatgrass which is highly sensitive to livestock grazing (Anderson 1991). In fact, livestock allotments in the Pedro Mountain GU that were managed in the recent past (since 1995) consistently with Brewer et al. (2007) recommendations meet rangeland health Standards 1 and 3. Therefore, the BLM believes that Alternative 2 would result in significant improvement to rangeland health Standards 1 and 3. This is supported by upland trend monitoring conducted after the interim livestock management changes were implemented which shows significant improvement towards meeting rangeland health is occurring.

To make significant progress towards meeting riparian rangeland health (Standards 2 and 4) livestock grazing would be temporarily placed in non-use (Rye Valley, Bowman Flat and Summit Spring Allotments) and reduced to private land capacity (Upper Shirttail. Dixie Creek, Rattlesnake Gulch,

French Creek, Hollowfield Canyon and North Dixie Creek Allotments) until rangeland health standards are met. The BLM believes that initially these reductions in grazing use would be more restrictive than Clary and Leininger (2000) riparian stubble height recommendation of 3-4 inches. Once all rangeland health standards are met livestock management would be set consistent with Clary and Leininger (2000) recommendation which have been shown to make significant improvement in stream width to depth ratio, streambank stability, channel bottom embeddedness, willow cover and height, plant species richness by growth form, plant community-type and plant and litter cover which are all components of rangeland health Standard 2. Allotments failing rangeland health Standard 4 were due to high water temperatures. Increasing willow cover and height which the BLM expects would occur thru livestock exclusion or reductions will increase stream channel shade thus lowering water temperatures resulting in significant progress towards meeting rangeland health Standard 4. In addition, reducing the stream channel width-to-depth ratio would also reduce water temperatures by reducing water surface area. Due to the high amount of private land in the Lost Basin Allotment no reduction in livestock AUMs would occur. To improve riparian rangeland health in this allotment a minimum stubble height target of 3-4 inches will be set and a spring protection exclosures will be constructed.

Determination of when standards are met would be on an allotment-by-allotment basis, and it is possible that one allotment would be determined to meet standards after only one year, while another allotment would take ten years or more to meet standards. However current upland trend monitoring by the BLM shows that significant progress toward obtaining upland rangeland health is currently occurring as a result of the interim livestock management. An interdisciplinary team would be used to determine when rangeland health standards are fully met and livestock grazing would be re-authorized. The data used by the interdisciplinary team would include; a follow up rangeland health assessment, rangeland trend (plant frequency and ground cover) monitoring, utilization and where appropriate multiple indicator monitoring). If a riparian exclosure is constructed, the protected stretch of stream would not require trend data to prove that standards are met. The BLM rangeland monitoring policy is for a 5 year cycle for evaluation of I Category allotments (USDI 1985, USDI1988). The next scheduled evaluation of these allotments would be in 2016, at which time all pastures and allotments would be reviewed for progress in achieving range health standards.

Table 4. Proposed fencing projects for Alternatives 2 and 2a and Juniper reduction common to all action alternatives. However, Alternative 2 and 2a may create a need for the permittees to construct fences, however at this time the miles of additional private land owners would construct on the BLM and private land boundary is speculative. These additional fences will be analyzed in the cumulative effects section.

Allotment	Project Name	Quantity	Land Status
Upper Shirttail Creek	Ray Creek Juniper Falling	2 acres	BLM
Dixie Creek/Pedro Mountain boundary	Pedro Deer Creek Gap Fence	0.7 mile	BLM
Rattlesnake Gulch/Dixie Creek boundary	Rattlesnake Gulch Fence	2.0 miles	Private land boundary
Bowman Flat	Walnut Grove Fence	0.6 mile	Private land boundary
Bowman Flat	Poor’s Creek Juniper Falling	2 acres	BLM

Allotment	Project Name	Quantity	Land Status
French Creek	French Creek Fence	2.0 miles	Private land boundary
French Creek	French Creek Cattle Guard	1	Private land boundary (crosses ¼ mile BLM)
Hollowfield Canyon	Hollowfield Juniper Falling	1 acre	BLM
North Dixie	Lower North Dixie Fence	1.0 mile	Private land boundary
North Dixie	North Dixie Exclosure	1.0 mile	Private land boundary
Lost Basin	Lost Basin Juniper Falling	10 acres	BLM
Lost Basin	Lost Basin Spring Fences	0.4 mile	BLM

2.1.1 Sub-alternative 2a – Permanently Eliminate Livestock Grazing or Reduced livestock Use.

Same as Alternative 2 except that livestock grazing would be permanently excluded from the Summit Spring, Rye Valley and Bowman Flat Allotments. In addition the reductions in AUMs identified in Alternative 2 for Upper Shirttail, Dixie Creek, Rattlesnake Gulch, French Creek, Hollowfield Canyon and North Dixie Creek Allotments would be permanent under Alternative 2a. Authorizing grazing in these allotments at only the amount of AUMs available from private land in grazing would be by means of an exchange of use agreement. However, there is a high probability that the livestock permittee(s) would not agree to the exchange-of-use agreement and choose to fence out public lands. The effects of the permittee(s) not accepting the exchange-of-use agreement is documented in the cumulative effects section. The terms of the exchange-of-use agreement would include the following;

1. The lessee or permittee hereby agrees to allow authorized representatives of the Department of Interior reasonable access across private and leased lands at any time for the purpose of inspection and official business [43 CFR § 4130.3-2(h)]
2. Minimum end of growing season riparian stubble height on public lands would be set at 3-4 inches on key graminoid species.
3. Upland utilization on public lands would not exceed 50 percent and livestock grazing deferment during the critical plant growth stage will occur at least once every 2 years.

All the fence projects in Table 4 would be necessary under sub-alternative 2a. Without these fences public land could not be effectively separated from the private which, is needed in order to rest or restrict livestock use of the public lands. Additional private land boundary fences are anticipated to be built by private landowners however at this time the mileage of private land fence that would be constructed is speculative. These additional private land fences are not part of the proposed action and will instead be discussed under cumulative impacts.

All non-fence projects would also have to be completed under this alternative because they would benefit riparian conditions and wildlife habitat regardless of livestock grazing.

Significant Progress towards Meeting Rangeland Health

To make significant progress towards meeting riparian rangeland health (Standards 2 and 4) livestock grazing would not be permitted in three allotments and reduced to private land capacity on six allotments. The BLM believes that these reductions in grazing use would be more restrictive than Clary and Leininger (2000) recommendation which have been shown to make significant improvement in stream width to depth ratio, streambank stability, channel bottom embeddedness, willow cover and height, plant species richness by growth form, plant community-type and plant and litter cover which are all components of rangeland health Standard 2. Allotments failing rangeland health Standard 4 were due to high water temperatures. Increasing willow cover and height which the BLM expects would occur thru livestock exclusion or reductions will increase stream channel shade thus lowering water temperatures resulting in significant progress towards meeting rangeland health Standard 4. In addition, reducing the stream channel width-to-depth ratio would also reduce water temperatures by reducing water surface area. Due to the high amount of private land in the Lost Basin Allotment no reduction in livestock AUMs would occur. To improve riparian rangeland health in this allotment a minimum stubble height target of 3-4 inches will be set and spring protection exclosures will be constructed.

The BLM expects that excluding or reducing livestock grazing to the capacity of the private land will make significant progress towards meeting upland rangeland health (Standards 1 and 3) because livestock utilization and deferment would be more restrictive than the minimum recommended in Brewer et al. (2007). Livestock management consistent with Brewer et al. (2007) has been shown to improve plant vigor of bluebunch wheatgrass which is highly sensitive to livestock grazing (Anderson 1991). In fact, livestock allotments in the Pedro Mountain GU that were managed in the recent past (since 1995) consistent with Brewer et al. (2007) recommendations meet rangeland health Standards 1 and 3. Therefore, the BLM believes that excluding livestock grazing or reducing livestock use to the private land capacity would result in significant improvement to rangeland health Standards 1 and 3.

The degree of not meeting rangeland health (Standards 1, 2, and 3) in three allotments was drastic enough to cause Standard 5 to fail. However, the BLM expects that significant progress will be made towards meeting rangeland health by implementing grazing management that is more restrictive recommended by Clary and Leininger (2000) and Brewer et al. (2007) for the reasons stated above.

2.2 Alternative 3 – BLM Proposed Action

Alternative 3 is similar to interim management (current livestock management) with the exception that the current livestock management would not construct 4.1 miles of fences and 1 cattle guard nor treat 15 acres of juniper encroachment (Table 5). The difference in effects to rangeland health of Alternative 3 compared to interim management would be negligible with interim management improving 1-2 fewer miles of riparian area than Alternative 3.

Alternative 3 may create a need for the permittees to fence an additional 3.1 miles of BLM/private lands, which are listed as private land boundary fences in Table 4. These fences will be analyzed in the cumulative effects.

For further details on the above projects, see Details of Change by Allotments, which appears later in this document.

Table 5. Proposed projects for Alternative 3.

Allotment	Project Name	Quantity	Land Status
Dixie Creek/Pedro Mountain boundary	Pedro Deer Creek Gap Fence	0.7 mile	BLM
Bowman Flat	Poor's Creek Juniper Falling	2 acres	BLM
French Creek	French Creek Fence	2.0 miles	Private land boundary (crosses ¼ mile BLM)
French Creek	French Creek Cattleguard	1	Private land boundary
Hollowfield Canyon	Hollowfield Juniper Falling	1 acre	BLM
North Dixie	North Dixie Exclosure	1.0 mile	Small unfenced BLM parcel surrounded by private land
Lost Basin	Lost Basin Juniper Falling	10 acres	Small unfenced BLM parcel surrounded by private land
Lost Basin	Lost Basin Spring Fences	0.4 mile	Small unfenced BLM parcel surrounded by private land

Table 6. Proposed grazing use for Alternative 3, the amount of livestock use and maximum permitted periods of use would be as follows:

Allotment	AUMs Active	AUMs Private	AUMs Total	Proposed Period of Use **
Summit Spring #1072	358	0	358	4/30-6/23, 10/15-12/10 Alternate use so there is not both spring and fall use in same year.
Rye Valley #1037 East Pasture	215	9	226	4/23-5/31, 11/1-12/9 in East Pasture, alternate year use so not both spring and fall in same year.
West Pasture	48	2	48	6/1-6/30 or 10/1-10/30 in West Pasture
Upper Shirttail Cr. #1024	111	30	141	6/1-6/30, 10/1-10/31 Alternate use so not both spring and fall in same year.
Dixie Creek #1020	343	115	458	4/22-6/30 (Lower Deer Creek Pasture normally 4/22-5/31 and Upper Deer Creek normally 6/1-6/30 or fall grazing between 9/28-10/31. Potentially both spring and fall use same year, except fall use in such cases would be limited to trailing cattle off Pedro Mountain in the fall.

Allotment	AUMs Active	AUMs Private	AUMs Total	Proposed Period of Use **
Bowman Flat #1022	65	18	83	9/16-10/15, 6/1-6/30 Alternate years
Rattlesnake Gulch #1023	55	48	103	6/1-6/30, 10/1-10/31 Managed same as Upper Deer Creek Pasture, at least until a new fence is built, then period of use will be reviewed.
French Creek #1032	143	183	326	If no pasture fence is built, short periods of use between 4/16-6/30 and 10/5-12/20. If a pasture fence is built, 5/10-6/15 and 10/5-11/10 each year for BLM on north side of line and no restriction for private/minimal BLM on south side of line.
Hollowfield Canyon #1030	42	50	92	10/11-11/30 window, but no more than six weeks within the given time frame.
North Dixie Creek #1026	193	300	493	6/1-6/30, 9/28-12/16, but restricted to two weeks spring and fall each year, or four weeks in either spring or fall, until new fences are completed.
Lost Basin* #1027 (*Custodial allotment)	281	1360*	1641*	No period of use specified except for Upper Reagan Creek riparian pasture to be used 1 month within 6/1-7/10 window.

*AUMs on private land are not controlled by BLM on this custodial allotment and these AUMs are listed here for analysis purposes only.
**Proposed periods of use given here will be considered the normal use periods, but actual use periods permitted by BLM may vary in any given year based on resource conditions (e.g., weather conditions, stage of plant growth, soil moisture, etc.). Dates could not vary more than 14 days earlier or later than what is shown; Summit Spring's June use would not be later than what is shown. Although dates might be adjusted, AUMs of use would not exceed the amounts shown.

Starting with the 2012 grazing season, the Rattlesnake Gulch and North Dixie Creek allotments would be incorporated within the Dixie Creek Allotment (#1020) as pastures within this larger allotment, to simplify billing and other paperwork. The management of each pasture would continue to be the same as shown above, regardless of whether it is called a pasture or an allotment. All actions are for the purpose of making significant progress toward achieving rangeland health standards through adjusting periods of use, AUMs of use, or setting stubble height targets. The periods of grazing use are chosen to avoid hot-season use (summer) which negatively affects riparian zones. In addition, a minimum riparian stubble height target would be set during the late spring and fall to insure there is enough residual vegetation to dissipate energy during the spring runoff and to reduce livestock consumption of woody riparian species. Some of the fences BLM is recommending

are to eliminate outside stray cattle from entering during the summer, which is a recurring problem and is contributing to riparian areas to not meet riparian rangeland health standards.

Significant Progress towards Meeting Rangeland Health

To make significant progress towards meeting upland rangeland health (standards 1 and 3) livestock deferment during the plant critical growth stage would be set consistent with Brewer et al. (2007) recommendations. Livestock management consistent with Brewer et al. (2007) has been shown to improve plant vigor of bluebunch wheatgrass which is highly sensitive to livestock grazing (Anderson 1991). Specifically, livestock allotments in the Pedro Mountain GU that were managed in the recent past (since 1995) consistently with Brewer et al. (2007) recommendations meet rangeland health Standards 1 and 3. Therefore, the BLM believes that slight modifications to the timing of livestock grazing identified in this alternative would result in significant improvement to rangeland health Standards 1 and 3. In fact upland trend monitoring collected by the BLM shows that the interim livestock management, which implemented the same changes to season of use as Alternative 3, is resulting in significant improvement towards meeting upland rangeland health standards.

To make significant progress towards meeting riparian rangeland health (standards 2 and 4) a riparian stubble height target, consistent with Clary and Leininger (2000) recommendation would be set (3-4 inches). This recommendation has been shown to make significant improvement in stream width to depth ratio, streambank stability, channel bottom embeddedness, willow cover and height, plant species richness by growth form, plant community-type and plant and litter cover, which are all components of rangeland health Standard 2 (Clary and Leininger 2000; Clary 1999). In order to achieve the stubble height targets the BLM believes that reductions in AUMs are needed in two allotments and a total of 4.1 miles of fences to be built in four allotments is required (Table 5). Allotments failing rangeland health Standard 4 were due to high water temperatures. Increasing willow cover and height which the BLM expects would occur thru implementation of Clary and Leininger (2000) recommendation would increase stream channel shade and thus lowering water temperatures resulting in significant progress towards meeting rangeland health Standard 4. In addition, reducing the stream channel width-to-depth ratio would also reduce water temperatures by reducing water surface area.

The degree of not meeting rangeland health in three allotments was drastic enough to cause Standard 5 to fail. However, the BLM expects that significant progress will be made towards meeting rangeland health thru the implementation of grazing management consistent with Clary and Leininger (2000) and Brewer et al. (2007) recommendation for the reasons stated above.

Details of changes by allotment are as follows:

Summit Spring Allotment #1072

1. Change dates on permit: was 10/5-11/30 (spring use inadvertently left off the current ten-year permit), change to 4/30-6/23, 10/15 - 12/10, still alternating between spring use two years in a row and fall use two years in a row. The spring turnout would be changed from 4/20 to 4/30 because usually 4/20 is too early on this high-elevation allotment that contains a high percentage of north slopes.
2. Spring use would always end by June 23, even if turnout was late, in order to allow sufficient time for regrowth. Even if this is too late for much upland regrowth in most years, there would be riparian regrowth. In the past, sometimes use was allowed to extend to the end of

June to compensate for late turnouts, and BLM's upland utilization monitoring indicates this has not worked well for keeping upland utilization levels moderate.

3. Fall use would end when riparian stubble height reaches 3-4 inches. This would ensure that enough vegetation is left on stream banks to protect them during spring runoff.
4. Spring developments must all be maintained and fully functional before turnout every year. Functional spring developments would help draw cattle away from the creeks where riparian watershed standards are not fully met. If the springs are not maintained livestock grazing would not be authorized until the springs are fully functional. Failure to meet end-of-season stubble height targets for two consecutive years in Summit Spring Allotment would result in resting that allotment the third year.
5. Upland utilization target would be set at 50 percent. Failure to meet upland utilization targets for two consecutive years in Rye Valley Allotment would result in resting that pasture the third year.

Rye Valley Allotment #1037

1. Change dates on permit: was 10/20-11/28 (spring use inadvertently left off the ten-year permit), change to 4/23-5/31, 11/1-12/9 for East Pasture, 6/1-6/30 and 10/1-10/30 for West Pasture. The spring use would be changed from 4/16 to 4/23 because soil moisture conditions are usually not reached by 4/16. The late fall use in the East Pasture would be scheduled to avoid growing season use every spring. From 1997 to the 2007 grazing season, this pasture has been used every year in spring due to difficulty using it in the fall. But the evaluation determined a need to go back to periodic fall use to improve range trend. Cattle are drawn to the private green hayfield during the fall instead of the steeper dry slopes of public lands. The likely scenario is that most years of scheduled fall use would be close to a rest treatment because cattle do not want to stay in this allotment in fall. The dates on the West Pasture allow it to be used for brief periods in spring or fall, which is consistent with alternating spring/fall use in the adjacent Clough Gulch Allotment, (managing the West Pasture for riparian improvement).
2. Use in Rye Valley East Pasture would be deferred until November 1 – December 9 in one out of two years or two out of four years.
3. Fall use would end when riparian stubble height reaches 3-4 inches. This would ensure that enough vegetation is left on streambanks to protect them during spring runoff. Riparian vegetation re-growth would be considered when pastures are grazed in the early spring. Failure to meet end-of-season stubble height targets for two consecutive years in either pasture of Rye Valley Allotment would result in resting that pasture the third year.
4. Upland utilization target would be set at 50 percent. Failure to meet upland utilization targets for two consecutive years in Rye Valley Allotment would result in resting that pasture the third year.
5. Specify 215 public land AUMs in Rye Valley East Pasture and 48 AUMs available in Rye Valley West Pasture. Previously, there were years when all 263 AUMs were used in East Pasture due to confusion about the allotment boundaries. This action would help prevent overuse of the East Pasture because it spreads the use over both pastures.

Upper Shirttail Allotment #1024

1. Change dates on permit: was 5/1-10/13, change to 6/1-6/30, 10/1-10/31. This would simply verify what is already being done; long periods of summer use are already discontinued under the current plan because continuous summer use resulted in over use of the riparian species.
2. A 3-4-inch end-of -growing season riparian stubble height target would be established on the public land portion of Ray Creek. Failure to meet key area end-of-growing riparian season stubble height targets for two consecutive years in Upper Shirttail Creek Allotment would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs.
3. Upland utilization target would be set at 50 percent. Failure to meet upland utilization targets for two consecutive years in Upper Shirttail Creek Allotment would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs.
4. Cut and drop juniper into riparian zone for riparian protection (i.e., jack strawing); project acreage is two acres along 0.2 mile of Ray Creek.

Dixie Creek Allotment #1020 (Lower and Upper Deer Creek Pastures)

1. Change dates on permit: was 5/1-10/13, change to 4/22-6/30, 10/1-10/31 (alternating between spring use and fall use, not both in same year). The lower elevation pasture (Lower Deer Creek), is suitable for earlier use, 4/22-5/31. To achieve riparian improvement in this pasture, early grazing followed by re-growth throughout the summer would leave the desired amount of streamside vegetation stubble height. This pasture would alternately be grazed in fall instead of spring to give the upland vegetation deferment from growing-season use during the plant critical growth stage. The upper pasture would alternate between June use and October use to defer grazing during the plant critical growth stage. When grazed in October livestock would be removed from the pasture once stubble heights reach 3-4 inches.
2. Build new gap fences (0.7 mile) to fully enclose the allotment to control livestock use. Until the Pedro Deer Creek Gap fence is completed the fall grazing (10/1 to 10/31) would be subject to cancellation in the Upper Deer Creek Pasture (if unauthorized use during the summer occurs due to lack of this fence and it results in exceeding utilization targets).
3. Reduce grazing preference from 404 AUMs to 343 AUMs (15 percent reduction) based on steep slopes (over 50%) not being suitable for grazing. Specifically, the last stocking rate analysis did not take slope into consideration for the Dixie Creek Allotment. In this analysis slopes greater than 50 percent were treated the same as areas with gentler slopes even though livestock use has been shown to be substantially less in areas that have slopes greater than 50 percent (Mueggler 1965, Gillen et al. 1984, Pinchak et al. 1991, Holechek 1988). Livestock congregate on riparian areas for shade and higher quality forage and try to avoid steep slopes. Reducing livestock AUMs by this amount would reduce livestock riparian impacts, and will aid in attaining a 3-4 inch riparian stubble height which the BLM expects will make significant progress towards meeting riparian rangeland health (Standards 2 and 4). The new gap fences would prevent livestock from crossing the unfenced Pedro Mountain Allotment and Dixie Creek Allotment boundary. The BLM believes the proposed gap fence along with the 15 percent AUM reduction will aid in attainment of a 3-4 riparian stubble height target which is needed to make significant progress towards meeting riparian rangeland health.
4. Upland utilization target would be set at 50 percent. Failure to meet upland utilization targets for two consecutive years in Dixie Creek Allotment would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs.

5. Failure to meet end-of-season upland utilization or riparian stubble height targets for two consecutive years in any pasture of Dixie Creek Allotment would result in limiting use in that pasture in the third year only to the amount of exchange-of-use or private land AUMs.

Bowman Flat Allotment #1022

1. Change dates on permit: was 5/1-7/9, change to 9/16-10/15, 6/1-6/30, alternating between early use and late use, reducing time spent in the allotment each year (larger number of animals for shorter time). This would allow more time for riparian vegetation and upland vegetation to recover from grazing.
2. Livestock would be removed from the allotment once riparian stubble height reaches 3-4 inches. Failure to meet end-of-season stubble height targets for two consecutive years in the Bowman Flat Allotment would result in resting that pasture the third year.
3. Upland utilization target would be set at 50 percent. Failure to meet upland utilization targets for two consecutive years in Bowman Flat Allotment would result in resting that pasture the third year.
4. Cut and drop juniper into Poor's Creek riparian zone for riparian protection; project acreage equals two acres, spot treatment along half-mile of stream. Jack strawed juniper would block livestock access to the stream and provide woody debris. Jack strawing is a forestry technique that involves selective cutting and dropping of mature trees for use as a barrier to restrict access.
5. 2007 and 2010 were years of total rest to jumpstart recovery; this action has already been taken. Trend plots were read in 2010 and verify there is significant progress towards meeting rangeland health.
6. Failure to meet end-of-season utilization targets for two consecutive years in Bowman Flat Allotment would result in resting that allotment the third year.

Rattlesnake Gulch Allotment #1023

1. Change dates on permit: shown above for Dixie Creek Allotment. This allotment currently is managed as part of the Upper Deer Creek Pasture of Dixie Creek Allotment.
2. Livestock would be removed from the allotment once key area riparian stubble height (See #5 below) reaches 3-4 inches. Failure to meet end-of-season stubble height targets for two consecutive years would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs.
3. Upland utilization target would be set at 50 percent. Failure to meet upland utilization targets for two consecutive years in Rattlesnake Gulch Allotment would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs.
4. Reduce grazing preference from 92 AUMs to 55 AUMs and reduce exchange of use from 61 AUMs to 48AUMs based on steep slopes (over 50%) not being suitable for grazing without causing excessive use in riparian zones (Mueggler 1965, Gillen et al. 1984, Pinchak et al. 1991, Holechek 1988). Livestock congregate on riparian areas for shade and higher quality forage and try to avoid steep slopes. Reducing livestock AUMs by this amount would reduce

livestock riparian impacts, and will aid in attaining a 3-4 inch riparian stubble height which the BLM expects will make significant progress towards meeting Standards 2 and 4.

5. Key area end-of-season stubble height targets would be based on monitoring of Upper Deer Creek Pasture riparian zone. The other key area would be the upland plot in close proximity to upper Rattlesnake Gulch drainage. .

French Creek Allotment #1032

1. A private/public land boundary fence would be constructed. This would allow greater control of livestock on public lands and reduce use on public land. The public land pasture to be used for brief periods in spring and in fall each year, but primarily spring in years when Summit Spring is used in the fall, and primarily fall in years when Summit Spring is used in the spring. Livestock would be removed from the pasture once riparian stubble height reaches 3-4 inches, spring and fall both. This pasture fence would require a cattle guard.

2. Livestock would be removed from the allotment once riparian stubble height reaches 3-4 inches. Failure to meet end-of-season stubble height targets for two consecutive years in the French Creek Allotment would result in resting that pasture the third year.

3. Upland utilization target would be set at 50 percent. Failure to meet upland utilization targets for two consecutive years in the French Creek Allotment would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs.

4. Until the new fence is completed, seasons of use would be set at 4/16-6/30 for spring use and 10/5-12/20 for fall use with the same utilization triggers as above.

5. Currently, allotment #1032 is a "C" allotment, there are no restrictions on when it can be grazed, and some grazing occurs in all seasons. Alternative 3 would impose specified amounts of grazing use at specified seasons, in order to make significant progress towards achieving rangeland health standards.

Hollowfield Canyon #1030

1. Change dates on permit: was 6/22-8/21, change to outside parameters of 10/1-11/30, but no more than six weeks within this time frame. This means the permit would say 10/1 – 11/30. The billed use would be six weeks sometime within this time frame. Postponing use until after 10/1 would allow plants to complete their life cycle, and grazing would not begin until the hot season is past and cattle are less likely to linger in riparian zones.
2. Cut and drop juniper into riparian zone for riparian protection (i.e., jack strawing); project acreage is one acre, spot treatment along 0.25 mile of stream.
3. Stubble height triggers for moving cattle off in the fall would be 3-4 inches. Initially, protection from overutilization would be provided by the jack strawed junipers dropped in riparian zones.
4. Failure to meet stubble height targets for two consecutive years in Hollowfield Canyon Allotment would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs.

5. Upland utilization target would be set at 50 percent. Failure to meet upland utilization targets for two consecutive years in the Hollowfield Canyon Allotment would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs.

North Dixie Creek Allotment #1026 (Two pastures, Upper North Dixie and Lower North Dixie)

1. Change dates on permit: was 6/1-11/30, change to 6/1-6/30, 9/28-12/16. Prior to construction of riparian exclosure fence , the allotment would be limited to two weeks in June and two weeks in October each year (or four weeks in either June or October but not both) with riparian stubble height triggers for moving livestock set at 3-4 inches. After the exclosure fence is completed, late fall use would be allowable, but prior to this fence late fall AUMs would be in nonuse.
2. Private landowner may choose to build a new private land division fence (one mile long) in Lower North Dixie Pasture, to separate the large block of public land from the private land. This fence would give the permittee the option of moving to the private land in the allotment when utilization targets are reached on the public land, instead of moving entirely off the allotment. If the Permittee chooses not to build this fence 20% of the grazing preference in the allotment would be kept in nonuse.
3. Riparian exclosure would be constructed along one mile of upper North Dixie Creek, with maintenance responsibility belonging to the permittee. This exclosure would eliminate livestock grazing from public land portions of the creek and ensuring that at least 3-4 inches of riparian stubble height is left at the end of the growing season. The BLM expects that significant improvement to riparian rangeland health would occur as a result of fencing the riparian area.
4. Failure to meet end-of-season stubble height targets for two consecutive years in North Dixie Creek Allotment would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs in that pasture.
5. Upland utilization target would be set at 50 percent. Failure to meet upland utilization targets for two consecutive years in the North Dixie Creek Allotment would result in limiting use in the third year only to the amount of exchange-of-use or private land AUMs.

Lost Basin Allotment #1027

1. The season of livestock use in Upper Reagan Creek (mostly private land pasture) would be changed from unrestricted to 6/1 to 7/10. Stubble height targets would be set at 3-4 inches (measured around the time of first frost). Based on Clary and Leininger (2000) the BLM expects that setting a stubble height target will make significant progress towards meeting riparian rangeland health.
2. Juniper and aspen jack strawing at the aspen grove; approximately 10 acres. In addition to restricting livestock access as described in previous sections, jack strawing would also encourage aspen re-sprouting. This project is to assist in achieving standard 5.
3. Two spring sources would be fenced by fall of 2012 to protect spring sources and adjacent riparian areas. This project is needed to assist in achieving standards 2, 4, and 5 on 2.5 acres within the Lost Basin Allotment.

Table 7. Summary comparison of BLM AUMs and period of use for each alternative.

Allotment	Alternative 1		Alternative 2		Alternative 2a		Alternative 3	
	AUMs	Period of Use	AUMs	Period of Use	AUMs	Period of Use	AUMs	Period of Use
Summit Spring #1072	358	4/20-6/15, 10/5-11/30	0 initially, then 358	Rest initially, then as in Alt. 3	0	Permanent Rest	358	4/30-6/23, 10/5-11/30
Rye Valley #1037	263	4/16-5/25, 10/24-11/30	0 initially, then 263	Rest initially, then as in Alt. 3	0	Permanent Rest	263	4/23-5/31, 11/1-12/9, 6/1-6/30, 10/1-10/30
Upper Shirttail Cr. #1031	111	6/1-6/30, 10/1-11/1	0 initially, then 111	6/1-6/7, 10/1-10/7 initially, then as in Alt.3	0	6/1-6/30, 10/1-10/30	111	6/1-6/30, 10/1-10/30
Dixie Creek #1020	404	6/1-6/30, 10/1-11/1	0 initially, then 343	6/1-6/9, 10/1-10/9 initially, then as in Alt. 3	0	4/22-5/31, 6/1-6/30, 9/28-10/31	343	4/22-5/31, 6/1-6/30, 9/28-10/31
Bowman Flat #1022	65	5/10-7/9	0 initially, then 65	Rest initially, then as in Alt. 3	0	Permanent Rest	65	9/16-10/15, 6/1-6/30
Rattlesnake Gulch #1023	92	6/1-6/30, 10/1-11/1	0 initially, then 55	6/1-6/9, 10/1-10/9 initially, then as in Alt. 3	0	6/1-6/30, 10/1-10/31	55	6/1-6/30, 10/1-10/31
French Creek* #1032	143	No restriction	0 initially, then 143	4/16-6/30, 10/5-12/20	0	5/10-6/15, 10/5-11/10	143	5/10-6/15, 10/5-11/10
Hollowfield Canyon #1030	42	6/22-8/21	0 initially, then 42	10/1-10/31 initially, then as in Alt. 3	0	9/16-11/30	42	9/16-11/30
North Dixie Creek #1026	193	6/1-6/30, 10/1-11/1	0 initially, then 193	6/1-6/23, 10/1-10/23 initially, then as in Alt. 3	0	6/1-6/30, 9/28-10/27, 11/1-12/16	193	6/1-6/30, 9/28-10/27, 11/1-12/16
Lost Basin #1027	281	No restriction	281	No restriction except for Upper Reagan Creek 6/1-7/10	281	4/20 to 10/31	281	No restriction except for Upper Reagan Creek 6/1-7/10

2.3 Alternatives Considered but Not Analyzed in Detail

Reduce upland utilization targets or restrict season of use to fall or winter in pastures that have bluebunch wheatgrass.

As proposed by Hells Canyon Preservation Council (HCPC) this alternative would have eliminated spring and summer grazing in order to benefit bluebunch wheatgrass, which is an important upland forage grass in these allotments and has been shown to be sensitive to livestock grazing (Brewer et al. 2007). Also, bluebunch wheatgrass is a mid –late seral species in the soil types found in the Pedro Mountain GU. The Baker RMP management objectives for vegetation are to manage for a mid-seral plant successional stage. Therefore, to be in conformance with vegetation resource objective listed in the RMP grazing systems would be developed to maintain high bluebunch wheatgrass vigor.

However, the research used by the Hells Canyon Preservation Council (HCPC, Anderson 1991) to formulate this alternative is outdated and has been proven in part to be incorrect and misleading. A more recent study shows grazing at moderate levels can occur with no effect to bluebunch wheatgrass vigor if grazing is only authorized a maximum of two years in a row during the critical growing season (Brewer et al. 2007). This is supported by current rangeland health assessment that shows allotments within the Pedro Mountain Geographic Unit managed consistent with Brewer et al. (2007) recommendations (Summit Spring, Upper Shirttail, Dixie Creek, Rattlesnake Gulch, Hollowfield Canyon allotments) are meeting upland rangeland health standards (Table 1). Whereas, allotments that were not managed consistent with Brewer et al. (2007) recommendations (Rye Valley, Bowman Flat and French Creek) did not meet upland rangeland health standards completed in 2006. At the beginning of the 2007 grazing season an interim livestock management was implemented and was consistent with Brewer et al. (2007) recommendations. Subsequent upland trend monitoring conducted by the BLM shows that these slight changes to season of use are in fact making significant progress towards meeting upland rangeland health. This strongly suggests that simple changes to livestock grazing management are needed to improve upland rangeland health rather than drastic reductions in utilization targets and eliminating growing season livestock use as recommended by HCPC. Since Alternatives 2, 2a and 3 were developed using Brewer et al. (2007) recommendations, it is expected that bluebunch wheatgrass vigor under these Alternatives would be statistically similar to excluding livestock grazing during the growing season (spring to summer), as proposed by HCPC.

Due to the reasons described above, BLM eliminated this alternative from further consideration.

Interim livestock management (current livestock management)

The current livestock management was implemented prior to the start of the 2007 grazing season and was refined in 2011 to manage stubble heights in riparian areas. These changes in livestock management are consistent with the best available science which has been shown to improve elements of rangeland health (Brewer et al 2007 and Clary and Leininger 2000). Current livestock management is essentially the same as that identified in Alternative 3 with the exception of constructing 4.1 miles of fence and 1 cattle guard and treating 15 acres of juniper encroachment. The effects of implementing the interim livestock management would result in 1-3 miles less of

riparian area improvement when compared to Alternative 3. Due to the high level of similarity to Alternative 3 the BLM eliminated this alternative from further consideration.

The livestock permittee on the French Creek Allotment proposed livestock exclosures on all French Creek public land riparian areas and maintaining the current unrestricted grazing season.

Excluding livestock grazing from riparian areas would make significant progress towards meeting elements of riparian rangeland health for riparian standards (Clary and Leininger 2000). However, French Creek Allotment is also not meeting upland rangeland health standards. The permittee's proposal is not consistent with the Brewer et al. (2007) recommendation to develop grazing systems that provide sufficient livestock grazing deferment during the critical grass growth stage; therefore it is expected that no improvements to upland rangeland health would occur. Consequently, the BLM believes that the livestock permittee's alternative would not meet the purpose and need to improve upland rangeland health as required by 43 CFR § 4180.2(c).

Due to the reasons described above, BLM eliminated this alternative from further consideration.

2.4 Design Features Common to all Action Alternatives

Design features are measures or standard operating procedures that are incorporated into all action alternatives. Design features shown below are not a comprehensive list but address topics normally of concern to permittees, the tribes, interested public, and participating BLM staff.

1. Cultural/paleontological and biological (plants and animals) surveys would be completed prior to initiation of all rangeland development projects. Project planning would incorporate funding for cultural resource surveys and any necessary mitigation measures. Where necessary, prior to rangeland development, plant and animal surveys will be completed at the proper season so absence or presence of special status species may be determined.
2. BLM actions in response to discovery of archaeological resources, sensitive plants or animals, may include a variety of conservation measures to avoid or reduce effects associated with livestock grazing. Conservation measures may include (but are not limited to) avoidance, site stabilization, protective exclosure construction, project relocation, redesign, or abandonment. Cultural site evaluation and development of conservation measures will be accomplished in consultation with the Oregon State Historic Preservation Office (SHPO) and Tribes. Plant and animal evaluations and conservation measures will be accomplished in consultation with Oregon Department of Fish and Wildlife (ODFW) and United States Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) if appropriate.
3. If it is determined that properties potentially eligible for the National Register cannot be avoided by a proposed project, then BLM will identify and evaluate the resource in consultation with the Oregon SHPO and Tribes to: a) determine what makes the property potentially eligible or important; and b) determine what mitigation is appropriate. For archaeological properties that are determined potentially eligible for their information content, options for mitigation may include (but are not limited to) further documentation and data recovery (for example, retrieval, mapping, excavation). For properties which are determined to have traditional and/or religious importance to Tribes, appropriate mitigation would be determined in consultation with the Oregon SHPO and Tribes.

4. When ground-disturbing maintenance or reconstruction of an existing rangeland development project, such as a spring, waterhole or reservoir, is proposed, and the existing development was installed without prior cultural surveys, then cultural surveys would be completed. Priority would be placed on surveys at existing water developments. This would allow the BLM to identify sites and retrieve cultural resource information that would otherwise remain unknown. If eligible or potentially eligible archaeological sites with grazing impacts are identified during inventories for project maintenance or reconstruction, mitigation measures would be developed and implemented in consultation with Oregon SHPO and Tribes. Biological and botanical surveys will also be completed to assure protection of sensitive plants and animals consistent with BLM policy.
5. Cultural surveys for the 15 previously un-surveyed existing rangeland spring development projects would be accomplished over the next three years in accordance with project maintenance schedule.
6. Existing rangeland management structures such as fences, cattleguards, stock tanks, reservoirs, spring developments, pipeline storage tanks and pipelines may be periodically maintained or reconstructed without further NEPA analysis provided that such activities occur within the original disturbance area, and also provided that cultural and biological surveys were completed for the project. Any planned surface disturbance outside of an original rangeland project impact area will require additional cultural and biological surveys and a signed NEPA document before actions will be authorized.
7. During the 10-year term of the grazing permit, BLM will conduct cultural resource sampling inventories of un-surveyed stream reaches and springs in the allotment, including areas where livestock congregate. Locations where livestock congregate and which have high potential for cultural sites are identified below. These areas are often associated with water sources (such as springs), salt/mineral supplement stations, and low gradient riparian areas along stream reaches. Sampling inventories will be conducted opportunistically during other cultural inventories for rangeland project development, maintenance and site monitoring; and BLM will also seek to acquire additional funding for inventories. Specific locations identified by BLM for future inventory include segments of: French Creek, Rattlesnake Gulch, Little Deer Creek, Shirttail Creek and North Fork Dixie Creek.
8. Reports on the results of cultural resource monitoring and inventories will be prepared and provided to the Oregon SHPO and Tribes.
9. New fences will be installed with proper wire spacing requirements necessary to allow safe passage of pronghorn, mule deer, and elk. All fences will be installed with wire stays to reduce incidence of entanglement and death. All fences will be installed with smooth wire bottom strands to reduce incidence of big game injury.
10. The BLM would evaluate all existing fences that are within 1 mile of an active lek for placement of sage-grouse anti-strike markers, which is consistent with ODFW (2011).
11. Noxious weed and invasive plant inventory, treatment, and monitoring will continue.
12. Make progress towards meeting all water quality parameters and standards that have a direct effect on fish habitat (temperature, sediment, dissolved oxygen, pH) in all streams within the analysis area. See mitigating Measures Section of the EA for other conservation actions not specifically addressed under these Design Features.

13. The following conditions would be included in new grazing permits or exchange-of-use agreements in all alternatives:
    a. Wildlife escape ramps would be installed and maintained in all water troughs.
    b. Modifications to the grazing permit may be implemented to protect cultural resources under the National Historic Preservation Act (NHPA).
    c. Use will be in accordance with the allotment management plan (AMP), current grazing system, or instructions issued as applicable.
    d. Permit is subject to modification as necessary to achieve compliance with the standards for rangeland health and guidelines for livestock management (43 CFR § 4180).
    e. The permittee hereby agrees to allow authorized representatives of the BLM (43 CFR § 4130.3-2) reasonable access across private and leased lands at any time for the purpose of inspection and official business.
    f. Salting/minerals stations shall not be located on or within ¼ mile from cultural resources or riparian areas.
    g. Unless otherwise stated, utilization monitoring standards allow livestock to graze up to 50% on upland grasses and 30% on riparian shrubs.

2.5 Design Features common to Alternatives 2, 2a and 3

1. The following conditions would be included in new grazing permits or exchange-of-use agreements in addition to the ones listed above
2. Unless otherwise stated, set a minimum riparian stubble height of 3-4 inches on riparian sedges/grasses.

3 Affected Environment and Environmental Consequences

This section of the EA presents relevant resource components of the existing environment that will be analyzed in each alternative. The format of this section is consistent with resources analyzed in the Baker RMP (USDI 1989a) to which this "fine scale" ecosystem-based management planning effort is tiered.

3.1 Critical Elements of the Human Environment

The following Council on Environmental Quality (CEQ) elements of the human environment are subject to requirements found in statute, regulation, or executive order and must be considered in all EAs and EISs. In Table 8, BLM shows which critical elements are present, which ones are not, and which ones will be fully analyzed in the EA.

Table 8. Critical elements analysis summary.

Element	Relevant Authority	BLM Manual	Do any of the alternatives affect this Element?
Air Quality	The Clean Air Act as amended (42 USC 7401 et seq.)	MS 7300	Not affected
Areas of Critical Environmental Concern	Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.)	MS 1617	No ACECs are located within the Pedro Mountain GU

Element	Relevant Authority	BLM Manual	Do any of the alternatives affect this Element?
Cultural Resources	National Historic Preservation Act as amended (16 USC 470)	MS 8100	Yes - Impacts to known cultural properties are discussed in the EA. SHPO and CTUIR consulted
Farm Lands (prime or unique)	Farmland Protection Policy Act (PL 97-98; 7 U.S.C. 4201 et seq.)		No prime or unique farmlands are present on public lands within the GU.
Floodplains	E.O. 11988, as amended, Floodplain Management, 5/24/77	MS 7260	Yes - Impacts to floodplains are covered in the EA under wetland/riparian habitat
Indian Trust Resources	Treaty of 1855	BLM handbook H-8160-1	Concerns received and responded to in the EA. Ongoing data collection under the "First Foods Project" to gather information on potential habitat for culturally important plants.
Native American Religious Concerns	American Indian Religious Freedom Act of 1978 (42 USC 1996)	MS 8100	No sacred sites have been identified or are known to be located within the Pedro Mountain GU
Threatened or Endangered Species	Endangered Species Act of 1973 as amended (16 USC 1531)	MS 6840	Consultation under Section 7 of the Endangered Species Act was not necessary due to lack of federally listed species present.
Wastes, Hazardous or Solid	Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended (42 USC 9615)	MS 9180 MS 9183	No known hazardous waste exist within the Pedro Mountain GU.
Water Quality Drinking/Ground	Safe Drinking Water Act as amended (42 USC 300f et seq.) Clean Water Act of 1977 (33 USC 1251 et seq.)	MS 7240 MS 9184	Yes – Ground water is discussed in the EA
Wetlands/Riparian Zones	E.O. 11990, Protection of Wetlands, of May 24, 1977	MS 6740	Yes – Wetland and riparian area impacts are discussed in the EA.

Element	Relevant Authority	BLM Manual	Do any of the alternatives affect this Element?
Wild and Scenic Rivers	Wild and Scenic Rivers Act as amended (16 USC 1271)	MS 8014	Wild and Scenic Rivers are not present within the Pedro Mountain GU.
Wilderness and Wilderness Study Areas , Wilderness Characteristics Inventories	Federal Land Policy and Management Act of 1976 (43 USC 1701 et seq.) Wilderness Act of 1964 (16 USC 1131 et seq.)	MS 8500	No Wilderness or wilderness study areas exist within the GU. In addition, no areas containing wilderness characteristics were identified during the 2009/2010 Wilderness Characteristic Inventory. Update as being present in the Pedro Mountain GU.
Environmental Justice	E.O. 12898 of February 11, 1994		Minority populations and low income populations are not present in the Pedro Mountain GU.
Actions to Expedite Energy Related Projects	E.O. 13212 of May 18, 2001		Proposed Alternatives are not energy related nor will it affect production, transmission, or conservation of energy.

The CEQ coordinates federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. Congress established CEQ within the Executive Office of the President as part of the National Environmental Policy Act of 1969 (NEPA). Additional responsibilities were provided by the Environmental Quality Improvement Act of 1970.

3.2 Subjects Excluded from the Analysis

Subject elements that will not be fully analyzed in this EA includes, air quality, areas of critical environmental concern (ACEC), wilderness, wilderness study areas, wilderness characteristics, geology, minerals, special status plants, forest and woodlands, wild and scenic rivers, caves & karsts, visual resources, off highway vehicles (OHV), wastes, hazardous or solid, environmental justice, or actions to expedite energy related projects. Also, there are no known paleontological localities in the allotments therefore paleontology will not be fully analyzed.

These subject elements are not subject to the analysis because of one or more of the following reasons: (1) the subject element is not present within the analysis area or (2) the subject element would not be affected by BLM rangeland management authorizations, such as forest and woodlands (Table 8).

3.3 Climate Change

According to the United States Environmental Protection Agency's website "Important scientific questions remain about how much warming will occur, how fast it will occur, and how the warming will affect the rest of the climate system including precipitation patterns and storms.

Answering these questions will require advances in scientific knowledge in a number of areas. These include:

1. Improving understanding of natural climatic variations, changes in the sun's energy, land-use changes, the warming or cooling effects of pollutant aerosols, and the impacts of changing humidity and cloud cover.
2. Determining the relative contribution to climate change of human activities and natural causes.
3. Projecting future greenhouse emissions and how the climate system will respond within a narrow range.
4. Improving understanding of the potential for rapid or abrupt climate change.

The U.S. Geological Survey, in a May 14, 2008 memorandum to the U.S. Fish and Wildlife Service, summarized the latest science on greenhouse gases and concluded that it is currently beyond the scope of existing science to identify a specific source of greenhouse gas emissions or sequestration and designate it as the cause of specific climate impacts at a specific location. This makes the spatial scale for analysis as global, not local, regional or continental.

Climate change does not have a clear cause and effect relationship with the proposed action or the alternatives, because it is not currently possible to identify a specific source of greenhouse gas emissions or sequestration and designate it as the cause of specific climate changes. Also, the difference between the proposed alternatives and the no action alternative with regard to carbon analysis and greenhouse gas emissions is too small to be discernable because the action alternatives and no action are so similar with respect to the features that would affect carbon storage and emissions.

Approximately 55,000 active AUMs of grazing are currently authorized each year on public lands within the public lands within the Baker Resource Area. This is approximately two percent of the livestock forage consumed annually from all lands (private and public) within the Resource Area. Assuming an average production of 8 kilograms of methane gas per AUM equals 0.168 metric tons of CO_2 per AUM, this level of grazing would result in 9,240 metric tons of CO_2 equivalent in greenhouse gas (GHG) emitted each year from livestock use within the public lands in the Baker Resource Area.

These emissions are so minuscule that the incremental contribution to national and global emissions does not merit reporting under the EPA rule on mandatory reporting of greenhouse gases, which has a reporting threshold of 25,000 metric tons of CO_2 equivalent annually. For comparison purposes 25,000 metric tons of CO_2 equivalent a year is approximately 0.0000041 of 1 percent of total annual national emissions of 6 billion metric tons. Total global emissions are approximately 25 billion metric tons each year.

Based on the above analysis, the differences in greenhouse gas emissions from the current level of grazing in the Pedro Mtn. GU (the no action alternative) and the other alternatives would be so small as to be very negligible. (1,952 AUMs vs. 282 AUMs = 1,670 AUMs difference between Alternatives 1 and 2 and 2a) This would be a three percent reduction in use in the Resource Area, or approximately a 281 metric ton CO_2 equivalent difference in GHG emissions. Realistically, it could be anticipated that even under Alternative 2 and 2a the permittees instead of actually

reducing total herd size would find alternative forage sources for the cattle affected by the nonuse required on public land. The GHG emissions for the area as a whole would not change in that situation.

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 (Derner and Schuman 2007). Some studies have found that grazing can result in increased carbon storage compared to no grazing due to increased plant turnover and changes in plant species composition (Follett et al. 2001). Many changes in rangeland carbon from different grazing practices do not result in substantial changes in total ecosystem carbon, but are redistributions of carbon, such as from above-ground vegetation to root biomass (Derner and Schuman 2007). Overall, changes in rangeland carbon storage from changes in grazing practices are likely to be small and difficult to predict, especially where a rangeland health assessment has determined that Rangeland Standards and Guides (BLM 1997) are being met. Therefore, this analysis assumes that changes in grazing practices would only result in negligible, if any, change in total carbon storage in both the short and long term.

3.4 Vegetation

3.4.1 Land Use Plan Management Objectives

The following vegetation objectives come from the Baker RMP (USDI 1989):

- Manage upland grass-shrub vegetation to achieve a mid-seral stage plant community.
- Improve habitat quality for deer, elk, grouse, and turkey.
- Riparian – Enhance the riparian habitat along Dixie Creek and tributary streams by stabilizing the stream banks and by increasing the vegetation structure.

3.4.2 Affected Environment

Vegetation in the Pedro Mountain GU is predominately sagebrush (principally mountain big sage (*Artemisia tridentata vaseyana*) and basin big sage (*Artemisia tridentata tridentata*) communities with an understory of perennial grass species, primarily bluebunch wheatgrass (*Pseudoroegneria spicata*), Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), Thurber's needlegrass (*Achnatherum thurberianum*), squirreltail (*Elymus elymoides*), basin wildrye (*Leymus cinereus*). Localized areas have been invaded by non-native annual grasses including cheatgrass (Bromus tectorum). Ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), mountain mahogany (*Cercocarpus ledifolius*), bitterbrush (*Purshia tridentata*), snowberry (*Symphoricarpus sp.*), and chokecherry (*Prunus virginiana*) are common at the highest elevations with an understory of blue wildrye (*Elymus glaucus*), mountain brome (*Bromus marginatus*), sedges (*Juncus sp.*), and needlegrasses (*Achnatherum sp.)*.

Bluebunch wheatgrass, Thurber’s needlegrass and Idaho fescue are sensitive to livestock grazing during the boot to soft dough growth stages (Anderson and Frank 2003). In fact continuous grazing during these growth stages to light to moderate utilization level can result in a pasture or allotment to fail elements of upland rangeland health standards (Brewer et al. 2007 and Ganskopp 1988). However, grazing can occur with no effect to plant vigor if management systems allow sufficient deferment during this critical growth stage. The allotments that were not meeting upland rangeland health standards and grazing management prior to final rangeland health determinations was listed as a causal factor (Bowman Flat, French Creek, and Rye Valley) did not have adequate

livestock deferment during the critical growth stage as recommended by Brewer et al. (2007); whereas, allotments that did have sufficient deferment (Summit Spring, Upper Shirttail, Dixie Creek, Rattlesnake Gulch, Hollowfield Canyon allotments) meet upland rangeland health standards (Table 1). The Lost Basin Allotment has no restrictions on the season of livestock use and is 83 percent private land. The BLM does not require the permittee to submit actual livestock use reports for the various pastures in this allotment; therefore, BLM does not have data showing if the allotment management is consistent with Brewer et al. (2007) recommendations, but it is meeting upland rangeland health standards.

Riparian vegetation varies from dense shrubs and trees along some stretches (species such as willow (*Salix sp.)*, aspen (*Populus tremuloides)*, alder (*Alnus sp.)*, and chokecherry to primarily grasses, sedges (*Carex sp.*), and rushes in other places. Rangeland health standards for riparian condition were determined by proper functioning condition (PFC) assessment which concluded in 2006. This assessment identified grazing management prior to final determinations as contributing to riparian rangeland health standards not being meet in all the allotments. Specifically, the PFC assessment identified livestock grazing as a contributing factor leading to reduced riparian plant vigor, inhibiting point bars from re-vegetating, inhibiting riparian area from widening to full potential, and contributing to the instability of headcuts. Current research suggests that deficiencies found in these riparian health elements, in most instances, can be corrected in the long term by setting a stubble height target of 3-4 inches (Clary and Leininger 2000). Interim Livestock management implemented prior to the 2011 grazing season set riparian stubble height targets within the Pedro Mountain Geographic Unit consistent with Clary and Leininger (2000) recommendations.

3.4.1 Direct and Indirect Effects

Rangeland health assessment was used to analyze both riparian and upland vegetation within the Pedro Mountain Geographic Unit. Rangeland health has five standards in which a grazing pasture is rated. For the vegetation analysis three standards will be discussed which are watershed function-uplands, watershed function-riparian and ecological processes. The other two standards will be discussed in 1) Wildlife/Wildlife Habitat and Special Status Animals and 2) Soil and Hydrological Resources and Riparian/Wetland Areas sections. Both watershed function-upland and ecological processes rangeland health standards are similar; in fact, the three rangeland health attributes which are used to assess watershed-function upland and ecological processes (Soil/Site Stability, Hydrologic Function, and Biotic Integrity) have nine indicators that are in common with two or more of the attributes(Pyke et al. 2002). It is expected that changes in livestock management will affect both watershed function/uplands and ecological processes similarly; therefore, from this point on watershed function/uplands and ecological processes will now be referred to as upland rangeland health standards. In addition, to improve readability, watershed function/riparian will now be referred to as riparian rangeland health standard.

3.4.2 Alternative 1

Livestock grazing would be managed in a way that is not consistent with making significant progress towards meeting rangeland health within the Pedro Mountain Geographic Unit which is required by 43 CFR § 4180.2. Recent scientific studies provide good reasons to set a minimum riparian stubble height of 3-4 inches and develop upland utilization targets based on how many years in a row grazing occurred during the critical plant growth stage, and such actions would make significant progress towards meeting rangeland health standards (Clary and Leininger 2000;

Brewer et al. 2007). However, Alternative 1 would not set riparian stubble height nor regulate livestock grazing during the critical growing plant growth stage. On 1,800 acres late succession grass species (bluebunch wheatgrass, Thurber's needlegrass and Idaho fescue) are expected to decline **(**Anderson and Frank 2003; Stoddart and Smith 1955) while early seral species (sandberg bluegrass, squirrel tail, invasive plants) the BLM expects will increase. Mid and late seral upland native grass species vigor is expected to decline, which can reduce production and litter accumulations and increase the amount of bare ground. It is also expected that woody vegetation recruitment along riparian areas will be inhibited, which is supported by Clary and Leininger (2000) and Clary (1999) which indicates that in most instances maintaining 3-4 inches of herbaceous stubble height allows increases in riparian woody vegetation. No riparian stubble height data has been formally collected; however, professional observation of BLM range management staff indicates that riparian stubble heights were below 3-4 inches. Therefore, it is expected that rangeland health status identified in Table 1 would persist into the future under Alternative 1.

3.4.3 Alternative 2

Rangeland health assessments indicate livestock grazing is a significant factor adversely affecting rangeland health, contributing to approximately 1,800 acres not meeting upland rangeland health standards and 16.75 miles of riparian areas not meeting standard. Interim livestock management changes, as required by 43 CFR § 4180.2(c) were made based on Brewer et al. (2007) and Clary and Leininger (2000) recommendations which have been shown to improve and maintain elements of rangeland health. The BLM believes that these interim management changes are resulting in significant improvement to rangeland health which is supported by subsequent upland trend monitoring. However the BLM believes that full attainment of rangeland health has not yet occurred, which is consistent with Anderson and Holte (1981) and USDI (2006).

Alternative 2 will suspend all livestock AUMs on public lands in 9 of the 10 allotments analyzed until all rangeland health standards are met. It is expected that suspending livestock grazing will increase ground cover (vegetation, litter and biotic crusts), density of late succession grasses (bluebunch wheatgrass and Idaho fescue) and vigor of native plant species while reducing bare ground below current conditions (Anderson and Inouye 2001); all of which are elements of upland rangeland health standards. In addition, exclusion of livestock grazing in riparian areas has been shown to improve riparian plant vigor, woody vegetation recruitment and streambank stability, which are all elements of rangeland health (Clary 1999). Based on research conducted by Anderson and Holte (1981) and USDI (2006) the BLM suspects that rangeland health standards would not be fully obtained for up to 15 years, however significant progress is currently occurring thru the implementation of the interim livestock management changes.

However, the Pedro Mountain GU is highly fragmented by land ownership. The BLM expects that if livestock grazing is suspended on public lands for a long period of time (more than 3 years) the livestock operator would fence the private land from the public lands in order to extend the season of livestock use on the adjoining private lands. Extending the season of livestock use on adjacent private lands is likely to have adverse effects on the adjoining BLM lands and would negate significant improvement made by interim livestock management (see cumulative effects section).

Conflicting science shows that resting allotments increases the risk of non-native grass dominating the site after wildfire (Davies et al. 2009). However, this study was conducted in a Wyoming big sagebrush stand whereas Pedro Mountain GU is dominated by mountain big sagebrush which has a

higher resistance to being converted to non-native annual grasses (Bunting et al. 1987). Therefore, the BLM does not believe that Davies et al. (2009) is appropriate in the Pedro Mountain GU.

Alternative 2a

The effects to rangeland health would be the same as Alternative 2 except the likelihood that the livestock operator would fence the private land from the public in order to extend private land season of livestock use would increase under Alternative 2a (see cumulative effects section).

3.4.4 Alternative 3

Livestock grazing management would be consistent with the best available science (Brewer et al. 2007; Clary and Leininger 2000). In addition, Alternative 3 is same as the interim livestock management with the exception of the proposed fences, which are needed stop livestock drift from an adjoining allotment and restrict riparian grazing. These changes have already resulted in significant improvement towards meeting rangeland health.

Current assessment has identified 16.75 miles of riparian area and 1,800 acres of uplands that are not meeting rangeland health, and grazing management prior to final determinations was identified as a causal factor. It is assumed that changing livestock management using the best available science will make significant progress towards meeting rangeland health standards within these areas. Interim livestock management changes were made prior to the 2007 grazing season and revised prior to the 2011 grazing season to include riparian stubble height targets. The interim grazing management were based on Brewer et al. (2007) and Clary and Leininger (2000) recommendations. The BLM believes that these interim management changes are resulting in significant improvement to rangeland health which is supported by recent upland trend monitoring. However the BLM believes that full obtainment of rangeland health has not yet occurred, which is consistent with Anderson and Holte (1981) and USDI (2006).

The maximum amount of time required to meet all rangeland health standards is estimated to be 5 years longer than identified in Alternative 2. The reason for the increased amount of time required under Alternative 3 is riparian stubble heights recommended by Clary and Leininger (2000) may not be appropriate in all situations resulting in a lower level of improvement. For these streams to make full obtainment of rangeland health would require setting site specific stubble height targets. Clary and Leininger (2000) indicates that the riparian areas that may require more restrictive stubble height targets are primarily associated with streams where fall grazing occurs and woody vegetation is low or stream banks that are extremely sensitive to livestock grazing. At this time the BLM has not identified areas that meet these criteria for more restrictive stubble height targets. However, baseline data is being collected to develop riparian targets for 1) stubble height 2) woody browse utilization and 3) streambank disturbance. This data collection will not be completed until 2014 or 2015. It should be noted that riparian areas needing more than 3-4 inches are relatively rare (Clary and Leininger 2000).

3.4.5 Cumulative Impacts

Cumulative impacts are defined as 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 action. The geographic scope of the cumulative impacts on vegetation is the entire Pedro Mountain GU.

Past and present actions

The largest past and present land management action that has impacted rangeland health is livestock management, followed by ground disturbing projects and activities (i.e., mining, road construction and high intensity wildfire). In general livestock management and mining have resulted in adverse effects to vegetation. Livestock grazing and ground disturbing projects (road construction, mining, higher intensity wildfire) have resulted in 1,800 acres not meeting rangeland health standards. In addition there are approximately 250 acres currently dominated by cheatgrass. Most of these have lost native species that are desired for livestock forage, wildlife habitat and soil stability. These converted sites are primarily located along road rights-of-ways. Changes to livestock grazing alone will not improve these sites to a desirable rangeland health condition (Mosen and Kitchen 1994). Management activities that reintroduce native species or that introduces approved (See BLM Manual 1745 for guidelines) perennial species will likely be needed to improve range health on these sites.

Prior to the 2007 grazing season an interim livestock management was implemented which increased livestock deferment based on Brewer et al. (2007) recommendations. Prior to the start of the 2011 grazing season the interim livestock management was refined to include riparian stubble height targets consistent with Clary and Leininger (2000) recommendations. The BLM suspects based on subsequent upland trend monitoring, that the interim livestock management changes are making significant progress towards meeting rangeland health.

Similar to public lands, resource conditions on private lands have been largely affected by livestock management followed by juniper reduction and ground disturbing projects. It is difficult to determine the extent these land management decision have had on rangeland health since private land owners are not required to monitor or assess private lands. However, professional BLM range staff opinion indicates that private land livestock management is not consistent with Clary and Leininger (2000) recommendation however most private land livestock management is thought to be consistent with Brewer et al. (2007). Therefore, it is assumed rangeland heath on private land is relatively similar to public lands where most of the impacts are associated within riparian areas.

Reasonable Foreseeable Actions

Future mining is expected to be confined to the 300-400 acres that have historically or are presently being mined with the largest being a proposed project of approximately 150 acres in Mormon Basin. These mining sites are required to be reclaimed pursuant the mining plan of operations. Most of the mining sites are located within mountain and basin big sagebrush communities which have high site potential for reclamation. In fact, some of the historic mining tailings have naturally re-vegetated with native grasses, forbs and shrubs. It is difficult to determine how many acres will be reclaimed. However, with mineral values being high it is expected that a small proportion (5-20 percent) of the mining area will be reclaimed in the reasonably foreseeable future.

Currently, there are 2,718 acres of juniper within the Pedro Mountain Geographic Unit encroaching into historic mountain big sagebrush community. Currently there is a project proposed to treat 1480 acres of phase I and II juniper which will result in improved rangeland health by increasing the vigor of the mountain big sagebrush community. Specifically, a decline in production and cover of native sagebrush, grasses and forbs occurs once juniper approaches phase I (Miller et al. 2008). Once a stand of encroaching juniper reaches phase III, understory vegetation reduces to a point where there is not enough ground cover to protect the top soil from erosion

(Davenport et al. 1998). Reduced vigor and cover of shrubs and grasses and increased bare soil increases the probability of invasion and establishment by noxious weeds and other invasive plants. Therefore, treating 1,480 acres of encroaching juniper will increase and maintain upland rangeland health within the treated area, juniper treatments would be implemented over the next 5-7 years, with the beneficial effects becoming apparent within the next 5-10 years.

The herbicides available for use on BLM managed lands is expected to increase from 4 to 17 within the year with the completion of a district EA that tiers to the Vegetation Treatments Using Herbicides on BLM Lands in Oregon Environmental Impact Statement (OR EIS) (2010). The EA is expected to authorize the control of non-native annual grasses. Most of the non-native grass stands are typically found along roads and riparian areas. These stands are typically less than 10 acres in size are relatively rare within the Pedro Mountain GU. In fact a recent non-native annual grass map was constructed and no areas greater than 50 contiguous acres were identified.

Livestock management on private land in the Pedro Mountain GU is interconnected to management on public land. Therefore management changes to public lands would likely result in modifications to livestock management on the adjoining private land. Alternative 2 and 2a, which calls for the exclusion or drastic reductions to livestock grazing would likely, lead to increased use of private lands. In order for the livestock operator to make full use of the private lands, the operator would need reliable means to prevent livestock from using public lands (fencing). Where there is increased livestock use on private land, it is expected to result in increased degradation to those riparian and upland rangelands health standards. This would include reduced vigor of forage species, reduced native seed production and recruitment, reduced riparian woody vegetation, reduced forage production, and increased bare ground that is likely to increase the size and number of noxious and invasive weed infestations. Additionally these conditions favor the introduction of new invasive species.

Overall Cumulative Effects

Alternative 1
Under Alternative 1 livestock management would continue at historic levels. It is expected that allotments not meeting upland rangeland health standards, at the time of final determinations, would continue to be in that status which accounts for 1,800 acres of uplands and 16.75 miles of riparian area. Reasonably foreseeable future projects will have both adverse and beneficial effects to current rangeland health condition. Specifically, the planned juniper reduction and weed control, particularly improved control with additional herbicides, are expected to improve between 1,500 to 2,000 acres of historic sagebrush community. Mining is expected to adversely affect 300-400 acres. However, these sites would be rehabilitated pursuant the mining plan of operations.

Alternative 2
Under Alternative 2, livestock management would reflect current scientific knowledge for improving uplands and riparian areas to meet rangeland health standards on public lands. Changes in grazing management on private lands could result in deterioration, improvement or continuation of current conditions. In addition, future juniper reduction and weed control are expected to improve between 1,500 to 2,000 acres that are either not meeting rangeland heath or are close to failing rangeland health due to juniper encroachment. Conversely, mining is expected to adversely affect 300-400 acres of public lands; however, these site would be rehabilitated pursuant the mining plan of operations.

Excluding or greatly reducing livestock grazing on public lands for up to 15 years may result in increased grazing on adjoining private lands within the Pedro Mountain GU. Future livestock demands on private lands may reduce the vigor and recruitment of desirable perennial bunchgrasses as well as increase the risk weed invasion, particularly of non-native annual grass expansion and spread to adjacent public lands (Stoddart and Smith 1955; Brewer et al. 2007; Sheley and Petroff 1999). The amount of weed expansion would be dependent on the magnitude of disturbance and introduction of non-native seed.

In addition, extending livestock use on adjoining private lands would increase the intensity of damage on riparian areas. If grazing on the adjoining private land is extended from April to August there would be a high possibility that benefits realized from livestock rest on public land would be negated in the watershed or GU. If livestock numbers are increased on private land, grazing is likely to reduce private land riparian rangeland health which would increase the probability of stream failure (severe vertical and horizontal cutting) on private and possibly migrate to public lands.

Alternative 2a
Same as Alternative 2; except there would be a greater likelihood the permittees would fence the private lands from the public in order to maintain or extend the season of livestock use on private lands.

Alternative 3
Alternative 3 would modify livestock management to reflect current scientific knowledge for improving uplands and riparian areas to a level where rangeland health is met on public lands. The only difference between these three alternatives is under Alternative 3 livestock grazing would not be excluded from public lands.

The same as Alternative 2, future juniper reduction, weed control and mine reclamation projects are expected to improve between 1,500 to 2,000 acres of historic native sagebrush community. Conversely, mining is expected to adversely affect 300-400 acres of public lands. However these sites would be rehabilitated pursuant the mining plan of operations.

It is highly likely that the livestock operator(s) will choose to use public lands in conjunction with the private lands creating multiple pasture grazing systems. With this in mind, livestock grazing schedules on public lands were developed to allow for sufficient livestock deferment on private lands consistent with Brewer et al. (2007) recommendations. However, it is ultimately up to the livestock operator how the private land is managed.

Therefore, the overall cumulative effects to upland rangeland health are expected to improve 1,550 acres of uplands currently not meeting rangeland heath standards and 16.75 miles of riparian area. New herbicides that the BLM expects to be authorized under the vegetation management EA is expected to improve a portion of the 250 acres of uplands that have converted to a non-native annual grass community. Most of the non-native grass stands are typically found along roads and riparian areas. These stands are typically less than 10 acres in size are relatively rare within the Pedro Mountain GU. In fact a recent non-native annual grass map was constructed and no areas greater than 50 contiguous acres were identified. It is also expected that future juniper reductions will result in maintaining desirable rangeland health into the future. In addition 1,500 to 2,000 acres of historic sagebrush community will be improved by juniper reduction treatments.

3.5 Soil and Hydrologic Resources and Riparian/Wetland Areas

3.5.1 Land Use Plan Management Objectives

Pedro Mountain GU management actions and objectives are as follows in the RMP (USDI 1989a):

Resource Condition Objective

- Enhance the riparian habitat along Dixie Creek and tributary streams by stabilizing the stream banks and by increasing the vegetation structure.

Allocation

- Restrict livestock use through seasons of use, utilization levels and livestock numbers.
- Exclude livestock grazing in identified stream segments, bogs and spring overflows where use is incompatible with riparian management objectives.

Management Action for Riparian

- Construct exclosure fences along Dixie Creek and tributary streams and around selected bogs and springs.
- Rip-rap the banks of identified stream segments.
- Plant shrubs in current riparian enclosures.
- Conduct riparian inventories on 3 miles of stream in this GU . 1.2 miles of existing riparian habitat on Dixie Creek will be improved.
- Establish monitoring studies on riparian vegetation in Dixie Creek.

3.5.2 Affected Environment

Soils

The following soils information is from the Baker County Soil Survey (NRCS 1997). The Pedro Mountain GU is comprised of over 40 different soil types. For the portion of the GU which is located in Malheur County, a soil survey has not been completed and as such the information presented below is for Baker County only. There are six main soil units which contain most of the different soil types and the majority of the acreage within the GU and they are described below.

The first major soil unit within the GU is the Virtue-Poall-Encina association, which is a soil unit associated with warm, dry, gently sloping to steep soils on terraces, fans, and hills. This soil association consists of deep and moderately deep, well drained silt loams, gravelly silt loams, and very fine sandy loams which formed in lacustrine sediments. The native vegetation is mainly bunchgrasses, forbs, and shrubs. Elevation is between 2200 and 4000 feet with average annual precipitation of 9 to 12 inches. The soils in this unit are used mainly for livestock grazing, while the Virtue and Encina soils have limited hay and pasture production. This unit also provides habitat for many types of wildlife and in the areas used for livestock grazing there are no major limitations (NRCS 1997).

The next major soil unit is the Ruckles-Ruclick-Lookout association, which is an association on warm, dry, gently sloping to very steep soils on hills. This soil association consists of shallow and moderately deep, well drained silt loams, very cobbly silt loams, and very stony clay loams that formed in colluvium derived from basalt. Native vegetation on this soil unit is mainly bunchgrasses and shrubs with an elevation range of 2000 to 3800 feet, and an average annual

precipitation of 9 to 12 inches. The soils in this unit are mainly used for livestock grazing and this unit also provides habitat for many kinds of wildlife. The main limitations to livestock grazing in this area are the very cobbly or stony surface layer and the slope of the Ruckles and Ruclick soils (NRCS 1997).

The following three major soil units in the GU are in an area of cool, moist, gently sloping to very steep soils on hills and mountains. These three units are the Taterpa-Brownlee association, the Ateron-Roostercomb association, and the Lostbasin-Sinker-Chambeam association.

The Taterpa-Brownlee association consists of deep, well drained loams which formed in colluvium and residuum derived from granitic rocks. Elevation is between 3600 to 6200 feet with an average annual precipitation of 16 to 20 inches. Native vegetation is mainly bunchgrasses and shrubs. The soils in this unit are also mainly used for livestock grazing, with a few areas of the Brownlee soils used for hay or small grain. In the areas used for livestock grazing, the main limitation is slope of the Taterpa soils. Habitat for many types of wildlife is also provided by this soil unit (NRCS 1997).

The Ateron-Roostercomb association consists of shallow and moderately deep, well drained very stony loams and extremely gravelly clay loams that formed in colluvium derived from basalt and greenstone. Native vegetation is mainly bunchgrasses and shrubs, elevation ranges from 3600 to 5700 feet, and the average annual precipitation is 12 to 16 inches. The soils in this unit are also mainly used for livestock grazing while also providing habitat for many types of wildlife. The main limitations to livestock grazing in this area are the very stony or extremely gravelly surface layer and the slope (NRCS 1997).

The Lostbasin-Sinker-Chambeam association consists of moderately deep and deep, well drained very channery loams which formed in colluvium derived from schist and greywacke. Elevation is 3500 to 5300 feet, average annual precipitation is 12 to 16 inches, and the native vegetation is mainly bunchgrasses and shrubs. The soils in this unit are mainly used for livestock grazing while also providing habitat for many types of wildlife, and the main limitations to livestock grazing are the slope (NRCS 1997).

The final main soil unit within the GU is the Dogtown-Kilmerque-Tolo association which is in an area of cool, moist, gently sloping to very steep soils on mountains. This soil association is comprised of moderately deep and deep, well drained gravelly loams, loams, very stony loams, and silt loams which formed in colluvium and residuum derived from granitic rocks and were influenced by volcanic ash in the surface layer. The native vegetation is mainly mixed conifer stands with an elevation of 3800 to 6200 feet and an average annual precipitation of 17 to 35 inches. The soils in this unit are used mainly for timber production, livestock grazing, and watershed while also providing habitat for many kinds of wildlife (NRCS 1997).

Hydrology and Riparian

According to BLM Geographic Information System (GIS) analysis, there are approximately 67 miles of perennial streams and over 230 miles of intermittent streams within the Pedro Mountain GU which includes both private and public lands. BLM evaluations on almost 48 miles (see Table 9 and Maps 9 – 14) of perennial and intermittent streams meeting the criteria for Proper Functioning Condition (PFC) assessment on BLM managed lands. The BLM (USDI 1998) presents the concept of physical function of riparian areas, referred to as PFC, as a minimal

threshold for managing water quality, fish and wildlife habitat, aesthetics and livestock forage. PFC is a qualitative assessment that considers hydrology, vegetation, and soil/landform attributes and rates riparian function as:

- Proper Functioning Condition: Riparian-wetland areas are properly functioning when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality, filter sediment, capture bedload, and aid in floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.
- Functional - At Risk: Riparian-wetland areas that are in functional condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation. Stream reaches determined to be Functional at Risk are further assessed for Trend – upward, downward, or not apparent.
- Non-Functioning: Riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows, and thus are not reducing erosion, improving water quality, etc.

PFC does not necessarily equate to potential natural community, advanced ecological status or desired future condition. Rather, PFC demonstrates the level of resilience required for a system to function and allow for maintenance and recovery of desired values such as water quality and fish habitat. In some areas, streams which have a rating of PFC may be identified for restoration activities because of the relative low cost associated with a high probability of successfully achieving a potential natural community.

Streams were rated as Proper Functioning Condition (PFC), Functioning at Risk with an Upward Trend (FARU), Functioning at Risk with a Downward Trend (FARD), Functioning at Risk with No Apparent Trend (FARN), or Non-functional (NF). Forty-one percent of the streams within the allotments analyzed were rated as PFC or FARU (meeting rangeland health standards), with the other fifty-nine percent as FARD, FARN or NF (Not meeting rangeland health standards). The results of the BLM PFC surveys are presented in Table 9. PFC surveys are tied to rangeland health watershed function/riparian (Standard 2), which was not met in many of the allotments within the GU. The BLM used rating of PFC or FARU as meeting Standard 2 and ratings of FARD, FARN and/or NF as not meeting Standard 2.

Table 9: BLM Stream miles by PFC rating.

Rating	Stream Miles	Percentage of BLM Stream miles surveyed
PFC	9.0	32%
FARU	2.55	9%
FARD	12.55	44%
FARN	3.9	14%
NF	0.3	0.1%

Some of the problems noted during the PFC surveys related to livestock grazing included bank trampling, bank erosion, lack of woody species in the riparian areas, decreased vigor of riparian vegetation, headcutting of the stream channel, and high utilization of riparian vegetation by livestock.

Floodplains and wetlands are addressed in this document through the PFC ratings and attainment of Standard 2.

Waters in Oregon that do not attain State standards are considered "water quality limited" and are included on Oregon's 303(d) List of Water Quality Limited Water bodies (e.g., 303(d) list). The most current 303(d) list for Oregon which was approved by the Environmental Protection Agency (EPA) is the 2004/06 list (DEQ, 2006). Within the GU, the North Fork Dixie Creek and South Fork Dixie Creek are on the 303(d) list for exceeding stream temperature standards (7 day maximum of 68°.F). In addition, main Dixie Creek which both the North Fork and South Fork flow into is also on the 303(d) list for exceeding stream temperature standards. Although main Dixie Creek is outside of the GU, streams within the GU contribute to its water quality. Rangeland health water quality standard (Standard 4) relates to water quality within the different allotments. For the 10 allotments analyzed in this EA, seven are not meeting Standard 4 due to livestock grazing. Standards 1, 2, and 3 contribute to attaining Standard 4 (BLM, 1997). Nine allotments do not meet Standard 2. Two allotments do not meet Standard 1 and three allotments do not meet Standard 3.

For streams listed on the 303(d) list, States must then calculate total maximum daily loads (TMDL) for water quality impaired streams. The State of Oregon has not yet started to develop a TMDL for the Burnt River subbasin. When the State initiates the TMDL process, the BLM will be involved with the development and implementation of the TMDL as outlined in the Forest Service and Bureau of Land Management Protocol for Addressing Clean Water Act Section 303(d) Listed Waters (FS/BLM 1999).

The BLM collected stream temperature and water quality data in the GU between 2000 and 2004. The stream temperature information is summarized in Table 10.

Table 10. BLM Stream Temperature Data.

Stream		2000	2001	2002	2003	2004
North Fork Dixie Creek	7-day maximum	76.2^{0}F	80.2^{0}F	76.5^{0}F	88.1 ^{0}F	
	Maximum reading	77.9^{0}F	84.4^{0}F	78.1^{0}F	90.6^{0}F	
South Fork Dixie Creek #1	7-day maximum	67.1^{0}F	66.6^{0}F	67.7^{0}F	67.9^{0}F	
	Maximum reading	68.8^{0}F	69.0^{0}F	69.7^{0}F	70.5^{0}F	
South Fork Dixie Creek #2	7-day maximum	71.5^{0}F	67.3^{0}F	69.4^{0}F	67.4^{0}F	
	Maximum reading	73.8^{0}F	70.4^{0}F	71.7^{0}F	69.1^{0}F	
Dixie Creek #1[1]	7-day maximum	79.0^{0}F	78.4^{0}F	82.0^{0}F	87.4^{0}F	90.0^{0}F
	Maximum reading	80.2^{0}F	82.2^{0}F	84.3^{0}F	89.7^{0}F	94.6^{0}F
Dixie Creek #2[1]	7-day maximum			82.6^{0}F	86.6^{0}F	
	Maximum reading			85.9^{0}F	89.7^{0}F	

[1] Dixie Creek is outside of the GU but many of the streams and uplands within the GU influence the stream temperature and water quality of Dixie Creek.

Water quality has been monitored in Dixie Creek, North Fork Dixie Creek, and South Fork Dixie Creek between 2000 and 2005. In addition to the temperature data collected on these streams (which is displayed above), other water quality parameters measured include pH, dissolved oxygen (DO), turbidity, conductivity, e. coli, alkalinity, phosphates, nitrates, and nitrites. Stream flow has also been taken on occasion at the various temperature and water quality sites. Water quality is tied to Standards 2 and 4 which were not met within many of the allotments in this GU.

The water quality parameters (other than e. coli and temperatures) measured by the BLM do not show any areas where water quality exceeds state standards. In 2003 and 2004, BLM received funding to do water quality testing in the Burnt and Powder subbasins. In 2003, Dixie Creek, North Fork Dixie Creek, and South Fork Dixie Creek were sampled four times during the year with water samples sent to a laboratory in Boise, ID. These samples indicate that all three streams sampled *may* exceed e. coli standards, with the North Fork Dixie Creek most likely to exceed state standards based on the 2003 data, however not enough samples were taken during the required time period to meet Department of Environmental Quality (DEQ) protocols for listing on the 303(d) list. The data collected by the BLM in 2003 and 2004 suggests that further monitoring of e. coli levels in the streams within the GU may be needed to determine if streams are exceeding state water quality standards. The BLM water quality data is available at the Baker City, OR office upon request.

3.5.3 Alternative 1

Soil and site stability is one element of upland rangeland health which is covered in the section 3.4 Vegetation. The BLM expects that livestock management under Alternative 1 would offset all gains to soil and site stability obtained thru the interim livestock management. Specifically, the BLM expects that upland rangeland trend will decrease to the level identified in the 2006 rangeland health assessment, which was 1,800 acres of uplands not meeting rangeland health.

Alternative 1 would remove the minimum riparian stubble height target which was established by the interim grazing management. The BLM expects that removing the minimum riparian stubble height target would negatively affect stream width to depth ratio, streambank stability, channel bottom embeddedness, willow cover and height, plant species richness by growth form, plant community-type and plant and litter cover which is supported by Clary (1999) and Clary and Leininger (2000). The BLM also expects that all gains in riparian rangeland health made by the interim grazing management would be lost resulting in conditions the same as what was reported in the final determinations, which are as follows. Approximately 51% of the riparian areas are either functioning at PFC or FARU (see Table 9). Approximately 32% rated as FARN and approximately 16% of the riparian areas rated as downward trend.

3.5.4 Alternative 2 and 2a

Alternative 2

The implementation of Alternative 2 would improve ground cover in pastures that were not meeting soil and site stability element of rangeland heath, thereby reducing the risk of unacceptable soil erosion. On the other hand, some temporary surface/soil disturbance would occur during construction of the proposed projects but this disturbance would not be significant. However, if the livestock operator(s) decide to increase the season of use on adjoining private lands, making up for the temporary suspension of livestock grazing on private lands, the BLM

expects that watershed cover would not improve above conditions listed in the 2006 final determinations (see cumulative effects).

This alternative would most likely allow some allotments to return to grazing on public lands sooner than others based on current conditions. For example, North Dixie Creek allotment is not meeting Standard 2 (watershed function/riparian) or Standard 4 (water quality). However, only one segment of stream in the allotment is rated as FARN, while all other segments are at FARU or PFC. This Alternative and Alternative 3 propose to build a riparian exclosure along the segment rated as FARN. For this allotment, the construction of the exclosure fence and exclusion of cattle from the impaired riparian area would be a relatively quick fix to meeting Standard 2 for this allotment. While Standard 4 may still not be met, this is also due to what is happening upstream as well as on private land. If the riparian areas on the BLM managed land are all at PFC or FARU, and/or are excluded from livestock grazing, then it would be determined that while Standard 4 still may not being met, it is not due to current livestock grazing on BLM managed land. In this allotment, the BLM would authorize grazing because either all standards are being met, or those standards that are not being met are not attributable to current livestock grazing.

There are also allotments such as Dixie Creek where the majority of the riparian areas are rated as FARD and FARN, with one short segment each rated as FARU and NF. Removal of 404 AUMs from this allotment would occur with implementation of this alternative, however the BLM would still authorize the livestock operator to utilize the 115 AUMs available based on private land carrying capacity. Therefore a portion of the 115 AUMs authorized would occur on public lands within the Pedro GU. The North Dixie creek allotment would be managed based on Clary and Lininger (2000) recommendation for minimum riparian stubble height which have been shown to improve elements of rangeland health. However, there is a possibility that the 78 percent temporary reduction in livestock AUMs would create a need for the permittee to fence the private lands in the Dixie Creek Allotment and extend the season of livestock use private lands. If this were to occur all improvements to riparian health could be offset (see cumulative effects).

As illustrated by the above example, under this alternative the reduction of the BLM authorized grazing would vary in length of time by allotment until riparian areas met the applicable Standards. Some allotments may have a short time (one or two years, or less) before grazing is allowed while other allotments may need more time to meet standards (five years or more in some cases). After an allotment has met standards then Alternative 3 would be implemented, which implements changes in seasons of use, numbers of livestock, as well as reductions in a few allotments. The BLM expects that Alternative 3 will maintain rangeland health consistent to 43 CFR § 4180.2 (see Alternative 3 below).

This alternative would improve watershed cover in the short term and in the long term, thereby reducing the risk of unacceptable soil erosion. Some temporary surface/soil disturbance would occur during construction of the proposed projects but this disturbance would not be significant.

Alternative 2a

The implementation of Alternative 2a would improve ground cover in pastures that were not meeting soil and site stability element of rangeland heath, thereby reducing the risk of unacceptable soil erosion. On the other hand, some temporary surface/soil disturbance would occur during construction of the proposed projects but this disturbance would not be significant, which is the same as Alternative 2. However, the likelihood that the livestock operator(s) would decide to

increase the season of use on adjoining private lands the BLM expects to be greater in Alternative 2a when compared to Alternative 2 (see cumulative effects)

Permanently excluding livestock grazing would be more restrictive then Clary and Lininger (2000) recommendation which has been shown to improve elements of riparian rangeland health. Clary and Lininger (2000) basic recommendation is to leave between 3-4 inches at the end of the growing season. The BLM expects that under Alternative 2a between 12 to 25 inches of riparian stubble height will remain at the end of the growing season. However, based on Clary and Lininger (2000) the BLM does not believe that the additional stubble height will result in any additional improvements to riparian rangeland health above what is identified in Alternative 2.

3.5.5 Alternative 3

This alternative would improve watershed and soils conditions over time but at a slower initial rate than Alternative 2.

If this alternative is selected, two allotments would receive a reduction in AUMs. All of the other allotments would have changes to the number of livestock, seasons of use, and utilization standards implemented.

If this alternative is selected, the Summit Spring allotment would not have a reduction of AUMs. Changes to this allotment which would influence Standards 2 and 4 include spring use which would start on April 30 (instead of April 20) and no spring use after June 23 of each year, which would allow for riparian re-growth. In addition, riparian utilization targets would be established for fall grazing to ensure vegetation is left to protect the stream channel during spring runoff (Clary and Leininger 2000). Riparian monitoring sites and stubble heights would be established to ensure adequate riparian vegetation is left on site. This allotment had six stream reaches surveyed, three of which were rated at PFC (approximately 2.3 miles) and the other three reaches rated as FARN (approximately 1.7 miles). These changes to the management of this allotment would allow for an upward trend on the three FARN reaches as well as maintenance or improvement of the three PFC reaches.

Most of the stream reaches in the Rye Valley allotment were rated as FARN (approximately 2.6 miles), and approximately 0.7 mile rated as PFC. Changes in this allotment include specifying a certain number of AUMs for each pasture, which was not specified in the past and led to overuse in the East Pasture. Requiring fall use in the East Pasture every other year so as to avoid use every spring growing season, and delaying spring turnout for range readiness and soil moisture concerns, which in turn would lead to increased riparian vegetation and less livestock use during the growing season in the riparian areas. Establishment of riparian utilization targets and stubble height targets would also help improve riparian vegetation and would lead to an improvement in the riparian areas, which is related to Standards 2 and 4 which were not met in this allotment.

The Upper Shirttail Allotment has approximately 0.3 miles of stream within the allotment which was rated as FARN. Livestock management changes would restrict summer livestock use. In addition, project maintenance issues would be addressed by requiring maintenance prior to turnout. This would have the biggest positive impact as maintenance of water developments and fences would reduce grazing impact on the riparian areas. Additionally, juniper would be cut and dropped along 0.2 mile of stream to provide for riparian and streambank protection.

Dixie Creek Allotment is one of two allotments with a proposed reduction in AUMs, from 404 AUMs to 343 AUMs (or 15 percent reduction in AUMs) which is needed to ensure the stubble height target is not exceeded. In addition to the reduction of AUMs, changes are proposed for season of use and building of new gap fences to eliminate unauthorized use coming from the adjacent BLM Pedro Mountain Allotment. Both pastures in this allotment have stream segments which are not meeting Standards 2 and 4. This allotment contains approximately 0.7 miles of stream rated as PFC, 0.2 miles of stream rated as FARU, 3.9 miles of stream rates as FARN, 2.5 miles of stream rated as FARD, and 0.3 miles of stream rated as NF, due to mining. The changes identified above would help improve riparian areas by allowing for more re-growth after grazing, reducing the number of AUMs in the allotments which would decrease grazing pressure on the riparian areas, and the new fence which would eliminate trespass from adjoining areas which also have an effect on riparian vegetation.

The Bowman Flat Allotment is a small allotment with approximately 0.7 miles of stream which is rated as FARN. Changes proposed for this allotment include setting a stubble height target, alternating between spring use one year and fall use the next year, reducing the time allowed for grazing in the allotment which results in more time for riparian vegetation re-growth after grazing, which in turn would improve riparian habitat. Cutting juniper in the riparian area and leaving it on site is also planned, which would restrict the amount of area where livestock can access the riparian area and stream. This would also improve the riparian area by decreasing the number and places livestock can have direct impacts to the riparian vegetation and stream channel.

Rattlesnake Gulch Allotment is the other allotment in the project area which has a proposed reduction in AUMs, from 92 AUMs to 55 AUMs (or 42 percent reduction in AUMs) which is needed to ensure the stubble height target is not exceeded. In 2006 there approximately 0.9 miles of stream in this allotment rated at PFC, and approximately 0.4 mile of stream rated as FARD. The reductions proposed for this allotment and setting a minimum riparian stubble height would allow for improvement of the impaired stream reach and lead to an increase in riparian vegetation and an improvement in riparian habitat.

The French Creek Allotment is a C category allotment and currently has no restrictions on when it can be grazed. This alternative would limit use to the spring and fall and set a minimum stubble height target. In addition, a new fence and cattleguard would be built and installed which would separate most of the BLM managed land from the private land in the allotment. The implementation of seasons of use on this allotment would help improve riparian habitat by restricting when grazing can occur on this allotment, which would allow for periodic deferment of grazing and provide opportunity for riparian vegetation to grow back after grazing. Currently, there are approximately, 0.25 mile rated as FARU, 2.1 miles rated as FARN, and 0.6 mile rated as FARD. The new fence and cattleguard would also help improve riparian habitat by fencing off most of the BLM managed land and riparian areas and allowing brief periods of use either in the spring or fall, while allowing for re-growth during the rest of the year without hindering use of the private land in the allotment.

The Hollowfield Canyon Allotment is a small allotment in this GU which has less than 50% of the land managed by the BLM. Within this allotment, approximately 0.3 miles of stream is rated at FARU and there is another 0.5 miles of stream rated as FARN. Changes proposed for this allotment are to switch from summer use to no more than six weeks of use in the fall and set a minimum stubble height target. Additionally, juniper would be cut and dropped along 0.25 miles

of stream to provide for riparian and streambank protection. These changes would allow for improvements to riparian areas which would make progress towards meeting Standards 2 and 4 by restricting grazing use to six weeks/year (which allows more time for re-growth), eliminating summer use (which provides for no grazing during the entire growing season which can increase riparian vegetation and allow for establishment of more riparian vegetation), and providing protection to some riparian areas with the juniper cutting.

Most of the streams in the North Dixie Creek Allotment are rated as PFC (approximately 3.4 miles) or FARU (approximately 1.8 miles) with a smaller percentage (approximately 0.75 mile) rated as FARN. Changes proposed under this alternative include changing use to late spring and fall use, as well as a new riparian exclosure fence along the 0.75 mile of North Dixie Creek rated as FARN. The riparian exclosure fence would effectively restrict livestock grazing along the stream segment in this allotment which is currently not meeting standards, and the other changes mentioned above would allow for continued improvement and maintenance of the riparian habitat and stream conditions that are currently meeting standards.

The last allotment to discuss under this alternative is Lost Basin. This is a large allotment, however over 80% of this allotment is private land. On BLM managed land, there is approximately 1.0 mile of stream rated as PFC, and 0.4 miles rated as FARD. Also, there are some springs and aspen groves which are experiencing impacts from livestock grazing. If this action is taken, the spring sources would be fenced for protection, juniper and aspen would be cut and jack strawed to encourage aspen re-sprouting and to restrict livestock in the aspen grove. The Upper Reagan Creek Pasture would have restrictions placed on it to limit grazing to one month in the time frame from June 1 to July 10 and a minimum stubble height target will be set. Currently, there are no restrictions as to when livestock can graze this pasture, and this is the area where the FARD rated stream is located. Imposing the grazing restriction to one month of use as well as the protection of the two spring sources and aspen grove would allow for protection and improvement of riparian habitat and streambank stability by increasing riparian vegetation growth and by restricting livestock access to the riparian areas which would reduce the direct impacts currently occurring by livestock.

In addition to the changes mentioned above, all of the allotments would have stipulations attached to the grazing permits which would require resting of the pasture/allotment if riparian stubble height standards are not met for two consecutive years. This stipulation, along with the other changes analyzed above, would allow for improvement of stream reaches and riparian habitat which are currently not meeting Standards 2 and/or 4, as well as allowing for continued maintenance and improvement of riparian areas that are currently meeting standards (stream reaches rated as PFC or FARU).

3.5.6 Cumulative Impacts

Past and Present Actions

The largest past and present land management action that has impacted soil, hydrology and riparian areas is livestock grazing, mining and juniper management. In general livestock management and mining have resulted in adverse effects, whereas, juniper management has resulted in beneficial effects. Specifically, past livestock grazing and mining has resulted in 16.75 miles of riparian area to not meet the minimum riparian rangeland health standard. Additionally livestock grazing has increased the amount of exposed soils within the Rye Valley, French Creek

and Bowman Flat Allotments above the natural range of variability expected for the vegetation community types (See Rangeland Health field sheets). However, interim livestock management has made significant improvements towards reducing the amount of exposed soils (See Upland Trend field sheet)

Reasonably Foreseeable Actions

Future mining on public lands within the Pedro Mountain GU is expected to be confined to the 300-400 acres that have historically or are presently being mined with the largest being approximately 150 acres. Most of these mining sites are in close proximity to riparian areas and a recent PFC assessment indicates that mining is having the second largest adverse effect to riparian rangeland health. These mining sites are required to be reclaimed pursuant to the mining plan of operation.

Currently, there are 2,718 acres of juniper on BLM administered land within the Pedro Mountain Geographic Unit encroaching into historic mountain big sagebrush community. Currently, there is a project proposed to treat 1480 acres of Phase I and II juniper which will either improve or aid in maintaining adequate groundcover to protect soil stability.

It is expected that herbicides effective in controlling non-native annual grasses will be authorized. Most of the non-native grass stands on public land within the Pedro Mountain GU are typically found along roads and riparian areas. These stands are typically less than 10 acres in size are relatively rare within the Pedro Mountain GU. It is expected that future treatments using newly authorized herbicides would reduce exposed bare ground which will have a beneficial effect to soil, hydrology and riparian areas. However, the magnitude of beneficial effect will be minor due to the limited acreage of non-native annual grasses and weeds within the Pedro Mountain Geographic Unit.

Livestock management on private land in the Pedro Mountain GU is interconnected to management on public land; therefore, it is expected that future private land livestock management will be dependent on the alternative implemented. Specifically, if Alternative 3 is implemented it is expected that future private land management would be similar to current private land management. However if Alternative 2 or 2a, which calls for the exclusion or drastic reductions to livestock grazing, is implemented the livestock operator is likely to extend the season of use on private lands. This anticipated increase in private lands may have an adverse effect on the adjoining public lands by weakening streamside vegetation causing execrated erosion and stream channel widening thus reducing the PFC rating. Specifically, if riparian areas on private lands decrease from the BLM assumed functioning at risk category to not functioning severe lateral and horizontal cutting is highly likely to occur on private lands during high flows. Depending on the severity of these high flow events the cutting could extend into adjacent un-grazed public lands resulting in adverse effects to rangeland health.

Increased livestock use on private lands is likely to increase the extent of noxious weeds which may advance into un-grazed public lands resulting in adverse effects to soil, hydrology and riparian areas.

Overall Cumulative Effects for Soil and Hydrologic Resources and Riparian/Wetland Areas

Alternative 1
Under Alternative 1 livestock management would not be changed to reflect current science knowledge to make significant progress towards meeting rangeland health, which is required by 43 CFR § 4180.2(c). It is expected that stream and riparian condition (16.75 miles) will be in an undesirable condition and will be at risk of failing (excessive vertical and horizontal cutting). In addition, soil stability within Rye Valley, Bowman Flat, and French Creek Allotments would be below what is expected for the sites. This reduction in soil stability could lead to reduced plant production and increased suitability for expansion of non-native grass and noxious weeds above the 250 acres currently identified in the affected environment. Conversely, beneficial impacts to soil stability are expected through juniper reduction, non-native grass treatments and mine reclamation. However, beneficial effect would only be realized within 1500 to 2000 acres. Therefore, the overall cumulative effects to soils is expected to result in up to 1,800 acres not meeting rangeland health elements for soil and site stability.

Alternative 2
Under Alternative 2 livestock management would be changed to reflect current scientific knowledge for making significant progress towards meeting rangeland heath in 16.75 miles of riparian areas and 1800 acres of uplands. In addition, future juniper reduction, weed treatment and mine reclamation projects are expected to improve between 1500 to 2000 acres that are either not meeting rangeland heath or are close to failing rangeland health due to juniper encroachment. Conversely, mining is expected to adversely affect soil stability on 300-400 acres of public lands. However these sites would be restored pursuant the mining plan of operations

However, excluding or greatly reducing livestock grazing on public lands for a period up to 15 years may create a need for the livestock operators to extend the season of livestock use on private lands within the Pedro Mountain GU. It is expected that the increased amount of livestock use will not be consistent with Brewer et al. (2007) and Clary and Leininger (2000) recommendations for improving and maintaining a desirable rangeland health condition. In fact, future livestock demands on private lands are expected to be high enough to greatly reduce bluebunch wheatgrass, Thurber's needlegrass and Idaho fescue vigor to a level that would increase the risk of non-native annual grass dominating private lands (Stoddart and Smith 1955; Brewer et al. 2007; Anderson and Frank 2003). Increasing the acreage of non-native annual grass on adjacent private lands could increase fire frequency on adjacent public lands which may facilitate the spread of non-native grasses and other noxious and invasive plant species (Brook et al. 2004). Increases in non-native annual grass will have an adverse effect to soil stability (Brook et al. 2004). The acreage where soil stability will be adversely affected is difficult to determine since conversion is a factor of future fire frequencies and fire size.

In addition, an increase in season of livestock use on private lands is expected to increase the intensity of damage on riparian areas. Alternative 2 would greatly reduce the AUM's on public lands and would create a need for the livestock operator to find alternative forage. It is assumed that the livestock operator would extend the season of livestock use on the private lands within the Pedro Mountain Geographic Unit. Increasing the amount of time grazing occurs on private land may create further degradation on private land riparian areas and would increase the probability of a stream failing which will lead to sever vertical and horizontal cutting. Depending on the intensity of the high flow events stream failure may extend into public lands.

Alternative 2a
Same as Alternative 2 except that the likelihood that the livestock permit holder would extend the season of use on the adjoining private land would be greater than Alternative 2. Therefore, elevating the risk of stream failing which will lead to sever vertical and horizontal cutting. Depending on the intensity of the high flow events stream failure may extend into public lands.

Alternative 3
Similar to Alternative 2, Alternative 3 would modify livestock management to reflect current scientific knowledge for making significant improvement to rangeland health which is required by 43 CFR § 4180.2. The difference between these two alternatives is under Alternative 3 livestock grazing would not be excluded from public lands. Alternative 3, future juniper reduction and weed treatment which are expected to improve between 1500 to 2000 acres that are either not meeting rangeland heath or are close to failing rangeland health due to juniper encroachment, same as Alternative 2. Conversely, mining is expected to adversely affect 300-400 acres of public lands. However these sites would be restored pursuant the mining plan of operations

Changes to public land management are expected to maintain or improve private land soil stability when compared to current conditions. Specifically, it is highly likely that the livestock operator(s) will choose to use public lands in conjunction with the private lands creating multiple pasture grazing systems. With this in mind, livestock grazing schedules on public lands where developed to allow for sufficient livestock deferment on private lands consistent with Brewer et al. (2007) recommendations to maintain high native bunchgrass vigor.

Changes to public land management are not expected to result in any changes to riparian rangeland health standards on private lands. Specifically, it is assumed that the amount of public land AUMs authorized under Alternative 3 will not create a need for the livestock operator to significantly increase livestock use on private land. Therefore, it is assumed that riparian livestock use will be similar to pre 2007 grazing season levels which are inhibiting the obtainment of rangeland health on public lands and are assumed to be negatively affecting private lands. However, the magnitude of effects to private land would be the same as Alternative 2 and 2a if the livestock operators chose not to increase use on private land. Conversely, Alternative 3 would have less effect to private land when compared to Alternative 2 or 2a if the livestock operator decides to extend the season of livestock use on adjacent private lands.

Therefore, the overall cumulative effects to upland rangeland health standards are expected to improve 1,800 acres of uplands identified as not meeting upland rangeland heath standards in the final determination and 16.75 miles of riparian areas. It is also expected that future juniper reductions will result in maintaining a desirable rangeland heath standard into the future.

3.6 Fish and Aquatic Habitat

3.6.1 Land Use Plan Management Objectives

Management Direction
"Maintain or enhance important anadromous and resident fisheries; increase habitat productivity; and emphasize coordinated management with other agencies and landowners. Restore, maintain, or enhance fish habitat on 155 miles of stream on public lands within the entire Baker Resource Area that have anadromous and resident fish or the potential to support fish. Approximately 83

miles of fish habitat have been inventoried. A summary of fish habitat condition and trend in the planning area is displayed in the geographic unit descriptions" (RMP p. 18).

Implementation
"Complete inventory of fishery habitat conditions. Improve fish habitat through a combination of projects and livestock grazing management, including adjustments to grazing seasons or systems to protect banks, vegetation, and to reduce soil erosion" (RMP p. 18).

Pedro Mountain GU Resource Objectives
Enhance the riparian habitat along Dixie Creek and tributary streams by stabilizing the stream banks and by increasing the vegetation structure. Exclude livestock grazing along identified stream segments, bogs, and spring overflows where use is incompatible with riparian management objectives.

Improve habitat for fisheries. Maintain/enhance the fishery habitat for trout on Dixie Creek.

Management Actions:

- Construct fence along Dixie Creek and tributary streams and around selected bogs and springs. Rip-rap the banks of identified stream segments. Plant shrubs in current riparian enclosures.
- Conduct riparian inventories on 3.0 miles of stream in this GU and improve 1.2 miles of existing riparian habitat on Dixie Creek (RMP p. 70).
- Establish monitoring studies on riparian vegetation in Dixie Creek (RMP p. 70).
- Develop grazing systems that enhance fish habitat (RMP p. 70).
- Monitor fish habitat condition and trend on Dixie Creek, which was rated as being in "Fair" condition with a downward trend (RMP p. 71).

3.6.2 Affected Environment

The Burnt River Subbasin – The Burnt River subbasin is located in the northwest portion of the Middle Snake Ecological Province. The subbasin is defined by the Blue Mountains to the west, the Snake River to the east, the Burnt River Mountains to the south and the Powder River drainage to the north. The Burnt River flows generally east to the community of Bridgeport (River Mile (RM) 48), turns northeast to the community of Durkee (RM 28), then south-southeast through Weatherby (RM 18.5) and Huntington (RM 2.5) to join the Snake River at RM 328. Major streams flowing into the Burnt River below Unity Reservoir are Camp, Big, Pritchard, and Dixie Creeks. Dixie Creek begins in the southern portion of the subbasin flowing southeast through Rye Valley then east to join the Burnt River at RM 12.

There are several perennial fish-bearing streams located within the Pedro Mountain GU boundary (North Fork Dixie Creek, South Fork Dixie Creek, Deer Creek (a tributary to SF Dixie Creek), and a small portion of the Burnt River) as well as several perennial/intermittent streams (Basin, Emmigrant, French, Shirttail, Powell, and Hollowfield Creeks), along with many intermittent streams that usually only transport flow after snow melt. Many of the streams in the Pedro Mountain GU are tributaries to Dixie Creek and eventually flow into the Burnt River. The exceptions are the streams in Mormon Basin which flow south into Willow Creek, a tributary to the Malheur River.

Fish and Fish Habitat – There at least 20 miles of known fish-bearing streams in the Pedro Mountain GU, which accounts for 6.1 percent of the fish-bearing streams on public lands within the Baker Resource Area. There may be more fish-bearing streams than this, but fish surveys have not been conducted on many perennial and intermittent streams in this GU. For this reason alone, it is important to protect the streams where fish are known to exist.

Redband trout (*Oncorhynchus mykiss gairdneri*) is a native fish that occupies most of the fish-bearing streams within the Pedro Mountain GU, but is widely distributed throughout the subbasin. Though data is limited, current and historical distribution of redband trout is relatively static. And although management and land use activities have affected the seasonal use of habitat within some reaches of the subbasin, redband trout continue to utilize a good percentage of the habitat historically available to the species.

The productivity of trout in the Burnt River subbasin can be measured by the trend of the population growth rate (USFWS 2002). The estimate of the number of redband trout in the Burnt River subbasin is difficult to attain since population surveys have not been conducted on the subbasin scale. Therefore population trends cannot be determined due to the limitation of data. The Burnt River subbasin holds three distinct populations of redband trout. These occupy the Burnt River below Unity Dam, the North Fork Burnt River and the South Fork Burnt River above Unity Dam (Kostow 1995). Significant allozyme differences exist between these populations and between Burnt River populations and other Snake River redband populations (Kostow 1995). Currens (1997) recommended that future management actions be undertaken in a manner which retains the genetic identity of these individual populations.

Redband trout populations in the Burnt River subbasin are resident only. Resident redband trout tolerate water temperatures between 56° F and 70° F. Redband trout can reach sexual maturity anywhere between one and five years of age, but most maturation occurs at or by three years of age. Spawning takes place primarily in the spring, although studies and field investigations of other inland populations indicate that redband trout can spawn throughout the year where water conditions allow (ODFW 1990-1995). This is most likely to occur in spring-fed systems, where water temperature is essentially constant.

There are several habitat attributes considered to be the habitat characteristics that are the main drivers of fish production and sustainability: riparian condition, channel stability, habitat diversity, sediment load, high and low flow frequency, high temperature, and pollutants. Of these attributes, the ones that the BLM BRA can manage for are all stream characteristics except high and low flows, which are highly variable and solely dependent on weather, snow accumulation, and irrigation.

The timing and amount of spring runoff is dependent on winter snow pack depth and condition, as well as spring weather factors such as temperature and rainfall. Seasonal peak flows generally occur in late April and early May. Most surface and groundwater use is for irrigation. There are about 80 water right holders in the Burnt River subbasin. The water in the Burnt River subbasin is fully appropriated, which means during the summer there is no remaining unappropriated water. In low water years, available water is inadequate to supply the authorized rate of delivery.

The amount or extent of impacts that occur on a stream system has everything to do with the survival, growth, and diversity of species within that stream. Fish need to have good water quality for all of these to occur. Water quality standards for fish include meeting the primary water quality standards developed by the Oregon DEQ. They include meeting standards for turbidity, pH, DO, stream temperature, and E. coli.

Stream temperatures were monitored for four years on the North and South Fork of Dixie Creeks. The South Fork met the 68.0°F standard most of the time but did slightly exceed the standard in the lower sampling area with a 7 day max/avg in 2000 of 71.5°F and a 7 day max/avg of 69.4°F in 2002. The stream temperatures exceeded the state standard on the North Fork substantially every year (76.2°F, 80.2°F, 76.5°F, and 88.1°F).

Usually a stream system has degraded substantially with loss of habitat characteristics before high temperature is evident. However, high temperatures have a direct effect on fish species as indicated in Table 11.

The North and South Fork of Dixie Creek, and the Burnt River are known to support redband trout populations. It is likely there are more streams in the Pedro Mountain GU that support native redband trout species, especially in some of the smaller perennial/intermittent streams, than has presently been recorded. There are very few streams in this area that have been surveyed for fish presence/absence.

Table 11. Modes, temperature range, and time to death of thermally induced fish mortality.

Modes of Thermally Induced Fish Mortality	Temperature Range	Time to Death
Instantaneous Lethal Limit – Denaturing of bodily enzyme systems.	> 90°F > 32°C	Instantaneous
Incipient Lethal Limit – Breakdown of physiological regulation of vital bodily processes, namely: respiration and circulation.	70°F to 77°F 21°C to 25°C	Hours to Days
Sub-Lethal Limit – Conditions that cause decreased or lack of metabolic energy for feeding, growth or reproductive behavior, encourage increased exposure to pathogens, decreased food supply, and increased competition from warm water tolerant species.	64°F to 74°F 20°C to 23°C	Weeks to Months

Source: ODEQ 2000

South Fork Dixie Creek

Data and information have been gathered on the South Fork Dixie Creek over the last 19 years in the form of stream surveys and water quality and stream temperature monitoring. Water quality and stream temperatures were monitored from 2000 to 2003. A PFC survey was completed in 2006 and is the most recent data available for this creek. A physical and biological stream survey was completed by the BLM in 1989 and a stream habitat and aquatic survey was accomplished in 2002 by the Oregon Department of Fish and Wildlife (ODFW). The survey completed in 1989 was a good indicator of existing conditions at that time, but the survey in 2002 was the most complete for all measured parameters and was conducted using current scientific methodology. Both surveys collected information on the following parameters:

- Substrate
- Pools
- Gradient
- Width/depth ratio
- Bank cover
- Stream temperatures
- Erosion
- Riparian condition
- Species present

The 1989 hydrological inventory found the South Fork Dixie Creek to be in fair to poor condition, depending upon the site. The riparian vegetation was heavily utilized with almost all young vegetation having been utilized. The riparian vegetation had been over-utilized and the streambanks were modified by trampling. Less than 50% of the streambanks were in stable condition and were eroding and downcut. Plant species documented were: Douglas fir (*Pseudotsuga menziesii)*, Ponderosa pine (*Pinus ponderosa)*, cottonwood (*Populus trichoarpa*), water birch (*Betula occidentalis)*, aspen (*Populus tremuloides)*, golden (*Ribes aureum)* and wax currant (*Ribes cereum)*, alder (*Alnus sp.*), dogwood (*Cornus stolonifera)*, chokecherry (*Prunus virginiana)*, willow (*Salix sp.)*, rose (*Rosa sp.*), box elder (*Acer negundo)*, clematis (*Clematis sp.*), blue grass (*Poa sp.*), and watercress (*Nasturtium sp.)*.

The presence of native redband trout was verified throughout the 1989 survey. There were as many as 20 adult fish per 100 yards and as low as 1 fry per 100 yards. It was evident that spawning occurred high in the watershed. At that time, there was a five foot high waterfall just upstream of Thornton Gulch that was blocking upstream migration. Fish habitat was estimated to be in poor to fair condition with trampled banks, over-utilized riparian vegetation, high sediment loading, poor pool habitat, and very limited hiding cover. It was suggested that the stream had a high potential for recovery if there was a reduction of impacts from grazing. It was also stated that fish would be more numerous if habitat conditions improved.

The ODFW (2002) stream survey showed only slight improvements to the stream condition found during the 1989 survey. The average width was 1.4 meters with an average depth of 0.17 meters. The average substrate was predominately sand/silt (51%), gravel (29%), and cobble 14%. Riffles (37%), pools (14%), and runs (33%) were the dominant instream habitat type. Actively eroding streambanks ranged from 6% to 20%, while the canopy closure ranged from 13% to 73%. There were signs of heavy grazing found throughout the survey and fish were observed throughout the entire length of the survey.

The most recent stream and riparian condition was observed during a PFC survey that occurred in 2006. Most of the stream was rated as Functioning at Risk with an upward or non-apparent trend.

Altogether, each of the above-mentioned surveys has confirmed recurring or ongoing problems that have slightly improved. Each survey confirmed a low number of pool habitat of less than 10%, and 14% with regards to beaver pools. Width to depth ratio is the parameter that seems the most out of balance with continual channel widening, along with shallow stream depth, all of which would be improved by setting minimum stubble height targets (Clary and Leininger 2000). The riparian areas seem to have the most signs of improvement, but are continually being impacted

by cattle grazing. There is still a lack of diversity of riparian grasses and shrubs, with non-riparian species dominating the riparian areas. Aquatic grasses that would help stabilize streambanks also still remain in limited supply, while some bank erosion is still occurring in most reaches.

Prior to the beginning of the 2011 grazing season minimum riparian stubble height targets were set within the Pedro Mountain GU which was based on Clary and Leininger (2000) recommendation. This recommendation has been shown to reduce width to depth ratio which is the parameter that seems the most out of balance for fish habitat. Therefore, the BLM believes that current (interim) livestock management is making significant progress towards meeting rangeland health and improving fish habitat.

North Fork Dixie Creek

Data and information have been gathered on the North Fork Dixie Creek over the last 19 years in the form of stream surveys and water quality and stream temperature monitoring. Water quality and stream temperatures were monitored from 2000 to 2003 and a PFC survey was completed in 2006. A physical and biological stream survey was completed by the BRA in 1989 and a stream habitat and aquatic survey was accomplished in 2005 by the ODFW. The survey completed in 1989 was an indicator of existing conditions at that time, but the survey in 2005 was the most complete for all measured parameters and was conducted using current scientific methodology. Both surveys collected parameters as South Fork of Dixie Creek.

The 1989 hydrological inventory found the North Fork Dixie Creek to be in both good and poor condition, depending upon the site. The riparian vegetation was heavily utilized with almost all young vegetation having been utilized. The streambanks were eroding and downcut, up to 4 feet in height. The presence of native redband trout was verified and redband trout were found throughout the length of the survey. Fish habitat was estimated to be in poor condition with trampled banks, over-utilized riparian vegetation, high sediment loading, poor pool habitat, and very limited hiding cover. It was suggested that the stream had a high potential for recovery if there was a reduction of impacts from grazing. It was also stated that fish could be eliminated from the stream if conditions proceeded in a downward trend. Plant species documented were: cottonwood, water birch, golden currant, chokecherry, willow, alder, rose, juniper, clematis, rushes, blue grass, and sweet clover.

The ODFW stream survey that occurred in 2005 showed only slight improvements. The average width was 2.5 meters with an average depth of 0.19 meters. The average substrate was predominately sand/silt (43%), gravel (28%), and cobble 17%. Riffles (52%), pools (22%), and runs (21%) were the dominant instream habitat type. Actively eroding streambanks ranged from 12% to 32%. Canopy closure averages were just above 10% throughout most of the stream, with one reach measured at 45%, which was thought to be creating increases in water temperatures. There was light to heavy grazing found throughout the survey.

The most recent stream and riparian condition was observed during a PFC survey that occurred in 2006. A high percentage of the stream was rated as being PFC, while the remainder of the stream was rated as Functioning at Risk with a non-apparent trend.

Altogether, each of the above-mentioned surveys has confirmed recurring problems that have slightly improved. Each survey confirmed a low number of pool habitat. Width to depth ratio is the parameter that seems the most out of balance with continual channel widening, along with

shallow stream depth, all of which could be improved by setting minimum stubble height targets (Clary and Leininger 2000). The riparian areas seem to have the most signs of improvement, but are continually being impacted by cattle grazing. There is a lack of diversity of shrubs in the riparian areas, with willow being the most prominent shrub. Aquatic grasses that would help stabilize streambanks also still remain in limited supply, while some bank erosion is still occurring in most reaches.

Prior to the beginning of the 2011 grazing season minimum riparian stubble height targets were set within the Pedro Mountain GU which is based on the Clary and Leininger (2000) recommendation. This recommendation has been shown to reduce width to depth ratio which is the parameter that seems the most out of balance for fish habitat. Therefore, the BLM believes that current (interim) livestock management is making significant progress towards meeting rangeland health and improving fish habitat.

Other Stream Surveys Accomplished for the Pedro Mountain GU

Other stream surveys conducted within the Pedro Mountain GU (mostly in 1989) were completed in potential fish-bearing streams. Some of these streams had at least one prior survey that confirmed fish presence, but a more thorough or complete survey had not been accomplished. Although there are other potential fish-bearing perennial streams, there is no confirmation of fish presence in those streams due to a lack of surveys conducted within those streams. They include: French Creek, Shirttail Creek, Powell Creek, and Hollowfield Creek. It is a professional opinion that native fish are present in these streams when flows are adequate enough to support upstream and downstream migration within the stream.

Skunk Gulch

A limited stream survey and riparian habitat inventory (one reach) was completed by the BLM in 1989 on Skunk Gulch, a tributary to South Fork Dixie Creek. Fish sampling also occurred during that survey that included electrofishing segments of the creek. There were 10 fry found in the 100 yards of stream sampled. The average composition of the stream bottom was 20% boulders, 35% cobble, 40% course and fine gravel, and 5% sand/silt. The channel bank composition was 25% boulder, 25% cobble, 20% gravel, and 35% silt/sand. The average flow was <1 cfs with an average width of <2 feet. Streambanks had received major alteration with less than 50% in stable condition. Most of the riparian areas were dominated by riparian species. Canopy cover was >70%. There was 60% to 80% of the streambank covered in vegetation. There was 100% grazing on young hardwoods (water birch and aspen). Grazing was listed as the predominate reason for site degradation. The overall site condition and trend was listed as poor. Plant species documented were: water birch, aspen, syringa, chokecherry, and clematis.

The most recent stream and riparian condition was observed during a PFC survey that occurred in 2006, in which the stream was rated as Functioning at Risk with no apparent trend.

Prior to the beginning of the 2011 grazing season minimum riparian stubble height targets were set within the Pedro Mountain GU which is based on Clary and Leininger (2000) recommendation. This recommendation has been shown reduce width to depth ratio which is the parameter that seems the most out of balance for fish habitat. Therefore the BLM believes that current (interim) livestock management is making significant progress towards meeting rangeland health and improving fish habitat.

Kitchen Gulch
A limited stream riparian habitat inventory survey was completed by BLM in 1989 on Kitchen Gulch, a tributary to North Fork Dixie Creek. The average substrate composition was about 50% coarse to fine gravel and 50% sand/silt. The channel bank composition was 20% coarse to fine gravel and 70% silt/sand. The average flow was <1 cfs with an average width of 12 to 18 inches. Streambanks had received major alteration with less than 50% in stable condition. Most of the riparian areas were dominated by riparian species that were being encroached by upland plants. Canopy cover was >70%, except one reach that was 30% to 49%. There was about 40% to 50% of the streambank covered in vegetation. There was 100% grazing on young hardwoods (willow, box elder, aspen, and cottonwood). Grazing was listed as the predominant reason for site degradation. The overall site condition and trend was listed as fair to poor. Plant species documented were: rose, willow, box elder, golden currant, water birch, cottonwood, syringa, aspen, and bluegrass.

The most recent stream and riparian condition was observed during a PFC survey that occurred in 2006. The majority of the stream was rated at Proper Functioning Condition.
Prior to the beginning of the 2011 grazing season minimum riparian stubble height targets were set within the Pedro Mountain GU which is based on the Clary and Leininger (2000) recommendation. This recommendation has been shown to reduce width to depth ratio which is the parameter that seems the most out of balance for fish habitat. Therefore the BLM believes that current (interim) livestock management is making significant progress towards meeting rangeland health and improving fish habitat.

Clough Gulch
A limited stream survey and riparian habitat inventory (one reach) was completed by BLM in 1989 on Clough Gulch, a tributary to North Fork Dixie Creek. The average composition of the stream bottom was 50% fine gravel and 50% sand/silt. The channel bank composition was 30% fine gravel and 70% sand/silt. The average flow was <1 cfs with an average width of <2 feet. Streambanks had received major alteration with less than 50% in stable condition. Most of the riparian areas were dominated by riparian species that were being encroached by upland plants. Canopy cover was less than 30%. There was 40% to 60% of the streambank covered in vegetation. There was 100% grazing on young hardwoods (willow). Grazing was listed as the predominate reason for site degradation. The overall site condition and trend was listed as poor. Plant species documented were: rose, willow, clematis, and sweetclover (*Melilotus sp.)*.

The most recent stream and riparian condition was observed during a PFC survey that occurred in 2006. The stream was rated as Functioning at Risk with an upward trend. Prior to the beginning of the 2011 grazing season minimum riparian stubble height targets were set within the Pedro Mountain GU which is based on the Clary and Leininger (2000) recommendation. This recommendation has been shown reduce width to depth ratio which is the parameter that seems the most out of balance for fish habitat. Therefore the BLM believes that current (interim) livestock management is making significant progress towards meeting rangeland health and improving fish habitat.

Brouchaux Gulch
A limited stream survey and riparian habitat inventory (one reach) was completed by BLM in 1989 on Brouchaux Gulch, a tributary to North Fork Dixie Creek. The average composition of the stream bottom was 55% coarse and fine gravel and 45% sand/silt. The channel bank composition was 50% fine and coarse gravel and 50% sand/silt. The average flow was <1 cfs with an average

width of <2 feet. The stream channel was entrenched 10 feet. Streambanks appeared to be stable. Most of the riparian areas were dominated by riparian species. Canopy cover was less than 30%. There was 60% to 80% of the streambank covered in vegetation. There was only 100% grazing on young hardwoods (willow). Grazing was listed as reason for site degradation. The overall site condition and trend was listed as fair. Plant species documented were: willow, golden currant, clematis, and rose.

The most recent stream and riparian condition was observed during a PFC survey that occurred in 2006, in which the stream was rated as being in Proper Functioning Condition.

Prior to the beginning of the 2011 grazing season minimum riparian stubble height targets were set within the Pedro Mountain GU which is based on Clary and Leininger (2000) recommendation. This recommendation has been shown to reduce width to depth ratio which is the parameter that seems the most out of balance for fish habitat. Therefore the BLM believes that current (interim) livestock management is making significant progress towards meeting rangeland health and improving fish habitat.

Tables 11 and 12, display the summarized results from the ODFW stream surveys conducted on the North Fork (2005) and South Fork (2002) of Dixie Creek. This data summarizes the detailed information acquired during the stream surveys and discussed in the Affected Environment section above.

Table 12. ODFW stream survey and aquatic inventory for North Fork Dixie Creek in 2005.

Stream Habitat	Pools-Riffles	Gradient	Width and Depth	% canopy closure and % shade	Stream Substrate	Stream Temps	Erosion	Ground Cover	Riparian Species
Reach 1	65% (dammed beaver pools)	2.5%	5.8' width and 0.25' depth W:D ratio 10.7	8% canopy closure and 44% shade	Sand 35%, silt 21%, gravel 19%, cobble 18%	14.0 C.	12%	Shrub 22%, grass/forb 73% Heavy grazing	Willows, alder, rushes, grass and shrubs
Reach 2	Rapids 69% and riffles 26%	3.1%	1.8' width and 0.18' depth W:D ratio 9.6	15% canopy closure and 58% shade	Sand 29%, gravel 29%, cobble 18% boulder 15%	17.0 C.	13%	Shrub 54%, grass/forb 44%	Willow, alder, cottonwood, sedges, rushes, aspen
Reach 3	Riffles 85%, rapids 9%	2.8%	1.5' width and 0.17' depth W:D ratio 12.7	11% canopy closure and 39% shade	Sand 43%, gravel 34%,	14.0 C.	32%	Shrub 33%, grass/forb 53%	Willow, alder, cottonwood, sedges, rushes,
Reach 4	Rapids 56%, riffles43%	4.6%	1.4' width and 0.16' depth W:D ratio 13.1	45% canopy closure and 42% shade	Sand 30%, gravel 31%, cobble 21% boulder 15%	14.2 C.	14%	Shrub 0%, grass/forb 100%	Willow, alder, cottonwood, sedges, rushes, aspen

Limiting Factors – bank erosion, shallow from widening of channel, sediment, bank erosion, limited pools, cattle grazing
Redband trout were observed throughout entire survey. Several beaver pools and beaver dams were in reach 1.

Table 13. ODFW stream survey and aquatic inventory for South Fork Dixie Creek in 2002.

Stream Habitat	Pools-Riffles	Gradient	Width and depth	% canopy closure and % shade	Stream Substrate	Stream Temps	Erosion	Ground Cover	Riparian Species and Other Observations
Reach 1	86% riffles	2.1%	1.4' width and 0.22' depth W:D ratio 7.3	13% canopy closure and 49% shade	Sand and silt 56%, gravel 36%,	10.0 C.	17%	Shrub 11%, grass/forb 48%	Willow, aspen alder, rose , clematis, water cress, bluegrass, cow skulls, beaver activity, frogs , bee hives
Reach 2	79% rapids, riffles 13%	5.3%	1.1' width and 0.13' depth W:D ratio 7.4	45% canopy closure and 70% shade	Silt and sand 30%, gravel 33%	15.0 C.	20% Bank trampling	Shrub 0%, grass/forb 95%	Frogs, fish, owl, rattlesnake, cows, chukar
Reach 3	71% rapids, cascades 24%	5.7%	1.2' width and 0.13' depth W:D ratio 6.4	19% canopy closure and 70% shade	Gravel 30%, cobble 32%	15.0 C.	13%, bank trampling	Shrub 7%, grass/forb 42%	Fish , frogs, squirrels, chipmunks
Reach 4	82%cascades, rapids 18%	10.5 %	0.9' width and 0.06' depth W:D ratio 7.3	35% canopy closure and 88% shade	Gravel 26%cobble 25%	12.0 C.	6%	Shrub 13%, grass/forb 45%	fish
Reach 5	Beaver pools 46%, riffles 17%, rapids 19%	2.3%	1.8' width and 0.14' depth W:D ratio 10.9	73% canopy closure and 70% shade	Silt and sand 81%, gravel 15%	13.0 C.	14%	Shrub 6%, grass/forb 40%	Hawk, skeleton of cow, beaver activity

Cattle were observed throughout the survey in September. A high percentage of silt and sand was found (25-91%). Fish were observed as well as beaver activity. There were very few large trees, many areas with no trees and shrubs.

3.6.3 Alternative 1

Alternative 1 would revert back to the 1995 livestock management within the Pedro Mountain GU that that resulted in 1,800 acres of uplands and 16.75 miles of riparian areas failing rangeland health standards. . The minimum stubble height targets set prior to the 2011 grazing season would be removed as a result the BLM expects that all improvement to riparian rangeland health will be lost and the streams will revert back to the level identified in the 2006 final determinations. This alternative does not set minimum stubble height targets nor does it reduce AUMs within the allotments which the BLM believes are needed to improve fish habitat. Specifically, not setting a minimum stubble height target is likely to increase downcutting, channel widening, and unstable streambanks which would result a reduction of age class diversity in redband trout populations. Impacts to North Fork Dixie Creek, South Fork Dixie Creek, a small portion of the Burnt River, several perennial/intermittent streams (French, Shirttail, Powell, and Hollowfield Creeks and Skunk, Kitchen, Clough and Brouchaux Gulches), would occur. In streams within the Pedro GU that were surveyed and determined to be below PFC, stream temperatures would continue to increase if impacts from grazing management under Alternative 1 were allowed.

The current condition of several of the springs within the Pedro Mountain GU is affecting the downstream water quality and quantity conditions of adjacent fish-bearing streams. These springs are impacted by current cattle grazing use, especially late fall grazing are not fully functional, resulting in compaction, increased sedimentation, and loss of wetland habitat. If Alternative 1 was selected, fish-bearing streams within the Pedro Mountain GU would not see improvement from the condition documented in the 2006 finale determinations and over time rangeland Standards 2 and 5 would be even more difficult to achieve.

3.6.4 Alternative 2 and 2a

Alternative 2

This alternative proposes to temporarily reduce or eliminate livestock grazing in certain pastures on BLM land, with a period of grazing rest until standards are met on all pastures prior to implementing Alternative 3.

Alternative 2 could be the most beneficial alternative at improving stream and riparian habitat within all streams and pastures. This alternative would allow streams to stabilize and partially restore themselves by providing time for sedges, rushes, and other riparian vegetation to re-establish, which in turn, would decrease sedimentation and allow for a short-term improvement to aquatic and riparian habitat. However, if the permittee decides to extend the season of livestock use on adjoining private land, this could result in an increase in down-cutting and channel widening that could extend to public lands. If this were to happen, Alternative 2 would be less beneficial than Alternative 3.

Alternative 2 would result in the most overall improvements to aquatic and riparian habitat quality and quantity only if the livestock operators do not extend the season of livestock use on private lands to offset the reduction on public lands. Temporarily reducing and eliminating livestock grazing until standards are met would allow riparian areas time to recover before a modification of AUMs and utilization standards is implemented (Alternative 3). Implementation of Alternative 2 would result in an immediate short-term upward trend in aquatic and riparian habitat. Alternatives

2 and 3 propose to modify grazing management practices compared to Alternative 1. Therefore, Alternative 2 would result in rangeland Standards 2 and 4 being met more rapidly than Alternative 3.

Alternative 2a
This alternative proposes to permanently reduce or eliminate livestock grazing on BLM land within 9 allotments within the Pedro Mountain GU.

Alternative 2a would result in the most overall improvements to aquatic and riparian habitat quality and quantity only if the livestock operator does not substantially increase season of use on private lands to offset the reduction on public lands. Permanently reducing and eliminating livestock grazing would allow streams to stabilize by providing time for sedges, rushes, and other riparian vegetation to re-establish, which in turn, would decrease sedimentation and allow immediate short-term improvement to aquatic and riparian habitat. The BLM expects that the level of fish habitat improvement would exceed the level to meet rangeland health standards. However, if the permittee decides to increase the season of use on adjoining private land, this could result in an increase in down-cutting and channel widening on private land that could extend to public lands. If this were to happen Alternative 2 would have less of a beneficial effect than Alternative 3.

3.6.5 Alternative 3

Alternative 3 proposes to implement modifications to current grazing management practices (i.e., minimum riparian stubble height target and pasture rotation), seasons of use, fence constructions and a reduction in AUMs. Overall, Alternative 3 would result in the long-term improvement of aquatic and riparian habitat quality and quantity. Compared to the No Action Alternative, Alternative 3 clarifies spring or fall use, rather than consecutive spring and fall use. This modification in season of use would lead to long-term improvements to aquatic and riparian habitat, especially with the implementation of stubble height targets per Clary and Leininger (2000). Alternative 3 would improve the quality of vegetation in the riparian areas better than Alternative 1, but would not be as beneficial as Alternative 2, which includes a period of rest prior to implementation of Alternative 3 or Alternative 2a, which permanently reduces or eliminates livestock grazing on public lands within 9 allotments within the Pedro Mountain GU.

Without a rest period, instream and riparian habitat would be restored at a much slower rate than Alternative 2 or 2a. Impacts would continue to occur with an upward trend developing over time. Modifications in seasons of use would be more beneficial than Alternative 1, but not as beneficial as the proposed period of rest for Alternative 2.

Alternative 3 would improve fish habitat, riparian vegetation, and water quality over time, but at a much slower rate than Alternative 2. Therefore, rangeland Standard 2 would be met over time. However, the BLM belies that significant progress is currently occurring through the interim livestock management.

3.6.6 Cumulative Impacts:

Cumulative impacts are defined as the impacts on the environment that result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such action.

Past and Present Actions

The largest past and present land management actions that have impacted aquatic and riparian habitat health are livestock management and other ground-disturbing projects and activities such as fuels and vegetation treatments (i.e., noxious weed abatement), mining, road construction. In general, livestock management and mining activities have resulted in the most adverse effects to aquatic and riparian habitat, while juniper reduction and prescribed fire activity have resulted in mostly beneficial effects to aquatic and riparian habitat. Livestock grazing and other ground-disturbing activities have resulted in 1,800acres not meeting rangeland health standards. In addition, approximately 250 acres have crossed an ecological threshold and are currently dominated by non-native annual grass. Most of these sites are in steep terrain which makes restoration difficult under current available technology and knowledge. Changes to livestock grazing alone will not improve these sites to desirable rangeland health conditions; but rather intensive treatments, including herbicide treatments and reseeding with desirable vegetation, are required.

Similar to public lands, resource conditions on private lands have been largely affected by the same past and present land management actions. However, it is difficult to determine to what extent the impacts on private land are since private landowners are not required by law to monitor or assess private rangeland health. However, grazing practices on private rangeland within the GU have been similar to those on the public land, according to professional BLM range staff observations, *i.e.*, riparian management is not consistent with Clary and Leininger (2000) recommendation, yet upland grazing is consistent with Brewer et al. (2007). Therefore, rangeland health on private land can be assumed to be relatively similar to that of adjacent public lands documented in the 2006 final determination, especially within riparian areas.

Reasonable Foreseeable Actions

Future mining is expected to be confined to the approximately 300-400 acres within the Pedro GU that have historically or are presently being mined, including the largest mining operation, Mormon Basin Mineral Valley, which covers approximately 150 acres. These mining sites are required to be reclaimed once mining. In fact, some of the historic mine tailings have naturally re-vegetated with native grasses, forbs and shrubs. However, future mining activities would be expected to have long-term adverse impacts on aquatic and riparian habitat within the Pedro GU due to an overall reduction in riparian and aquatic habitat quality and quantity as a result of increased sedimentation, increased water temperature, riparian vegetation loss, and a decrease in water quantity (surface and groundwater).

Currently there is a proposed forest health and vegetation treatment project (Mormon Basin Fuels Project) that would treat 1480 acres of phase I and II juniper. Overall, this project would result in long-term beneficial improvements to aquatic and riparian habitat quality and quantity by increasing the health and vigor of upland and riparian vegetation communities. However, short-term adverse impacts to aquatic and riparian habitat would also be expected as a result of project activities, mostly due to short-term sedimentation that typically results from ground-disturbing vegetation treatments (i.e., thinning, yarding, skidding).

It is expected that the overall amount of herbicides that the BLM will be authorized to use will increase within the reasonably foreseeable future with the implementation of the newly released Vegetation Treatments Using Herbicides on BLM Lands in Oregon Environmental Impact Statement (October 2010). It is expected that herbicides effective in controlling non-native annual grasses will finally be authorized for use on public lands and provide long-term beneficial

improvements to aquatic and riparian habitat quality. Most of the non-native grass stands within the Pedro GU are typically found along roads and within riparian areas, and are typically less than 10 acres in size. In fact, a recent non-native annual grass map was created and no areas greater than 50 contiguous acres were identified. Therefore, it is expected that beneficial effects to aquatic and riparian habitat health as a result of increased herbicide effectiveness in controlling noxious weeds would be minor.

Livestock management on private land in the Pedro Mountain GU is interconnected to management on public land. Therefore management changes to public lands will require livestock operators to make modifications to their private rangeland grazing systems. Alternative 2, which calls for the exclusion of or drastic reduction to livestock grazing would likely lead to increased livestock grazing use on private lands. In order for livestock operators to make significant use of their private lands for livestock grazing would require the fencing of private lands from public lands, which would only increase habitat fragmentation and degradation. An increase of livestock use on private rangeland would be expected to result in increased degradation to riparian and upland rangeland health standards, including increased streambank instability, reduced vigor and quantity of riparian vegetation, and increased soil erosion and water temperatures.

Overall Cumulative Effects for Fish and Aquatic Habitat

Alternative 1(No Action Alternative)
Under Alternative 1, livestock management would not reflect current science and knowledge for improving uplands and riparian areas to a level where rangeland health standards are met or exceeded. It is expected that allotments currently not meeting rangeland health standards would retain their existing undesirable conditions. Therefore, there is no expectation for improvement of aquatic and riparian habitat quality and quantity within the Pedro GU under Alternative 1. Adverse impacts to aquatic and riparian habitat as a result of ongoing livestock grazing management would continue to further degrade aquatic and riparian habitat and species by increasing sediment disturbance and decreasing riparian vegetation cover, resulting in increased stream temperatures and poor water quality for aquatic species.

Reasonable foreseeable future projects will have both adverse and beneficial effects to aquatic and riparian habitat conditions. Specifically, the planned forest health, fuels, and noxious weed treatments are expected to improve aquatic and riparian habitat quality and quantity. Whereas, mining and private land livestock grazing are expected to adversely affect aquatic and riparian habitat quality and quantity.

Livestock grazing management under this alternative would only contribute to the cumulative adverse impacts to aquatic and riparian habitat created by past, present, and reasonably foreseeable future projects Therefore, implementation of Alternative 1 would result in no overall improvement to aquatic and riparian habitat quality and quantity identified in the 2006 finale determinations and rangeland health Standards 2 and 5 would never be completely or sufficiently met.

Alternative 2
Under Alternative 2, livestock management would be changed to reflect current science and knowledge for improving uplands and riparian areas to a level where rangeland health standards are met or exceeded on public land. Alternative 2 would be beneficial in improving stream and riparian habitat within all streams and pastures because grazing management under this alternative would

allow streams to stabilize and restore themselves by providing a period of grazing rest for sedges, rushes, and other riparian vegetation to re-establish; which in turn, would decrease sedimentation and allow improvement to aquatic and riparian habitat. The proposed rest period would allow an ample amount of time for recovery of riparian habitat that would improve fish habitat and water quality.

In general, Alternative 2 would result in the most immediate short-term improvements to aquatic and riparian habitat quality and quantity. Temporarily reducing and eliminating livestock grazing until standards are met would allow riparian areas time to recover before a modification of AUMs and utilization standards is implemented under Alternative 3.

Alternative 2, which proposes a period of grazing rest prior to implementing Alternative 3, would reduce grazing impacts temporarily and create an upward trend faster than Alternative 3 on its own, resulting in long-term beneficial impacts on aquatic and riparian habitat quality and quantity. However, over the long-term, the benefits of both Alternative 2 and the Alternative 3 would be about the same.

However, excluding or greatly reducing livestock grazing on public lands for a period up to 15 years would create a need for livestock operators to increase the amount of livestock grazing use on their private lands within the Pedro GU. It is expected that an increase in the amount of livestock grazing use on adjacent private lands would not be consistent with Brewer et al. (2007) and Clary and Leininger (2000) recommendations for improving and maintaining desirable rangeland health conditions across the entire Pedro GU. Therefore, an increased amount of livestock grazing use on private lands is expected to increase the amount and intensity of adverse impacts on aquatic and riparian habitat.

Reasonable foreseeable future projects will have both adverse and beneficial effects to aquatic and riparian habitat conditions. Specifically, the planned forest health, fuels, and noxious weed treatments are expected to improve aquatic and riparian habitat quality and quantity. Whereas, mining and private land livestock grazing are expected to adversely affect aquatic and riparian habitat quality and quantity.
Cumulative effects that have occurred as a result of past livestock grazing activity would be restored much more quickly under Alternative 2 compared to Alternative 3, but only in the short-term. In the long term both Alternative 2 and Alternative 3 would be the same.

Therefore, under Alternative 2, resting pastures followed by a reduction in AUMs and seasons of use would promote the fastest restoration of aquatic and riparian habitat quality and quantity, but only over the short-term. Implementing a period of livestock grazing rest on public land would lead to an increased amount of livestock grazing use on private lands, which would result in an increase in the amount and intensity of adverse impacts on aquatic and riparian habitat over the long-term.

Alternative 2a
Under Alternative 2a, livestock management would be changed to reflect current science and knowledge for improving uplands and riparian areas to a level where rangeland health standards are met or exceeded on public land. Alternative 2a would be the most beneficial in improving stream and riparian habitat within all streams and pastures because grazing management under this alternative would allow streams to stabilize and restore themselves by providing a period of grazing rest for sedges, rushes, and other riparian vegetation to re-establish; which in turn, would decrease

sedimentation and allow improvement to aquatic and riparian habitat. The proposed rest period would allow an ample amount of time for recovery of riparian habitat that would improve fish habitat and water quality.

In general, Alternative 2a would result in the most immediate short-term improvements to aquatic and riparian habitat quality and quantity. Temporarily reducing and eliminating livestock grazing until standards are met would allow riparian areas time to recover before a modification of AUMs and utilization standards is implemented under Alternative 3.

Alternative 2a, which proposes a period of grazing rest prior to implementing Alternative 3, would reduce grazing impacts temporarily and create an upward trend faster than Alternative 3 on its own, resulting in long-term beneficial impacts on aquatic and riparian habitat quality and quantity. However, over the long-term, the benefits of both Alternative 2a and the Alternative 3 would be about the same.

Excluding or greatly reducing livestock grazing on public lands for a period up to 15 years would create a need for livestock operators to increase the amount of livestock grazing use on their private lands within the Pedro GU. It is expected that an increase in the amount of livestock grazing use on adjacent private lands would not be consistent with Brewer et al. (2007) and Clary and Leininger (2000) recommendations for improving and maintaining desirable rangeland health conditions across the entire Pedro GU. Therefore, an increased amount of livestock grazing use on private lands is expected to increase the amount and intensity of adverse impacts on aquatic and riparian habitat.

Reasonable foreseeable future projects will have both adverse and beneficial effects to aquatic and riparian habitat conditions. Specifically, the planned forest health, fuels, and noxious weed treatments are expected to improve aquatic and riparian habitat quality and quantity. Whereas, mining and private land livestock grazing are expected to adversely affect aquatic and riparian habitat quality and quantity.
Cumulative effects that have occurred as a result of past livestock grazing activity would be restored much more quickly under Alternative 2a compared to Alternative 3, but only in the short-term. In the long term both Alternative 2a and Alternative 3 would be the same.

Under Alternative 2a, resting pastures followed by a reduction in AUMs and seasons of use would promote the fastest restoration of aquatic and riparian habitat quality and quantity, but only over the short-term. Excluding livestock grazing rest on public land would lead to an increased amount of livestock grazing use on private lands, which would result in an increase in the amount and intensity of adverse impacts on aquatic and riparian habitat over the long-term.

Alternative 3 (Proposed Action)
Similar to Alternative 2, Alternative 2a and Alternative 3 would modify livestock management to reflect current science and knowledge for improving uplands and riparian areas to a level where rangeland health standards are met on public lands.

Compared to the No Action Alternative, grazing management under Alternative 3 would result in a lesser amount of adverse impacts to aquatic and riparian habitat within the Pedro GU. However, Alternative 2, which proposes a period of grazing rest prior to implementing Alternative 3, would

reduce grazing impacts and create an upward trend faster than Alternative 3 on its own, resulting in short-term beneficial impacts on aquatic and riparian habitat quality and quantity.

Compared to Alternative 2, the Proposed Action would result in less short-term benefits to stream and riparian area health and would not create or maintain an upward trend as quickly as grazing management under Alternative 2 would. However, over the long-term, the benefits of both Alternative 2 and Alternative 3 are the same.

Grazing management under Alternative 3 would implement changes in seasons of use, a reduction in AUMs, and would establish riparian utilization limits, all of which are designed to foster improvement of riparian areas and show significant progress toward fulfillment of rangeland health standards. Also, proposed fencing would reduce trespass grazing, which would also reduce adverse impacts from livestock grazing within riparian areas.

Reasonable foreseeable future projects will have both adverse and beneficial effects to aquatic and riparian habitat conditions. Specifically, the planned forest health, fuels, and noxious weed treatments are expected to improve aquatic and riparian habitat quality and quantity. Whereas, mining and private land livestock grazing are expected to adversely affect aquatic and riparian habitat quality and quantity.
Cumulative effects that have occurred as a result of past livestock grazing activity would be restored much slower than under Alternative 2 and Alternative 2a.

Changes to livestock grazing management on public land are not expected to degrade riparian rangeland health standards on private lands. Specifically, it is assumed that the amount of public land AUMs authorized under Alternative 3 will not create a need for the livestock operator to significantly increase livestock use on private land. With this in mind, livestock grazing schedules on public lands were developed to allow for sufficient livestock deferment on private lands consistent with Brewer et al. (2007) recommendations. However, it is ultimately up to the livestock operator how the private land is managed.

Although grazing management under Alternative 3 would move streams and riparian areas within the Pedro GU towards an upward trend over the long-term, aquatic and riparian habitat recovery would take longer than Alternative 2. Under Alternative 3, improvements to and the recovery of fish and riparian habitat conditions would occur at a slower rate than Alternative 2.

3.7 Wildlife/Wildlife Habitat and Special Status Wildlife Species

3.7.1 Land Use Plan Management Objectives

Geographic Unit Resource Condition Objectives
The Baker RMP (USDI 1989a), directs BLM to “Continue identification of wildlife habitat requirements as other resource activity plans are prepared” (RMP p. 18). This document will address wildlife habitat requirements in relation to grazing activity planning for Pedro Mountain Geographic Unit. In addition, Pedro Mountain GU land use plan direction indicates the following:

- Resource Condition Objective - “achieve a mid-seral stage plant community and improve upland habitat for mule deer, elk, turkey, and grouse [blue sage-grouse]” (RMP p. 69).

- Wildlife and Fisheries Habitat direction - “Meet forage requirements for big game as recommended by ODFW” (RMP p. 70).

3.7.2 Affected Environment

Endangered Species Act Considerations

According to the best available records and field observations, no established federal or state listed species currently occur within the analysis area. Several unlisted species present are of concern to the USFWS. For a complete list of potential wildlife of management concern within the analysis area see Appendix 2. BLM believes most of the species that would theoretically occupy Pedro Mountain GU are not there for a variety of reasons such as: habitat connectivity, population numbers, use patterns, and/or topography. Therefore, endangered species will not be further analyzed in this document.

Wildlife habitat types present and management considerations

Pedro Mountain GU Allotment(s) is comprised of sagebrush steppe habitat and a network of streams with associated wetlands and conifer forests. No old growth juniper woodlands are present. Pedro Mountain GU is an area where connected habitat for wildlife species currently exists in a relatively unfragmented condition. Given the dominance of sagebrush steppe habitat, the following upland wildlife habitat management documents provide important insight and guidance relevant to the analysis area: (1) BLM national sage-grouse habitat conservation strategy (USDI 2004a), (2) Greater Sage-grouse Conservation Assessment and Strategy for Oregon (ODFW 2011), and (3) BLM Technical Note 417 Assessing Big Sagebrush at Multiple Spatial Scales (Karl & Sadowski 2005).

All three documents listed above describe desirable habitat conditions and promote actions needed to conserve sage-grouse. In addition, each document highlights the importance of managing public land in a way that would support communities of sagebrush steppe species at the landscape level. According to Maser et al. (1984), about 100 to 190 species of rangeland wildlife either breed or feed within big sagebrush habitats, depending upon shrub structural characteristics. Other published documents also indicate substantial wildlife reliance upon sagebrush for all or part of their life history requirements. For instance, even though black-tailed jackrabbits (*Lepus californicus*) are not considered true sagebrush obligates, on public land they are often most often associated with sagebrush cover and they are an important prey species for raptors or other mammalian predators. Therefore, the ecological web for wildlife in sagebrush steppe is quite complex and BLM NEPA analysis must go beyond considerations that address true sagebrush-dependent species only.

Sagebrush dependent wildlife either known to occur or very likely to occur within the analysis area include the following:

- Birds – sage-grouse, sage sparrow, brewer’s sparrow, vesper sparrow, black-throated sparrow, lark sparrow, loggerhead shrike, green-tailed towhee, and sage thrasher.
- Mammals - sagebrush vole and pronghorn.

By practicing good land use stewardship likely to the benefit of multiple species of wildlife, BLM may then avoid the future need for listing animals under protection of federal or state endangered species acts (ESA). For grazing permit renewal purposes, this objective to promote healthy wildlife communities may be met by accomplishing the following:

1. Promote proper grazing use consistent with the S&Gs.
2. Limit the geographic extent of grassland habitats, or those rangelands that support less than 5 percent sagebrush canopy cover. Sagebrush shrubland habitats (≥ 5percent sagebrush canopy cover) typically support much more diverse wildlife communities than grasslands (< 5percent sagebrush canopy cover) (Karl & Sadowski 2005).
3. Conservation focus to retain ≥70% of sage-grouse range as sagebrush habitat in advanced structural stages, sagebrush class 3, 4 or 5, with an emphasis on classes 4 and 5. The remaining 30% could include areas of juniper encroachment, non-sagebrush shrubland, and grassland (either from natural or anthropogenic disturbance) that potentially can be enhanced (ODFW 2011).
4. Promote healthy riparian habitat conditions by removing juniper competition in aspen communities. Riparian habitats comprise a small proportion of the analysis area. Nevertheless, riparian areas in general support a disproportionately large number of wildlife habitat requirements. For eastern Oregon, as many as 280 species are either directly dependent on riparian habitat or utilize them more than other habitats (Thomas et al. 1979).

Aside from localized and limited impacts from big game, the most important controllable riparian habitat disturbance activity is livestock grazing use. Properly scheduled grazing use is compatible with maintenance or improvement of habitat qualities for wildlife (Vavra 2005). Proper grazing use within riparian areas normally includes some combination of rest and/or deferment (Abouguendia et al. 2001). Woody and herbaceous riparian plants both offer forage, cover, and structure valuable for wildlife (Knopf et al. 1988).

Relatively common wildlife species present

Game species present include: American pronghorn (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), coyote (*Canis latrans*) bobcat (*Lynx rufus*), and chukar (*Alectoris chukar*). Representative non-game species include red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*), Luzuli bunting (*Passerina amoena*), yellow warbler (*Dendroica petechia*), sage sparrow (*Amphispiza belli*), common nighthawk (*Chordeiles minor*), Cooper's hawk (*Accipiter cooperi*), great horned owl (*Bubo virginianus*), and western meadowlark (*Sturnella neglecta*).

Table 14. Wildlife of management importance according to season of use and key habitat characteristics.

Wildlife of Management Importance within Pedro Mountain GU	Season of Use	Principal Habitat Dependency for Forage, Cover, Structure, and Security
American pronghorn Rocky Mountain mule deer ferruginous hawk[1]	Spring through fall	Mixed shrublands and grasslands
*sage-grouse[1]	Spring through Winter.	Shrublands Winter use – at least 10% sagebrush canopy cover Nesting use – at least 15%-25% or more sagebrush canopy cover Brooding- canopy cover of at least 15% of grasses and forbs

Wildlife of Management Importance within Pedro Mountain GU	Season of Use	Principal Habitat Dependency for Forage, Cover, Structure, and Security
*sagebrush vole, *Brewer's sparrow[1], *horned lark, *western meadowlark, *black-throated sparrow[1], *sage sparrow[1], *loggerhead shrike[1], *sage thrasher [1]	Spring through summer	Shrublands At least 10% sagebrush canopy cover
yellow warbler[1]	Spring through fall	Woody riparian species such as willow and herbaceous species such as grasses, forbs, sedges, and rushes.
* Species associated with shrub steppe habitats that are at risk throughout the west that have declined substantially in the Interior Columbia Basin area since historical times. [1] These species indicate that they are a focal species for the Partner in Flight Conservation Landbirds in the Columbia Platau of Eastern Oregon and Washing ton		

Special status wildlife narratives and species of local importance

There are six BLM special status wildlife species known to breed on public land, uses public land for part of their life history requirements, or has potential habitat located within the Pedro Mountain GU. These species include: gray wolf (*Canis lups*), pygmy rabbit (*Brachylagus idahoensis*), sage-grouse (*Centrocerus urophasianus)*, grasshopper sparrow (*Ammodramus savannarum*), Columbia spotted frog (*Rana luteiventris*), pallid bat (*Antrozous pallidus*), and Townsend's big-eared bat (*Corynorhinus townsendii*). Also refer to Appendix 2 for a list of Potential Species of Concern in the Pedro Mountain GU.

Brief life history narratives for special status wildlife or habitat in Pedro Mountain GU are as follows:

Gray wolf

The gray wolf would be considered a transient species within Pedro Mountain GU. Past sightings of wolves have been reported to ODFW; however, verified accounts have been of the large coyotes or domestic dogs. The Keating GU is the nearest area within the Baker Resource Area where wolf activity has been verified within BLM public lands.

Wolves will not be further analyzed within this EA because there is no documented denning or rendezvous sites and the project would not change habitat distribution or change prey opportunities for big game therefore there would be no effect. Furthermore, proper grazing practices and management for wolves would be consistent with the Oregon Wolf Management and Conservation Plan (2010), which has conservation mitigations habitat.

Pygmy rabbit

No typical pygmy rabbit habitat exists on public lands within the Pedro Mountain GU. However, systematic searches for pygmy rabbits conducted by the Malheur Resource Area BLM in northeast Oregon has found pygmy rabbit in vegetation communities that were not considered suitable habitat (personal com. Michelle Caviness Vale District lead wildlife biologist 2011). Specifically, the survey found that pygmy rabbits are using high elevation sagebrush stands that

have shallow soils in areas that have less that 20 percent shrub canopy cover and bitter cherry *Prunus emarginata* is present whereas, typical pygmy rabbit habitat is categorized as dense (25% or more) Wyoming, basin or mountain big sagebrush, lower elevation and deep soils (Green and Flinders 1980; Galber et al. 2001). The allotments covered in the Pedro Mountain Geographic Unit Grazing Permit Renewal Environmental Assessment do not meet the criteria for typical pigmy however there is one isolated patch of vegetation that meets the Malheur Resource Area survey. This patch of potential pygmy rabbit habitat is located in the Dixie Creek allotments and it is approximately 17 acres in size. Bitter cherry is associated with upland vegetation communities.

Sage-grouse

Within this analysis the Oregon Conservation Strategy (ODFW 2011), 12 month finding from USFWS (USFWS 2010), and greater sage-grouse monographs (Knick and Connelly 2011) were used to develop alternatives and design features as well as contribute to the scientific background of this species.

Greater sage-grouse (hereafter referred to as sage-grouse) represent a focal species for sagebrush conservation because they are sagebrush obligates that select habitats at multiple spatial scales (Stiver et al. 2010). Within these different spatial scales, there is considerable information for home-ranges and populations (Schroeder et al. 2004; Connelly et al. 2004). To fulfill their lifecycle needs the sage-grouse can move several miles which encompass different types of habitats (Knick and Connelly 2011, monographs). These scales are broken into four orders (broad, mid, landscape, and site-specific scales) in which sage-grouse select habitat for their life-history needs. Conservation for sage-grouse is a scale-dependent process whereby priority landscapes are identified across the species range (broad-scale) and appropriate conservation actions are implemented within seasonal habitats to benefit populations (landscape/site-scale).

Broad-scale (First order)

On a broad-scale, sage-grouse historically lived in the sagebrush-steppe regions of southern British Columbia, Canada, and throughout eastern Washington and Oregon (Schroeder et al. 2004). However, because of habitat loss, degradation, and fragmentation available habitat for sage-grouse has declined to nearly half of what was historically documented (Aldridge et al. 2008). Habitat loss has affected broad-scale population distribution with some areas experiencing a decline of 45-85 percent and site-specific declines of 17-92 percent (Connelly et al. 2000, Aldridge and Brigham 2008, Connelly et al. 2004, ODFW 2011).

Mid-scale (Second order)

Five sage-grouse populations have been identified in Oregon. The sage-grouse within the Baker Resource Area administrative boundary are part of the Northern Great Basin population which is managed by four states (Oregon, Idaho, Nevada and Utah, ODFW 2011). The State of Oregon accounts for approximately 30 percent of the Northern Great Basin population. The Oregon portion of the Northern Great Basin population lek count has not changed statistically since 1980 (ODFW 2011). However two large increases and two subsequent declines have occurred since 1980 (ODFW 2011) The Baker Resource Area BLM manages 194,070 acres of sage-grouse habitat which accounts for 1.6 percent of the population within the State of Oregon.

Landscape (Third order)

Landscape scale takes into account seasonal use areas and/or home ranges of sage-grouse associated with a lek or group of leks. Seasonal habitat availability, connectivity, and anthropogenic disturbances are also described at this scale. The BLM will use the Baker Resource Area administrative boundary as the area for the landscape scale. The reason why the administrative boundary is used is because ODFW (2011) reports lek trend data based on BLM administrative boundaries instead of at the subpopulation.

Fifty-two lek sites have been identified in the Baker Resource Area. The data from ODFW (2011) shows an overall non-statistically significant negative trend in average number of males per lek since 1980. However ODFW has documented a slight increase in 2009 and 2010. Only one lek has been reported by ODFW on public lands in Pedro Mountain GU and it was located in an allotment that met all rangeland health standards and was renewed under a DNA, which was signed November of 2008.

The U.S. Fish and Wildlife Service (USFWS) completed a 12 month finding on petitions to list sage-grouse as threatened or endangered under the Endangered Species Act (ESA) of 1973. Results of the 12 month findings were listing sage-grouse (range wide) as a threatened or endangered species is warranted, but precluded by higher priority listing actions. The 12 month findings used the 5 factors provided in section 4(a) (1) of the ESA in the evaluation of sage-grouse which are; 1) present or threatened destruction, modification or curtailment of habitat or range 2) overutilization of habitat for commercial, recreational, scientific or educational purposes 3) disease or predation 4) inadequacy of existing regulation or 5) other natural or manmade factors affecting it continued existence. The BLM will address each of these 5 factors specific to the Baker Resource Area.

The BLM used the 5 listing factors, identified by USFWS, to identify past and present project which may have an adverse effect on sage-grouse habitat or population. Sage-grouse are considered a landscape scale species where seasonal habitats in many instances are miles apart. With this in mind the analysis area for cumulative effects were expanded to the landscape scale (see affected environment) which includes all sage-grouse core and low density habitat within the Baker Resource Area administrative boundary.

Present or threatened destruction, modification or curtailment of habitat or range

The USFWS identified seven threats to destruction, modification or curtailment of habitat or range which are 1) habitat conversion for agriculture, urbanization and infrastructure, 2) fire, 3) invasive plant and juniper encroachment, 4) grazing, 5) energy development, 6) climate change and 7) habitat fragmentation.

Agriculture and urbanization combined has resulted in approximately 44,200 acres of sage-grouse habitat loss which has occurred exclusively on private lands in or adjacent to sage-grouse habitat (core and low density) within the Baker Resource Area administrative boundary. Additionally, there are 2,284.2 miles of dirt roads, 118.6 miles of paved roads, 1,433.8 miles of fence, 24 miles of rail road lines, 12.2 miles of power

lines/utility corridors and 1 communication towers in sage-grouse habitat within the Baker Resource Area administrative boundary, which includes both private and public lands.

Sagebrush recovery after fire within the Baker Resource Area takes approximately 15 to 50 years depending on species; these findings are supported by Bunting et al. (2007). There have been 20,174 acres of core and 5,721 acres of low density sage-grouse habitat burned in the past 15 years within the Baker Resource Area administrative boundary. Sagebrush recovery after these fires has varied with some stands approaching canopy cover class of 4 while other stands are in canopy cover 0-2. As a result of these fires, the BLM believes that sage-grouse are not utilizing uplands for nesting brood rearing. However, sage-grouse use is expected to increase as sagebrush canopy cover increases.

Invasive plants (non-native annual grass) and juniper encroachment have adversely affected approximately 57,435 acres of sage-grouse habitat on public lands within the Baker Resource Area. The amount of invasive plants and juniper encroachment on private lands in not known. However the Natural Resource Conservation Service (NRCS) project is expected to begin in 2012 to map and treat non-annual grass on private lands. The NRCS has already treated approximately 9,000 acres of juniper on private lands within sage-grouse habitat adjacent to the Baker Resource Area. In addition, the Baker Resource Area has treated 5,500 acres of juniper on public lands in sage-grouse habitat within the past 10 years.

Pritchard Creek, Big Lookout Mountain, Burnt River and portions of the Powder River Canyon GU permit renewal NEPA changed or maintained livestock management that is consistent with conserving sage-grouse habitat on approximately 33,289 acres of public lands within the Northern Great Basin sage-grouse population. In addition interim livestock management changes were made to the Pedro Mountain GU prior to the 2007 grazing season which is affecting 5,033 acres of ODFW designated sage-grouse habitat and an additional 9,144, acres of sage-grouse habitat (6,734 acres core and 2,410 acres low density) in the Pedro Mountain GU were classified by the BLM as meeting all rangeland health standards and were renewed under DNAs OR-030-07-007 and OR-030-08-004. These changes to livestock grazing management were made in part to increase the quality of sage-grouse habitat by restricting the amount of forage use in riparian areas (promoting food forbs) and by promoting late seral vegetation communities; this reduces the risk of conversion to non-native annual grass and increases the amount of residual vegetation which helps to reduce nest predation.

None of the renewable energy projects (wind energy) are within the Baker Resource Area administrative boundary area in core or low density sage-grouse habitat. Therefore, the BLM expects that no additive effects to sage-grouse populations or habitat will occur as a result of renewable energy.

Most climate change projections predict an overall decrease in sagebrush distribution as increases in the mean daily temperature and summer precipitation reduce the competitive advantage of sagebrush over the herbaceous component (Schwinning et al. 2005). Additionally, projections strongly suggest a northern latitudinal and higher elevation shift in sagebrush distribution (Shafer et al. 2001, USFWS 2010).

Sage-grouse habitat fragmentation is caused by removing native sagebrush or conversion to a non-native annual grass understory. The main factors on effecting habitat fragmentation within the Baker Resource Area administrative boundary are agriculture, urbanization, roads, juniper encroachment, railroads, mining, and noxious and invasive weeds. However, past land management projects on both public and private lands reduced sage-grouse habitat fragmentation by treating 5,000 and 9,000 acres of juniper on public and private lands, respectively. This reduction in habitat fragmentation has improved sage-grouse habitat within the Baker Resource Area administrative boundary.

Given how agriculture and urbanization has resulted in approximately 44,200 acres of habitat loss, we assume the combined effects of past and present actions identified in USWFS factor 1 has resulted in the largest adverse effects to sage-grouse habitat in the Baker Resource Area administrative boundary. The BLM assumes that most of the adverse effects are associated with past management actions that converted private lands to agricultural, public and private lands being converted to non-native annual grass vegetation communities and juniper encroachment on native sagebrush vegetation communities. However, management actions identified in this document (Pedro Mountain Geographic Unit Grazing Permit Renewal Environmental) along with reasonable foreseeable juniper and non-native grass reduction projects would aid in reducing the magnitude of adverse effect as a result of past private and public management actions.

Overutilization of habitat for commercial, recreational, scientific or educational purposes

USFWS does not believe data support overuse of sage-grouse as a singular factor in range wide population declines. USFWS notes, however, that in light of present and threatened habitat loss and other considerations (e.g. West Nile virus outbreaks in local populations), continued close attention will be needed by States and tribes to carefully manage hunting mortality, including adjusting seasons and allowable harvest levels, and imposing emergency closures if needed. In summary, the USFWS finds that this threat is not significant to the species such that it causes the species to warrant listing under ESA. ODFW manages hunting mortality for sage-grouse in the State of Oregon. During the 2010 hunting season ODFW permitted 20 sage-grouse to be harvested in the Baker Resource Area administrative boundary which includes both private and public lands.

The Baker Resource area has one off highway vehicle play area located within sage-grouse habitat. This play area is 4,981 acres in size and is within the Keating GU. This play off road vehicle play area is located in sage-grouse core habitat and is in close proximity to multiple leks. The off road vehicle play area has the highest amount of use during the summer and fall months when sage-grouse are not present. During the spring when sage-grouse are present off road vehicle use is low (approximately 1-10 users per week) which the BLM expects is having a minor adverse effect to sage-grouse during the breading season.

Disease and Predation

Although sage-grouse are host to a wide variety of diseases and parasites, few have resulted in population effects, with the exception of West Nile virus. West Nile virus is

spread by mosquitoes and there is a higher rate of infection in areas that have standing water (i.e., agricultural flood irrigated fields or ponds). There are 43,859 acres of agricultural fields on private land in sage-grouse habitat within Baker Resource Area administrative boundary. However the BLM does not know how many acres are flood irrigated. There are 95 stock ponds within the sage-grouse habitat (83 in core habitat and 12 in low density habitat) on public lands in the Baker Resource Area. None of these reservoirs are in located in the 5,033 acres of sage-grouse habitat (low density and core) within the allotments covered in this document.

A series of studies on sage-grouse has documented little resistance to the West Nile virus (Naugle et al. 2005; Walker et al. 2004, 2007; Knick and Connelly 2011(monographs); ODFW 2011), near-extirpation of a local population following a West Nile virus outbreak (Walker et al. 2004), high mortality following infection (Clark et al. 2006), and links between West Nile virus mortality, mosquito abundance, and changes in land use (Zou et al. 2006). USFWS Notice of 12–month petition findings (2010) for sage-grouse found that livestock water developments for livestock and wild ungulates also could be used as mosquito breeding habitat, and thus have the potential to facilitate the spread of West Nile virus. However, Doherty (2007) found that within native sagebrush communities where livestock grazing occurs little to no chance of infection rate was reported for the West Nile virus. Specifically, Doherty (2007) found that a livestock allotments that did not have large (>1 acre) water holding ponds had an infectious rate of 0.00 percent; whereas allotments that had large ponds had an infectious rate of 1.48 percent. Comparatively, Doherty's study (2007) showed that irrigated cropland had the highest infection rate (2.9 percent) for the West Nile virus. The Pedro Mountain GU does not have large man made or natural ponds and no large man made stock water ponds are proposed in any of the alternative. Therefore, it is expected that the threat of West Nile virus as a result of implementing any alternative would be low which is also supported by e-mail conversations between BLM and Naugle (2011) and Walker (2011).

During the breeding season male sage-grouse are very susceptible to predation within close proximity of a lek (USFWS 2010). Fences allow perches for predatory birds that prey upon sage-grouse. ODFW (2011) recommends that all new fences be located at least 0.6 mile from a lek to mitigate adverse effects to sage-grouse predation. BLM analysis shows that there are a total of 124 miles of fence within 0.6 miles of a lek, of which 54.3 miles are located on private land within the Baker Resource Area administrative boundary and 69.7 miles located on public lands within the Baker Resource Area. However, none of these fences are located on public lands within the Pedro Mountain GU.

High levels of predation have also been reported during the nesting and brood rearing season. Livestock grazing has been reported as a major contributing factor associated with nest and brood rearing predation mainly due to physical nest trauma and by grazing the grasses and forbs down to where it doesn't conceal nests or chicks (France et al. 2008; Gregg et al. 1994; Beck and Mitchell 2000). Specifically, if livestock grazing exceeds 50 percent utilization during the nesting/brood rearing season there is not enough residual plant material to conceal the nest from predators (France et al. 2008).

On public lands within the Baker Resource Area upland utilization was set a 50 percent thru the 1984 Ironside EIS.

Livestock grazing can also adversely affect nest and brood rearing predation by favoring early succession plant communities. However, the Baker Resource Area RMP (1989) directed upland vegetation to be managed in a mid to late seral stage.

A series of studies on sage-grouse has documented little resistance to the West Nile virus (Naugle et al 2005; Walker et al. 2004, 2007; Knick and Connelly 2011(monographs); ODFW 2011), near-extirpation of a local population following a West Nile virus outbreak (Walker et al. 2004), high mortality following infection (Clark et al. 2006), and links between West Nile virus mortality, mosquito abundance, and changes in land use (Zou et al. 2006). The Fish and Wildlife Notice of 12–month petition findings (2010) for sage-grouse found that livestock water developments for livestock and wild ungulates also could be used as mosquito breeding habitat, and thus have the potential to facilitate the spread of West Nile virus. However, Doherty (2007) found that within native sagebrush communities where livestock grazing occurs little to no chance of infection rate was reported for the West Nile virus. Specifically, Doherty (2007) found that a livestock allotments that did not have large (>1 acre) water holding ponds had an infectious rate of 0.00 percent; whereas allotments that had large ponds had an infectious rate of 1.48 percent. Comparatively, Doherty (2007) showed that irrigated cropland had the highest infection rate (2.9 percent) for the West Nile virus. Public lands within the Pedro Mountain GU do not have large man made or natural ponds and no large man made stock water ponds are proposed in any of the alternative. Therefore, it is expected that the threat of West Nile virus would be low which is also supported by e-mail conversations between BLM and Naugle (2011) and Walker (2011).

Inadequacy of existing regulation

FWS 12 month findings state "If an RMP contains specific direction regarding sage-grouse habitat, conservation, or management, it represents a regulatory mechanism that has the potential to ensure that the species and its habitats are protected during permitting and other decision-making on BLM lands". The Baker Resource Area is in the process of issuing a Draft RMP for public comment by years end. All action alternatives in the draft RMP contain specific direction regarding sage-grouse habitat conservation or management (see reasonable foreseeable future actions). In addition an instruction memorandum (IM) directs the Baker Resource Area to adopt sage-grouse conservation mitigations identified in the Sage-grouse Conservation Assessment and Strategy for Oregon; which addresses conservation and management of sage-grouse (BLM 2009). This IM has expired in 2010 however the Baker Resource Area still abides by the conservation and management direction identified within this document. Therefore, the BLM believes that inadequacy of existing regulation is having negligible adverse effects to sage-grouse habitat within the Baker Resource Area administrative boundary.

Other natural or manmade factors affecting its continued existence

Numerous factors have caused sage-grouse mortality, and probably morbidity, such as pesticides and contaminants. Animal and Plant Inspection Service (APHIS) treats grasshoppers on between 0 to 2,400 acres of public and private lands a year in sage-

grouse habitat within the Baker Resource Area. No contaminates as specified by USFWS (2011) are known to the BLM to exist within the Baker Resource Area administrative boundary in sage-grouse habitat. The FWS 12 month findings concluded that pesticides, contaminants, as well as recreational activities do not singularly pose a significant threat to the species now or in the foreseeable future. Therefore the BLM believes that other natural or manmade factors affecting it continued existence is having negligible adverse effect to sage-grouse habitat within the Baker Resource Area administrative boundary.

Site-specific (Fourth order)

Habitat suitability at the site-scale describes the more detailed vegetation of seasonal habitat characteristics such as canopy cover and height of sagebrush (nesting and wintering) and the associated understory vegetation (nesting, early-brooding), and vegetation associated with riparian areas, wet meadows, and other mesic habitats adjacent to sagebrush (late-brooding/summering) (Stiver et al. 2010). The public lands within the Pedro Mountain GU are primarily used for nesting, brooding, and wintering; but to what extent is not known. However, the Oregon Department of Fish and Wildlife determined that there are 5,033 acres of sage-grouse habitat in the 10 allotments this document cover. Albeit 99.7 percent of these acres are considered low density habitat and 0.7 percent is considered core habitat.

The amount of sage-grouse habitat in the Pedro GU accounts for 0.04 percent of the sage-grouse habitat in the State of Oregon and 2.6 percent of the sage-grouse habitat managed by the Baker Resource Area BLM.

There are four leks (3 on private land 1 on BLM) within the boundary of the Pedro Mountain GU. The lek located on BLM is located in an allotment that was renewed under a DNA because all rangeland health standards were met. These four leks are located 1.5 to 8 miles away from the areas that are being analyzed within Pedro Mountain GU EA and the lek counts are considered stable to increasing (Nick Myatt ODFW pers. com. 2010).

The vegetative community within the Pedro Mountain GU consists of mountain big/basin big sagebrush with an understory of bluebunch wheatgrass, Idaho fescue, and needlegrass which is capable of providing the vegetation structure needed for nesting (Braun et al. 1977; Braun et al. 2005; Connelly et al. 2000). These grasses are also important in providing screening cover for brood-rearing (France et al. 2008). Sagebrush density and stature is especially important during winter (Homer et al. 1993). Areas that have denser canopy cover or sagebrush that is at least 10-12 inches above snow level would provide both food and cover for wintering sage-grouse within Pedro Mountain EA (ODFW 2011). Alternatively, low sagebrush may also provide some wintering habitat if sagebrush is kept clear of snow (, ODFW 2011). In general, sage-grouse would use western or southern facing aspects that have at least 20 percent density sagebrush cover (Homer et al. 1993). There are no known wintering areas within Pedro Mountain GU. However, there are some areas that would be suitable habitat for winter use because sagebrush density, stature, and aspect would be consistent to sage-grouse needs (Stiver et al. 2010). Sage-grouse habitat is located in Bowman Flat, Dixie Creek, Rattlesnake Gulch, Rye Valley, and Summit Spring Allotments.

Within the Pedro Mountain GU the main areas that have been fragmented occurred on low-elevation private lands; where lands have been converted into non-native annual grasses or agriculture. However, vegetation fragmentation has occurred on BLM lands albeit to a lesser extent than what has occurred on private lands. Vegetation fragmentation on public lands is associated with improper livestock grazing, roads and mining. Specifically, there are 1,800 acres impacted by livestock grazing, 250 acres of non-native annual grass, and 102 miles of roads and 300-400 acres of mining that has created vegetation fragmentation on public lands within the Pedro Mountain GU.

The indirect and direct effect analysis section for sage-grouse will use the site specific scale to identify effects to sage-grouse habitat.

Grasshopper sparrow

The grasshopper sparrow is a focal species for the Partners of Flight Conservation Strategy for the Columbia Plateau of Western Oregon and Washington (2000). Breeding Bird Survey data have shown significant declines in Grasshopper Sparrow populations throughout North America and in the West generally (Herkert 1994). The Grasshopper sparrow is a grassland bird. This sparrow prefers areas with significant grass cover and a few scattered shrubs for perching (Whitmore 1981). Grasshopper sparrows don't use habitats with dense shrub cover or sites that have been over-grazed. Grasshopper sparrows are a species of successional habitats, moving in after a fire for a few years until the brush gets too thick again, and then moving on. The BLM is not aware of any large (50 or more acres) areas within the allotments covered in the Pedro Mountain Geographic Unit Grazing Permit Renewal Environmental Assessment that meet the habitat criteria for grasshopper sparrow.

Even though the grasshopper sparrows are a focal species for Partners in Flight, this species will not be further analyzed within this EA. The Pedro Mountain GU is managed for mid to late seral sagebrush community which is not considered habitat for the grasshopper sparrows which require grasslands with few shrubs. Proposed livestock management in all alternatives (1, 2, 2a and3) would not reduce sagebrush canopy cover therefore the BLM expects that no effects to grasshopper sparrows will occur.

Columbia spotted frog

Columbia spotted frogs are rarely found far from water. They make their homes in or near permanent lakes, ponds, slow-moving streams and marshes in a wide variety of wetlands, forest types, grassland, and sagebrush communities (Welch and MacMahon 2005). Shallow wetlands are preferred water bodies that are deep enough that they do not freeze on the bottom are required for over-wintering of adults and juveniles. Columbia spotted frogs prefer thick algae and abundant aquatic vegetation for cover and like to hide in rushes, sedge and grass (Bull and Hayes 2002). The Pedro Mountain GU does not have large man made or natural ponds and no large ponds are expected to be constructed in the reasonably foreseeable future. However, Columbia spotted frogs have been found in isolated areas within Mormon Basin (an area within the Pedro Mountain GU not analyzed within this EA because Standards were met) and one individual was found in the northern portion of North Fork of Dixie Creek. The North Fork of Dixie Creek allotment is not meeting Standard 2 (watershed function/riparian) and Standard 4 (water quality).

Pallid bat

Pallid bats are found in arid deserts, juniper woodlands, grasslands, and sagebrush shrub-steppe that often have a rock outcrop component with water nearby. They are less abundant in evergreen and mixed conifer woodlands however they would still utilize edge habitat that have this characteristic (Crampton and Barclay 1998). They typically roost in rock crevice, less often in caves, tree hollows, and in abandoned mines. Roosting habitat often favored by this bat (i.e., crevices in cliffs and rock outcrops) provides protection from many kinds of disturbance. The Pedro Mountain GU supports isolated areas that could be used for roosting. However, within the allotments analyzed, the Pedro Mountain GU there is no crevices/rock outcrops that would support large pallid bat hibernacula's. Therefore, the BLM believe that the Pedro Mountain GU has little if any habitat for Pallid bats.

The only known correlation with bat and livestock use is within the riparian areas (pers. com. Michelle Caviness Vale District wildlife biologist). Riparian corridors are important for bat foraging because those areas naturally contain a greater density of insects. The most immediate management action that can benefit this species (and other bat species as well) is protection of water sources in arid regions where this bat is present and water sources are limited.

Townsend's big-eared bat

Townsend's big-eared bats will use a variety of habitats, almost always near caves abandoned mine shafts or large rock crevices (Sherwin et al. 2000). There is only one mine shaft on public lands within the Pedro Mountain GU. The shaft is located in the Upper Shirttail Creek allotment. The BLM knows of no cave(s) or large crevices within the Pedro Mountain GU.

The only known correlation with bat and livestock use is within the riparian areas (pers. com. Michelle Caviness Vale District wildlife biologist). Riparian corridors are important for bat foraging because those areas naturally contain a greater density of insects. The riparian areas within the Upper Shirttail allotment near the mine shaft totals 0.4 miles in length and was rated as functioning at risk no apparent trend.

Big game

Pedro Mountain GU offers a variety of habitats in which big game would find suitable for their life-history needs. Some common big game species within the Pedro Mountain GU include: mule deer, elk, and pronghorn. Some other big game species that are found within this Geographical Unit are bear, cougar, bighorn, and upland game birds. BLM estimates that there is approximately 10,600 acres of private and public lands within 10 allotments being analyzed that are considered winter big game habitat. Proper grazing use practices and careful application of land treatments would conserve and benefit big game habitat.

Neotropical Migratory Bird Species

Under executive order (EO) 13186 the BLM is mandated to strive to protect, restore, enhance, and manage habitats of migratory birds, and prevent the further loss and degradation of habitats on BLM Lands. The Bureau has a responsibility to adhere to the mandates set forth under the Migratory Species Act of1918 (MBTA). This act implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Under the act, it is unlawful to pursue, hunt, take, capture (or kill) a migratory bird except as permitted by regulation (16 U.S.C. 703-704). In addition to the EO and MBTA, the BLM has a Memorandum of Understanding (MOU) with Partners in Flight (PIF) to stimulate and

support an active approach to conservation of landbirds in Oregon and Washington states. The overall goal of PIF bird conservation planning is to ensure long-term maintenance of healthy populations of native landbirds.

The project area provides habitat for neotropical migratory land birds (birds that migrate that are not waterfowl or birds associated with wetland areas) that prefer sagebrush, grassland, and juniper woodland habitats. Migratory bird species use suitable habitat in this area for nesting, foraging, and resting as they pass through on their yearly migrations. Grassland and sagebrush associated species present seasonally include, and sage sparrow (Amphispiza belli). Woodland associated species that may be found within the amendment area or project boundaries include gray flycatcher (Empidonax wrightii), dusky flycatcher (Empidonax oberholseri), dark-eyed junco (Junco hyemalis), and chipping sparrow (Spizella passerina). Large, old juniper trees in the project area may support cavity nesting species, such as mountain bluebird (Sialia currucoides), northern flicker (Colaptes auratus), and American kestrel (Falco sparverius). Other species observed or expected to occur in the project area include American robin (Turdus migratorius), brown-headed cowbird (Molothrus ater), western meadowlark (Sturnella neglecta), and ferruginous hawk (Buteo regalis). Within Pedro Mountain GU where sagebrush is in an intermediate stage of transition to woodlands, migratory bird diversity and richness is relatively high. Levels of conservation will depend on action alternatives described under the analysis portion of the EA.

Threatened and Endangered Species

Federal agencies are mandated to protect threatened and endangered species and would take appropriate actions to avoid the listing of any species. Standard 5 focuses on retaining and restoring native plant and animal (including fish) species, populations, and communities. To meet this standard, habitats must support a healthy, productive, diverse populations and/or communities of native plants and wildlife (including special status species and species of local importance) appropriate to soil, climate, and landforms. By meeting Standard 5, native plant communities and animal habitats would be spatially distributed across the landscape with a density and frequency of species suitable to ensure reproductive capability and sustainability. Plant populations and communities would exhibit a range of age classes necessary to sustain recruitment and mortality fluctuations.

Essential habitat elements for species, populations and communities are present and available, consistent with the potential/capability of the landscape, but not limited to as evidenced by:

- plant community composition, age class distribution, productivity
- animal community composition, productivity
- habitat elements
- spatial distribution of habitat
- habitat connectivity
- population stability/resilience

The following allotments failed to meet one or more of these Standard 5 indicators: Lost Basin, French Creek, and Rye Valley East and West Pasture. One allotment that has the most potential for rangeland recovery and the greatest concern for wildlife is the Lost Basin allotment. However, the Lost Basin allotment does not have any core or low density sage-grouse habitat.

Under Alternative 1, management in Lost Basin allotment aspen stands are not regenerating and any new reproductive shoots available to livestock are either being eaten or destroyed by trampling damage. Existing aspen occur in even-aged stands that are likely to disappear over the next few decades unless new recruitment occurs. In addition, juniper encroachment into aspen communities is adversely impacting riparian habitat. Juniper presence may be expected to accelerate aspen loss in Lost Basin allotment over the long-term. This is because juniper is a strong competitor for available moisture and nutrients and it would eventually replace aspen with juniper woodland habitat. Thus, a combination of BLM actions are needed including grazing adjustment and removal of juniper encroachment in aspen communities in order to protect important riparian wildlife habitat values including forage, cover, structure, and surface water.

In addition to aspen reproductive failure, springs located within the analysis area are suffering from the effects of concentrated livestock grazing use and trampling damage. Over time, these grazing impacts may be expected to result in lowered water-tables and upland plant community encroachment which would further accelerate spring de-watering. The adverse consequences to wildlife habitat from spring de-watering include: (1) loss or reduction of available drinking water, (2) loss of succulent green forage, and (3) decreased insect food sources.

Past livestock management (prior to final determinations) in French Creek and Rye Valley allotments resulted in Standard 5 not being met. To make significant progress towards meeting Standard 5 stream-bank stability, vegetative composition along the greenline and upland native perennial grass cover would need to increased and noxious/invasive plants would need to decrease. Interim livestock management changes have been made and subsequent upland trend monitoring shows that significant progress towards meeting Standard 5 is occurring.

Assumptions common to all action alternatives

- Sagebrush steppe at < 5 percent shrub canopy cover, or predominantly grassland communities: American pronghorn and horned lark.
- Sagebrush steppe at ≥ 5percent shrub canopy cover, or predominantly shrubland communities: sage-grouse, brewer's sparrow, sage thrasher, green-tailed towhee, gray flycatcher, ferruginous hawk, sagebrush vole, pygmy rabbit (hypothetical), western meadowlark, black-tailed jackrabbit and mule deer.
- Wildlife escape ramps would be installed in all existing livestock water troughs. Because of this action, bird species and other small wildlife entrapment caused by livestock water development would be reduced over time.
- All existing or proposed fences on public lands in the Pedro Mountain GU within 1 mile of an active lek or known seasonal use area would be evaluated by the BLM with the guidance of ODFW for installation of fence reflectors to reduce sage-grouse/fence collisions, which is consistent with Stevens (2011) findings and ODFW (2011). Properly maintained existing riparian exclosures would continue to provide high quality riparian habitat for wildlife.
- Negligible impacts will be defined as impacts on wildlife species would be at or below the level of detection, and the changes would be so slight that they would not be of any measurable or perceptible consequence to individuals or the population as a whole.

- Minor impacts will be defined as the impacts on wildlife species would be detectable but localized, small, and of little consequence to the population of any species. Mitigating measures, if needed to offset adverse effects, would be simple and successful.
- Moderate impacts will be defined as the impacts on special status wildlife would be readily detectable and localized, with potential consequences at the population level. Mitigating measures, if needed to offset adverse effects, would be extensive and would probably be successful.
- Major impacts will be defined as impacts on special status wildlife would be obvious and would result in substantial consequences to the populations in the region. Extensive mitigating measures would be needed to offset adverse effects, and their success would not be guaranteed. Actions that would likely result in effects to special status species of this severity would not be authorized or undertaken.

3.7.3 Alternative 1

Pygmy rabbit

BLM GIS analysis identifies 17 acres of potential pygmy rabbit habitat within the 10 allotments analyzed in this document. The potential habitat is confined to the Dixie Creek Allotment. Pygmy rabbits are impacted by rangeland health standards 1, 3 and 5. Livestock management prior to the rangeland health finale determinations resulted in Standards 1, 3, and 5 meeting rangeland health. Therefore, the BLM believes that reverting to livestock management identified in Alternative 1 would result in continued conservation of pygmy rabbit habitat.

Greater sage- grouse

Under Alternative 1 livestock management would revert back the level authorized between years 1995 and 2006. All improvements to Standard 5 as a result of implementing the interim livestock management changes would be lost. Management of livestock under Alternative 1 would not result in making significant progress towards meeting rangeland standards. Specifically, livestock management under Alternative 1, in the Rye Valley and Bowman Flat allotments will not be consistent with maintaining a vegetation structural component needed to conceal sage-grouse while nesting and brooding. Reducing nest and brooding concealment has been shown to increase predation (Gregg et al. 1994).

Specifically, livestock management in Rye Valley, and Bowman Flat would favor early-seral grasses (e.g. Sandberg bluegrass and bottlebrush squirreltail) and non-native annual grasses (e.g. cheatgrass) which are not considered optimal habitat for sage-grouse nesting and brood rearing habitat (Braun et al. 2005; Crawford et al. 2004). Furthermore in all allotments analyzed, livestock management within riparian areas would not be consistent with current research because it would not set a minimum stubble height targets (Beck and Mitchell 2000, Clary and Leininger 2000). Unregulated forage consumption has been shown to reduce high quality food forbs for sage-grouse during the brood rearing stage (Beck and Mitchell 2000). Therefore, it is expected that food availability for sage-grouse during the brooding life stage will be the lowest under Alternative 1.

Alternative 1 would not increase the mileage of fences in the Pedro Mountain GU however existing fences would be analyzed by the BLM (and input from ODFW) to determine if sage-grouse fence diverters are needed to reduce fence strike mortality. The BLM believes that not building additional fences in sage-grouse low density or core habitat and mitigating effects of existing fences

would have no effect or slightly reduce future sage-grouse predation in the Pedro Mountain GU (Coates and Delehanty 2008)

Alternative 1 has been shown to meet the ODFW sage-grouse strategy's overarching habitat goal to maintain or enhance the current range and distribution of sagebrush habitats in Oregon. To meet this goal, greater than 70 percent of the sagebrush community within the sage-grouse range should be in advanced structural stages. The remaining 30 percent could include areas of juniper encroachment, non-sagebrush shrubland, and grassland (either from natural or anthropogenic disturbance) that potentially can be enhanced. Current land management has resulted in 85 percent of the public land in the Pedro Mountain GU being in an advanced structural state. However, livestock management under Alternative 1 would increase the risk of non-native grasses spread which would reduce the percent in advanced structural stage below the 70 percent threshold.

Columbia spotted frog

The confirmed Columbia spotted frog was found in the South Dixie Creek which is in the Dixie Creek Allotment. The stream reach that the Columbia spotted frog was located in was rated as functioning at risk no apparent trend and livestock grazing was identified as one of the causal factors. Livestock management within the Dixie Creek allotment would revert back to the system that caused South Dixie Creek to fail rangeland health standard 2 which the BLM expects would have an adverse effect on Columbia spotted frog.

Pallid bat

Alternative 1 would result in 16.75 miles of riparian area not meeting rangeland health standards. The BLM expects that this would have an adverse effect to Pallid bat however the magnitude of effect would be negligible which is due to the limited roosting habitat (rock crevice, less often in caves, tree hollows, and abandoned mines) within the Pedro Mountain GU.

Townsend's big-eared bat

Alternative 1 would result in 16.75 miles of riparian area not meeting rangeland health standards. The BLM expects that this would have an adverse effect to Pallid bat however the magnitude of effect would be negligible which is due to the limited habitat (caves abandoned mine shafts or large rock crevices) within the Pedro Mountain GU.

Big game

Under Alternative 1, livestock management in the Rye Valley, French Creek and Bowman Flat allotments increases the risk of non-native annual grass invasion by reducing the vigor of native perennial grasses (Brewer et al. 2008; Miller 1994). Increasing the acres of non-native annual grass will reduce the amount of winter forage for big game wildlife. Specifically, mule deer rely on lower elevation sagebrush for winter forage (Nicholson et al. 1997). If non-native grasses were to occupy this area and fire frequency increases the sagebrush canopy cover from the current level of 10-20 percent to 0-5 percent. This reduction in sagebrush would reduce the winter survivability of mule deer (Clements and Young 1997).

Current livestock management and invasion of non-native annual grass can also have an adverse effect to elk habitat because annual grasses are generally lower nutrition and are only palatable during the early spring and late fall(McCorquodale et al. 1986). In addition, production of annual grasses has a higher amount of yearly variation than do native perennial grasses. Therefore, if Rye

Valley, French Creek and Bowman Flat allotments are converted to non-native annual grass vegetation mid spring to early fall big game habitat quality would be reduced.

Neotropical Migratory Bird Species

Because no forest manipulation projects are proposed and livestock grazing livestock grazing in forested potions of the Pedro Mountain GU is no use to slight utilization (0-20 percent), wildlife habitat values for species associated forestlands would not change. There are no grasslands within the Pedro Mountain GU and there are no proposed projects that would create grasslands therefore no habitat exists for grassland species. Suitable habitat would continue to be provided for a variety of bird species like the western meadow lark and lazuli bunting.

Even though Pedro Mountain GU is made up of predominantly shrubland communities capable of supporting wildlife that occupy sagebrush habitat, continued weakness in grass and forb composition would result in failure to meet rangeland health standard for wildlife in some allotments (Standard 5). Good quality sagebrush-steppe ecosystems for wildlife support sagebrush cover and a mix of deep rooted perennial system grasses and native forbs (Sanderson et al. 2004). Shrubs, grasses, and forbs in combination provide the necessary forage, cover, structure, and security needs of wildlife. This alternative would not be consistent to an alternative that would provide a vegetative structure where small mammals can utilize for their hiding and foraging needs. A weakened vegetative community decreases habitat for small mammals which could potentially impact hawks and raptors because they rely on rodents for nutritional needs.

Livestock grazing in the Rye Valley, French Creek, and Bowman Flat allotments will not be consistent with maintaining high plant vigor in native late succession perennial bunchgrasses. In fact, because livestock management is not consistent with vegetative needs, this alternative would have a higher probability compared to all alternatives of converting native mountain big sagebrush stands into non-native annual grass dominated (Miller 1994). Non-native grass invasion would not be beneficial to neotropical migratory bird habitat because it reduces nesting structure/diversity consequently reducing insect abundance. The BLM expects that under this alternative the most acres of neotropical migratory birds habitat could be converted into a non-native vegetative community compared to Alternative 2 and 3. As a result Alternative 1would not fully support mandates set forth in the EO, MTBA, and PIF conservation strategy for migratory and neotropical bird habitat.

3.7.4 Alternative 2 and 2a

Pygmy rabbit

Alternative 2

Same as Alternative 1: Livestock management in pygmy rabbit habitat is consistent with Brewer et al (2000) recommendations for both Alternative 1 and Alternative 2. These recommendations have been shown to improve elements of rangeland health. Therefore, the BLM expects that Alternative 2 livestock management would result in continued conservation of pygmy rabbit habitat.

Alternative 2a

Same as Alternative 1: Livestock management in pygmy rabbit habitat is consistent with Brewer et al (2000) recommendations for both Alternative 1 and Alternative 2a. These recommendations have been shown to improve elements of rangeland health. Therefore, the BLM expects that

Alternative 2a livestock management would result in continued conservation of pygmy rabbit habitat.

Greater sage- grouse

Alternative 2

Livestock grazing would not occur within Summit Spring, Rye Valley and Bowman Flat Allotments and limited use would occur in six allotments until all rangeland health standards are met, which could take up to 15 years. However, upland vegetation trend plots conducted after the final determination of rangeland health shows that significant progress is already occurring as a result of livestock management changes implemented in 2007 and refined in 2011.

The primary sage-grouse habitat in the Pedro Mountain (GU) is nesting, brood rearing and wintering. Current research has identified a needed to improve these habitats to reduce nest predation and increase food availability (e.g. forbs) for juvenile sage-grouse (Gregg et al. 1994; Beck and Mitchell 2000; France et al. 2008, ODFW 2011). Under Alternative 2, livestock management in all allotments will be consistent with maintaining a vegetation structural component needed to conceal sage-grouse while nesting and brooding. Specifically, livestock grazing will not be authorized until all rangeland health standards are met. It is expected that during this period of livestock exclusion tall tussock grass species (Bluebunch wheatgrass, needle-and-thread, Thurber's needlegrass and Idaho fescue) cover will increase which is likely to reduce both nest and juvenile sage-grouse predation when compared to Alternative 1. Once livestock grazing is re-authorized in the Pedro Mountain GU, upland forage utilization targets will be set at a level that provides adequate screening cover to minimize predation on nests and juveniles (France et al. 2008). Changing livestock management would have a minor to moderate beneficial effect to sage-grouse habitat within the Baker Resource Area administrative boundary since only 843 acres of uplands and 6 miles of riparian areas are not meeting rangeland health within sage-grouse habitat. However, if the BLM livestock grazing permit holders decide to increase the season of use on the private lands to offset the loss on the public lands could result in minor to moderate adverse effects to private land sage-grouse habitat within the Pedro Mountain GU (see cumulative effects).

Beck and Mitchell (2000) documents that riparian areas, specifically wet meadows, are important foraging areas during the brood rearing life stage and that light to moderate (21-50 percent) utilization can increase the availability sage-grouse forage, whereas no grazing reduces sage-grouse forage in riparian areas. However, Alternative 2 would not allow grazing to occur until all rangeland health standards are met which is estimated at a period up to 15 years. Therefore the availability of wet meadow forage for greater sage-grouse will not be maximized under Alternative 2 until grazing resumes.

Alternative 2 would construct 7.1 miles of fence within sage-grouse habitat. These fences would all be placed more than 0.6 miles away from a lek, which is the distance currently recommended by ODFW in its Strategy (2011). Thus, these fences would be consistent with, and even more protective than, the distance-from-lek recommendations from ODFW. In fact all fence project proposals in Alternative 2 are greater than 1.5 miles from a lek. However, approximately 3.5 miles proposed fencing would be constructed in low density sage grouse habitat and approximately 0.5 would be constructed in sage-grouse core habitat. These fences would be constructed along the BLM/private land boundary and are needed to rest the allotments from livestock grazing. If this alternative is selected the BLM would work with ODFW to determine if sage-grouse diverters or

predatory bird perch guards are warranted on new fences within the core and low density habitats to reduce sage-grouse mortality. If ODFW recommends diverters or perch guards are needed the BLM will require installation of these devices during construction. Therefore, the BLM expects that the potential effects to sage-grouse as a result of 4 additional miles of fence in sage-grouse habitat within the Pedro Mountain GU would be mitigated and would result in negligible adverse effects to sage-grouse habitat.

Alternative 2 is expected to meet the ODFW (2011) goal of conserving greater than 70 percent of the sagebrush community within the sage-grouse range in advanced structural stages. However, if the livestock permittee decide to increase the livestock season of use on the adjoining private lands to make up for the loss of AUMs on public lands the amount of sagebrush in the advanced structural stage could be reduced below 70 percent when considering both public and private lands. Reducing sagebrush advanced structural stage within the Pedro Mountain GU below 70 percent would result in minor to moderate adverse effects to sage-grouse habitat within the Baker Resource Area administrative boundary. Especially if non-native grasses become dominate

Alternative 2a

Livestock grazing would be permanently excluded in three allotments and permanently reduced to private land capacity is six allotments. Excluding livestock grazing would have a permanent negative effect to availability of riparian food forb for sage-grouse albeit negligible affecting 4 miles of riparian area within ODFW defined sage-grouse habitat. Specifically, Beck and Mitchell (2000) documents that riparian areas, (wet meadows), are important foraging areas during the brood rearing life stage and that light to moderate (21-60 percent) utilization can increase the availability sage-grouse forage.

Alternative 2a would construct 7.1 miles of fence. These fences would all be placed more than 0.6 miles away from a lek, which is the distance currently recommended by ODFW in its Strategy (2011). Thus, these fences would be consistent with, and even more protective than, the distance-from-lek recommendations from ODFW. In fact all fence project proposals in Alternative 2a are greater than 1.5 miles from a lek. However, approximately 3.5 miles proposed fencing would be constructed in low density sage grouse habitat and approximately 0.5 would be constructed in sage-grouse core habitat. These fences would be constructed along the BLM/private land boundary. If this alternative is selected the BLM would work with ODFW to determine if sage-grouse diverters or predatory bird perch guards are warranted on new fences within the core and low density habitats to reduce sage-grouse mortality. If ODFW recommends diverters or perch guards are needed the BLM will require installation of these devices during construction. Therefore, the BLM expects that the potential effects to sage-grouse as a result of 4 additional miles of fence in sage-grouse habitat within the Pedro Mountain GU would be mitigated.

Alternative 2a is expected to meet the ODFW (2011) goal of conserving greater than 70 percent of the sagebrush community within the sage-grouse range in advanced structural stages. However, if the BLM livestock grazing permit holders decide to increase livestock season of use on the adjoining private lands and non-native annual grass becomes dominate the amount of sagebrush in the advanced structural stage could be reduced below 70 percent. Reducing sagebrush advanced structural stage within the Pedro Mountain GU below 70 percent would result in minor to moderate adverse effects to sage-grouse habitat within the Baker Resource Area administrative boundary. In addition increasing livestock use on adjoining private lands would reduce residual grass cover needed for sage-grouse nest concealment.

Columbia spotted frog

Alternative 2
Livestock grazing would be temporarily reduced to the private land capacity which would drastically reduce the amount of grazing use in South Dixie creek where the only known Columbian spotted frogs are locates within the 10 allotments analyzed in this document. Initially the BLM expects that the riparian stubble height on South Dixie Creek would be more restrictive than recommended by Clary and Leininger (2000) which have been shown to improve elements of riparian rangeland health. Therefore, the BLM expects that Alternative 2 will improve and conserve spotted frog habitat within the 10 allotments analyzed in this document.

Alternative 2a
Same as Alternative 2: Livestock grazing would be permanently reduced to the private land capacity which would drastically reduce the amount of grazing use in South Dixie creek where the only known Columbian spotted frogs are locates within the 10 allotments analyzed in this document. The BLM expects that the reduction in livestock AUM's on BLM lands would result in a riparian stubble height that is more restrictive than recommended by Clary and Leininger (2000) which have been shown to improve elements of riparian rangeland health. Therefore, the BLM expects that Alternative 2a will improve and conserve spotted frog habitat within the 10 allotments analyzed in this document.

Pallid bat

Alternative 2
Alternative 2 would make significant progress towards meeting riparian rangeland health in 16.75 miles of riparian area. The BLM expects that this would have a beneficial effect to Pallid bat habitat. However the magnitude of effect would be negligible which is due to the limited roosting habitat (rock crevice, less often in caves, tree hollows, and abandoned mines) within the Pedro Mountain GU.

Alternative 2a
Same as Alternative 2: Alternative 2 and Alternative 2a are consistent or more restrictive than Clary and Leininger (2000) recommendation which has been shown improve elements of riparian rangeland health. Therefore, the BLM expects that alternative 2a would have the same beneficial effects to Pallid bat habitat as Alternative 2.

Townsend's big-eared bat

Alternative 2
Alternative 2 would make significant progress towards meeting riparian rangeland health in 16.75 miles of riparian area. The BLM expects that this would have a beneficial effect to Townsend's big-eared bat habitat. However, the magnitude of effect would be negligible which is due to limited habitat (caves abandoned mine shafts or large rock crevices) within the Pedro Mountain GU.

Alternative 2a
Same as Alternative 2: Alternative 2 and Alternative 2a are consistent or more restrictive than Clary and Leininger (2000) recommendation which has been shown improve elements of riparian

rangeland health. Therefore, the BLM expects that alternative 2a would have the same beneficial effects to Townsend's big-eared bat habitat as Alternative 2.

Big Game

Alternative 2

Conversely to Alternative 1, livestock management under Alternative 2 would reduce the risk of non-native grass invasion on public lands which will increase habitat quality for big game animals within the Rye Valley, French Creek and Bowman Flat allotments. However, if the BLM livestock grazing permit holder decide to increase season of use on the adjoining private lands the BLM expects that invasion of non-native annual grass would increase under Alternative 2 (see cumulative effects section).

Alternative 2 would not authorize livestock grazing for a period estimated up to 15 years on public lands within the Pedro Mountain GU. Temporarily excluding livestock grazing is expected to reduce the winter habitat quality by lowering the nutritional value of winter forage (Anderson and Scherzinger 1975). Specifically, Anderson and Scherzinger (1975) found that elk number increased when "proper livestock management" occurs and elk numbers were reduced when livestock was excluded or if grazing occurred during the critical plant growth stage on a regular basis. It is expected that Alternative 2 would have a greater adverse effect to elk when compared to Alternative 1 since a greater acreage of BLM administered lands would be adversely affected under Alternative 2 (i.e., 8,966 acres rested under Alternative 2 compared to 1,800 grazed during critical growth periods under alternative 1). However, the BLM expects that once livestock grazing is re-authorized elk habitat will increase to the level identified in Alternative 3. Therefore, the BLM expects the short term (1-5 years) adverse effects of resting livestock grazing under alternative 2 would be adverse and moderate. However, long term effects are expected to be beneficial and minor to moderate.

Alternative 2 juniper control and grazing adjustments in Lost Basin allotment would be expected to protect and gradually improve aspen community conditions for wildlife as described in Alternative 2. Juniper encroachment within aspen stands is an ongoing issue within Oregon (Wall et. al. 2001). Removing juniper within aspen stands is an effective management strategy to restore declining aspen stands (Bates et al. 2005). This management strategy is proposed in areas that would benefit and preserve the biological integrity of a stand. For example, the aspen stand in Lost Basin has little sucker regeneration and juniper has begun to encroach within the stand. The removal of juniper would help 'release' the stand to help stimulate sucker growth. It is well documented that protecting the biological integrity of aspen stands like Lost Basin would help benefit wildlife habitat health (Turchi et al. 1995; Romme et al. 2001). Long term replacement of aspen habitat with juniper woodland habitat would be avoided and BLM authorized grazing use would likely allow aspen reproduction to occur. Aspen stands contribute to habitat complexity and are important to wildlife needs especially for big game summer, fall, and winter browse (Collins and Urness 1983; Bailey and Whitham 2002).

Alternative 2a

Same as Alternative 2 except that reduction in quality of elk habitat would permanently be lower than Alternative 2 and 3 due to livestock exclusion.

Neotropical Migratory Bird Species

Livestock grazing in all livestock allotments within the Pedro Mountain (GU) would be consistent with maintaining high plant vigor in native late succession perennial bunchgrasses, which will make significant progress towards meeting rangeland health Standard 5. The increase in plant vigor on public lands will reduce the probability of native stands of mountain big sagebrush converting to non-native annual grass as compared to Alternative 1. However, if the livestock permittee decides to increase the season of use on adjoining private lands the risk of converting native sagebrush communities on private lands would increase above Alternative 1.

Mountain big sagebrush stands are important for neotropical bird species because it provides structure for nesting birds as well as hiding cover for other wildlife species. By managing for a late-seral plant grass community would be beneficial for small mammals because they can use the grasses for hiding and foraging needs. In addition to increased plant vigor, this alternative would also set a stubble height within riparian corridors. One study suggested that riparian corridors no matter the size, length, or connectivity were important to en route migrant bird species (Skagen et al 1998). Skagen et al. (1998) noted that even small isolated riparian patches are important stopover sites for migratory birds. The richness and condition of sites would be especially beneficial for migratory birds like: horned lark Brewer's sparrow, sage thrasher, and loggerhead shrike. By setting a stubble minimum riparian stubble height would help maintain a level of vegetation that is important for insects in their life cycle; this would in-turn provide food for stopover flights. In addition to increased insects the set stubble height would also benefit nesting cover for birds that regularly use riparian areas like orioles, warblers, and finches. Overall, these changes would be beneficial for neotropical migratory bird by providing greater plant vigor for structural and foraging characteristics. Alternative 2 would support the mandates under the EO 13186, MBTA, and PIF conservation strategy to conserve habitat by stimulating and supporting an active approach to conservation of landbirds in Oregon which would ensure long-term maintenance of healthy populations of native landbirds only if the livestock operators do not overstock the adjoining private lands.

Alternative 2a

Same as Alternative 2 except the probability of the livestock permittee increasing the season of livestock use on private lands would be greater than Alternative 2. Therefore, the risk of converting private land native sagebrush stands to non-native annual grass would also increase under Alternative 2a.

3.7.5 Alternative 3

Pygmy rabbit

Alternative 3

Same as Alternative 1: Both Alternative 1 and Alternative 3 are consistent with Brewer et al (2000) recommendations. These recommendations have been shown to improve elements of rangeland health. Therefore, the BLM expects that Alternative 3 livestock management would result in continued conservation of pygmy rabbit habitat.

Greater sage- grouse

Alternative 3

The primary sage-grouse habitat in the Pedro Mountain (GU) is nesting and brood rearing and wintering. Current research has identified a needed to improve these habitats to reduce nest predation and increase food availability (e.g. forbs) for juvenile sage-grouse (Gregg et al. 1994; Beck and Mitchell 2000; France et al. 2008). Under Alternative 3, livestock management in all allotments will be consistent with maintaining a vegetation structural component needed to conceal sage-grouse while nesting and brooding. Specifically, upland forage utilization target would be set at 50 percent which has been shown to be adequate to conceal ground nesting birds which includes sage-grouse. In addition deferring livestock use during the critical plant growth stage the BLM expects that tall tussock grass species (Bluebunch wheatgrass, needle-and-thread, Thurber's needlegrass and Idaho fescue) cover will increase which is likely to reduce both nest and juvenile sage-grouse predation when compared to Alternative 1, which will result in minor to moderate improvement to sage-grouse habitat within the Baker Resource Area administrative boundary.

The BLM expects that Alternative 3 would meet the ODFW (2011) goal of conserving greater than 70 percent of the sagebrush community within the sage-grouse range in advanced structural stages by improving native grass vigor and reducing the opportunity for non-native annual grass invading into intact native sagebrush stands.

Livestock management within riparian would be regulated by forage stubble height targets. Specifically, the proposed riparian stubble height target of 3-4 inches (approximately 40-55% utilization) has been shown to induce sage-grouse use, stimulate sage-grouse food forbs and increasing the availability of food forbs by reducing grass height when grazing occurs (Beck and Mitchell 2004). However, Crawford et al. (2004) cautions late summer grazing of riparian areas because these areas are preferred by livestock during this season which could lead to excessive grazing and reduce the yield and availability of sage-grouse food forbs. Alternative 3 does not authorize livestock use during the summer season; therefore, it is expected that Alternative 3 would increase the amount of sage-grouse food forbs when compared to Alternatives 1 and 2a. The amount of sage-grouse food forbs under Alternative 2 would be less than Alternative 3 until livestock grazing is re-authorized. Once livestock grazing is re-authorized food forb availability in Alternative 2 and 3 would be the same. The effects to sage-grouse habitat would be minor which is due to the limited mileage of riparian area within the ODFW designated sage-grouse habitat within the allotments covered in Pedro Mountain Geographic Unit Grazing Permit Renewal Environmental Assessment.

Alternative 3 would construct 4.1 miles of which 0.7 miles were classified by ODFW as low density sage-grouse habitat located in the Dixie Creek Allotment. However, the vegetation type (Ponderosa pine and mountain mahogany) the Dixie Creek/Pedro Mountain Allotment boundary fence would be constructed in does not support sage-grouse habitat. The BLM spoke with ODFW concerning this discrepancy and ODFW stated there are pockets of non-habitat within the low density and core sage-grouse habitat. ODFW confirmed that the site where the proposed Dixie Creek/Pedro fence would be constructed is a pocket of non-habitat (ODFW personal conversation 2011). Therefore, the BLM believes that the Dixie Creek/Pedro Mountain fence will not have an effect on sage-grouse habitat quality.

All proposed fences under Alternative 3 would all be placed more than 1.8 miles away **f**rom a lek, which is more restrictive than ODFW recommendations (ODFW 2011). Therefore, the BLM believes that the new fence construction authorized in Alternative 3 would not have an effect on sage-grouse mortality. In addition, the BLM would analyze (with the aid of ODFW) existing

fences to determine if sage-grouse fence diverters are needed to reduce fence strike mortality and/or perch guards to reduce predation by predatory birds. Therefore, the BLM expects that new fence construction under Alternative 3 would have no effect on sage-grouse habitat within the Baker Resource Area administrative boundary.

Columbia spotted frog

Alternative 3
Same as Alternative 2: Livestock management would be consistent with Clary and Leininger (2000) recommendation which have been shown to improve elements of riparian rangeland health. Therefore, the BLM expects that Alternative 3 will improve and conserve spotted frog habitat within the 10 allotments analyzed in this document.

Pallid bat

Alternative 3
Same as Alternative 2: Alternative 2 and Alternative 3 are consistent or more restrictive than Clary and Leininger (2000) recommendation which has been shown improve elements of riparian rangeland health. Therefore, the BLM expects that alternative 3 would have the same beneficial effects to Pallid bat habitat as Alternative 2.

Townsend's big-eared bat

Alternative 3
Same as Alternative 2: Alternative 2 and Alternative 3 are consistent with Clary and Leininger (2000) recommendation which has been shown to improve elements of riparian rangeland health. Therefore, the BLM expects that alternative 2a would have the same beneficial effects to Townsend's big-eared bat habitat as Alternative 2.

Big Game

Alternative 3
Similar to Alternative 2, livestock management under Alternative 3 would reduce the risk of non-native grass invasion on public lands which will increase habitat quality for big game animals within the Rye Valley, French Creek and Lost Bain allotments. Conversely to Alternative 2, the risk of invasion of non-native annual grass on adjacent private lands is expected to be lower under Alternative 3 (see cumulative effects section).

Alternative 3 is expected to increase elk winter habitat quality by increasing the nutritional value of winter forage (Anderson and Scherzinger 1975). Specifically, Anderson and Scherzinger (1975) found that elk numbers increased when livestock grazing was regulated during the plant critical growth stage and elk numbers dropped when livestock grazing was excluded or not regulated during the critical growth stage. It is expected that Alternative 3 would have the greatest beneficial effect to elk when compared to all alternatives since 1) livestock grazing would not be excluded whereas in Alternatives 2 and 2a livestock grazing would be temporarily or permanently excluded and 2) livestock grazing would be regulated during the critical growth stage whereas Alternative 1 would not regulate grazing. The effects from regulating the plant growth stage would result in minor to moderate improvement to rangeland health when compared to Alternative 1 since

Alternative 3 would regulate livestock grazing during the critical growth stage on 1,800 acres more than Alternative 1.

Alternative 3 juniper control and grazing adjustments in Lost Basin would be expected to protect and gradually improve aspen community conditions for wildlife as described in Alternative 2. Juniper encroachment within aspen stands is an ongoing issue within Oregon (Wall et. al. 2001). Removing juniper within aspen stands is an effective management strategy to restore declining aspen stands (Bates et al. 2005). This management strategy is proposed in areas that would benefit and preserve the biological integrity of a stand. For example, the aspen stand in Lost Basin has little sucker regeneration and juniper has begun to encroach within the stand. The removal of juniper would help 'release' the stand to help stimulate sucker growth. It is well documented that protecting the biological integrity of aspen stands like Lost Basin would help benefit wildlife habitat health (Turchi et al. 1995; Romme et al. 2001). Long term replacement of aspen habitat with juniper woodland habitat would be avoided and BLM authorized grazing use would likely allow aspen reproduction to occur. Aspen stands contribute to habitat complexity and are important to wildlife needs especially for big game summer, fall, and winter browse (Collins and Urness 1983; Bailey and Whitham 2002).

Neotropical Migratory Bird Species

Alternative 3
Same as Alternative 2. Livestock management under Alternative 2 and Alternative3 will be consistent with maintaining high plant vigor in native late succession perennial bunchgrasses, which will make significant progress towards meeting rangeland health Standard 5. In addition to making significant progress towards meeting rangeland standards, this alternative would support the mandates under the EO 13186, MBTA, and PIF conservation strategy to conserve habitat by stimulating and supporting an active approach to conservation of landbirds in Oregon which would ensure long-term maintenance of healthy populations of native landbirds.

3.7.6 Cumulative Impacts

Cumulative effects are defined as: effects on the environment resulting from actions that are individually incremental, but that add up to a greater total effect as they take place over a period of time (past, present, and reasonably foreseeable future) regardless of land ownership (federal/non-federal) or person/thing that undertakes such actions.

Past and Present Actions

Pygmy Rabbit
The BLM has identified 17 acres of pygmy rabbit habitat within the 10 livestock allotments analyzed in this document. No past or present actions exist in the Pygmy rabbit habitat beyond what is identified in the alternatives analysis section above.

Greater sage- grouse
Overall Effects of Past and Present Actions on Sage-grouse
The BLM used the 5 listing factors to identify past and present project which the USFWS believes have adverse effect on sage-grouse habitat or population.

The combined effect of past and present land management actions, on sage-grouse population has resulted in a stable to slightly negative population trend for lands (private and public) within the Baker Resource Area administrative boundary. This trend has been occurring since 1980 (ODFW 2011). The BLM expects that land management for all action alternatives (Alternatives 2, 2a and 3) within this document (Pedro Mountain Geographic Unit Grazing Permit Renewal Environmental Assessment) will improve sage-grouse habitat by modifying livestock grazing systems and juniper reductions.

Columbia spotted frog

The BLM has identified approximately 0.25 miles of Columbian spotted frog habitat within the 10 allotments analyzed in this document. No past or present actions exist within the Columbian spotted frog habitat beyond what is identified in the alternatives analysis section above.

Pallid bat

There have been no past or present management actions in Pallid bat habitat above what is identified in the effected environment and rangeland health standards final determination.

Townsend's big-eared bat

The BLM has identified approximately 0.4 miles of Townsend big-eared bat habitat within the Pedro Mountain GU. No past or present actions exist within the Townsend's big eared bat habitat beyond what is identified in the alternatives analysis section above.

Big Game

Most of the lower elevation big game winter habitat within the Pedro Mountain GU has been converted to agricultural or non-native annual grass communities. Big games species use the agricultural cropland within the Pedro Mountain GU during the spring and winter. Therefore, conversion of native sagebrush to cropland has had negligible adverse effects to big game. Past land management actions have resulted in approximately 250 acres of native sagebrush converted to non-native annual grass on public lands and an unspecified amount on private lands. These converted lands are typically found in the lower elevations. Big game species only use non-native annual grass communities during the early spring when the annual grasses are palatable whereas big game can use adjoining native sagebrush stands during the spring and winter. The BLM does not know the exact amount of acres of private lands have been converted in the Pedro GU. However the BLM believes that conversion to non-native annual grass has resulted in minor to moderate effects to big game habitat.

Neotropical Migratory Bird Species

Most of the historic basin big sagebrush within the Pedro Mountain GU is privately owned and has been converted to crop production. Conversely, most of the mountain big sagebrush is considered native and approximately 50 percent is publicly managed. Past land management including ground disturbance projects has resulted in approximately 250 acres of mountain big sagebrush to be converted to non-native annual grass. In addition, there are 2,718 acres of juniper expanding into native mountain big sagebrush habitat. The BLM suspects that past actions have had a minor to moderate adverse effect to Neotropical migratory bird species.

Reasonable Foreseeable Future Actions

Pygmy Rabbit
There are no reasonable foreseeable future actions planed in within the pygmy rabbit habitat in the Pedro Mountain GU.

Sage-grouse
The Fish and Wildlife Service (FWS) completed a 12 month finding on petitions to list sage-grouse as threatened or endangered under the Endangered Species Act of 1973. Results of the 12 month findings were listing sage-grouse (range wide) as a threatened or endangered species is warranted, but precluded by higher priority listing actions. The 12 month findings used the 5 factors provided in section 4(a) (1) of the Endangered Species Act of 1973 in the evaluation of sage-grouse which are; 1) present or threatened destruction, modification or curtailment of habitat or range 2) overutilization of habitat for commercial, recreational, scientific or educational purposes 3) disease or predation 4) inadequacy of existing regulation or 5) other natural or manmade factors affecting it continued existence. There are no reasonably foreseeable future actions on either private or public lands that relate to listing factor 2, or 4 within the Baker Resource Area administrative boundary.

Present or threatened destruction, modification or curtailment of habitat or range
The FWS service identified six threats to destruction, modification or curtailment of habitat or range which are 1) habitat conversion for agriculture, urbanization and infrastructure, 2) fire, 3) invasive plant and juniper encroachment, 4) grazing, 5) energy development, 6) climate change and 7) habitat fragmentation.

There are no reasonable foreseeable future actions to increase agriculture, urbanization or infrastructure in sage-grouse habitat on public lands administered by the Baker Resource Area. The BLM is not aware of any future plans to increase agriculture, urbanization or infrastructure on private lands in sage-grouse habitat within the Baker Resource Area administrative boundary.

There are two juniper reduction projects that plan to use prescribed fire as a treatment method. These prescribed fires would be conducted when burning conditions result in low severity fires, which will reduce the risk of converting the treated area to non-native annual grass.

The NRCS has received funding to map and treat invasive plants (medusahead wild rye and cheatgrass) on private lands within the Baker Resource administrative boundary. At this time the BLM is unclear how many acres of private land will be restored. In addition the NRCS has plans to treat juniper on private lands within the Baker Resource Area administrative boundary, however at the time of writing this document the NRCS did not know how many acres would be treated. Currently, the Baker Resource Area is working on a Vegetation Treatment using Herbicides on BLM Lands EA that would authorize the use of herbicides that will be effective in controlling non-native grasses and other invasive and noxious weeds. At this time the BLM is unclear how many acres of non-native annual grass will be treated. In addition the Baker Resource Area Mormon Basin Fuels Reduction EA would treat 1480 acres of juniper within sage-grouse habitat on public lands.

The Baker Resource Area is scheduled to complete grazing permit renewal NEPA for Powder River Canyon, Keating and Baker County Miscellaneous geographic units (GU) which contain sage-grouse habitat. At the time of writing this document the BLM expects to complete the analysis for

the Keating GU in fiscal year 2013 and Baker County Miscellaneous GU in fiscal year 2014. The total amount of sage-grouse habitat contained within these GUs is 155,748 aces, which accounts for approximately 80 percent of the sage-grouse habitat administered by the Baker Resource Area BLM. Changes to livestock management in these GUs would take into consideration ODFW guidance for conserving sage-grouse and the best available science which would improve sage-grouse habitat.

The only reasonable foreseeable future energy project within the Baker Resource Area administrative boundary is the Boardman to Hemingway 500kv power line right of way. This project is in the developmental phase and the alternatives have not been solidified. However, the BLM has worked with Oregon Department of Fish and Wildlife (ODFW) and Fish and Wildlife Service (FWS) in developing alternatives that would minimize and mitigate adverse effects to sage-grouse habitat.

The BLM expect that reasonably foreseeable future juniper reduction and livestock grazing will result in increased greenhouse gas concentrations however the amount of CO_2 equivalent would be under the EPA new regulations that require mandatory reporting of GHGs if production exceeds 25,000 metric tons of CO_2 equivalent per year for certain industrial and intensive agricultural activities (40 CFR § 98.2; 74 FR 56374). Specifically, future livestock grazing on all lands administered by the Baker Resource Area is expected to be 9,240 metric tons of CO_2 equivalents per year (see section 3.3). In addition future BLM juniper reductions projects are likely to produce 4,440 metric tons of CO_2 per year. Both reasonably foreseeable future actions are below the minimum reporting requirement established by the EPA, which is about 0.0000023 of 1 percent of total annual national emissions of 6 billion metric tons. Therefore, the BLM expects that these projects would have immeasurable effects to climate change.

Reasonably future juniper and non-native annual grass reduction projects on both private and public lands within the Baker Resource Area administrative boundary would reduce sage-grouse habitat fragmentation by restoring the sites back to a native sagebrush community. The level reduction of sage-grouse fragmentation would be dependent on how many acres are treated. At the time of writing this document the BLM was uncertain how many acres of private land would be treated by the NRCS. However, the Baker Resource Area plans on treating 1,480 acres of juniper in sage-grouse habitat. In addition, adverse effects to sage-grouse habitat fragmentation caused by the Boardman to Hemingway 500kv power line right-of-way EIS and mining would be required to be mitigated. Specifically, mining activities are required to be reclaimed pursuant to the mining plan of operation and the BLM is currently working with ODFW to develop mitigations from the Boardman to Hemingway 500kv power line right-of-way EIS. Therefore, the BLM expects that reasonable future actions would reduce sage-grouse habitat fragmentation when compared to current levels.

Disease or Predation

There are no reasonably foreseeable future actions that would increase the threat of disease, specifically West Nile virus. West Nile virus is spread by mosquitoes and the FWS identifies livestock stock pounds as a possible breeding ground for mosquitoes. There are no reasonably foreseeable future actions to increase the amount of stock ponds within public lands administered by the Baker Resource Area.

The BLM expects that reasonable future juniper reduction actions would reduce sage-grouse predation by removing trees in sage-grouse nesting habitat. Predatory birds use tall structures (trees, power lines, etc.) as hunting perches therefore; removing trees should reduce the amount of suitable perches. The Boardman to Hemingway 500kv power line right-of-way project would mitigate the effects of predation by installing perch guards in areas where sage-grouse predation is a concern. Livestock grazing permit renewal NEPA would not have an effect on predation since the BLM expects to set upland forage utilization at or more restrictive then identified by France et al. (2008) as needed to conceal nests.

Inadequacy of existing regulation

USFWS 12 month findings state "If an RMP contains specific direction regarding sage-grouse habitat, conservation, or management, it represents a regulatory mechanism that has the potential to ensure that the species and its habitats are protected during permitting and other decision-making on BLM lands". The Baker Resource Area is in the process of issuing a Draft RMP for public comment by years end. All action alternatives in the draft RMP contain specific direction which would ensure that the sage-grouse and its habitats are protected during permitting and other decision-making on BLM lands regarding sage-grouse habitat conservation and/or management.

Other Natural or Manmade Factors Affecting it Continued Existence

Numerous factors have caused sage-grouse mortality, and probably morbidity, such as pesticides, contaminants, as well as factors that contribute to direct and indirect disturbance to sage-grouse and sagebrush, such as recreational activities. The BLM expects that Animal and Plant Inspection Service (APHIS) would continue to treat grasshoppers on between 0 to 2,400 acres of public and private lands a year in sage-grouse habitat within the Baker Resource Area and in the reasonable foreseeable future.

The BLM has no reasonable foreseeable future actions to store or use contaminates as specified by FWS (2011) on public lands administered by the Baker Resource Area. In addition, the Baker Resource Area has no reasonable foreseeable future actions to increase recreational activities, including off road vehicle use, in sage-grouse habitat.

Overall Effects of Reasonable Foreseeable Actions on Sage-grouse

Future juniper and non-native annual grass reduction treatments that would occur on private and public lands would improve sage-grouse habitat which is supported by the FWS 12-month finding. The adverse effects of future mining and power line rights-of-way the BLM expects to be mitigated by seeding the disturbed sites and installing perch guards. Therefore the BLM expects that the effects of reasonable foreseeable future actions would result in minor to moderate

Columbia spotted frog

There are no reasonable foreseeable future actions planed in within the Columbia spotted frog t habitat in the Pedro Mountain GU.

Pallid bat

There are no reasonable foreseeable future actions planed in within the Pallid bat habitat in the Pedro Mountain GU.

Townsend's big-eared bat
There are no reasonable foreseeable future actions planed in within the Townsend's big-eared bat habitat in the Pedro Mountain GU.

Big Game
Juniper reduction projects on both private and BLM lands and aspen restoration projects within the Pedro Mountain GU will improve the forage availability for big game wildlife. NRCS has indicated that there are many projects with private landowners that will reduce juniper encroachment and improve rangeland health conditions. A reduction in juniper and improvement in rangeland health would be beneficial for big game in enhancing habitat complexity.

Mining within the Pedro Mountain GU is expected to be confined to 300-400 acres and would cause some displacement within the area while the operation is being taken place. Within the Pedro Mountain GU, 400 acres of forage would be equivalent to 3 percent of the wintering habitat that is being analyzed within this EA. The BLM is expecting that mining would not cause adverse effect to wintering habitat for big game and upon successful reclamation the big game would likely return to the mined sites.

Neotropical Migratory Bird Species
Future projects within the Pedro Mountain GU and surrounding private and public lands will have both adverse and beneficial effects to neotropical migratory bird species. It is expected that juniper reduction projects on both BLM and private lands will have a beneficial effect to wildlife that has used mountain big sagebrush for nesting and foraging structure. Conversely, Mining may have adverse effects to wildlife species by removing sagebrush and native grass species and introducing for fragmentation across the landscape. However, the effects to wildlife and neotropical migratory birds are expected to be beneficial in the Pedro Mountain GU since future juniper reduction projects are expected to exceed mining disturbance by approximately 1,000 acres, which would result in minor improvement to neotropical migratory birds.

Cumulative Effects by Alternatives

Alternative 1

Pygmy Rabbit
Since, there are no reasonable foreseeable future actions within the 17 acres of pygmy rabbit habitat the cumulative effects would be the same as that identified in Alternative 1 direct and indirect section.

Sage-grouse
The effects to sage-grouse as a result of past, present and reasonable foreseeable future actions would be the same for all alternatives. The BLM expects the combined effects would result in higher quality sage-grouse habitat (juniper reduction, non-native grass treatments and changes to livestock grazing) and slight increases in habitat fragmentation as a result of future power line right-of-way and mining. The resulting effect to sage-grouse habitat would be beneficial to sage-grouse habitat when compared to current conditions within the Baker Resource Area administrative boundary.

Under Alternative 1 livestock management would revert back to the 1995-2006 level. This management has been shown to have adverse impacts to rangeland health on 846 acres (17 percent)

and 8 miles (60 percent) of riparian and would be an additive adverse effect to sage-grouse habitat. Since the affected area under Alternative 1 accounts for less than 0.4 percent of the sage-grouse habitat within the Baker Resource Area administrative boundary the overall cumulative effects would be beneficial albeit less than the effects occurring as a result of the interim livestock management system or Alternative 3.

Columbia spotted frog
Since, there are no reasonable foreseeable future actions within the 0.25 miles of Columbia frog habitat the cumulative effects would be the same as that identified in Alternative 1 direct and indirect section.

Pallid bat
Since, there are no reasonable foreseeable future actions within Pallid bat habitat the cumulative effects would be the same as that identified in Alternative 1 direct and indirect section.

Townsend's big-eared bat
Since, there are no reasonable foreseeable future actions within the 0.4 miles of Townsend's big-eared bat habitat the cumulative effects would be the same as that identified in Alternative 1 direct and indirect section.

Big game
Past, present and reasonably foreseeable future actions have had a moderate adverse effect to big game habitat with the largest contributing factor being the conversion of private lands from sage-brush to cropland or non-native annual grass. Alternative 1 would have an additive adverse effect by not regulating grazing during the plant critical growth stage for 1,800 acres of public lands and thus increasing the risk of conversion to non-native annual grass. However, the BLM believes that the additive adverse effects would not result in major adverse cumulative effects.

Neotropical Migratory Bird Species
Past, present and reasonably foreseeable future actions have had a moderate adverse effect to neotropical migratory bird species habitat with the largest contributing factor being the conversion of private lands from sage-brush to cropland or non-native annual grass. Alternative 1 would have an additive adverse effect by not regulating grazing during the plant critical growth stage for 1,800 acres of public lands and thus increasing the risk of conversion to non-native annual grass. However, the BLM believes that the additive adverse effects would not result in major adverse cumulative effects to neotropical migratory bird species habitat.

Alternative 2

Pygmy Rabbit
Since, there are no reasonable foreseeable future actions within the 17 acres of pygmy rabbit habitat the cumulative effects would be the same as that identified in Alternative 2 direct and indirect section.

Alternative 2a
Same as Alternative 2

Sage-grouse
The effects to sage-grouse as a result of past, present and reasonable foreseeable future actions would be the same for all alternatives and the BLM expects the combined effects would result in higher quality sage-grouse habitat (juniper reduction, non-native grass treatments and changes to livestock grazing) and slight increases in habitat fragmentation as a result of future power line right-of-way and mining. The resulting effect to sage-grouse habitat would be beneficial to sage-grouse habitat when compared to current conditions within the Baker Resource Area administrative boundary.

Under Alternative 2 livestock management on public lands would not authorize livestock grazing until all rangeland health standards are met or authorize livestock grazing only to the amount of exchange of use on private lands. If livestock grazing is not authorized for an extended amount of time (5 or more years) it would create a need for the permit holder to fence the private land from the public lands in order to increase private land AUMs. If this were to occur, the BLM expects sage-grouse habitat quality on private lands would decline due to increased fence density in sage-grouse core and low density habitat and residual herbaceous vegetation is not expected to be adequate to conceal sage-grouse nests. In addition increase livestock use on private lands would increase the risk of converting native private land stands of sagebrush to non-native annual grass. The amount and level of sage-grouse habitat degradation on private lands would offset the beneficial effects of reasonable foreseeable future juniper and non-native annual grass reduction projects.

Conversely, if the livestock permit holders do not increase private land livestock use the cumulative effects would be greater than Alternative 1. Specifically, Alternative 2 would improve 846 acres and 8 miles of riparian area in sage-grouse than Alternative 1.

Alternative 2a
Same as Alternative 2 except that the probability of the livestock permittee increasing the season of use on private land would increase to moderate to high under Alternative 2a. The BLM expects sage-grouse habitat quality on private lands would decline due to increased fence density in sage-grouse core and low density habitat and residual herbaceous vegetation is not expected to be adequate to conceal sage-grouse nests. In addition increase livestock use on private lands would increase the risk of converting native private land stands of sagebrush to non-native annual grass. The amount and level of sage-grouse habitat degradation on private lands would offset the beneficial effects of reasonable foreseeable future juniper and non-native annual grass reduction projects.

Columbia spotted frog
Since, there are no reasonable foreseeable future actions within the 0.25 miles of Columbia frog habitat the cumulative effects would be the same as that identified in Alternative 2 direct and indirect section.

Alternative 2a
Same as Alternative 2

Pallid bat
Since, there are no reasonable foreseeable future actions within Pallid bat habitat the cumulative effects would be the same as that identified in Alternative 2 direct and indirect section.

Alternative 2a
Same as Alternative 2

Townsend's big-eared bat
Since, there are no reasonable foreseeable future actions within the 0.4 miles of Townsend's big-eared bat habitat the cumulative effects would be the same as that identified in Alternative 2 direct and indirect section.

Alternative 2a
Same as Alternative 2

Big game
Past, present and reasonably foreseeable future actions have had a moderate adverse effect to big game habitat with the largest contributing factor being the conversion of private lands from sage-brush to cropland or non-native annual grass. Alternative 2 would have an overall additive adverse effect by eliminating livestock grazing in three allotments until all rangeland health standards are met which would reduce forage quality on 3,117 acres of public lands. However, unlike Alternative 1 the additive effect would be temporary, only occurring during the period of time livestock are excluded. Once livestock grazing is reauthorized the cumulative effects to big game would be reduced by 1,800 acres when compared to Alternative 1. However, the BLM would still consider the cumulative effects of Alternative 2 as moderate which is the same magnitude of effects as Alternative 1.

However, if the livestock permittees decides to increase the season of use on adjoining private lands the additive effect would increase. The level of the additive effect would be dependent on the number of permittees that would increase the stocking rate on private land. The BLM does not know how many permittees would increase the season of use on private lands therefore the additive effect cannot be accurately determined however the BLM expects that the additive effect would be greater than 3,117. Also, if the season of use on private lands is increased the risk of converting native sage-brush to non-native annual grass will increase and would result in long lasting adverse effects. Therefore, if the permittees decides to increase the season of use for an extended amount of time (3 or more years) may result in major adverse effects to big game habitat.

Alternative 2a
Same as Alternative 2 except the livestock operators are more likely to extend the season of use on private lands to make up for the permanent reduction or elimination of livestock grazing on public lands. Therefore, Alternative 2a has a higher probability of converting private land vegetation to non-native annual grass and elk habitat quality would be lower than Alternative 3.

Neotropical Migratory Bird Species
Past, present and reasonably foreseeable future actions have had a moderate adverse effect to big game habitat with the largest contributing factor being the conversion of private lands from sage-brush to cropland or non-native annual grass. Permanently Eliminating livestock grazing or reducing livestock use to the private land capacity

If the livestock permittees do not increase the season of use on private lands, Alternative 2 would improve neotropical migratory bird habitat on up to 1,800 acres and improvement would occur faster than Alternative 3.

If Alternative 2 is implemented the livestock operators on public lands within the Pedro Mountain GU may make the management decision to increase livestock season of use on private adjoining private land to make up for the reductions on public lands. It is expected that the livestock operators would have to extend the private land grazing season by 1-3 months and private land livestock management will no longer be consistent with Brewer et al (2007) recommendations for maintaining high plant vigor in native late seral perennial bunch grasses. Reducing plant vigor will increase early seral grass species which are not conducive to structural habitat needs because neotropical migratory birds prefer a structural class for nesting and foraging needs (Skagen et al 1998). The amount of habitat loss would be dependent on how many livestock operators chose to extend the season of use on private lands.

Alternative 2a
Same as Alternative 2 except the livestock operators are more likely to extend the season of use on private lands to make up for the permanent reduction or elimination of livestock grazing on public lands.

Alternative 3

Pygmy Rabbit
Since, there are no reasonable foreseeable future actions within the 17 acres of pygmy rabbit habitat the cumulative effects would be the same as that identified in Alternative 3 direct and indirect section.

Sage-grouse
The effects to sage-grouse as a result of past, present and reasonable foreseeable future actions would be the same for all alternatives and the BLM expects the combined effects would result in higher quality sage-grouse habitat (juniper reduction, non-native grass treatments and changes to livestock grazing) and slight increases in habitat fragmentation as a result of future power line right-of-way and mining when compared to current conditions. The resulting effect to sage-grouse habitat would be beneficial to sage-grouse habitat when compared to current conditions within the Baker Resource Area administrative boundary.

Under Alternative 3 livestock management on public lands would continue the interim livestock management which has been shown to improve upland and riparian areas using current science to meet rangeland health standards on public lands. In addition 4.1 miles of new fences would be constructed of which 0.7 would be constructed in ODFW defined low density habitat. However, this fence would be constructed in a Ponderosa pine/mountain mahogany vegetation types which are not considered sage-grouse habitat. Therefore, the BLM believes that the 4.1 miles of proposed fence projects will not effect sage-grouse habitat. When compared to Alternative 1, Alternative 3 would improve 846 acres and 8 miles of riparian area more than Alternative 1. Therefore, cumulative effects of livestock management under Alternative 3 would be beneficial when compared to current conditions or Alternative 1.

Columbia spotted frog
Since, there are no reasonable foreseeable future actions within the 0.25 miles of Columbia frog habitat the cumulative effects would be the same as that identified in Alternative 3 direct and indirect section.

Pallid bat
Since, there are no reasonable foreseeable future actions within Pallid bat habitat the cumulative effects would be the same as that identified in Alternative 3 direct and indirect section.

Townsend's big-eared bat
Since, there are no reasonable foreseeable future actions within the 0.4 miles of Townsend's big-eared bat habitat the cumulative effects would be the same as that identified in Alternative 3 direct and indirect section.

Big Game
Alternative 3 would increase the nutritional content in the grass within the 1,800 acres of public lands identified in the 2006 finale determinations by grazing the grasses at the proper boot to seed stage (Anderson and Scherzinger 1975). Increasing the nutritional content of grasses would have a positive effect to big game animals. Alternative 3 would result in the most improvement to elk habitat quality. In addition Alternative 3 would have the lowest probability of converting adjoining private or public lands to non-native annual grass of all alternatives.

Neotropical Migratory Bird Species
Alternative 3 is similar to Alternative 2 in that there would be a modification of management to improve upland and riparian areas using current science to meet rangeland health standards on public lands. The BLM believes that under Alternative 3, the livestock operator(s) will choose to use public lands in conjunction with their private lands to create multiple pasture grazing system and in a manner that would help meet rangeland health standards. By creating a multiple pasture grazing system (including private and public lands) would allow native riparian vegetation to have a chance for regrowth and reducing the risk of converting native stands of sage-brush to non-native annual grass, which would add to neotropical migratory habitat structure needed to carry out life-history needs. Therefore, the overall cumulative effects to upland rangeland health standards are expected to be beneficial and moderate magnitude effecting 40-60 percent of Pedro Mountain GU; with some potential occurring on private lands.

3.8 Rangeland/Grazing Use

3.8.1 Land Use Plan Management Objectives

- Restrict livestock grazing through seasons of use, utilization levels, and livestock numbers and distribution.
- Restrict livestock grazing for three to five growing seasons on all range rehabilitation projects.
- Exclude livestock grazing along identified stream segments, bogs and spring overflows where use is incompatible with riparian management problems.

3.8.2 Affected Environment

Active AUMs given below were set by range forage surveys which took place between 1955 and 1962. To match livestock use with available forage there were reductions in some allotments in the early 1960's. In 1981, grazing management agreements changing seasons of use were signed and implemented. In 2007 and refined in 2011 an interim grazing management was implemented which restricted plant critical growth stage grazing, set minimum riparian stubble heights and reduced livestock AUMs.

Summit Spring
The Summit Spring Allotment (#1072) is one pasture of 975 acres of public land. The ten-year permit shows 358 active AUMs between the dates of 10/5 and 11/30, but it states that actual use would be made according to the allotment management plan. The allotment management plan (AMP) for many years has been two years of fall use followed by two years of spring use (April 20 to June 15), and the lack of a spring use period on the ten-year permit was an oversight which needs to be corrected. Riparian and water quality standards were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of Shirttail Creek.

Rye Valley
The Rye Valley Allotment (#1037) has 1840 acres split into two pastures. Each pasture was evaluated separately. The amount of active use allowable under the ten-year permit is 263 AUMs public land plus 11 AUMs private land for a total of 274 AUMs (96% public land), within the dates of 10/20 to 11/28. But spring use (4/16 to 5/25) was also specified under the 1984 AMP (which called for two years spring use followed by two years fall use), and the lack of spring use dates on the ten-year permit was an oversight which needs to be corrected. The existing ten-year permit, although giving only the fall use dates, states that the actual use would be in accordance with the AMP. The allotment however is not easily usable as a fall allotment, and the last time it was scheduled for fall use was 1996. In the fall, cattle would not stay in the uplands and instead try to get into the hayfields at the lower edge of the allotment. During the last several spring use periods, the goal has been to get the cattle off the range early enough in May to allow some regrowth in late spring. Riparian and water quality standards (Standards 2 and 4) were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of Brown Draw in the East Pasture and North Fork of Dixie Creek (or tributaries) in the West Pasture. Standards 1 and 5 were also not met in the East Pasture, so additional objectives are to increase ground cover and increase Idaho fescue or bluebunch wheatgrass in this pasture.

Upper Shirttail Creek
The Upper Shirttail Creek Allotment (#1024) is an allotment consisting of one pasture of 485 acres public land plus 220 acres private land. The active allowable use under the ten-year permit is 111 AUMs on public land plus 22 AUMs private land, for a total of 133 AUMs (83% public), to be used within the dates of 5/1 to 10/13. The actual use has been alternating spring use (June) with fall use (October) every other year. Riparian and water quality standards were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of Ray Creek.

Dixie Creek
The Dixie Creek Allotment (#1020) consists of 4078 acres (public and private) split into two pastures. Each pasture was evaluated separately. The active grazing preference for the whole allotment, as shown on the ten-year permit, is 404 AUMs on public land plus 115 AUMs on private land, for a total of 519 AUMs (78% public land), within the dates of 5/1 to 10/13. Management has been alternating spring use and fall use, every other year, typically June use one year and October use the next year.

	Acres	Total Acres	Public Land Predominant Elevations (feet)
Upper Pasture	2009	1330	4400-5900
Lower Pasture	2069	1418	3080- 4800

Riparian and water quality standards were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of Deer Creek.

Bowman Flat
The Bowman Flat Allotment (#1021) is a small allotment consisting of one pasture of 386 acres. The active use allowable under the ten-year permit is 65 AUMs on public land plus 18 AUMs on private land, for a total of 83 AUMs (78% public land), within the dates of 5/10 to 7/9. Riparian and water quality standards were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of Poor's Creek. Standard 3 was also not met, so additional objectives are to increase ground cover and increase bluebunch wheatgrass.

Rattlesnake Gulch
The Rattlesnake Gulch Allotment (#1023) is an allotment consisting of one pasture of 703 acres, of which 405 acres are public land. There is no longer a fence between this allotment and Dixie Creek Allotment #1020, so for the last decade or so, these allotments have been grazed together. The allowable amount of use under the ten-year permit is 92 AUMs on public land plus 61 AUMs on private land, for a total of 153 AUMs (60% public land), to be used within the dates of 5/1 to 10/22. The actual management has been alternating spring and fall use, typically June one year and October the next year. Riparian and water quality standards were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of Rattlesnake Gulch.

French Creek
The French Creek Allotment (#1032) consists of 947 acres of public land and 1128 acres of private land. Currently the grazing preference on public land is set at 143 AUMs and the private land is credited for 183 AUMs, for 44% public lands. It has been categorized as a "C" allotment and annually licensed with seasons and numbers not restricted as long as abuse to the public land does not occur. Riparian and water quality standards were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of French Creek. Standards 1 and 5 were also not met, so additional objectives are to increase ground cover and increase composition of Idaho fescue or bluebunch wheatgrass.

Hollowfield Canyon
The Hollowfield Canyon Allotment (#1030) is a small allotment consisting of one pasture of 250 acres public land and 351 acres private land. The amount of allowable active use under the ten-year permit is 42 AUMs on public land plus 50 AUMs on private land for a total of 92 AUMs (46% public land), within the dates of 6/22 to 8/21. Riparian and water quality standards were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of Hollowfield Creek.

North Dixie Creek
The North Dixie Creek Allotment (#1026) consists of 3246 acres split into two pastures. Each pasture was evaluated separately. The active grazing use allowable under the ten-year permit is 193 AUMs on public land plus 300 AUMs on private land, for a total of 493 AUMs (39% public land) within the dates of 6/1 to 11/30. Management has been alternating spring use and fall use, every other year, typically June use one year and October use the next year.

	Acres	Total Acres	Public Land Predominant Elevations (feet)
Upper Pasture	1206	318	3900- 5400
Lower Pasture	2040	754	3300- 4500

Riparian and water quality standards were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of North Fork Dixie Creek.

Lost Basin
The Lost Basin Allotment (#1027) consists of 1523 acres of public land and 6314 acres of private land (as measured by GIS), and the allotment grazing capacity was calculated during adjudication as 282 AUMs public land and 1360 AUMs private land, or 17% federal range. It has been categorized as a "C" allotment and annually licensed with seasons and numbers not restricted as long as abuse to the public land does not occur. The Baker RMP/ROD identified 315 acres in this allotment for disposal, and these 315 acres includes the large aspen grove evaluated for Standard 5 as well as the range photoplots assessed for apparent trend. The riparian zones assessed for PFC were all on land specified for retention, however. Riparian and water quality standards were not met, so the objectives for this allotment are to improve streambank stability and vegetative composition along the greenline of Reagan Creek. Standards 1 and 5 were also not met, so additional objectives are to improve aspen reproduction and survival.

In the following grazing allotments, one or more rangeland health standards were not met, so proposed changes in management are being analyzed in this EA. The total active grazing preference in each allotment is listed as AUMs active, the estimated amount of private land AUMs (authorized as or eligible for exchange-of-use) are listed as AUMs private, and percent federal range is listed to show the proportion of forage in each allotment that comes from public lands (Table 15). All livestock authorized are cattle.

Table 15. Current total active grazing preference by allotment and season of use.

Allotment	AUMs Active	AUMs Private	% Federal Range	Period of Use on 10-Year Permit	Period of Use Under AMP or Grazing Plan
Summit Spring #1072	358	0	100%	10/5-11/30	4/20-6/15, 10/5-11/30
Rye Valley #1037	263	11	96%	10/20-11/28	4/16-5/25, 10/24-11/30
Upper Shirttail Cr. #1024	111	30	79%	5/1-10/13	6/1-6/30, 10/1-11/1
Dixie Creek #1020	404	115	78%	5/1-10/13	6/1-6/30, 10/1-11/1

Allotment	AUMs Active	AUMs Private	% Federal Range	Period of Use on 10-Year Permit	Period of Use Under AMP or Grazing Plan
Bowman Flat #1022	65	18	78%	5/10-7/9	NA
Rattlesnake Gulch #1023	92	61	60%	5/1-10/22	6/1-6/30, 10/1-11/1
French Creek* #1032	155	170	48%	*	NA
Hollowfield Canyon #1030	42	50	46%	6/22-8/21	NA
North Dixie Creek #1026	193	300	39%	6/1-11/30	6/1-6/30, 10/1-11/1
Lost Basin* #1027	282	1360	17%	*	NA

* = "C" category allotments which have been authorized as seasons and numbers not restricted.
NA= Not Applicable

The above allotments are split between four different grazing permittees, and all are individual allotments (none are common-use allotments). Five of these allotments are used by one permittee, three are used by another permittee, and two other permittees have one each. All permittees move cattle from one allotment to another in different sequences each year, and all have allotments in other GUs that are not being analyzed in this EA, so completely describing each permittee's annual grazing operation is beyond the scope of this EA.

Evaluations of each allotment, based on 2006 field inspections and other available information, were completed in 2007 to determine whether rangeland health standards were being met. These evaluations are available for inspection at the Baker Resource Area office.

In Table 15, the ten-year permit describes the basic use in each allotment, and does not show variation from year to year. But the authorized use periods actually do vary from year to year where allotment management plans are in place. The permits state that actual use will be in accordance with the 1995 grazing plan agreements or AMPs. Therefore, the period of use under the AMP or grazing plan is the one actually followed in the yearly grazing authorizations. As previously explained in the allotment evaluations, the ten-year permits for Summit Spring and Rye Valley allotments were erroneously printed with the spring use periods missing, although the AMP clearly called for alternating periods of spring and fall use, as do most of the grazing plans for the above allotments. Changing the dates on the ten-year permit is an action included in all alternatives including the no action alternative.

Since 1995, field observations by BLM personnel confirm that switching to spring-fall use in these allotments, going to shorter periods of use and eliminating the hot season grazing, has resulted in many upward trends overall, especially exhibited by increases in willows in the riparian zones and upward trends shown in trend plots.

However, the rangeland health standards still are short of being met in the above allotments, and the actions detailed under the Alternative 3 are what have been recommended (in the allotment

evaluations) to encourage additional progress towards meeting the standards. The results of the evaluations, where standards were met and not met, are shown in Table 1.

OTHER ALLOTMENTS IN THE PEDRO MOUNTAIN GEOGRAPHIC UNIT

The following allotments either met rangeland health standards, or else current livestock grazing was determined not a significant cause of failure to meet standards (Table 16). These allotments are included in the description of the affected environment but will not be included in the management changes analyzed in Alternative 3 because no changes in management are proposed.

Table 16. Other allotments in the Pedro Mountain GU that met rangeland health standards and are not considered in this EA.

Allotment	AUMs Active	Period of Use on Permit	Period of Use Under AMP or Grazing Plan
Pedro Mountain #1021	552	6/1-11/30	7/1-9/30
Baldy Mtn. #1025	10	*	NA
Upper Cave Cr. #1028	27	*	NA
Shirttail Cr. #1031	152	4/22-5/21, 10/15-11/14	Same as on permit
Clough Gulch #1034	2	*	NA
Upper Clough Gulch #1035	35	*	NA
Spring Gulch #1053	7	*	NA
Mormon Basin #1318	780	6/1-9/9	Same as on permit

* = "C" category allotments which have been authorized as seasons and numbers not restricted.
NA= Not Applicable

3.8.3 Alternative 1

Grazing would continue as what is identified in the 1995 grazing plan agreements or AMP (Table 15).

In the short term, there would be no effect on livestock numbers or amount of use. The BLM expects no improvement to rangeland health standards as documented in the 2006 final determination or progress towards meeting standards would not be significant. In the long term, over the next 5-15 years, the cumulative effects of continuing to fall short of rangeland health standards would possibly result in lowered grazing capacity and reductions in livestock use.

3.8.4 Alternative 2 and 2 a

Alternative 2

Livestock grazing would not be authorized or it would be reduced to the private land capacity until all rangeland health standards are fully met. During the time period that the Allotment is not grazed the permittee would still be responsible for maintaining all range improvements assigned in the grazing permit. There is a possibility that fully meeting all rangeland health standards could take up to 15 years. If this is the case the permittee would be required to maintain the range improvements at his expense for 15 years without being authorized to graze the allotment. In addition the permittee would be responsible for half the cost of constructing 5.1 miles of fence (all fences identified in Table 4 except for exclosure and spring fences) at a BLM estimated cost of $19,000.

In addition livestock grazing would reduce by 1,683 AUMs the first year and slowly be restored over time once rangeland health standards are met. Using rent per head month method to estimate pasture rental (Hofstrand and Edwards 2009) the BLM expects that private land pasture rental would cost between $17 and $27 an AUM for a total expense of $28,611 to $45,441 as compared to $2,272 that the BLM would charge for grazing. There would also be an additional cost for the livestock operator to transport the livestock to the private pasture which would depend on the distance traveled. In addition, the livestock permittee would spend the same amount of time inspecting the allotment for stray (unauthorized) livestock as in prior years when the allotments were fully stocked. In fact there is an incentive for the permittee to spend more time on the allotment looking for and removing unauthorized livestock because even very small numbers of cattle are capable of heavily grazing riparian zones which can offset years of riparian improvement (BLM 2006). Therefore, there would be an incentive for the permittee to take action to advance range recovery.

If the livestock permittee decides to increase the stocking rate on the adjoining private lands instead of leasing private land pasture it is likely to have adverse effects on the adjoining BLM lands and would negate significant improvement made by interim livestock management (see vegetation cumulative effects section).

Alternative 2a

This alternative would involve permanent removal of grazing from three allotments (Summit Spring, Rye Valley, and Bowman Flat) and permanent reduction in grazing in the other allotments, a reduction equal to the full amount of existing public land AUMs (leaving only the amount of grazing currently allowed for private land AUMs). Since there is such a high percentage of private land in the Pedro Mountain GU, the only way this alternative would be feasible would be to increase fencing of the public lands (see Table 4).

Total elimination of the current amount of livestock grazing AUMs on these allotments would result in additional costs for the livestock operators. First, the livestock operators would need to spend more money on fence construction and maintenance. At this time the amount milage of additional private land fences that would be constructed is speculative therefor and economic cost to the permittee was not determined. . Second, they would lose the forage from the BLM allotments and be forced to downsize their cattle operations or purchase alternative grazing elsewhere. The BLM estimates that the livestock operators would have to pay between 28,611 to $45,441 a year in pasture fees or lose up to $154,000 in gross earnings per year by downsizing the operations. Gross earnings were estimated by the Market Report for cattle prices listed in The Record Courier for May 25, 2011. Third, they would have increased difficulty in moving cattle from one piece of private land to another.

In addition, the elimination of public land livestock grazing complicates public land access needs of the BLM. Most of the land within the Pedro Mountain Geographic Unit is privately owned. BLM has legal access through the livestock grazing permit which states “The lessee or permittee hereby agrees to allow authorized representatives of the Department of Interior reasonable access across private and leased lands at any time for the purpose of inspection and official business [43 CFR § 4130.3-2(h)]. The only access to public lands in Bowman Flat, Rattlesnake Gulch, French Creek, Hollowfield, North Dixie or Lost Basin allotments is through crossing the permittees’ private land. The BLM will try to retain access across private lands thru the issuance of exchange of uses agreements in Rattlesnake Gulch, French Creek, Hollowfield, North Dixie or Lost Basin allotments.

However the land owner may not agree to entering into an exchange of use agreement and in this case BLM administrative access across private lands would be lost. In addition the Bowman Flat Allotment will not qualify of exchange-of-use therefore administrative legal access across private lands would be lost for this allotment. Therefore, the BLM would have to find alternative way(s) to inspect this allotment which is likely to consist of using a helicopter or airplane to ensure livestock trespass is not occurring. The BLM expects that the Bowman Flat Allotment would have to be inspected by air at least 2 times a month to determine if livestock grazing is occurring within public lands. The BLM expects that the cost of one aerial allotment inspection will range between $450-$750 assuming 1.5 hours of flight time (Sunset Helicopters 6/3/2011).

3.8.5 Alternative 3

This alternative would achieve significant progress toward achieving standards (see vegetation section). It would help to improve rangeland management by keeping utilization levels light or moderate, periodically deferring grazing until the plants have completed growth for that year, obtaining better cattle distribution, and gaining better control over cattle through additional fences. A smaller number of cattle AUMs would be available for use in the Dixie Creek and Rattlesnake Gulch allotments which would result in an added economic expense of $1,533 to $2,513 a year if the permittee choses to rent private pasture (Hofstrand and Edwards 2009). If the premittees decide to downsize there operations this reduction would result in a gross loss of $8,983 a year which is based on current market prices (The Record Courier June 2, 2011) when compared to public land grazing. If the permittees decide to increase the stocking rate (98 AUMs) on the adjoining private lands is it not likely to be great enough to negatively affect upland rangeland health on public lands.

The French Creek Allotment would no longer be authorized as seasons and numbers unrestricted, and dates of use and numbers of cattle on this allotment would be regulated. Requiring that cattle be moved when upland utilization or riparian stubble height triggers are reached in autumn would be likely to result in moving cattle home to private land sooner than has been the case in the past. During the growing season, requiring that cattle be moved sooner than scheduled, due to reaching utilization or stubble height triggers, would mean grazing the next allotments/pastures in the rotation earlier than scheduled. The same situation would occur when use in a pasture is limited to exchange-of-use as a penalty for exceeding upland utilization or riparian stubble height targets two years in a row: due to the reduced period of use in that pasture, some other pasture might have to be entered early. Thus, additional flexibility in the pasture rotation schedules would be imposed by Alternative 3, but the total period of livestock use on public lands each year (all allotments added together) would be shorter than the current period. Some allotments/pastures would receive less deferral than the existing management calls for. Utilization levels would be deemed more important than deferring until a certain date or growth stage. For a summary of Alternative 3 actions, refer to Table 16.

3.8.6 Cumulative Impacts

Looking at cumulative effects over the entire Pedro Mountain GU, periodic wildfires, mining, and changes in seasons of use of public land grazing over the last 30 years have resulted in minor adverse impacts to livestock grazing. The cumulative impacts discussed in this document under Vegetation and Human Uses are also directly related to the livestock grazing cumulative impacts. The current Mormon Basin Fuels Project (containing 1330 acres in Dixie Creek Allotment and 150 acres in Bowman Flat Allotment) is expected to result in short-term minor, temporary decreases in livestock grazing followed by improved forage conditions once the rangeland shows recovery. It is reasonably foreseeable that future mining will result in minor, temporary adverse impacts to

livestock grazing by taking some acreage away from grazing. The 300-400 acres expected to be impacted by mining already are or historically have been undergoing mining activity.

The cumulative impacts of the additional restrictions on livestock grazing above would have the most adverse impacts to livestock grazing under Alternative 2a, the No Grazing Alternative, and Alternative 2, which calls for a period of rest or drastic short-term reductions in public land livestock use. Although these alternatives propose either a permanent or a temporary reduction of 1683 AUMs on public lands (out of 3248 in all the allotments in the GU), the cumulative impacts on AUMs would be somewhat less than this amount because some unknown quantity of AUMs would end up shifted to intermingled private lands.

With the BLM exchange-of-use agreement offering zero AUMs from the public lands, yet containing restrictions on the use of the private lands, there would be no incentive for the livestock permittee to enter in to an exchange-of-use agreement with the BLM. Therefore, BLM anticipates that the livestock permittees would fence the private lands from the public. At this time the mileage of private land fences that would be constructed is speculative therefore an economic cost to the permittees was not determined. However the BLM believes that in Alternative 2 the construction of fences would not be as extensive because grazing would be allowed to resume after a period of rest, and permittees might choose to wait out the period of rest rather than invest in a lot more fences, but there still would be substantially more miles of fence built by permittees than would occur under Alternative 3. Under Alternative 3, the BLM expects the amount of new fencing would be 4.1miles (identified Table 5) however there may be a need for the livestock permittee to fence an additional 3 miles of BLM/ private land boundary.

Table 17. Alternative 3 summary of changes in management actions.

Allotment Name and Number	% Federal Range	Standards Not Met Due to Livestock	Alternative 3 Actions
Summit Spring #1072	100%	2	•utilization triggers and limits •ensure project maintenance •alternate between spring and fall use
Rye Valley #1037	96%		
East Pasture		1, 2, 3, 5	•utilization triggers and limits •specify 215 public AUMs •change season of use from 10/28-11/28 to 4/23-5/31, 11/1-12/9
West Pasture		2, 4	•utilization triggers and limits •specify 48 public AUMs •change season of use from 10/28-11/28 to 6/1-6/30, 10/1-10/30
Upper Shirttail Cr. #1031	79%	2,4	•utilization triggers and limits •ensure project maintenance •change season of use from 5/1-10/13 to 6/1-6/30, 10/1-10/31 •juniper treatment in riparian area
Dixie Creek #1020	78%	2, 4	•utilization triggers and limits •construct gap fence •reduce AUMs from 404 to 343 •alternate between spring and fall use

Allotment Name and Number	% Federal Range	Standards Not Met Due to Livestock	Alternative 3 Actions
Bowman Flat #1022	78%	2, 3	•utilization triggers and limits •riparian enhancement •alternate between spring and fall use
Rattlesnake Gulch #1023	60%	2, 4	•utilization triggers and limits •construct new fences •reduce AUMs from 92 to 55 •reduce exchange-of-use AUMs from 61 to 48 •alternate between spring and fall use
French Creek #1032	48%	1, 2, 3, 4, 5	•utilization triggers and limits •construct new fences •change from unrestricted use to established season of use, spring and fall
Hollowfield Canyon #1030	46%	2	•utilization triggers and limits •riparian enhancement •change season of use from 6/22-8/21 to maximum of 6 weeks within 9/16-11/30
North Dixie Creek #1026	39%		
Lower Pasture		4	•utilization triggers and limits •ensure project maintenance •construct new fence •change season of use from 6/1-11/30 to 6/1-6/30, 9/28-12/16
Upper Pasture		2, 4	•ensure project maintenance •construct riparian exclosure •change season of use from 6/1-11/30 to 6/1-6/30, 9/28-12/16
Lost Basin #1027	17%	2, 4, 5	•aspen and juniper treatments •construct spring exclosures •Upper Reagan Creek season of use from 6/1-7/10

3.9 Noxious Weeds and Other Invasive Plants

3.9.1 Land Use Plan Management Objectives and Priorities

There are no specific noxious weed objectives for the Pedro Mountain GU other than those that relate to Upland, Forestland, and Riparian Vegetation Resource Condition Objectives.

Priorities for treatment include:

1. Preventing the spread into areas that are not infested
2. Early detection and rapid response to eradicate new invaders or new infestations
3. Containment and control of existing infestations

Existing infestations are controlled on BLM lands and when control efforts are coordinated with adjoining land owners. Grazing timing and practices to prevent the spread of weeds or re-infestation are emphasized. BLM cooperates with Oregon Department of Agriculture and county weed control officers to control highest priority infestations.

3.9.2 Affected Environment

An intensive inventory for noxious weeds has not been conducted within this GU; however, there are known sites in several allotments. At this time diffuse knapweed (*Centaurea diffusa*), whitetop (*Cardaria draba*), Scotch thistle (*Onopordum acanthium*) are known noxious weeds in the GU. Invasive annual grasses Cheatgrass (*Bromus tectorum*) and Medusahead (*Taeniatherum caput-medusa*)list species) are known on 250 acres in 0.1-50acre patches. All non-native invasive species degrade rangeland health. And the potential spread into riparian areas is of particular concern.

Livestock grazing has an effect on the plant community. Timing, duration and number of animals can be varied to degrade, maintain or improve vegetation condition. Livestock grazing has been shown to spread weeds and improve conditions for weed establishment. Conversely, livestock have been used to control noxious weeds and improve vegetation and seeding establishment. Many weeds are capable of invading well-managed undisturbed areas; however, disturbance allows more rapid establishment and spread of many noxious weeds and invasive plant species (Sheley and Petroff 1999). Therefore, improving rangeland heath by modifying livestock management would greatly reduce the risk of noxious weed establishment and spread within the Pedro Mountain Geographic Unit.

Current treatment methods include hand pulling, herbicide spot treatments and biological controls.

The district is developing an EA for herbicide use (2012) that tiers to Vegetation Treatments on BLM Lands in Oregon, 2010 (OR EIS), until the site specific EA is completed herbicide use is limited per the current site-specific EA, which allows the use of glyphosate, picloram, 2,4-D, and dicamba on noxious weeds only.

Whitetop
Whitetop is increasing primarily along roadsides in the French Creek, Rye Valley and Summit Springs Allotments. Herbicides effective at controlling perennial mustards such as whitetop are not available until site specific analysis tiering to the OR EIS is complete. Present treatments using available herbicides suppress whitetop by reducing seed production and the rate of spread. Due to the lack of the most effective tools, only isolated small new infestations have been treated.

Scotch Thistle
Small scattered sites of this common biennial can be found in each allotment. Scotch thistle is often found on disturbed sites such as loafing areas and in draw bottoms near watering areas. Treatment has not been consistent except immediately along primary road systems because of management focus on higher priority noxious weeds and invasive plants.

Diffuse Knapweed
Diffuse knapweed is found in the French Creek and North Dixie Creek Allotments. Acreage is limited to approximately 2 acres total. Infestations of this annual fluctuate each year in this GU. Occasional herbicide treatment and biological control are used to manage this noxious weed. Biological control agents on diffuse knapweed are widespread across the planning area and are helping reduce the infestation to acceptable levels.

Invasive Annual Grasses
The most common non-native annual grass within the Pedro Mountain GU is cheatgrass followed by bulbous blue grass and medusa head wild rye. The non-native annual grass is primarily found in areas where soil has been disturbed (i.e., roadsides)

3.9.3 Alternative 1

Livestock management under Alternative 1 would suppress upland native plant vigor to a level where establishment and spread of noxious or invasive weed species is likely to occur over 1,800 acres. This is consistent with Sheley and Petroff (1999) findings based on a literature review. It is also likely that livestock management in riparian areas would continue to provide ideal habitat for the establishment and spread of noxious weeds on 16.75 miles of streams which have been identified as not meeting rangeland health.

3.9.4 Alternative 2 and 2a

Alternative 2
Lighter utilization levels and rest from cattle grazing under this alternative would allow for the increase in vigor of desirable native species. These native plants would be able to better maintain site integrity and compete with noxious weeds and invasive plants that establish (Sheley and Petroff 1999). Management of existing and new noxious weed sites would continue following established priorities. Livestock management defined in Alternative 2 has been shown over time to meet rangeland health standards in native grass allotments where historic overgrazing by livestock occurred (Brewer et al. 2007; Anderson and Inouye 2001). Therefore it is expected that significant progress towards meeting rangeland health will occur on 1,800 acres of native upland vegetation and 16.75 miles of riparian area. This improvement to rangeland health will reduce the probability of establishment and spread of noxious weeds and other non-desirable plants.

However, if the permittees decide to extend the season of use on adjoining private land, native vegetation would have reduced vigor which would increase the likelihood of noxious and invasive plant establishment. The probability of noxious and invasive weed establishment would increase with the number of years the private land is overused. If overstocking of private lands only occurs for 1 or 2 years the probability of noxious or invasive plants getting a foot hold would be low (less than 10 percent). However, if overstocking occurs for more than 3 years there is a moderate (10-30 percent) probability of establishment.

Alternative 2a
Same as Alternative 2 except that livestock grazing would be permanently excluded or reduced on public lands which would create a greater need for the permittee to fence off the private from the public lands in order to extend the season of use on private lands. Permanently extending the season of use on private lands would increase the probability of noxious or invasive plant establishment from low to moderate identified in Alternative 2 to moderate to high (30-50 percent).

3.9.5 Alternative 3

Livestock management in Alternative 3 would be consistent with Brewer et al. (2007) and Clary and Leininger (2000) recommendations which will make significant progress towards meeting rangeland health standards in native plant communities. Therefore it is expected that significant progress towards meeting rangeland health will occur on 1800 acres of native upland vegetation and 16.75 miles of riparian area. Although many weeds are capable of invading well-managed undisturbed areas, disturbance allows more rapid establishment and spread of many noxious plant

species (Sheley and Petroff 1999). Therefore, improving rangeland heath by modifying livestock management will greatly reduce the risk of noxious weed establishment and spread within the Pedro Mountain Geographic Unit.

3.9.6 Cumulative Impacts

Cumulative impacts are defined as 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 action.

Past and Present Actions

The largest past and present land management actions that have impacted noxious and invasive weed establishment and spread are: livestock grazing, road construction and maintenance, mining, and high intensity wildfire. In general these disturbances have resulted in adverse effects to vegetation whereas active treatments such as herbicide, manual and biological weed control treatments have resulted in beneficial effects to native plant communities. Livestock grazing, road construction, mining, and high intensity wildfire have contributed to1,800 acres not meeting rangeland health standards. The entire Pedro Mountain GU has approximately 250 acres that have crossed an ecological threshold and are currently dominated by non-native annual grass. Most of these sites are along roads and in riparian areas. Changes to livestock grazing will not improve these sites to a desirable rangeland health condition (USDA 1994). . Poor historic livestock grazing management increased the risk of invasion by exotic species. Increase in invasive annual grasses pose a risk to sagebrush communities by increasing the likelihood of intense fires resulting in loss of shrubs and some other perennials. This risk can be mitigated by improving health and vigor of native plants through better grazing practices. Prior to the 2007 livestock grazing season management was changed to improve health and vigor of native plants therefore the current risk of increasing annual grasses is low.

Similar to public lands, resource conditions on private lands have been largely affected by livestock management followed by juniper reduction and ground disturbing projects. It is difficult to determine the extent these land management decisions have had on noxious weed establishment and spread since private land owners are not required to monitor or assess private lands. However, professional BLM range staff observations are that private land livestock management is consistent with Brewer et al. (2007). Therefore, it is assumed rangeland heath on private land is relatively similar to public lands.

Reasonable Foreseeable Actions

Future mining is expected to be confined to the 300-400 acres that have historically or are presently being mined with the largest being approximately 150 acres. These mining sites are required to be reclaimed pursuant the mining plan of operations. Most of the mining sites are located within mountain and basin big sagebrush communities which have high site potential for reclamation. In fact, some of the historic mining tailings have naturally re-vegetated with native grasses, forbs and shrubs which are precluding the establishment of noxious weeds and invasive plant species. It is expected that future mining restoration projects will yield similar results. It is difficult to determine how many acres will be reclaimed. However, with mineral values being high it is expected that a small proportion (5-20 percent) of the mining area will be reclaimed.

Currently, there are 2,718 acres of juniper within the Pedro Mountain Geographic Unit encroaching into historic mountain big sagebrush community. Currently there is a project proposed to treat 1480

acres of phase I and II juniper which would result in improved rangeland health by increasing the vigor of the mountain big sagebrush community which would aid in protecting these native communities from future establishment and spread of noxious weeds and invasive plants (Miller et al. 2000; Sheley and Bates 2008).

It is expected that the types of herbicides that the BLM will be authorized to use will increase within the reasonable foreseeable future with the implementation of the Vegetation Treatments Using Herbicides on BLM Lands in Oregon Environmental Impact Statement. The increased number of authorized herbicides would improve weed and invasive plant treatment effectiveness within the Pedro Mountain Geographic Unit especially for the whitetop and non-native annual grasses.

Livestock management on private land in the Pedro Mountain GU is interconnected to management on public land. Therefore management changes to public lands will require the livestock operator to make modifications to the private land grazing system. Alternatives 2 and 2a, which call for the exclusion or drastic reductions to livestock grazing would likely lead to increased use of private lands. In order for the livestock operator to make significant use of the private lands it is likely that fencing would be required to separate the private lands from public lands which would increase habitat fragmentation. The increased livestock use on private land is expected to result in increased degradation to upland rangeland health standards since it is highly likely that private land livestock management would not be consistent with Brewer et al. (2007) recommendations. Therefore it is expected that future livestock management on private lands would reduce plant vigor and increase bare ground which have been shown to increase the risk of noxious weed spread and establishment (Sheley and Petroff 1999).

Travel management planning is likely to reduce the acreage where off road vehicle travel is permitted which would have a beneficial effect on reducing the dispersal of weed seeds into areas free of noxious weeds and invasive plants (Sheley and Petroff 1999)

Overall Cumulative Effects for Noxious Weeds

Alternative 1
Under Alternative 1 livestock management would not reflect current science knowledge for reducing the risk of noxious weed and invasive plant establishment and spread. Current science indicates that an integrated approach which takes into consideration herbicide and biological treatments of established weed sites, reducing seed dispersal and maintaining high plant vigor in native plant communities is needed to reduce the risk of weed establishment and spread (Sheley and Petroff 1999). Under Alternative 1 all of these factors would be addressed with the exception of improving plant vigor to a level where the risk noxious weed and invasive plant establishment and spread is low. Since plant vigor is not addressed it is expected that continued treatments with herbicide and/or biological control agents would be necessary to control noxious and invasive plant species. It is likely that the need for weed control treatments will be greater than that of Alternatives 2, 2a and 3 where native plant vigor improves the plant communities resistance to weed invasion.

Alternative 2
Under Alternative 2 livestock management would be changed to reflect current scientific knowledge for improving uplands which includes herbicide and biological treatments of established

weed sites, reducing seed dispersal and maintaining high plant vigor in native plant communities to reduce the risk of weed establishment and spread (Sheley and Petroff 1999). In addition, future juniper reduction, weed treatment and mine reclamation projects are expected to improve between 1500 to 2000 acres that are either not meeting rangeland heath or are close to failing rangeland health due to juniper encroachment. Conversely, mining is expected to adversely affect 300-400 acres of public lands. However these sites would be restored pursuant the mining plan of operations. It is expected that the level of risk for the establishment and spread of noxious weeds and invasive plants would be lower than that identified in Alternative 1.

Excluding or greatly reducing livestock grazing on public lands for a period estimated at up to 15 years would create a need for the livestock operators to increase the amount of livestock use on private lands within the Pedro Mountain GU. It is expected that the increased amount of livestock use will not be consistent with Brewer et al. (2007) recommendations for improving and maintaining a desirable rangeland health condition. In fact, future livestock demands on private lands are expected to be high enough to greatly reduce bluebunch wheatgrass, Thurber needlegrass and Idaho fescue vigor to a level that would increase the risk of noxious weeds and invasive plants spreading from private lands to adjacent public lands. The amount of noxious or invasive weed expansion would be dependent on the magnitude of departure from Brewer et al. (2007) recommendations. If all public land AUMs are transferred to private lands within the Pedro Mountain Geographic Unit, there would be a high possibility that all benefits realized from livestock suspension would be negated especially if this occurs for more than 3 years in a row.

Alternative 2a
Same as Alternative 2 except there would be a higher probability that livestock permittees would extend the season of livestock use on private land therefore increasing the risk of noxious and invasive plant establishment on both public and private lands.

Alternative 3
Similar to Alternative 2, Alternative 3 would modify livestock management to reflect current scientific knowledge for improving uplands and riparian areas to a level where rangeland health is met on public lands. Making significant progress towards meeting rangeland health standards coupled with herbicide and biological treatments of established weed sites and reducing seed dispersal vectors would reduce the risk of noxious weed and invasive plant establishment and spread. The level of risk is expected to be lower than Alternatives 1 and 2 since livestock grazing schedules on both public and private lands were developed in Alternative 3 to allow for sufficient livestock deferment consistent with Brewer et al. (2007) recommendations. Whereas, under Alternative 2 and 2a the livestock operators are likely to extend the season of use on adjacent private lands which would increase the acreage suitable for noxious weeds and invasive plant establishment and spread. However, it is ultimately up to the livestock operator how the private land is managed. Therefore, if the operators choose not to manage the adjacent private lands in an appropriate manner the effect to noxious weeds and invasive plants would be similar to Alternative 2.

3.10 Recreation

3.10.1 Land Use Plan Management Objectives

As identified in the Baker Resource Management Plan Record of Decision (July 1989a), the Management Direction for Recreation is to "Provide or enhance recreational opportunities for hunting, fishing, swimming, floating, boating, hiking, and sightseeing."

3.10.2 Affected Environment

The Pedro Mountain GU consists of a wide variety of changing views ranging from arid uplands, forested stringers and pockets, and canyon slopes with basalt outcroppings adjacent to entrenched riparian draws. This variety provides visitors with an ever changing view from simple desert sage-brush to covered mountain slopes. Although not unique to eastern Oregon, the area does consist of enough acreage to provide for a modest physical landscape change over the planning area that benefits scenic enjoyment.

Recreation opportunities in the Pedro Mountain area include dispersed camping, hunting (upland bird/big game), scenic viewing, driving for pleasure, horseback riding, hiking, and some OHV use. The uses in the planning unit vary widely, but it is believed that sightseeing and hunting are the primary recreational activities in this area.

The southern end of the planning area contains a portion of the Snake River/Mormon Basis Backcountry Byway. This Byway begins in Baker City, Oregon, travels east then south along the Brownlee pool of the Snake River, crosses back to the west through the Rye Valley/Mormon Basin area, over Dooley Mountain and back to Baker. Of the entire journey along the Byway, it is the section that occurs within the planning unit that gives travelers a "primitive" sense of the area and of their journey as well as containing some of the most scenic views on the Byway.

Recreation use data for the area is limited as uses in the area seasonal in nature and "dispersed" except for the use along the Byway. This "dispersed" use, which consists of recreational pursuits in areas that have no developed recreation facilities or activities, occurs randomly throughout lands within the Baker Resource Area administrative boundary.

Recreational uses of the area are highly dependent on the weather patterns of eastern Oregon as well as in conjunction with established hunting seasons and access. Rain, cold, and drought conditions cause significant fluctuations in recreational activities seen in the Pedro Mountain GU. Peak recreation use occurs primarily in the early summer and fall of the year beginning in April through late November. These dates coincide with those times of the year that the area can be accessed by vehicle after snowmelt, and the established Oregon hunting seasons.

Public access to lands administered by the Baker Resource Area ranges from good to poor depending on the form of access desired (motorized, foot or horseback). Legal access to the different portions of the BLM lands exist via county and BLM road systems. The area is designated as "Open" for motorized uses, and random trails have developed throughout the planning area over time. The northern end of the planning area does come up against the Burnt River "limited" OHV designation, but this planning unit does not cross into that designation. Most of the OHV trails that have been created are direct results of hunting pressure in the area along with some recreational OHV use as recreationist seek access to specific areas. However, there are no BLM designated or maintained OHV trails within the Pedro Mountain Planning area.

The quality of the recreation opportunities in the Pedro Mountain GU is closely linked to the amount of use occurring within the area at any given time. Although there is a large amount of acreage associated with the unit, the amount of motorized use via roads/trails/ways in the area detracts from pristine feelings of "solitude" for those users interested in a more undisturbed remote outdoor experience. However, the large block of BLM ownership does provide for good hunting opportunities of upland bird and big game species as well as potential for remote OHV travel, sightseeing, and camping. Some roads and trails for recreational "point-to-point" travel do exist within the area, however most of the trails that exist dead end at some point on their route. The OHV trail system that currently exists is a series of informal pathways that have been developed by random motorized travel over time in conjunction with the establish county and BLM identified road systems.

3.10.3 Alternative 1

Under Alternative 1 livestock management would revert back to the 1995 system which was causing 1,800 acres of uplands and 16.75 miles of riparian areas to fail rangeland health standards. Recreational activities including hunting, hiking, horseback riding, and OHV use, along with all other forms of dispersed recreation on public lands are strongly driven by the aesthetics, quality, quantity, diversity and condition of an area's resources. In the Pedro Mountain area, Alternative 1 would reduce the recreational characteristics and quality of these experiences below current conditions and expectations of the general public. By eliminating all gains to rangeland health made by the implementation of interim livestock management in 2007 and refined in 2011 a slow but steady reduction in the recreational opportunities of the area would be expected over time.

3.10.4 Alternative 2 and 2a

Alternative 2

Alternative 2 would result in improvement to the condition of the area's resources and would begin to slowly enhance the variety and quality of the recreational experience of the area as well as improving the general view and aesthetics to the casual observer. As the overall condition of the area resources improve, such as vegetation, the associated effects also begin to improve the general recreation experience of public land users. For instance, improved vegetation quality, quantity and diversity improve the visual "attractiveness" of an area or increased hunting opportunities. This in turn results in an increase opportunity and desire for recreational viewing, hiking, hunting and even camping. Under this alternative, the anticipated improvement to the various resource conditions of this area would be noticed over time and would benefit the recreational use by creating more diverse opportunities as well as improved recreational quality which would thereby attract visitors

Alternative 2a

Same as Alternative 2

3.10.5 Alternative 3

The impacts under this Alternative would be expected to be the same as in Alternative 2 in regards to the recreational experiences as the changes begin to occur over time. However, the improvements to the recreational resources and opportunities of the area are anticipated to occur at a slower rate than under Alternative 2. Some impacts would occur to dispersed uses such as horseback riding, OHV use and hiking due to the installation of fences which might cut off some of the random trails that have developed in the planning area over time. However, it is expected that

the impacts to these recreational pursuits would be minimal as the use patterns adjust to compensate for historic patterns.

3.10.6 Cumulative Impacts

Cumulative impacts are defined as 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 action.

Past and Present Actions

Within the Pedro Mountain area, past and present management actions that have impacted recreational uses of the area consist primarily of access limitations to once historic uses. Within the planning area, historic hunting and general dispersed recreation opportunities were once common. The Pedro Mountain GU was well known for the quality and quantity of both big game and upland bird species in addition to the remote and scenic setting of the area. Recreational uses of this area were common to local and regional recreationist for decades as users sought the remoteness of the area as well as the quality of the recreation opportunities the area possessed. However, beginning in the 1970's and continuing the present day, access to the public lands of the area, especially motorized access, have reduced as more private lands and the access roads/routes that crossed those lands to the BLM ownerships have been closed to general public. It is difficult to determine the amount or quality of the recreational experience found within the area since access to monitor the recreational uses by the BLM is also limited

Reasonable Foreseeable Actions

Future mining is expected to continue within the areas that have been historically utilized. Impacts to recreation opportunities from mining activities are minimal since recreational pursuits can still occur within mining areas except where mitigated for human health and safety. Additionally, access improvements to reach mining operations often add to the road, primitive road, or trail networks that cross public lands. The creation of these networks adds additional access opportunities to reach public lands by motorized means for a multitude of recreational pursuits.

Currently, there are 2,718 acres of juniper within the Pedro Mountain Geographic Unit with a proposed treatment project of 1480 acres of phase I and II juniper to be removed. Although this action would directly affect the visual aesthetics of the area as the juniper is removed, overall there would be negligible impacts on the recreational opportunities within the area.

It is expected that the types of herbicides that the BLM will be authorized to use will increase within the reasonable foreseeable future with the implementation of the Vegetation Treatments Using Herbicides on BLM Lands in Oregon Environmental Impact Statement. Although the use of the variety of herbicides available would slowly change the vegetation components of the area and be beneficial to many of the resources that draw recreational uses, the impacts to the recreational resource in general would be negligible.

Livestock management objectives designed to improve the condition of vegetation components on public lands would require modifications to both the public and private land grazing systems. As identified under Alternative 2, some of these modifications could create the need to install fencing by either the agency or the private landowners to separate the use of the private lands from public lands. This action could create increased livestock use on private land and therefore could result in increased degradation to adjacent vegetative communities and resource conditions such as riparian

zones and uplands. This degradation of resources that support the overall recreational attractiveness of the area as well as the quality of the experience of public land visitors could affect the overall satisfaction of recreational use of the BLM lands. For instance, if habitat fragmentation or reduced forage on adjacent private lands changes the quantity of game species in the area overall, then hunting opportunities on the adjacent public lands would be expected to decline as well. The indirect impacts of these changes to private lands over time could negatively affect the quality of many recreational experiences of visitors to adjacent public lands. Although it is expected for the conditions of resources on public lands to improve directly, the condition of the adjacent private lands has the potential to indirectly detract or influence recreation on public lands.

Overall Cumulative Effects for Recreation

Alternative 1
Under Alternative 1 livestock management would revert back to the 1995 system which was causing 1,800 acres of uplands and 16.75 miles of riparian areas to fail rangeland health standards which would reduce the quality of recreational experience. Future actions such as weed treatments, juniper reduction and mine reclamation projects which would be expected to improve approximately 1500 to 2000 acres of the public land would be expected to also improve associated recreational opportunities. However, mining could be expected to adversely affect approximately 300-400 acres depending on final project boundaries and associated mitigations. Overall, cumulative effects to recreation opportunities within the Pedro Mountain planning area under this alternative would be beneficial, long term, but negligible at the local level.

Alternative 2
Under Alternative 2 management actions would change in order to improve uplands and riparian areas on public lands within the planning boundary. These improvements in the vegetative components under this alternative would have both direct and indirect beneficial impacts on the associated recreational opportunities found on the public lands. In addition, specific projects such as juniper reduction, weed treatments and mine reclamation projects are expected to improve approximately 1500 to 2000 acres of public lands directly benefiting the recreation opportunities of the area. Mining projects would be expected to adversely affect 300-400 acres of public lands thereby affecting recreational pursuits on those acres.

Management actions under this alternative that force livestock reductions on public lands, may cause the livestock operators to more intensive grazing on private ownerships which can indirectly affect the recreational satisfaction of users in this area. For example, expected impacts from noxious weed expansion as well as a reduction of forage species or habitat could affect the amount of game species within the area that attract recreational hunting. The associated recreational opportunities that are often driven by the condition of other resource values could be adversely impacted as the conditions of adjacent private lands degrade from more intensive use. Overall, the cumulative impacts to recreation under this alternative would be expected to be both adverse and beneficial, long term but minor at the local level.

Alternative 2a
The same as Alternative 2 except that there would be a higher likelihood that the livestock permittees would chose to extend the season of use on the adjoining private lands which reduce the vigor of native grass species and increase the risk of invasive plant and noxious weed spread or establishment.

Alternative 3
Alternative 3 uses the best available science in the development of livestock grazing management which will make significant progress towards meeting rangeland health standards which-in-turn will benefit recreational experience. Unlike Alternatives 2 and 2a, Alternative 3 will not increase the risk of invasive plants or noxious weed spread and establishment on private or public lands. In addition, specific projects such as juniper reduction, weed treatments and mine reclamation projects are expected to improve approximately 1500 to 2000 acres of public lands directly benefiting the recreation opportunities of the area with mining projects expected to adversely affect 300-400 acres of public lands thereby affecting recreational pursuits on those acres. Therefore, Alternative 3 would have the greatest beneficial effect of all alternatives and would be long term and minor to moderate at the local level.

3.11 Human Uses and Values (Socio-economic Impacts)

3.11.1 Land Use Plan Management Objectives

The Baker RMP (USDI 1989a) provides direction to continue to authorize grazing permits/leases while restricting or excluding grazing in areas where livestock use results in significant resource damage (p. 14).

3.11.2 Affected Environment

These ten grazing allotments currently have authorized cattle use. Assessment of the rangeland health standards has indicated one or more of the five standards are not being met in these allotments. Current BLM regulations and guidance direct the BLM to make changes to livestock management in areas where standards are not being met. There are currently four different permittees grazing livestock within these allotments, and the implementation of changes in management would affect one or more of the permittees.

Three of the four grazing permits are held by local family-owned and managed livestock operations. The largest permit is currently leased to a local operation but the base property is owned by an out of state individual. For smaller family operations, economic setbacks or other production limitations may greatly challenge their ability to remain viable and a part of the community in which they choose to live. The livestock industry is not alone in facing potential changes to preferred lifestyles and ways of generating income. The same type of economic pressures and concerns about maintaining a way of life that are affecting permittees, are also affecting other commodity producers and businesses.

Aside from the AUM changes described in this EA, ranch viability (e.g., sustainable ranching operations capable of supporting families and paying for necessary additional help) would likely be influenced by factors beyond BLM control. These factors may involve livestock price fluctuations, foreign competition, transportation and fuel costs, public land forage limitations due to drought, winter livestock feeding costs, private pasture rental fees, and other similarly unpredictable factors. These and other factors have already been affecting Baker County agriculture, as can be seen in the USDA “2002 Census of Agriculture for Baker County” (USDA 2002). According to this census, from 1997 to 2002, the number of farms decreased 7%, the land in farms decreased 9%, the average size of farms decrease 2%, and the market value of production decreased 8% in Baker County. The market value of production figures includes both crop and livestock sales with livestock sales accounting for approximately 76% of the total. The census also indicates that almost 72% of the

farmland in Baker County is for pasture, with approximately 17% in cropland and about 10% in woodland, and less than 1% in other uses, further highlighting the importance of the livestock industry to Baker County.

Although small or corporate classes of livestock operations both contribute social and economic benefits to eastern Oregon, economic challenge to smaller family operations is probably most likely to harm the social fabric of small communities such as Durkee and Huntington. This would be especially true if permittees were forced to leave the area because of financial stress. Family operations are typically of great importance to county governments and even to some of the general public. BLM is concerned about and aware of the potential socio-economic consequences of grazing permit actions. Nevertheless, permit renewal decisions in this analysis area must balance the need to reasonably support the social fabric and economies of small communities as well as maintain the public land natural resource base upon which the livestock industry relies. Thus, BLM decisions must be crafted in light of the public land's capacity to support livestock herds. And where the livestock carrying capacity is limited by rangeland site potential or where studies indicate that AUMs need downward adjustment, BLM is compelled by law and by federal regulation to take actions that would result in sustainable grazing use and functioning rangelands, according to the S&Gs and 43 CFR §§4180.

Government-issued permits to graze livestock on public land are an important factor of production for sheep and cattle ranchers in the West. Approximately 22% of western cattle producers and 19% of western sheep producers hold federal permits from the BLM or the USFS (USDI 1994). The permits are linked to privately-owned base property and enhance the productive capacity of private property by providing additional forage during certain seasons. This allows for rest, or production of hay or other forage on private property. A common practice is to produce alfalfa or grass hay on irrigated pastures during the summer when cattle are on public rangeland.

Ranch value and borrowing ability are usually based on cash flow. With additional production capacity, holders of federal permits often increase ranch value and borrowing ability. These values often persist when the base property is sold or passed on to heirs since historically, permits are reissued to the new owner of the base property. Although holding a federal permit can create additional cash flow and wealth for individual ranchers, permits have no legally recognized value as private property. Terms and conditions of permits are commonly changed, especially at times of re-issuance or renewal. Changes in the timing and amount of permitted grazing would affect individual ranchers.

Seven federally recognized Native American Tribes have indicated interest in the public lands managed in this area. The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) has expressed specific interest in the permit renewal process and how it may affect the rights claimed by the CTUIR under the Treaty of 1855. The Pedro Mountain Geographic Unit contains fish, game and potential traditional plant habitat for which CTUIR and its members claim treaty rights to access and gather. Impacts to treaty resources are also addressed in sections 3.3, 3.4, 3.5, 3.6.

For most of the allotments, actual inventory is limited, and thus at present there is insufficient information to determine the effects of the alternatives on the treaty rights claimed by the CTUIR. The BLM believes that actions to achieve or make progress towards meeting rangeland health standards would also be beneficial to traditional plants and animals utilized by CTUIR. The "First

Food Project" has identified potential areas for traditional plants to occur within the Pedro Mountain GU. Four potential traditional plant locations have been field checked by CTUIR staff. All four locations came up negative for plants of traditional interest included in the model. As resources allow, additional field visits would be necessary to determine where traditional plants of interest occur in modeled areas and long-term monitoring at specific locations would be necessary to determine how livestock grazing impacts these plants.

Limitations to BLM Socioeconomic Impact Estimates and Assumptions

BLM has no access to individual permittee financial records. Further, the Vale District BLM does not intend to request financial records from ranchers for socio-economic analysis purposes. Consequently, this EA section estimating socio-economic impacts to permittees would only address 1) AUM changes, and 2) increased or decreased rangeland project maintenance costs.

Because BLM cannot conduct a thorough and accurate analysis of how permitted AUMs may affect individual ranchers economically, it is also not possible to predict accurately the consequences to ranches under AUM reductions even if those reductions are temporary over one to several years as proposed under Alternative 2. This may or may not lead to existing ranches becoming economically unviable. The BLM also assumes that if existing ranches fail, some other corporation or individual may step in to purchase the base property and grazing privileges. It is not possible to foresee which base properties, if any, may change out of livestock production and into some other form of business. In the event that they do remain active for livestock production, the industry as a whole would continue to exist in and around the communities of Durkee and Huntingon, but under different ownership and likely with reduced income.

Permanently reduced ranch income following base property sale may not be a certainty for several reasons:

- There may be avenues for supplementing livestock-generated income from ranch properties and adjoining public lands that have not been explored by existing permittees.
- There may be other opportunities possible that would allow permittees to remain within the community, but due to their nature, are unacceptable. Examples may include dude ranches, bed and breakfasts, or sale of hunting rights.
- Base property purchasers may not be under the same financial burden or income demand currently affecting existing permittees. Thus, reduced income may not necessarily mean conversion of base property away from livestock production.
- Reduced livestock herds do not always result in insufficient income generation over the long term. Some permittees in the county choose to run reduced livestock numbers and they still make adequate profits derived from increased livestock weight gains instead of relying upon higher livestock numbers or AUMs.

It is important to note that BLM is directed by the Taylor Grazing Act to take actions that will stabilize the livestock industry that is dependent upon public rangeland forage. In light of the Vale Project and other rangeland development actions taken over the last 40 years, the Vale District BLM has gone the extra mile to meet this goal of stabilizing the industry. However, it may not be possible for Vale BLM to guarantee that every existing livestock permittee would survive as an economic unit or in a manner to which existing ranchers are accustomed. Where substantial downward AUM adjustments are necessary to meet the objectives for livestock grazing

management in the Baker RMP and the S&Gs in conformance with 43 CFR § § 4180, some permittees would conceivably be forced into sale or lease of their base properties**.**

In conclusion, however, none of the proposed actions covered by this EA would cause significant adverse effects for the grazing permits. All four operations would still remain economically viable under the three alternatives.

3.11.3 Alternative 1

This alternative would result in little or no economic disruption to the permittees ranching operations in the short term. Since current management is not achieving one or more rangeland health standards, it is reasonable to assume that over time authorized AUMs may need to be reduced if monitoring shows that the utilization standards and rangeland health standards cannot be achieved with the current level of AUMs, which would result in economic impact in the long term (3 years or more).

3.11.4 Alternative 2 and 2a

Alternative 2
This alternative would result in short term economic effects to the permittees' ranching operations in the form of reduced numbers of cattle or increased costs for finding and using alternative grazing areas due to the temporary loss of 1,683 AUMs each year until standards are met. An additional short term impact would be the costs incurred for the new projects proposed as listed in Alternative 3. The long-term impacts would be similar to the long-term impacts described in Alternative 3 except they might occur at a faster rate due to the initial period of grazing rest aiding in quicker recovery.

Alternative 2a
The same as Alternative 2 except that the 1,683 AUMs would be permanently lost.

3.11.5 Alternative 3

This alternative would result in short-term economic impact to the permittees' ranching operations. This would be due to the costs associated with those proposed projects that permittees would be responsible for the construction and/or material costs. Long term impacts would be beneficial in meeting objectives and maintaining a stable herd size as progress towards meeting rangeland health standards occurs

3.11.6 Cumulative Impacts

Cumulative impacts are defined as 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 action.

Past and Present Actions
Past seasons of use and levels of authorized livestock use were originally set during the adjudication in the 1950's and 1960's. These were adjusted at various times since then; primarily in the early 1980's by Decision, based on the Ironside EIS, and later as part of the 1989 Baker Resource Management Plan (RMP) which was also the Rangeland Program Summary (RPS). Allotment Management Plans were developed for the larger allotments during the 1970's and

1980's, Permit consolidations through ranch sales to neighboring operations have also occurred at times since the original adjudication. These actions, along with a host of others beyond the control of BLM, have all been factors affecting the current economic situation for the permit holders to one degree or another.

Reasonably Foreseeable Actions

Cumulative effects to socio-economics would include additional reductions in AUMs, and or changes in season-of-use, and or additional project costs, if utilization standards are not met. For permittees who graze in other BLM allotments, if standards are also not being met in these allotments, further impact to permittees ranching operations may occur such as reducing herd size, increasing grazing time on private land, and/or increased feeding time and costs. There are too many unknowns and variables to speculate what the economic impacts could be to an individual permittee or all permittees who might be affected by future management actions.

Overall Cumulative Effects for Human Uses and Values (Socio-Economic Impacts)

Alternative 1

Overall cumulative effects under this alternative would result in little or no economic or social disruption to the permittees' ranching operations in the short term. However, since current management is not achieving one or more rangeland health standards, it is reasonable to assume that over time authorized AUMs may need to be reduced if monitoring shows that the utilization standards and rangeland health standards cannot be achieved with the current level of AUMs, which would result in some economic impact in the long term. The extent of that impact is hard to estimate. In a worst case situation such as eventual total nonuse on BLM, one or two permittees might feel forced to sell out at some point; but in reality all ranches in the GU would be expected to remain in business but with major changes in some operations.

Alternative 2

The effects of this alternative would result in more immediate economic impact due to the possible need for some permittees to find alternative forage sources for several years; and due to the costs associated with project construction. Overall long term cumulative effects would be beneficial to natural resources and economic impacts to the permittees would be acceptable, or at least tolerable, to them once objectives are eventually being met.

Alternative 2a

The effects of this alternative would result in more immediate economic impact when compared with all other alternatives. Current livestock permit holders would be required to find alternative forage sources or reduce their herd size. Overall long term cumulative effects would be adverse to four livestock producers. However, the adverse effects would not be great enough to have an effect to the livestock industry in Baker County.

Alternative 3

Long term cumulative effects under this alternative would be similar to Alternative 2 except that the time required to meet objectives would take longer. Short term economic impacts would be more variable by allotment. For the first several years these impacts would depend on how quickly utilization levels and stubble height targets are met and if the permittee(s) in the affected allotment(s) needed to find alternative forage sources. Over time, once fully implemented this alternative, as under Alternative 2, would achieve resource objectives with economic impacts

acceptable or at least tolerable to the permittees once objectives are eventually met. Achieving this goal would require more time, possibly 10 to 15 years longer, than under Alternative 2 but potential negative economic impacts would also be less and incremental and spread over more time.

3.12 Cultural Resources

3.12.1 Land Use Plan Management Objectives

The Baker RMP (1989a) indicates the following for cultural resources:

Resource Condition Objective
Protect and preserve cultural resources for their information potential and public values. Maintain historic properties for interpretation of mining and settlement.

Allocation
Identify uses for specific cultural properties in activity plans. Restrict the location of disturbing activities to avoid impact to cultural properties.

Management Action
Inventory and evaluate cultural properties in response to project proposals and management actions.

3.12.2 Affected Environment

Ethnographic Information
A broader overview of cultural resources and associated prehistoric and historic background for the Baker Resource Area is further described in the 2009 Baker Resource Management Plan Revision, Analysis of the Management Situation: Chapter 2, p.108-112, 158-159. Further details specific to cultural resources in the Pedro GU can be found in the cultural report titled, Pedro Mountain Geographic Unit Grazing Permit Renewal (USDI Bureau of Land Management, 2008).

Seven federally recognized tribes have indicated interest in the Baker Resource Area. One of the seven, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) expressed specific concerns about cultural resources and treaty resources located within the Pedro Mountain GU.

Tribal Resources
Treaty resources of concern to local tribes include, but are not limited to, many species of plants, terrestrial game and fish. Important terrestrial animals hunted by various tribes included deer, elk, mountain sheep, pronghorn antelope, game birds, and small mammals such as rabbits. Anadromous and resident fish are an important part of the diet. Some important plants included root crops of lomatiums (Lomatium sp.), yampah (Perideridia gairdneri) and bitterroot (Lewisia rediviva); and fruit plants such as serviceberry (Amelanchior alnifolia), chokecherry, currant (Ribes sp.), hawthorn (Crataegus douglasii), and elderberry (Sambucus sp).

The Confederated Tribes of the Umatilla Indian Reservation's (CTUIR) Department of Natural Resources states, "(Our) mission is to ensure that the First Foods are protected, restored, and enhanced for the perpetual cultural and economic benefit of the CTUIR. The First Foods - water, salmon, deer, cous, and huckleberry - represents a grouping of similar species, with salmon representing a variety of aquatic life forms (e.g. steelhead, lamprey, freshwater mussels, and various

resident fish), deer (big game), cous (plant bulbs), and the huckleberry representing fruiting plants. Each of the First Foods, and the right to harvest them, are explicitly protected in the Treaty of 1855. It is crucial for the Tribes to cooperatively manage the remaining federal land to maximize the health of the First Foods (CTUIR letter, 2008)."

BLM is not aware of any current tribal use or sacred sites in the analysis area, nor aware of any specific subsistence locations where tribal members presently procure traditional plants, fish or hunt game in the Pedro Mountain GU. This is likely due to the fact that tribal members are often uncomfortable sharing this type of information with federal agencies.

However, a joint "First Foods" project developed between the Confederated Tribes of the Umatilla Indian Reservation and BLM is using a GIS predictive model to provide initial information regarding where traditional plants and potential use areas may occur. Within the GU, the model identifies approximately 8,419 acres of potential habitat for several types of traditional plants of interest to CTUIR. As of 2009, four potential habitat locations had been ground truthed with negative results. Additional ground truthing will be needed to identify where these plants currently exist.

It is the BLM's position that actions taken to meet or move towards meeting the rangeland health standards would in turn benefit the whole ecosystem including "First Foods". BLM is developing a partnership with CTUIR to accomplish some future monitoring at specific traditional plant locations. Findings from this project should provide data on how specific authorized actions may be beneficial or detrimental to these plant communities. Also see Human Uses and Values (Section 3.11)

Cultural Resource Setting and Condition

Within the entire Pedro Mountain GU (seven allotments meeting standard and ten allotments not meeting standards) approximately 512 acres of BLM administered lands have been inventoried for archaeological resources. Archaeological resources previously recorded within the geographic unit included the Amelia town site, the eastern portion of the El Dorado Mining Ditch, and one isolated find. No livestock grazing effects have been identified at the Amelia site, El Dorado Ditch, or at sites documented within the Mormon Basin and Pedro Mountain allotments. Both of these allotments met standards for rangeland health. None of these resources have been formally evaluated for eligibility to the National Register of Historic Places. The El Dorado Ditch is a property of regional significance in mining and settlement history, and is likely eligible for the National Register.

In 2008, approximately 300 acres were surveyed by SWCA archaeologists for a newly proposed mining plan of operations in Mormon Basin (Sharma et al. 2008). Prehistoric resources identified by Steven W. Caruthers and Associates (SWCA) Environmental Consultants included two prehistoric lithic scatters and one isolated prehistoric locality. SWCA also recorded twelve historic sites in the Mormon Basin inventory area. The historic sites consist of placer tailings, can dumps, discarded items and mining equipment and deteriorating buildings. Mining related sites would be one of the more common historic properties expected for the GU. No grazing impacts were identified at these historic sites.

The Rye Valley cemetery is located on BLM land in the Rye Valley allotment. Although not formally recorded as a site, a cemetery record indicates that about 25 graves date from as early as

1876 to 1924. Other unrecorded historic features in the area include a mining ditch adjacent to the south fork of Dixie Creek, and the historic hydraulically worked hillside placer mines along the north fork of Dixie Creek, in the Dixie Creek allotment. A division fence to separate the Rye Valley allotment and Summit Creek allotment was surveyed in 1991, and the Rye Valley Spring was surveyed in 1983. No cultural resource sites were identified during these surveys.

In seven allotments where rangeland health standards were met and no change in grazing management is proposed, it is assumed that present grazing management is not affecting cultural resources or traditional foods. Due to funding and staffing, efforts to obtain survey data are focused on the ten allotments not meeting rangeland health standards. Agreements on how to comply with Section 106 of the NHPA have been made between OSHPO, BLM and Tribes that outline a strategy for obtaining more cultural resource data, with a focus on areas of that have high potential for archaeological sites and grazing impacts. Within the GU, streams and springs in topographic settings with less than 20 % slope, as well as rock outcrops with potential for rock shelters, are locations with the highest potential for the presence of significant archaeological sites.

Areas targeted for cultural inventory, as a result of this project, include: 15 developed spring locations and 5 sampling surveys on segments of French Creek, Rattlesnake Gulch, Little Deer Creek, Shirttail Creek and North Fork Dixie Creek. Nine of the 15 developed spring locations agreed upon, were surveyed for cultural resources in 2010 and 2011. No cultural resources have been identified at the 9 surveyed spring locations. The remaining six spring locations will be surveyed by 2012 and the 5 sampling locations will be looked at opportunistically over the ten year life of the permit.

In 2008, BLM surveyed a spring in the Lost Basin allotment. One multicomponent site was identified in an area of livestock congregation around the developed spring (5.4 acres). BLM, Oregon State Historic Preservation Office (OSHPO) and interested tribes consulted and agreed upon appropriate mitigation measures to protect this site from further damage. BLM lands in the Lost Basin allotment include a cluster of historic lode mine claims with historic debris indicating past mining activity. The lode mine may date from about 1892, when C.M. Foster published a map identifying the Huffman free gold mine at the location (Foster 1892). This site is potentially eligible to the National Register of Historic Places. Due to a lack of time and funding the site will be unevaluated and assumed potentially eligible, and will be protected under all alternatives from further grazing impacts by an exclosure fence.

Paleontological Resources

No previously recorded paleontological resources are known to exist in the Pedro Mountain GU.

General Effects to Cultural Resources Common to All Alternatives

Although survey information is lacking for most of the allotments and existing water developments, it is assumed that there could be unidentified prehistoric sites and isolated artifacts within the area, and that these are likely to be located at or near to natural perennial water sources. Since livestock tend to congregate at water sources, and congregation can result in surface and/or subsurface tramping, displacement of archaeological material and increased erosion at cultural sites, there could be ongoing impacts to previously unidentified archaeological sites within the allotments. Known or potential cultural site locations adjacent to riparian areas are particularly vulnerable to direct or indirect effects associated with livestock use. Given the lack of inventories and definitive

cultural resource information for most of the allotment, these assumptions are made for analysis of potential effects of grazing management alternatives.

New water developments, and ground disturbing maintenance or reconstruction of existing water developments (including springs, reservoirs, or waterhole projects developed between 1950-1976) could directly disturb previously unidentified archaeological sites and have indirect effects where livestock congregate around the water source. Livestock congregation, trailing, and bank shearing along perennial streams and springs can directly disturb site context, and excessive grazing of grasses and forbs can promote erosion of site soils by removal of vegetative cover. Salting at cultural site locations can result in stock trampling and sheet erosion which disturbs site context. This can be minimized by locating salt/mineral stations on existing roads.

Direct and Indirect Effects to Cultural Resources Common to all Alternatives
Potential effects to archaeological cultural properties include trampling that leads to horizontal and vertical displacement of archaeological or historic artifacts, artifact breakage, depletion of vegetation which increases the potential for erosion of sites, and destabilization of streambanks at site locations used by livestock. Since grazing has occurred in the allotment for the past 100 years, it is likely that archaeological surfaces in the area have been affected. Effects are most likely to occur to sites around water sources or at salt stations, where livestock tend to congregate. To the extent that any alternative reduces grazing impacts in sensitive locations adjacent to riparian areas or water sources, reduces soil erosion, and results in better distribution of livestock, would result in a reduction of potential short and long-term impacts to cultural resources.

Maintenance of existing projects would help alleviate congregation of livestock along stream bottoms and improve livestock distribution. In cases where no cultural resources are located at or near to existing projects, maintenance would have no effect on sites. Where cultural resources may be present at existing projects and may be affected by stock use or maintenance, these effects would be ongoing until mitigation measures are applied. Inventories of water development projects prior to new ground disturbing maintenance or reconstruction would provide an opportunity to identify and develop measures to mitigate grazing effects at known water sources. Mitigation measures for existing projects may include project redesign, abandonment, or fencing to exclude livestock from cultural resource areas.

3.12.3 Alternative 1

Since inventory is limited, there is insufficient information to determine the effects of continued current management on cultural resources and traditional foods for most of the allotments. In ten allotments where riparian and water quality standards were not met, it is assumed that current grazing management would continue to affect riparian areas, traditional foods and archaeological resources. Effects to any archaeological sites that may be present in or adjacent to riparian areas would be ongoing and similar to effects that have occurred in the past. Impacts could be long-term and detrimental where cultural resources exist in areas of livestock congregation.

3.12.4 Alternative 2

Alternative 2
If this alternative is implemented, livestock use on the public lands would be eliminated or reduced in nine allotments until standards are met. When livestock grazing is permitted to resume

management prescriptions would minimize livestock use of riparian areas and improve upland dispersal of livestock.

Since inventory is limited for most of the allotments, at present there is insufficient information to determine the effects of the alternative on cultural resources and traditional plants. It is assumed that grazing prescriptions that would reduce or eliminate grazing in riparian areas (streams and springs) would be beneficial to any previously unidentified archeological sites or traditional foods that may be present.

BLM assumes that meeting rangeland health standards provides the best overall protection to archaeological sites and traditional foods. If Alternative 2 moves allotments towards meeting rangeland health standards faster than Alternative 1 or 3, then it is assumed that this would be the most beneficial alternative to long-term preservation of archaeological sites and promotion of plant and animal resources important to tribes as treaty resources. However, the Pedro Mountain GU is highly fragmented by land ownership. The BLM expects that if livestock grazing is suspended on public lands the livestock operator would increase the stocking rate on the adjoining private lands. Overstocking adjacent private lands is likely to have adverse effects on the adjoining BLM lands and could negate protections of cultural resources (see cumulative effects section).

Alternative 2a
Same as Alternative 2 except the likelihood of the permittee extending the season of use on private lands would be greater under Alternative 2a. Permanent rest from livestock grazing in the Summit Springs, Rye Valley and the Bowman Flat allotments could have the potential to impact tribal grazing rights reserved under the treaty of 1855. To BLM's knowledge the current grazing permits are not held by tribal members of federally recognized tribes. However, permanent closure of grazing in Summit Springs, Rye Valley and Bowman Flat would also mean that these allotments would not be available to tribal members for grazing.

3.12.5 Alternative 3

Grazing prescriptions, utilization monitoring standards and projects are proposed within the 10 allotments, to achieve or make progress toward meeting rangeland health standards. These management prescriptions would minimize livestock use of riparian areas and improve upland dispersal of livestock. Potential beneficial effects of reducing livestock congregation in riparian areas are similar in nature to the (eliminate grazing) Alternative 2. For most of the allotments, inventory is limited, and thus at present there is insufficient information to determine the effects of the alternative on cultural resources. The BLM believes that actions to achieve or make progress in meeting rangeland health standards would be beneficial to cultural resources, including plant and animal resources. Alternative 3 would make progress towards meeting rangeland health standards, but is predicted to be at a slower rate than Alternative 2. Slower progress towards meeting standards would be less beneficial to the protection of archaeological, plant and animal resources important to the tribes.

The following projects (listed below) are proposed for 10 allotments and would be surveyed for cultural resources, when constructed on BLM lands or with federal dollars. Additional projects proposed under this alternative would provide an opportunity to gain further information and understanding about cultural resources in the 10 allotments where surveys are required. Some of the fencing projects listed below may occur on private lands without federal funding and therefore would not require a cultural resources survey. All fence projects, maintenance and repair projects,

and juniper and aspen treatments located on BLM lands or treated with federal dollars would be surveyed and consulted on prior to project implementation.

Potential Fencing and Juniper and Aspen Projects

- Dixie Creek: 0.7 miles allotment boundary gap fence (0.7 mile) (BLM)
- Bowman Flat: Poor's Creek riparian protection juniper cut falling (2 acres, 0.5 mile stream) (BLM)
- Rattlesnake: 2 miles allotment boundary fence (Private land boundary)
- French Creek: 2 miles of new allotment fence (Private land boundary)
- Hollowfield Canyon: Riparian protection through juniper cut and drop (1 acre, 0.25 mile stream) (Private land boundary)
- North Dixie: New division fence (1 mile); and 1 mile riparian exclosure fence (BLM)
- Lost Basin: Fence two spring sources; juniper and aspen falling (10 acres) (BLM)
- Upper Shirttail Creek: Ray Creek riparian protection juniper cut falling (2 acres, 0.2 mile stream)

3.12.6 Cumulative Impacts

Past and Present Actions

Past and present land management actions that have potential to have impacted cultural resources include off highway vehicle use, juniper treatment, livestock grazing, and mining. Lack of cultural survey data makes assessment of past and present impacts difficult. In general, incremental impacts are most likely going to occur due to OHV use, livestock management and mining. Over time these impacts have the potential to result in adverse effects. Where past livestock grazing and mining has resulted in 16.75 miles of riparian area not meeting the minimum riparian rangeland health standard and where livestock grazing is increasing the amount exposed soils within the Rye Valley, French Creek and Bowman Flat Allotments, incremental impacts to cultural resources are likely. Generally a decrease of riparian vegetation that leads to an increase in erosion would adversely impact cultural resources where present.

Of the 1,800 acres not meeting rangeland health standards approximately 250 acres have crossed an ecological threshold and are currently dominated by non-native annual grass. Most of these sites are in steep terrain which makes restoration difficult under current technology and knowledge. Changes to livestock grazing would not improve these sites to a desirable rangeland health condition but rather intensive treatments including herbicide treatments and re-seeding with desirable vegetation would be required. Steep terrain may make these areas less likely to contain cultural resources, but rehab that requires herbicide and re-seeding could increase the potential to impacts to cultural resources where present. Therefore, prior to ground disturbing treatments cultural resource surveys would be completed.

Similar to public lands, cultural resources of private lands within the Pedro Mountain area have likely been negatively impacted by off highway vehicle use, juniper reduction, livestock grazing and mining. Mining on private property can be particularly detrimental to cultural sites as private landowners do not have to comply with Section 106 of the NHPA and mining generally requires a

large amount of soil disturbance. In the past and present, cultural resources including treaty resources and archaeological resources have been lost (on private lands) to activities mentioned above.

Reasonable Foreseeable Actions

Past and present land management actions that have potential to have impacted cultural resources include off highway vehicle use, juniper treatment, livestock grazing, and mining. Lack of cultural survey data makes assessment of past and present impacts difficult. In general, incremental impacts are most likely going to occur due to OHV use, livestock management and mining. Over time these impacts have the potential to result in adverse effects. Where past livestock grazing and mining has resulted in 16.75 miles of riparian area not meeting the minimum riparian rangeland health standard and where livestock grazing is increasing the amount exposed soils within the Rye Valley, French Creek and Bowman Flat Allotments, incremental impacts to cultural resources are likely. Generally a decrease of riparian vegetation that leads to an increase in erosion would adversely impact cultural resources where present.

Of the 1,800 acres not meeting rangeland health standards approximately 250 acres have crossed an ecological threshold and are currently dominated by non-native annual grass. Most of these sites are in steep terrain which makes restoration difficult under current technology and knowledge. Changes to livestock grazing would not improve these sites to a desirable rangeland health condition but rather intensive treatments including herbicide treatments and re-seeding with desirable vegetation would be required. Steep terrain may make these areas less likely to contain cultural resources, but rehab that requires herbicide and re-seeding could increase the potential to impacts to cultural resources where present. Therefore, prior to ground disturbing treatments cultural resource surveys would be completed.

Similar to public lands, cultural resources of private lands within the Pedro Mountain area have likely been negatively impacted by off highway vehicle use, juniper reduction, livestock grazing and mining. Mining on private property can be particularly detrimental to cultural sites as private landowners do not have to comply with Section 106 of the NHPA and mining generally requires a large amount of soil disturbance. In the past and present, cultural resources including treaty resources and archaeological resources have been lost (on private lands) to activities mentioned above.

Overall Cumulative Effects for Cultural Resources

Alternative 1

Under Alternative 1, cultural resources where present, would continue to be impacted by reduced soil stability, increased erosion, vertical and horizontal head cutting, expansion of weeds and non-native grasses. Long-term cumulative negative impacts would be similar to current management and would have the most negative impacts of all the alternatives provided.

Alternative 2

Given a lack of data, it is assumed that the reduction of livestock grazing on public lands, until standards are met, would be beneficial to cultural resources. Under Alternative 2 cultural resources, where present, would see a reduction in impacts due to increased soil stability, reduced erosion, reduced weed expansion and non-native grass expansion. Overall this alternative should have the most beneficial impacts on cultural resources located on public land.

However, excluding or greatly reducing livestock grazing on public lands until standards are met would create a need for the livestock operators to increase the amount of livestock use on private lands within the Pedro Mountain GU. It is expected that the increase amount of livestock use on private would result in greater impacts to cultural resources located on private lands. In addition if the livestock operators increase the stocking rate on private land to offset the reduction on public lands there is a high likelihood that headcuts could occur on private land riparian and these headcuts could extend into adjoining ungrazed public lands. The amount of headcutting as a result of the expected increase in private land stocking rate would have adverse effects to cultural resources and may negate all beneficial effects of the imposed rest period.

Alternative 2a
Same as Alternative 2 except the likelihood of the permittee extending the season of use on private lands would be greater under Alternative 2a. It would also eliminate the potential for grazing in the Summit Spring, Rye Valley and Bowman Flat pastures indefinitely and would therefore have potential to negatively impact the tribe's ability to exercise grazing under their treaty rights, in these locations.

Alternative 3
Alternative 3 would be similar to Alternative 2, and would modify livestock management to improve uplands and riparian areas in order to meet rangeland health standards on public lands. The difference between these two alternatives would be that under Alternative 3 livestock grazing would not be excluded from grazing public lands and therefore improvements to rangeland health and soil stability are anticipated to be slower. It is assumed that a slower improvement would result in more impacts to cultural resources resulting from erosion, noxious weed and non-native grass expansion.

An increased number of soil disturbing projects are anticipated to occur under this alternative. Future juniper reduction, weed treatment, fencing and mine reclamation projects would provide additional opportunities to conduct cultural resource surveys and develop a better understanding of resources that may exist within this project area. Additional ground disturbing projects could also increase the risk of impacts to cultural resources not eligible to the National Register or for unanticipated and incremental impacts that are not foreseeable. Projects (mainly fencing) on private land could impact cultural resources as private lands do not have to comply with Section 106 of the NHPA.

It is assumed that the amount of public land AUMs authorized under Alternative 3 would not create a need for the livestock operator to significantly increase livestock use on private land. Therefore it is assumed that impacts to cultural resources on private lands would be similar to current levels and less than impacts under Alternative 2.

Under Alternative 3, overall cumulative effects on cultural resources would be less beneficial than Alternative 2. However, impacts on cultural resources located on private lands could be reduced and opportunities to obtain additional cultural resource data (on public lands) would increase due to Section 106 compliance for proposed projects. This alternative provides less overall protection than Alternative 2, but more protection to cultural resources than Alternative 1.

4 Cumulative Effects Analysis

The Council on Environmental Quality (CEQ) defines cumulative effects as 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 (40 CFR § 1508.7). A June 2005 CEQ memorandum states:

> The environmental analysis required under NEPA is forward-looking, in that it focuses on the potential impacts of Alternative 3 that an agency is considering. Thus, review of past actions is required to the extent that this review informs agency decision making regarding Alternative 3. This can occur in two ways:
>
> First, the effects of past actions may warrant consideration in the analysis of the cumulative effects of a proposal for agency action. CEQ interprets NEPA and CEQ's NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for action and its alternatives may have a continuing, additive and significant relationship to those effects. In determining what information is necessary for a cumulative effects analysis, agencies should use scoping to focus on the extent to which information is "relevant to reasonably foreseeable significant adverse impacts," is "essential to a reasoned choice among alternatives," and can be obtained without exorbitant cost (40 CFR § 1502.22). Based on scoping, agencies have discretion to determine whether, and to what extent, information about the specific nature, design, or present effects of a past action is useful for the agency's analysis of the effects of a proposal for agency action and its reasonable alternatives. Agencies are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions combined. Agencies retain substantial discretion as to the extent of such inquiry and the appropriate level of explanation (*Marsh v. Oregon Natural Resources Council,* 490 U.S. 360, 376-77 [1989]). Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.
>
> Second, experience with and information about past direct and indirect effects of individual past actions may also be useful in illuminating or predicting the direct and indirect effects of a proposed action. However, these effects of past actions may have no cumulative relationship to the effects of Alternative 3. Therefore, agencies should clearly distinguish analysis of direct and indirect effects based on information about past actions from a cumulative effects analysis of past actions.

This section summarizes the past, present, and reasonably foreseeable future effects of implementing a particular alternative. The Allotment Evaluations (2007) and Section 3 (Affected Environment) of this document served to provide the base-line for conditions as a result of past management actions, while the analysis in Section 3 of this document analyzes the effects of the present management and that which would occur if one of three alternatives were selected for the reasonably foreseeable future. Resources present in the GU were presented, alternatives analyzed,

and summary effects presented to indicate if a particular alternative would provide progress toward or meet specific resource objectives.

Alternative 1
Rangeland vegetation conditions and grazing use would continue to occur as described in the GU. Ongoing flexibility associated with existing management would remain unchanged. Customary permittee grazing practices would be fully maintained, and the financial obligations for BLM and permittees would include normal maintenance or reconstruction of existing projects.

The cumulative effects of existing management practices would not result in the attainment of rangeland health standards currently not being met as shown in Table 1. This includes not meeting objectives for riparian/wetland areas, terrestrial wildlife, and aquatic species and habitat due to adverse impacts on riparian and wetland functions. Cultural resources would not be protected in Lost Basin allotment because the springs would not be fenced. This alternative would result in little or no economic disruption to the permittees' ranching operations in the short term. Since current management is not achieving many rangeland health standards, it is reasonable to assume that over time authorized AUMs may need to be reduced if monitoring shows that the utilization standards and rangeland health standards cannot be achieved with the current level of AUMs, which would result in economic impact in the long term (3 years or more).

Alternative 2
This alternative would differ greatly from the current situation and result in substantial reductions in forage availability for livestock. Upland vegetation health would be protected because of the rest period in pastures where S&Gs were not met due to current livestock grazing. Grazing use would be allowed in remaining pastures at seasons and intensities consistent with maintenance and protection of upland and riparian vegetation. Limitations to grazing use caused by riparian and water quality concerns would be accomplished by some stream corridor fencing, but riparian concerns would primarily be addressed by adjustments in seasons of grazing use.

A diminished level of livestock management flexibility and sustained forage at a much reduced level would be provided to permittees. No livestock grazing would be authorized on public lands in those pastures that do not meet one or more standards until those standards are met. The cumulative impacts of this alternative would result in a high level of protection of resource values very similar to what has been described for Alternative 3, but at a higher level, because of diminished grazing use influences and periods of grazing rest in pastures not currently meeting standards until the standards are met. Improved protection of cultural resources and traditional foods would result with this alternative only if the livestock operator(s) decide not to overstock the adjoining private lands. If the livestock operator(s) increase the stocking rate on private land to offset the reduction on public lands there is a high likelihood that headcuts could occur on private land riparian and these headcuts could extend into adjoining ungrazed public lands. The amount of headcutting as a result of the increase expected increase in private land stocking rate would have adverse effects to cultural resources and my negate all beneficial effects of the imposed rest period.

Alternative 2
Same as Alternative 2 except the likelihood of the permittee extending the season of use on private lands would be greater under Alternative 2a.

Alternative 3
The cumulative effects of grazing season adjustments, grazing systems (deferment and rest), and fences would result in more evenly distributed grazing influences within uplands compared to Alternative 1. The land treatments proposed would temporarily increase some grass forage production available for grazing use and help to restore plant cover diversity. Upland vegetation health would be maintained or improved as a result of season of use and utilization limits. Grazing use would be allowed at seasons and intensities consistent with maintenance and protection of upland vegetation. Limitations to grazing use caused by riparian concerns would be accomplished by some stream corridor or exclusion fencing, but riparian concerns would primarily be addressed by adjustments in seasons of grazing use, and grazing systems that allow for plant regrowth, deferment, and periodic rest.

A reasonable level of livestock management flexibility and sustained forage availability would be provided to permittees with this alternative. Customary permittee grazing practices would be changed in order to protect riparian/wetland and upland vegetation health. Financial commitments necessary to implement the alternative would be secured by BLM as funding becomes available, and through cooperation with grazing permittees. Improved protection of cultural resources and traditional foods would result with this alternative.

5 Mitigating Measures

Mitigating measures are BLM administrative actions taken to reduce or eliminate adverse impacts resulting from BLM actions beyond those already described in ***Chapter 2, Design Features Common to***

All Alternatives.
Noxious Weeds and Other Invasive Plants
Standard Operating Procedures and Mitigation Measures in the OR EIS would be in effect, regardless of whether the current or new (expected in 2012) Programmatic invasive plant management EA is in effect. If the current program standards and best management practices (BMP) stated in the Vale District Programmatic Integrated Noxious Weed Management EA are more restrictive than the SOPs then they will be followed. Weed management activities would take place regardless of the Alternative chosen

6 Irreversible or Irretrievable Commitments of Resources

There are no known irreversible or irretrievable commitments of resources known to occur within the Pedro Mountain GU.

7 Monitoring

Rangeland Monitoring
Monitoring studies will be conducted in consultation with BLM grazing permittees and the interested public. BLM will use approved interagency resource monitoring methods, and apply professional judgment in determining if significant progress toward rangeland health is being achieved. BLM monitoring data will be interpreted by an interdisciplinary team of professionals in light of the best available data. This will be in accordance with the Baker RMP guidance and Oregon State Office guidance to monitor and evaluate grazing systems and adjust the systems and stocking levels as appropriate to meet objectives (USDI 1988).

Upland trend plots and riparian trend plots will be the primary means of monitoring, supplemented by utilization. End-of-growing season utilization targets and within-season utilization triggers will be measured on key or critical riparian areas. Methods used will be those approved in Technical Reference 1734-3 for utilization (USDI 1996a), Technical Reference 1734-4 for trend (USDI 1996b), or the Oregon BLM Rangeland Monitoring Handbook.

Fish and Riparian Monitoring

- Selected indicators from the Multiple Indicator Monitoring method (Burton et al. 2008) or other acceptable trend monitoring methods (Winward 2000) would be used to monitor the allotments to determine and observe changes in greenline vegetation and streambank stability.
- PFC and fish presence/absence surveys will be conducted as funding and personnel availability allows.

Weeds monitoring

- Known existing noxious weed sites will continue to be treated as priorities and funding allow under all of the alternatives. Monitoring for treatment effectiveness will occur annually. Periodic inventory for new sites will occur as funding allows.

Cultural monitoring

- Known or newly identified cultural sites will be monitored for grazing effects at least once during the 10 year term of the grazing permit. Additional monitoring may be conducted in conjunction with rangeland monitoring in the area. Monitoring to identify and document livestock grazing effects at known archaeological sites would be conducted by heritage staff and trained staff to be supervised in the field.
- If during the "First Food Project" surveys or BLM monitoring for rangeland health, areas of concern are identified, modifications to the grazing management systems may be made to address these areas of concern.

8 People, Agencies, and Native American Tribes Consulted

The following were notified regarding the actions proposed within this EA:

- Permittees
- Burns Paiute Tribe
- Confederated Tribes of the Colville Reservation
- Confederated Tribes of the Umatilla Indian Reservation
- Confederated Tribes of the Warm Springs Reservation
- Nez Perce Tribe
- Fort McDermitt Shoshone-Paiute Tribes
- Shoshone-Bannock Tribes of Fort Hall
- Shoshone-Paiute Tribes of Duck Valley
- Hells Canyon Preservation Council
- Oregon State Historic Preservation Office
- Oregon Department of Fish and Wildlife
- Hells Canyon Preservation Trust
- Christopher Christie

8.1 Summary of Public Comments Received

In developing the EA, BLM worked with permittees and other interested individuals to build the alternatives. We held public meetings and provided a public comment period. We received written comments from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and the, Hells Canyon Preservation Council (HCPC). These comments were insightful, carefully thought out, and valuable. The comments and suggestions helped us fine-tune the standard design features and monitoring procedures, as well as clarify information in the final EA.

For example, CTUIR requested the following changes be made to the EA:

- clarify the treaty rights and the project effects to these
- requested better display of past and future grazing uses by allotment
- clarify BLM proposals to improve riparian areas
- requested additional habitat improvement projects
- clarify BLM efforts to properly identify historic properties and compliance with the NHPA.
- clarify BLM expectations to insure project maintenance
- clarify how BLM insured cultural resource surveys were and will continue to be conducted
- requested reasons for no AUM reductions in 2 allotments where standards are not met
- disagrees with BLM description of sage-grouse use of the allotment and requests further changes to improve habitat
- suggests alternative grazing season of use in some allotments
- requests further exchange of tribal use information with BLM
- suggests BLM conclusions that improved rangeland health results in improved protection of cultural resources is not necessarily correct.
- expresses concern as to whether BLM will assure protection projects will be funded and completed.
- wish to see BLM commitment to completion of monitoring, adaptive management and willingness to work with landowners and permittees.

HCPC requested the following changes be made to the EA:

- suggests the alternatives will not make significant progress towards meeting rangeland health standards.
- suggests that early season regrowth is not reasonable to expect due to drought.
- suggests BLM has not accounted for negative grazing impacts to public lands found in literature cited.
- suggests careful evaluation of stream and riparian protection measures are needed. This would include protection for red-band trout.
- suggests the alternatives will not meet requirements to improve standard 2.
- concern the proposed alternative will cause negative impacts to sage-grouse.
- suggests the proposed alternative will not be compliant with BLM sage-grouse strategy due to new fences and not restoring riparian habitats.
- suggests and EIS is necessary to accomplish a more detailed analysis and decision.
- suggests the EA did not consider direct, indirect or cumulative impacts.
- suggests a more detailed analysis of cumulative effects is needed to assure protection for sage-grouse, redband trout and pygmy rabbit.
- suggests BLM is not in compliance with FLPMA nondegredation mandate and is inconsistent with the existing Baker RMP.

- suggests BLM evaluate further the broader scope of economic, and recreation impacts from continued noncompliance with the requirement to meet rangeland standards.
- suggests the BLM has not completed the wilderness characteristics requirements.
- suggests the BLM is not financially solvent to implement the proposed projects.

BLM has taken all comments into careful consideration, made modifications throughout the document to address clarification requests, compliance documentation and clarification requests.

9 Authors

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Kevin McCoy	Outdoor Recreation Planner
Melissa Yzquierdo	Wildlife Biologist/Botanist
Jon Sadowski	Wildlife Biologist (retired/contractor)
Todd Kuck	Hydrologist / Assistant Field Manager
Mike Woods	Range Conservationist / Soils
Katy Coddington	Archaeologist
Mary Oman	Archaeologist (retired)
Erin McConnell	Noxious Weed Specialist
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11 Supporting Information

11.1 *Appendices*

11.1.1 Appendix 1 – Oregon and Washington BLM Standards and Guidelines (S&Gs)

Standards for Rangeland Health

- *Standard 1* – Watershed Function – Uplands: upland soils exhibit infiltration and permeability rates, moisture storage, and stability that are appropriate to soil, climate, and landform.
- *Standard 2* – Watershed Function --Riparian/wetland areas: riparian-wetland areas are in properly functioning physical condition appropriate to soil, climate, and landform.
- *Standard 3* – Ecological Processes –Uplands: healthy, productive and diverse plant and animal populations and communities appropriate to soil, climate, and landform are supported by ecological processes of nutrient cycling, energy flow, and the hydrologic cycle.
- *Standard 4* – Water Quality: surface water and ground water quality, influenced by agency actions, complies with State water quality standards.
- *Standard 5* – Native, Threatened and Endangered (T&E), and Locally Important Species: habitats support healthy, productive, and diverse populations and communities of native plants and animals (including special status species and species of local importance) appropriate to soil, climate, and landform.

Guidelines for Livestock Grazing Management

1. The season, timing, frequency, duration and intensity of livestock grazing use will be based on the physical and biological characteristics of the site and the management unit in order to;

- provide adequate cover (live plants, plant litter and residue) to promote infiltration, conserve soil moisture and to maintain soil stability in upland areas
- provide adequate cover and plant community structure to promote streambank stability, debris and sediment capture, and floodwater energy dissipation in riparian areas.
- promote soil surface conditions that support infiltration
- avoid sub-surface soil compaction that retards the movement of water in the soil profile
- help prevent the increase and spread of noxious weeds
- maintain or restore diverse plant populations and communities that fully occupy the potential rooting volume of the soil
- maintain or restore plant communities to promote photosynthesis throughout the potential growing season
- promote soil and site conditions that provide the opportunity for the establishment of desirable plants
- protect or restore water quality

- provide for the life cycle requirements, and maintain or restore the habitat elements of native (including T&E, special status, and locally important species) and desired plants and animals.

2. Grazing management plans will be tailored to site-specific conditions and plan objectives. Livestock grazing will be coordinated with the timing of precipitation, plant growth and plant form. Soil moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.

3. Grazing management systems will consider nutritional and herd health requirements of the livestock.

4. Integrate grazing management systems into the year-round management strategy and resources of the permittee(s) or lessee(s). Consider the use of collaborative approaches (e.g., Coordinated Resource Management, Working Groups) in this integration.

5. Consider competition for forage and browse among livestock, big game animals, and wild horses in designing and implementing a grazing plan.

6. Provide periodic rest from grazing for rangeland vegetation during critical growth periods to promote plant vigor, reproduction and productivity.

7. Range improvement practices will be prioritized to promote rehabilitation and resolve grazing concerns on transitory grazing land.

8. Consider the potential for conflict between grazing use on public land and adjoining land uses in the design and implementation of a grazing management plan.

11.1.2 Appendix 2– Potential Species of Concern for Pedro Mountain GU

Species	Listed As	Present on Site	Description
Avian Species			
Bald eagle (*Haliaeetus Leucocephalus*)	T	No known occurrence	Inadequate habitat
Yellow-billed cuckoo (*Coccyzus americanus*)	CS	No known occurrence	Inadequate habitat
Northern goshawk (*Accipter gentilis*)	SC	No known occurrence	Inadequate habitat
Western burrowing owl (*Athene cunicularia hypugea*)	SC	Possible	Supportive habitat
Ferruginous hawk (*Buteo regalis*)	SC	Possible	Supportive habitat
Greater sage-grouse (*Centrocerus urophasianus*)	SC	Yes	Supportive habitat
Olive-sided flycatcher (*Contopus cooperi*)	SC	No known occurrence	Inadequate habitat
Willow flycatcher (*Empidonax trailli adastus*)	SC	No known occurrence	Inadequate habitat
Yellow-breasted chat (*Icteria virens*)	SC	No known occurrence	Inadequate habitat
Lewis' woodpecker (*Melanerpes lewis*)	SC	No known occurrence	Inadequate habitat
Mountain quail (*Oreortyx pictus*)	SC	No known occurrence	Inadequate habitat
White-headed woodpecker (*Picoides albolavatus*)	SC	No known occurrence	Inadequate habitat
Mammal Species			
Pygmy rabbit (*Brachylagus idahoensis*)	SC	Possible	Supportive habitat
Pale western big-eared bat (*Corynorhinus townsendii pallescens*)	SC	No known occurrence	Species occurrence not known
California wolverine (*Gulo gulo luteus*)	SC	No known occurrence	Inadequate habitat
Silver-haired bat (*Lasionycteris noctivagans*)	SC	No known occurrence	Potential habitat/ unsurveyed
Small-footed myotis (bat) (*Myotis ciliolabrum*)	SC	No known occurrence	Potential habitat/ unsurveyed
Long-eared myotis (bat) (*Myotis evotis*)	SC	No known occurrence	Potential habitat/ unsurveyed
Fringed myotis (bat) (*Myotis thysanodes*)	SC	No known occurrence	Potential habitat/ unsurveyed
Long-legged myotis (bat) (*Myotis volans*)	SC	No known occurrence	Potential habitat/ unsurveyed
Yuma myotis (bat) (*Myotis yumanensis*)	SC	No known occurrence	Potential habitat/ unsurveyed
California bighorn (*Ovis canadensis californiana*)	SC	No known occurrence	Inadequate habitat
Preble's shrew (*Sorex preblei*)	SC	No known occurrence	Supportive habitat
Fish Species			
Bull trout (Columbia River Basin) (*Salvelinus confluentus*)	T/CH	Historic/No known occurrence	Inadequate habitat
Interior redband trout (*Oncorhynchus mykiss gibbsi*)	SC	Yes	Supportive habitat
Amphibian and Reptile Species			
Columbia spotted frog (*Rana luteiventris*)	CS	No known occurrence	Inadequate habitat
Tailed frog (*Ascaphus truei*)	SC	No known occurrence	Inadequate habitat
Northern sagebrush lizard (*Sceloporus graciosus graciosus*)	SC	No known occurrence	Inadequate habitat
Plant Species			
Howell's spectacular thelypody (*Thelypodium howellii ssp. Spectabilis*)	T	No known occurrence	Inadequate habitat
Slender moonwort (*Botrychium lineare*)	CS	No known occurrence	Inadequate habitat
Wallowa ricegrass (*Achnatherum wallowaensis*)	SC	No known occurrence	Inadequate habitat
Upward-lobed moonwort (*Botrychium ascendens*)	SC	No known occurrence	Inadequate habitat
Crenulate grape-fern (*Botrychium crenulatum*)	SC	No known occurrence	Inadequate habitat
Mountain grape-fern (*Botrychium montanum*)	SC	No known occurrence	Inadequate habitat
Twin spike moonwort (*Botrychium paradoxum*)	SC	No known occurrence	Inadequate habitat
Stalked moonwort (*Botrychium pedunculosum*)	SC	No known occurrence	Inadequate habitat
Clustered lady's-slipper (*Cypripedium fasciculatum*)	SC	No known occurrence	Inadequate habitat
Cronquist's stickseed (*Hackelia cronquistii*)	SC	No known occurrence	Inadequate habitat
Red-fruited desert parsley (*Lomatium erythrocarpum*)	SC	No known occurrence	Inadequate habitat
Cusick's lupine (*Lupinus lepidus var. cusickii*)	SC	No known occurrence	Inadequate habitat
Oregon semaphore grass (*Pleuropogon oregonus*)	SC	No known occurrence	Inadequate habitat
Snake River goldenweed (*Pyrrocoma radiata*)	SC	No known occurrence	Inadequate habitat
Biennial stanleya (*Stanleya confertifl*)	SC	No known occurrence	Inadequate habitat

(E) - Listed Endangered (T) - Listed Threatened (CH) - Critical Habitat has been designated for this species (CS) - Candidate Species
(PE) - Proposed Endangered (PT) - Proposed Threatened (PCH) - Critical Habitat has been proposed for this species (SC) - Species of Concern

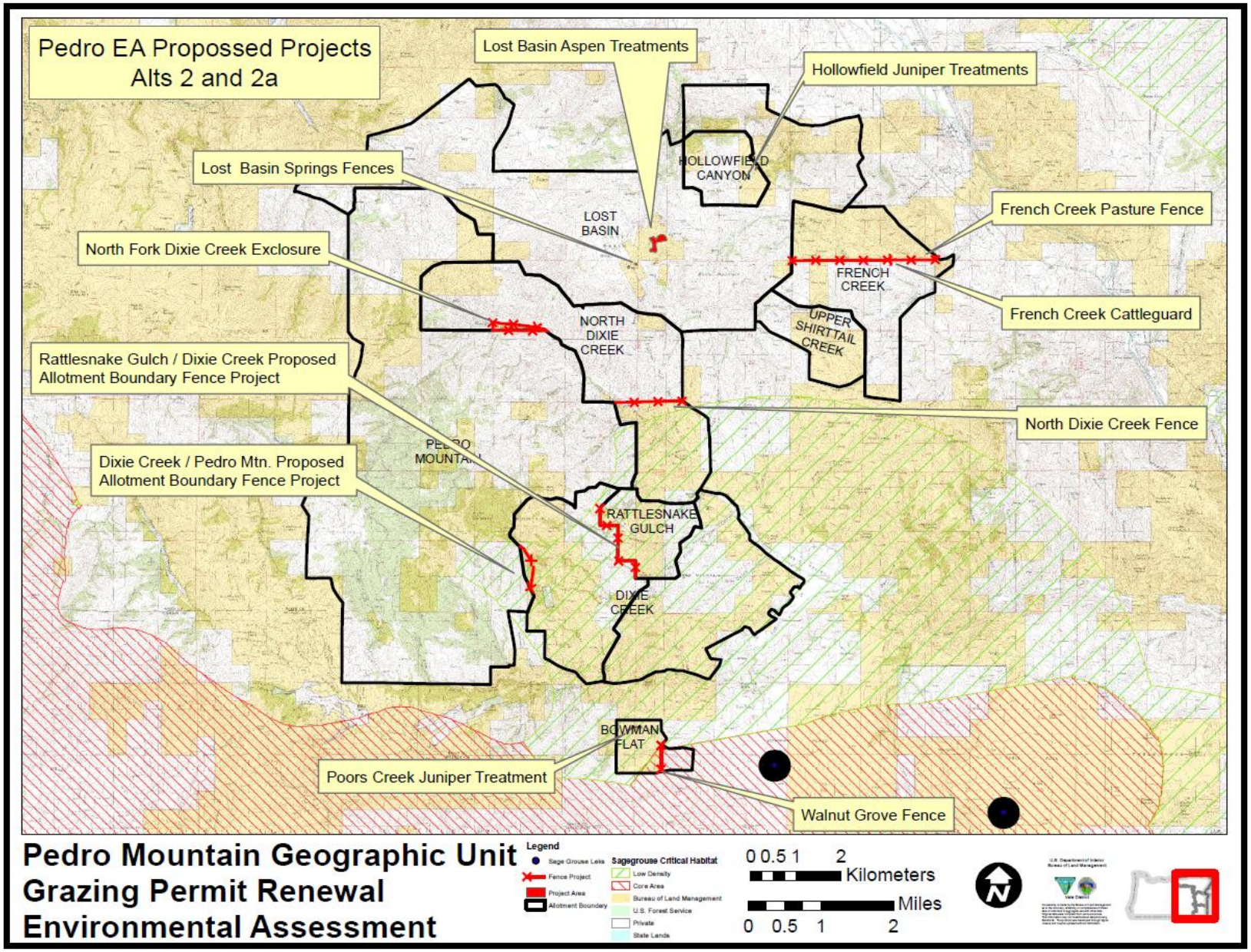
11.1.3 Appendix 3 – Acronyms

Refer to the list below for acronyms that may have been used in this document.

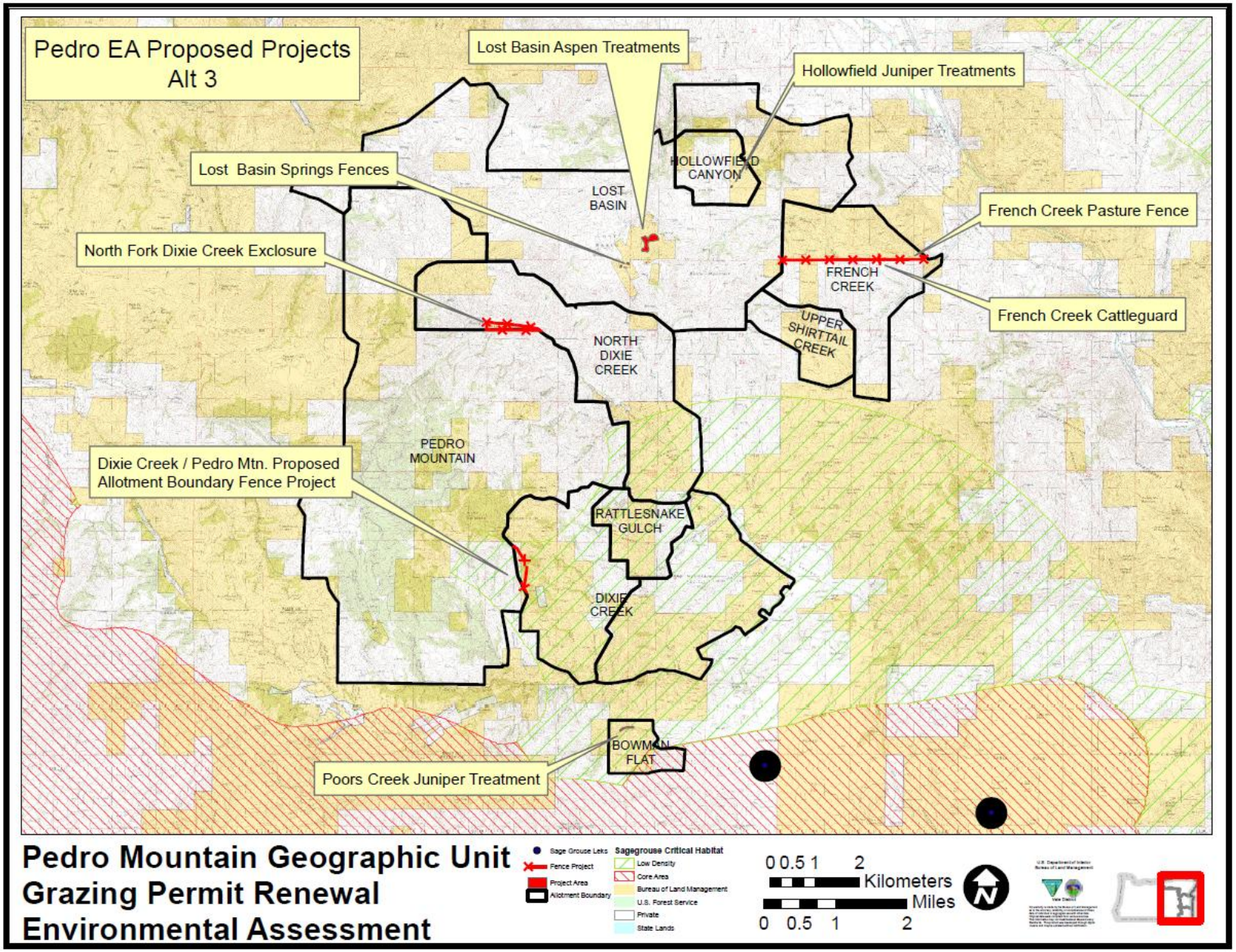
ACEC	area of critical environmental concern
AMP	allotment management plan
AUM	animal unit month
BLM	Bureau of Land Management
BMP	best management practices
BRA	Baker Resource Area
C	custodial (with reference to allotment categorization)
CEQ	United States Council on Environmental Quality
CFR §	Code of Federal Regulations
CFS	cubic feet per second
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWWR	clean water and watershed restoration
DNA	determination of NEPA adequacy
DO	dissolved oxygen
EA	environmental assessment
EIS	environmental impact statement
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FARD	functioning at risk, downward trend
FARN	functioning at risk, trend not apparent
FARU	functioning at risk, upward trend
FLPMA	Federal Land Policy and Management Act
GIS	geographic information system
GU	geographic unit
HUC	hydrologic unit code
I	improve (with reference to allotment categorization)
M	maintain (with reference to allotment categorization)
MIM	multiple indicator monitoring
MO	management objective
NEPA	National Environmental Policy Act
NF	non-functioning
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NTU	nephelometric turbidity unit
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
OHV	off-highway vehicle
ORV	outstandingly remarkable value
PFC	proper functioning condition
PNC	potential natural community

RM	river mile
RMP	resource management plan
ROD	record of decision
S&Gs	standards for rangeland health
SHPO	State Historic Preservation Office
SWCA	Steven W. Caruthers and Associates (with reference to environmental consultants)
T&E	threatened and endangered
TMDL	total maximum daily load
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFWS	United States Fish and Wildlife Service
VRM	visual resource management
WSA	wilderness study area

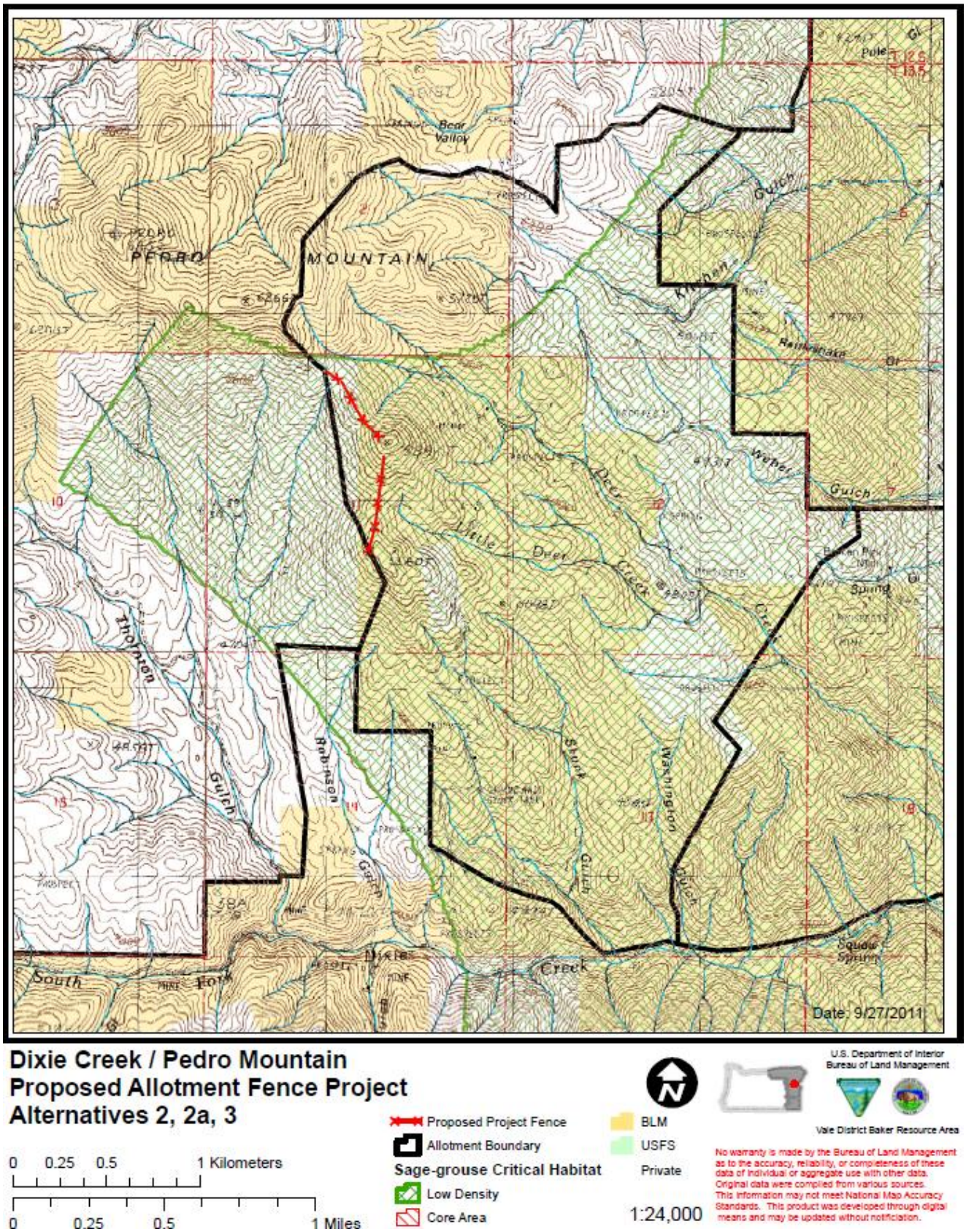
11.1.4 Appendix 4 – Map 1: Alternative 2 and 2a proposed projects and sage-grouse habitat.



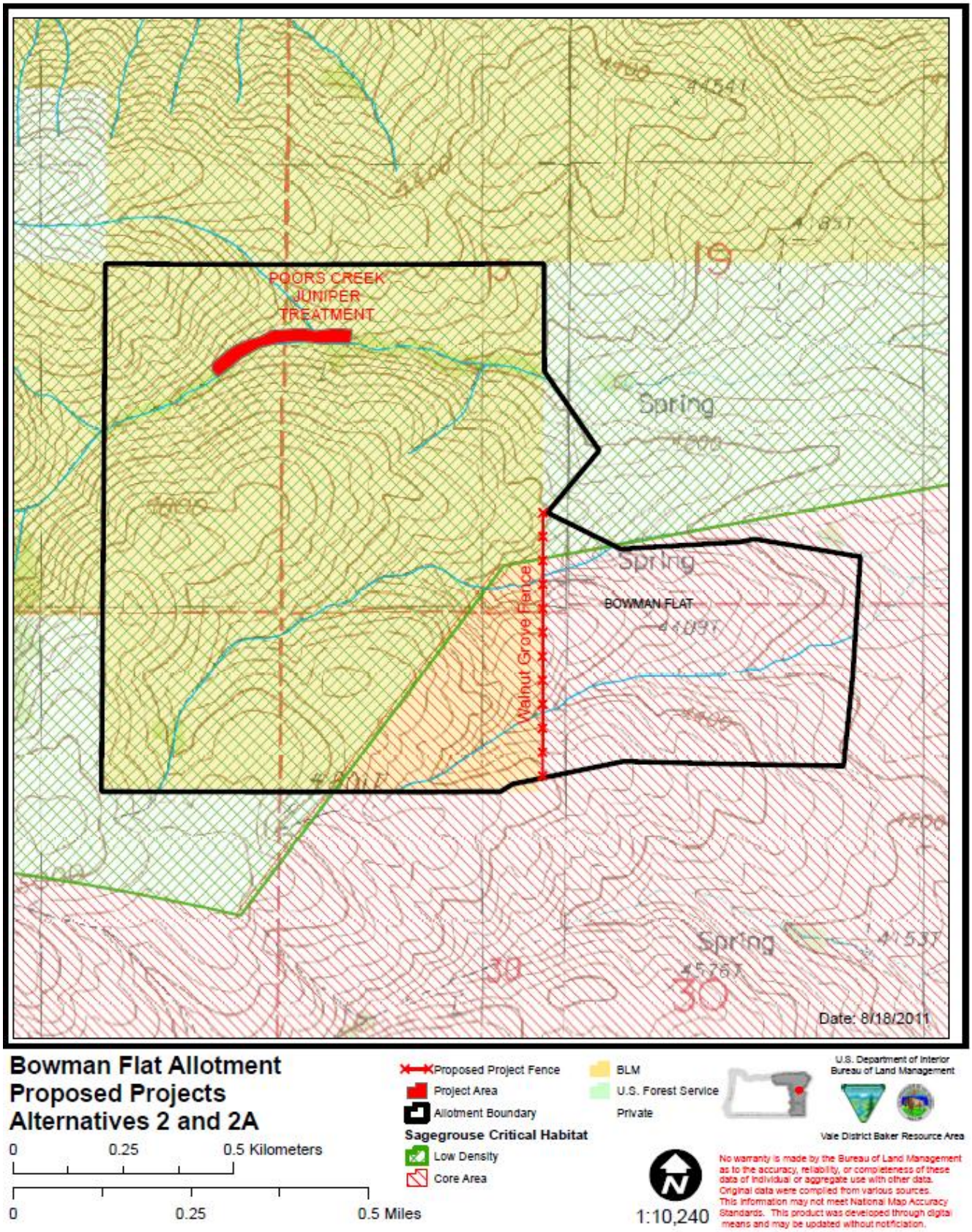
11.1.5 Appendix 5 – Map 2: Alternative 3 proposed projects and sage-grouse habitat.



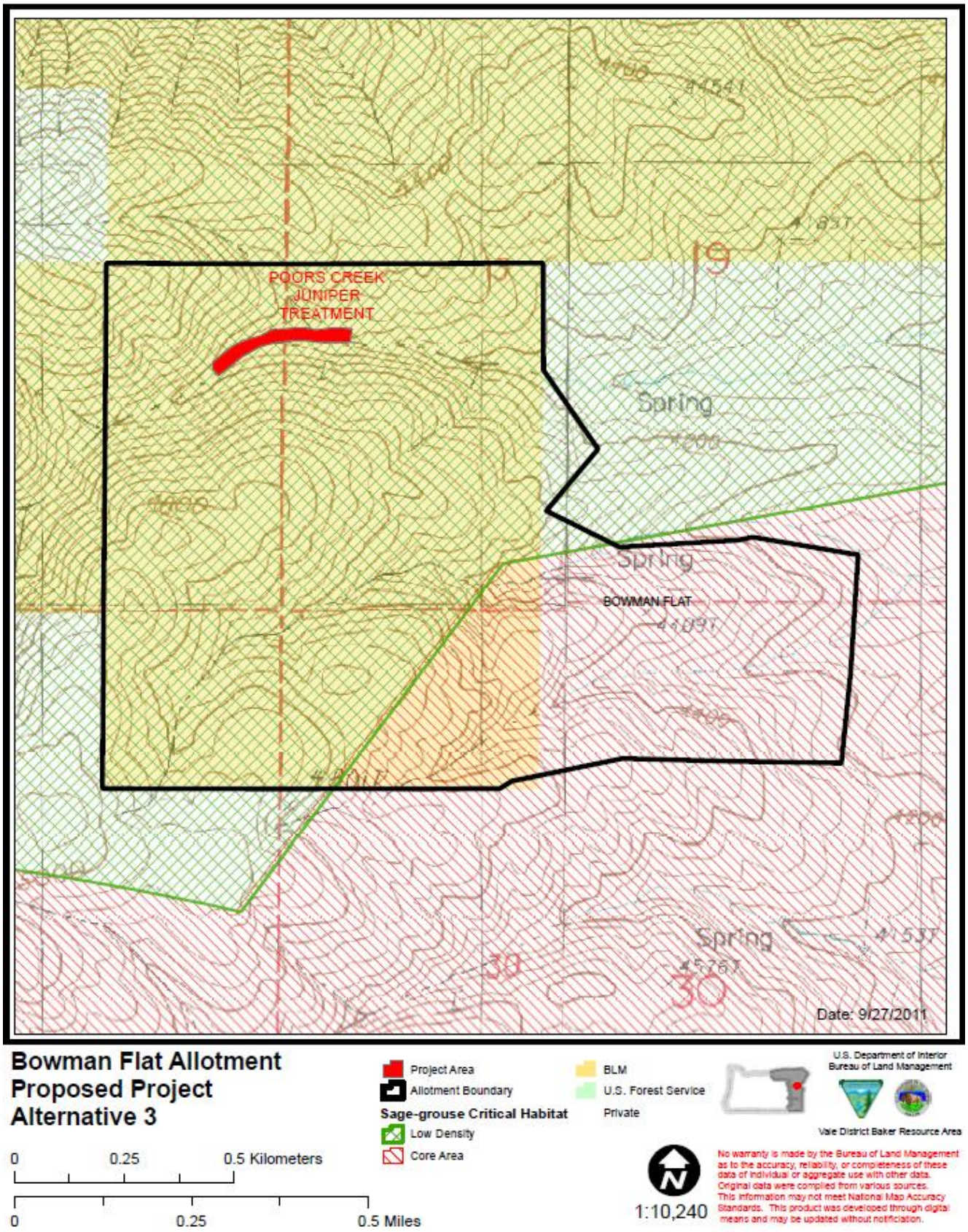
11.1.6 Appendix 6 – Map 3: Alternatives 2, 2a, and 3 Dixie Creek proposed fence project.



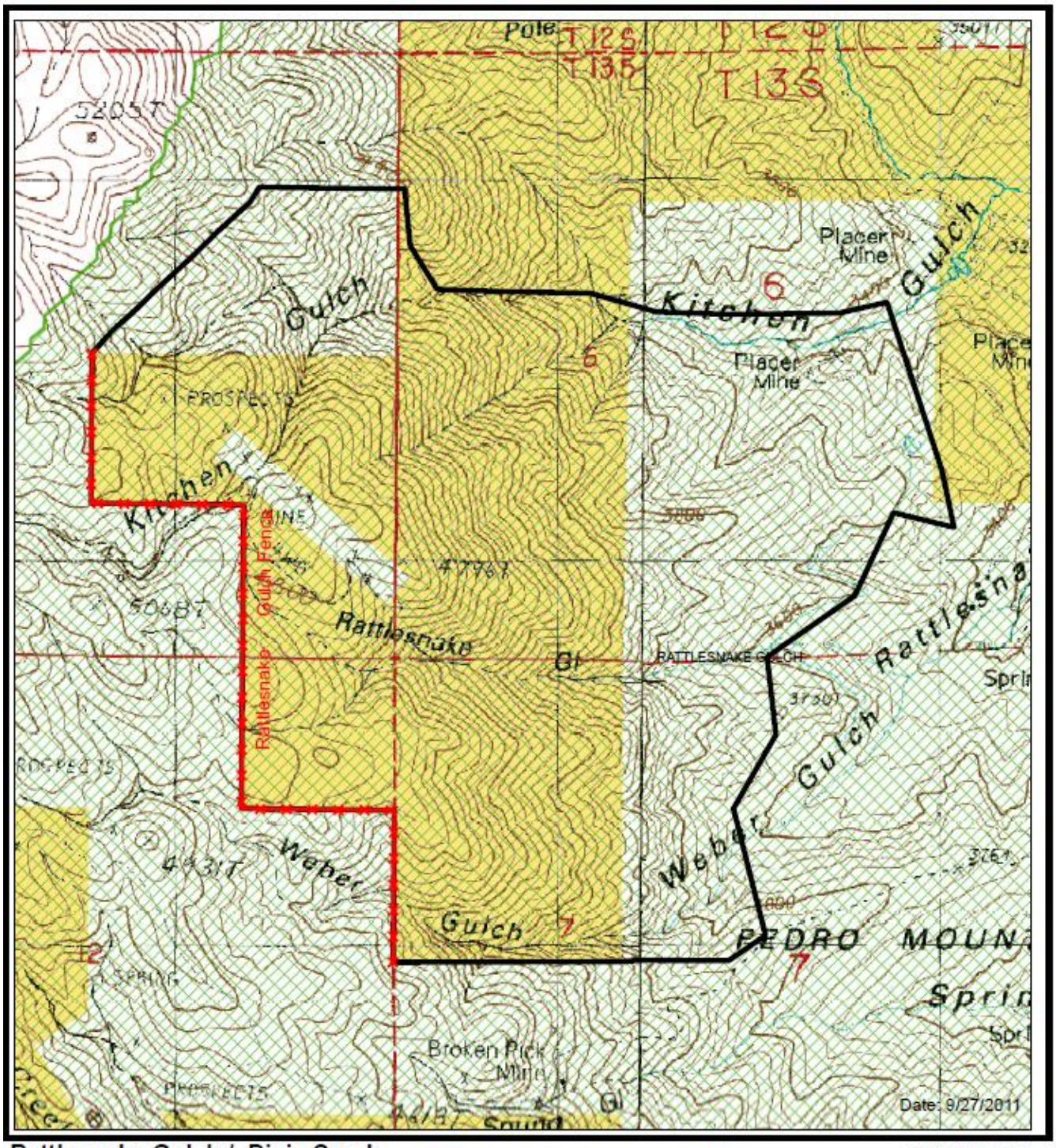
11.1.7 Appendix 7 – Map 4: Alternative 2 and 2a Bowman Flat Allotment proposed fence and juniper treatment projects.



11.1.8 Appendix 8 – Map 5: Alternative 3 Bowman Flat Allotment proposed juniper treatment project.



11.1.9 Appendix 9 – Map 6: Alternative 2 and 2a Rattlesnake Gulch proposed fence project.



Rattlesnake Gulch / Dixie Creek Proposed Allotment Boundary Fence Project Alternatives 2, 2a

0 0.25 0.5 Kilometers

0 0.25 0.5 Miles

Proposed Project Fence
Project Area
Allotment Boundary

Sage-grouse Critical Habitat

Low Density
Core Area

BLM
USFS
Private

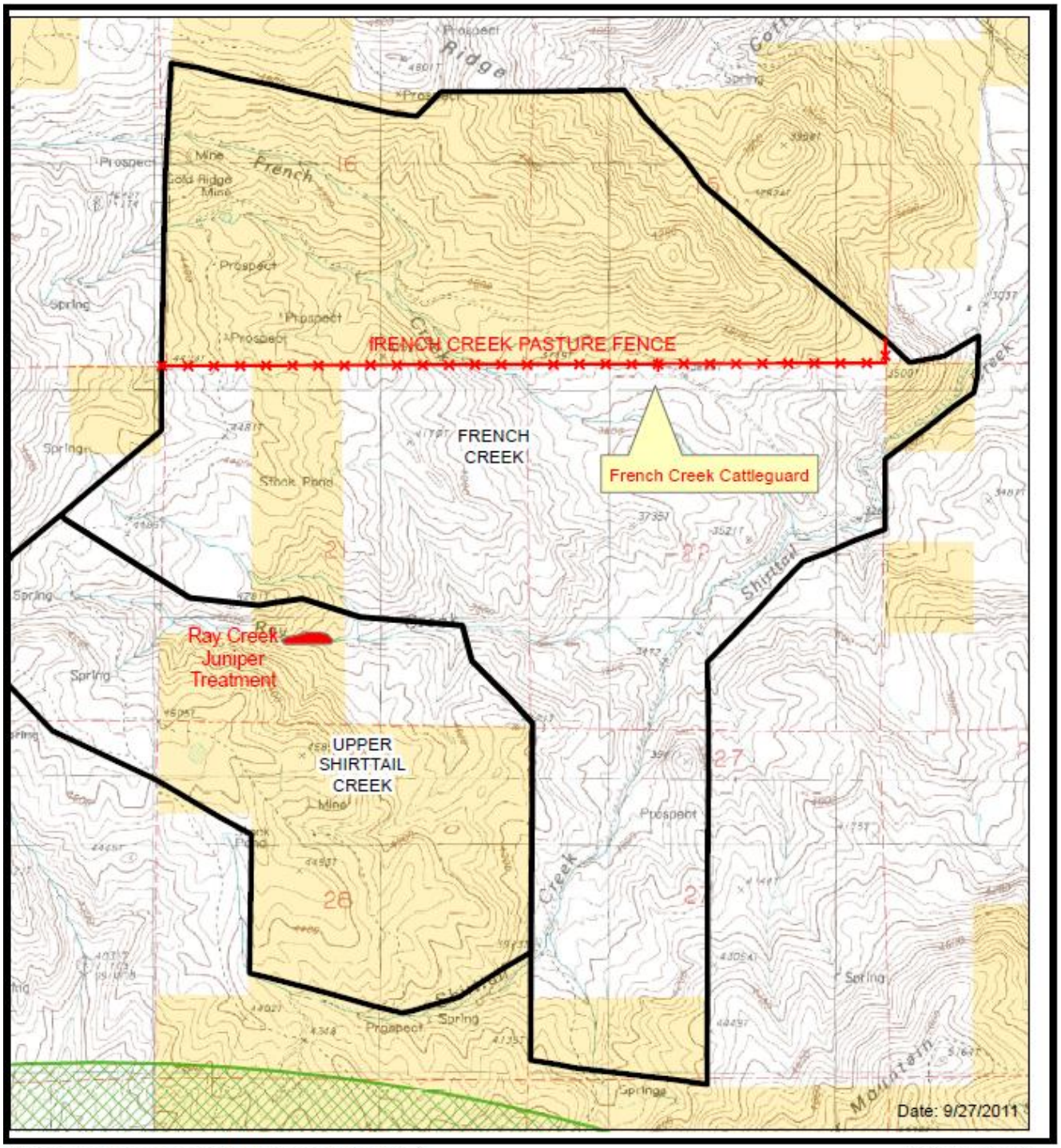
1:12,850

U.S. Department of Interior
Bureau of Land Management

ie District Baker Resource Area

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

11.1.10 Appendix 10 – Map 7: Alternatives 2, 2a and 3 French Creek Allotment proposed fence and Upper Shirttail Creek Allotment juniper treatment projects.



French Creek and Upper Shirttail Allotments Proposed Projects Alternatives 2, 2a, 3

Proposed Project Fence
Project Area
Allotment Boundary
Sage-grouse Critical Habitat
Low Density
Core Area
BLM
U.S. Forest Service
Private

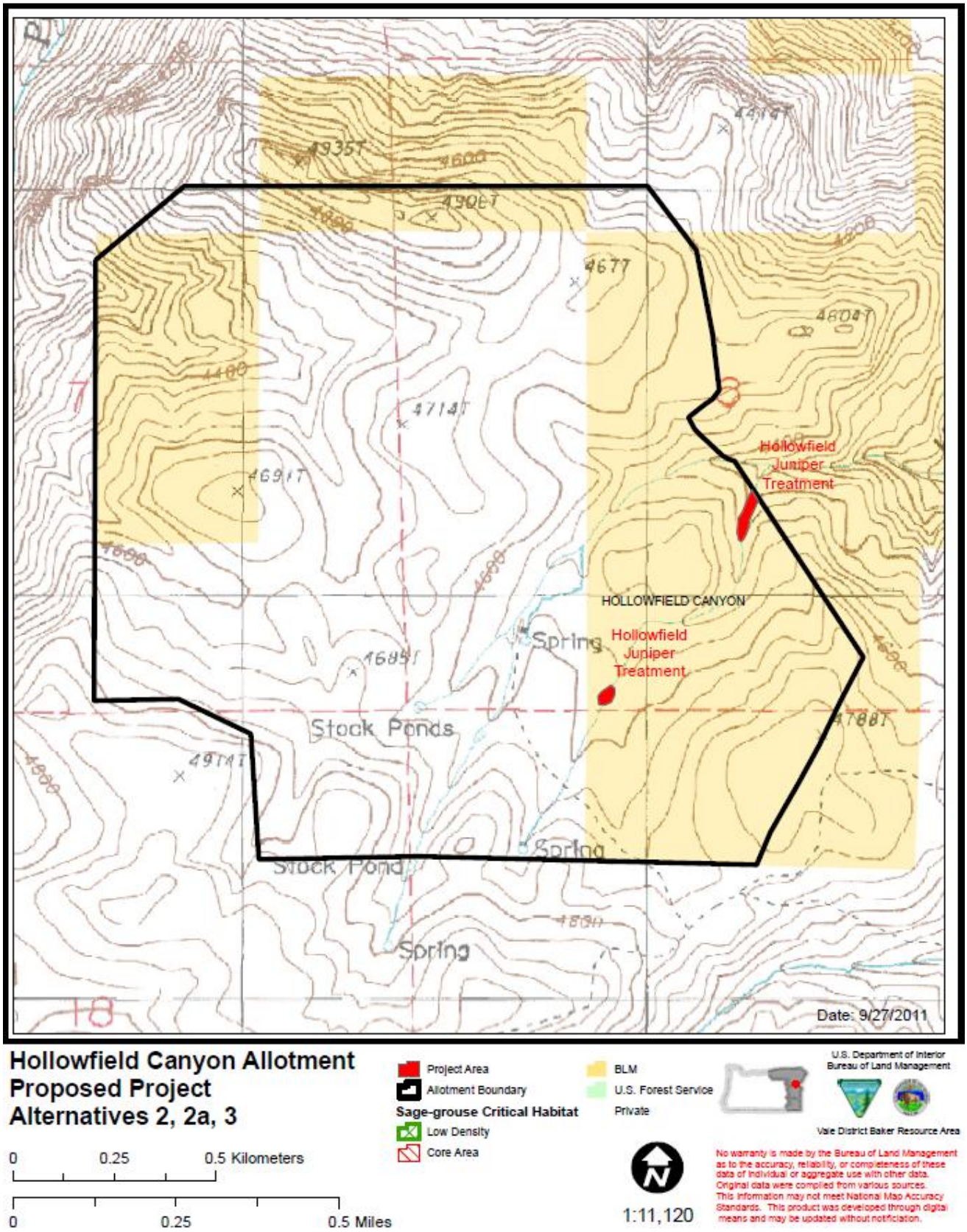
0 0.25 0.5 1 Kilometers
0 0.25 0.5 Miles

1:21,710

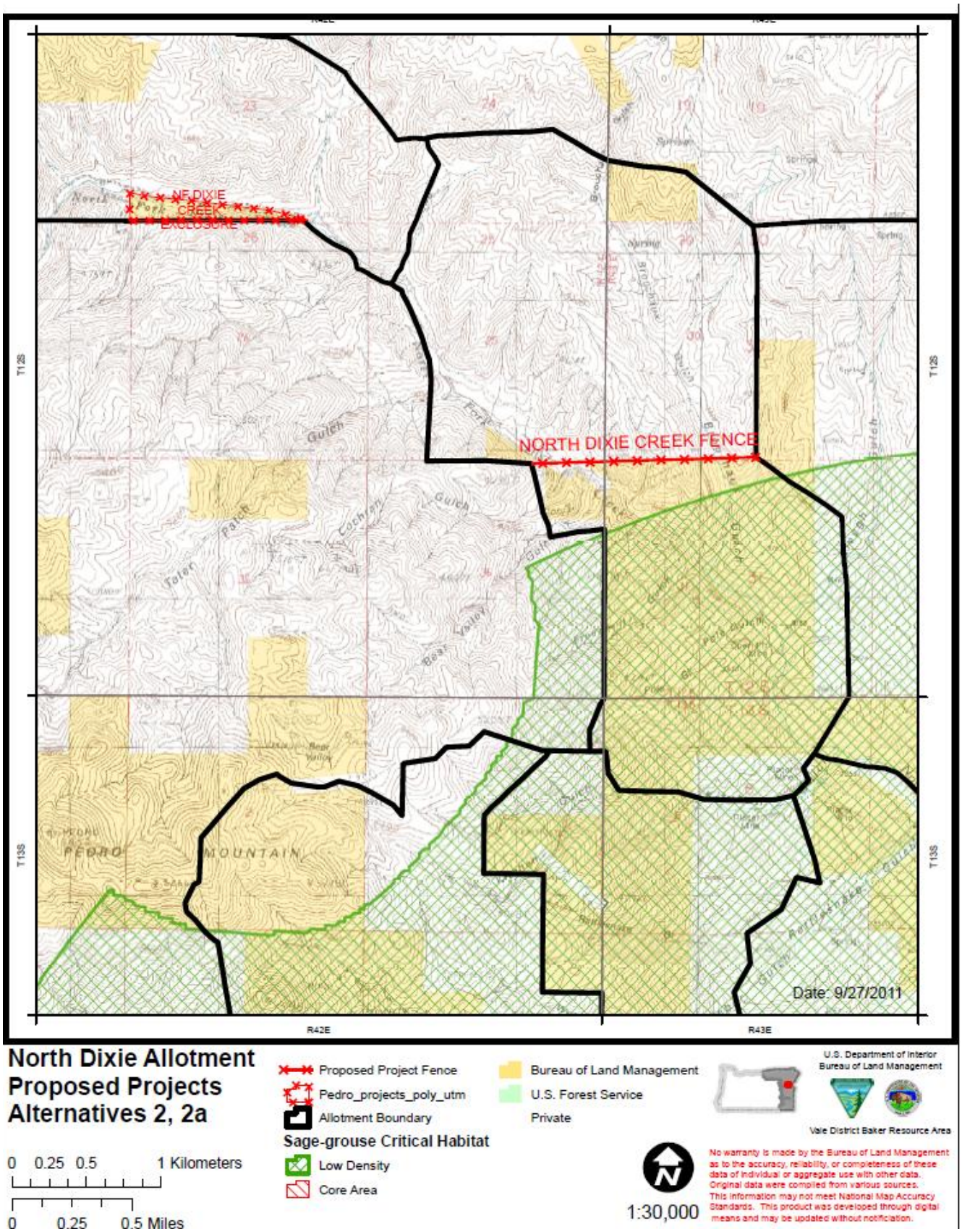
U.S. Department of Interior
Bureau of Land Management
Vale District Baker Resource Area

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

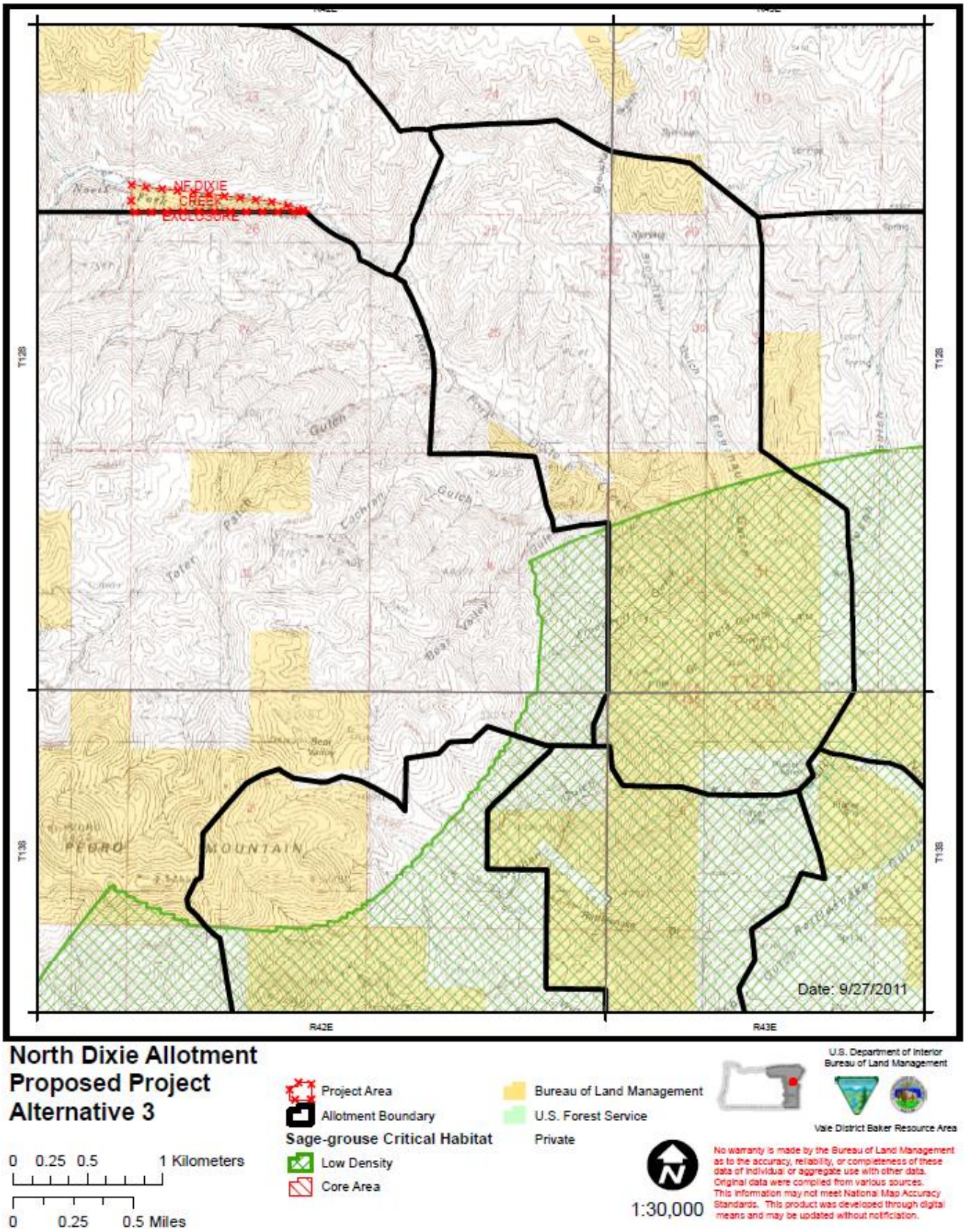
11.1.11 Appendix 11 – Map 8: Alternatives 2, 2a and 3 Hollowfield Canyon Allotment juniper treatment projects.



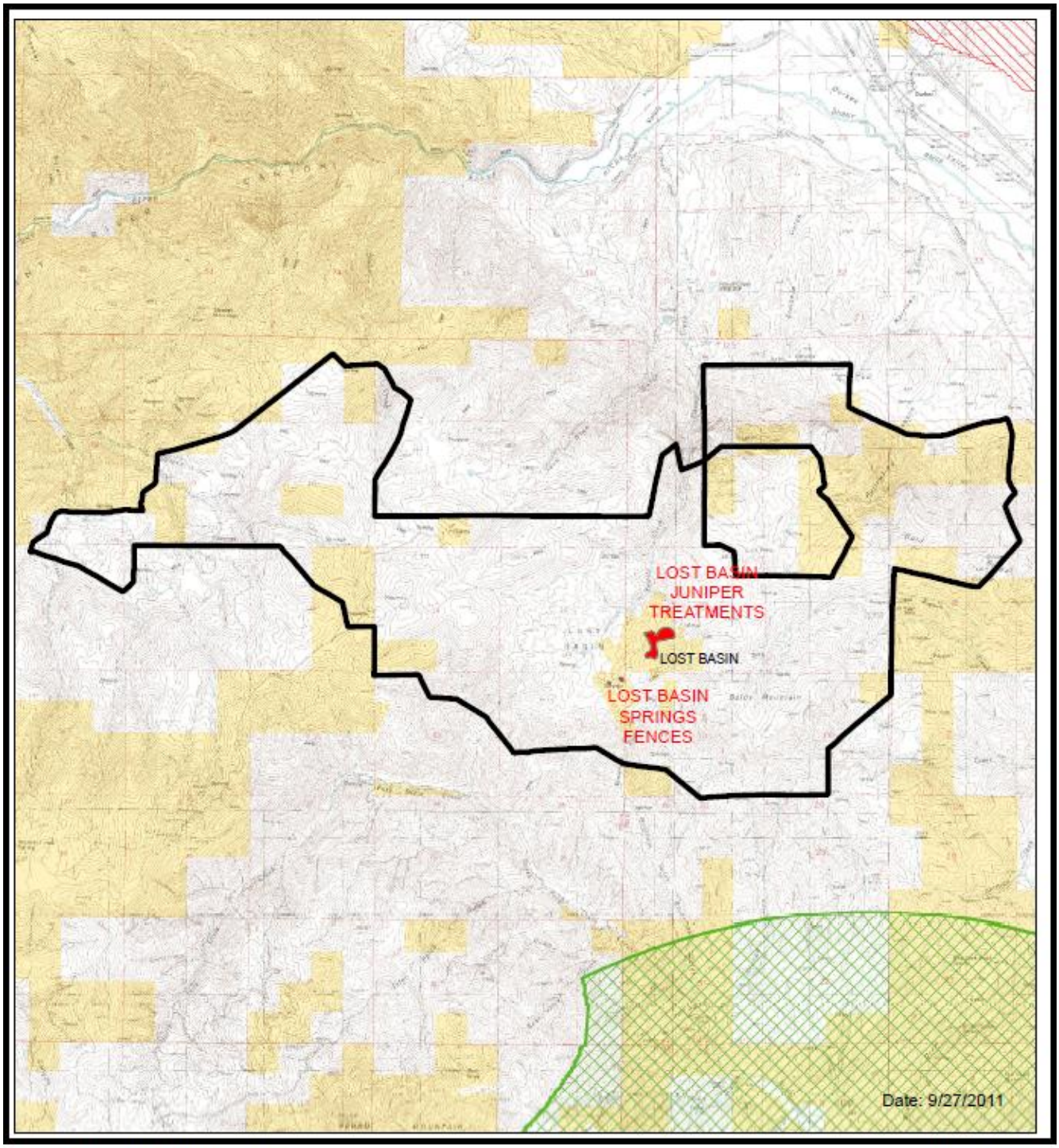
11.1.12 Appendix 12 – Map 9: Alternative 2 and 2a North Dixie Creek Allotment proposed fence projects.



11.1.13 Appendix 13 – Map 10: Alternative 3 North Dixie Creek Allotment proposed fence project.



11.1.14 Appendix 14– Map 10: Alternatives 2, 2a and 3 Lost Basin Allotment proposed fence and juniper treatment projects.



11.1.15 Appendix 15– BLM response to public comments and edits to final EA in response to public comment

BLM response to comments

HCPC Comment

The Department of Interior's Fundamentals of Rangeland Health regulations (FRH) require the BLM to assess ecological conditions on the public lands, and then make an evaluation whether specific rangeland health standards are, or are not, being met in those areas. If standards are not being met, and the BLM determines that existing grazing management or levels of grazing use are significant causal factors for the failure, the plain language of the FRH regulations expressly require BLM to revise grazing management "as soon as practicable, but not later than the start of the next grazing year" by adopting changes in livestock numbers, seasons of use, or other terms and conditions that "will result in significant progress toward fulfillment of" the FRH Standards & Guidelines. 43 C.F.R. § 4180.1 & 4180.2(c)(emphasis added).

BLM Response:

The BLM implemented an interim livestock grazing management strategy during the 2007 grazing season which is consistent with FRH Standards & Guidelines. 43 C.F.R. §§ 4180.1 & 4180.2(c) (see page iii, 2 and 17).

HCPC Comment
This EA covers the 10 out of 17 allotments with the Pedro Mountain GU that are failing to meet OR/WA Rangeland Health Standards. Of these 10 allotments, all are failing to meet Standard 2 (watershed functions for riparian areas); 7 are failing to meet Standard 4 (water quality); 3 allotments are failing to meet Standards 3 (ecological processes) and 5 (native, T&E, or locally important species); and 2 allotments are failing to meet Standard 1 (watershed function, uplands). BLM's selected alternative, Alternative 3, only proposes minimal adjustments to the current grazing management, which are sure to fall short of meeting the agency's legal obligation to make changes that ""will result in significant progress toward fulfillment of" Rangeland Health Standards.

BLM Response:
Alternative 3 uses the best available science to develop livestock grazing management that has been shown to improve elements of rangeland health (see pages 4, 6, 10, 17, 23, 24, 31, 64 and68)

HCPC Comment
HCPC is disappointed to see that the BLM's selected alternative would only make modest AUM reductions to two of these failing allotments. HCPC does appreciate the BLM's proposal to alternate between spring and fall grazing and officially eliminate "hot season" grazing. However, with respect to most of these allotments these changes do not appear to be much different than the current "actual" seasons of use, rather than the agency's comparison to the seasons of use contained in the existing permits. The EA seems to indicate that these "changes" in seasons of use have actually been implemented since 1995, yet "the rangeland health standards still are short of being met…" EA, p. 46. Thus, if BLM's so-called season of use adjustments will, for the most part, only update the new permits to reflect what the agency has already implemented on the ground and is failing to meet FRH standards

then clearly this proposal falls short. The BLM should clarify what, if any, changes from the actual seasons of use will be made.

BLM Response:
The EA was changed to include the effects to rangeland health as a result of the interim livestock grazing management strategy which was implemented in 2007. Specifically, upland trend monitoring collected after 2007 shows that significant improvement towards meeting rangeland health is currently occurring as a result of changes made in 2007 (see pages iii, 2, 6 and 10).

HCPC Comment
Moreover, the BLM's reliance on re-growth following early season grazing seems highly contingent on drought conditions/precipitation levels allowing for enough re-growth to sustain the currently authorized/proposed numbers of livestock while still protecting riparian and upland habitats. In fact, some researchers have recommended with respect to protecting sage grouse and other migratory birds dependent on the sagebrush steppe lands present throughout the Pedro Mountain GU that to maintain bluebunch wheatgrass vigor, grazing systems should avoid grazing during the growing season until plants begin to cure. Christine Page & Sharon A. Ritter, "Birds in a Sagebrush Sea: Managing Sagebrush Habitats for Bird Communities," Partners in Flight, Western Working Group (1999). According to Page and Ritter, bluebunch wheatgrass, which is a dominant key forage species in the GU, is especially sensitive to heavy grazing during the growing season. Recovery of these plants following heavy grazing during a single spring can require eight years under the best management and environmental conditions. See id. Other studies have concluded that no grazing management system appears to be satisfactory if that system results in overgrazing during the growing season in order to defer or rest vegetation in other grazing periods. See, e.g., Richard E. Eckert Jr. & John S. Spencer, Vegetation response on allotments grazed under rest-rotation management, 39 J. Range Mgmt. 166 (1986); Richard E. Eckert Jr. & John S. Spencer, Growth and reproduction of grasses heavily grazed under rest-rotation management, 40 J. Range Mgmt. 156 (1987). In fact, the BLM itself (Technical Bulletin, Anderson, 1991) has found that grazing at the harmful levels that are likely to occur under the selected alternative here may weaken or kill bluebunch wheatgrass and other native bunchgrasses.

BLM Response:
The comments above are obviously based on uplands because bluebunch wheatgrass is an upland species. The regrowth to which the EA refers is regrowth along riparian zones where there is constant moisture: therefore, periodic drought is not an obstacle to achieving the expected regrowth if grazing occurs during the early to late spring grazing period. The proposed action does not count on riparian regrowth if grazing occurs during the late spring to fall grazing season since this is a period of time when cattle starts to consume higher amounts of woody vegetation when riparian stubble height exceeds Clary and Leininger (2000) recommendations. For additional information please Leininger 2010 personal communication

Upland utilization does not allow for or rely on plant regrowth. The BLM is aware of the research that HCPC cites indicating grazing bluebunch wheatgrass during the growing season reduces grass vigor (Anderson 1991). Anderson (1991) is a compilation of manuscripts and personal communications dealing with bluebunch wheatgrass vigor. Anderson (1991) concluded that the past bluebunch wheatgrass research suggests grazing during the active growing season would appear impractical, if not risky. However, this statement is not supported by some of the papers Anderson (1991) used and current research. Specifically, the findings of Mueggler (1972); Wilson et al. (1966) and Brewer et al. (2007) conclusively show that bluebunch wheatgrass can in fact be grazed during the critical growing season;

however, grazing must not occur more than two years in a row during this time period. In fact, assessments conducted by BLM staff in the Pedro Mountain GU indicate that all allotments where current livestock management is consistent with Mueggler (1972); Wilson et al. (1966) and Brewer et al.

(2007) findings, are meeting upland rangeland health. In addition, current upland trend monitoring shows that the interim livestock management is making significant progress towards meeting rangeland health standards 1 and 3 (see page 10) which further supports that Anderson (1991) conclusions are not entirely correct.

HCPC Comment

The EA admits that the "amount of [vegetation] recovery would vary by allotment, with more recovery expected in allotments where the most changes are made in management." EA, p. 17. The EA perfunctorily concludes, with respect to native vegetation, that "the cumulative effects of continuing grazing at the levels indicated would result in slower improvements than in Alternative 2 [rest until standards are achieved], but…It is likely that this alternative would meet RMP objectives for vegetation and result in significant progress toward meeting rangeland health standards." Id. (italics added). Not only does the BLM admit that whether its proposed changes will actually result in significant progress, as required, is unclear, but the agency provides little to no factual support in favor of significant progress even being "likely" to occur.

BLM Response:

HCPC is correct in stating that the BLM failed to provide factual support in favor of significant progress even being likely to occur in the EA. Based on this comment the BLM added the scientific publications in the revised EA which were used in the development of Alternatives 2, 2a and 3 (see pages 4, 6, 8, 10, 17, 23, 24, 31, 64 and 68)

HCPC Comment

Dozens of peer-reviewed studies have concluded that grazing has serious impacts on public land. In a paper summarizing dozens of peer-reviewed papers on the impacts of grazing, the authors concluded:

Livestock grazing has damaged approximately 80% of stream and riparian ecosystems in the western United States. Although these areas compose only 0.5-1.0% of the overall landscape, a disproportionately large percentage (~70-80%) of all desert, shrub, and grassland plants and animals depend on them. The introduction of livestock into these areas 100-200 years ago caused a disturbance with many ripple effects. Livestock seek out water, succulent forage, and shade in riparian areas, leading to trampling and overgrazing of stream banks, soil erosion, loss of stream bank stability, declining water quality, and drier, hotter conditions. These changes have reduced habitat for riparian plant species, cold-water fish, and wildlife, thereby causing many native species to decline in number or go locally extinct. Such modifications can lead to large-scale changes in adjacent and downstream ecosystems. Despite these disturbances, some people support continued grazing. These advocates argue that most of the damage occurred 50-100 years ago; however, recent studies clearly document that livestock continue to degrade western streams and rivers, and that riparian recovery is contingent upon total rest from grazing.

A.J. Belsky, A. Matzke, S. Uselman, Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States, Journal of Soil and Water Conservation, 1999, Vol. 54, pp. 419-431 (emphasis added).

BLM Response:
Alternative 3 uses the best available science to develop livestock grazing management that has been shown to improve elements of rangeland health (see pages 4, 6, 8, 10, 17, 23, 24, 31, 64 and 68).

The BLM is aware of the manuscript that HCPC is referring to "A.J. Belsky, A. Matzke, S. Uselman, Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States, Journal of Soil and Water Conservation, 1999, Vol. 54, pp. 419-431"

The publication that HCPC is relying on is a summary of peer reviewed literature primarily from the 1970s thu1990s. These papers identified livestock caused riparian damage due to overgrazing (65-100 percent utilization). Only one manuscript used by Joy Belsky (1999) addressed utilization targets below 65 percent. In fact the one paper that studied effects to riparian areas when grazed at or below 55 percent showed significant progress towards meeting elements of riparian health (Clary 1995). All Action Alternatives (2, 2a and 3) sets grazing standards at 3-4 inches which is below 55 percent utilization.

A more recent study indicates "proper" livestock grazing can result in similar conditions as livestock exclusion (Clary and Lininger 2000). The recommended stubble height in Clary and Leininger (2000) which, were used in developing the preferred alternative equates to a utilization of 45-55 percent (Clary 1999). Therefore, Belsky (1999) is not applicable to the Pedro Mountain EA.

Publications in (Belsky et al. 1999) that deal with effects of overgrazing on riparian area.

Armour, C., D. Duff, and W. Elmore. 1994. The effects of livestock grazing on western riparian and stream ecosystem. Fisheries 19(9):9-12.

This article addresses problems associated with overgrazing riparian areas. The abstract of Armour et al. (1994) states …This policy statement addresses problems caused by overgrazing, and action items that the Society advocates to be implemented to correct problems. The Society does not advocate ceasing of domestic livestock grazing on public lands. Instead, the policy is that grazing is acceptable providing that its management is compatible with the ecological requirements of healthy riparian and stream ecosystems…

Bohn, C.C., and J.C. Buckhouse. 1985a. Some responses of riparian soils to grazing management in northeastern Oregon. J. Range Manage. 38:378-381.

Stocking Rate was set for 70 percent utilization for this study. The preferred alternative is set at a level much lower (approximately 45-55 percent). Therefore this study does not have any applicability to the Pedro Mountain EA.

Buckhouse, J.C., and G.F. Gifford. 1976. Water quality implications of cattle grazing on asemiarid watershed in southeastern Utah. J. Range Manage. 29:109-113.

Stocking Rate was set for 70 percent utilization for this study. The preferred alternative is set at a level much lower (approximately 45-55 percent). Therefore this study does not have any applicability to the Pedro Mountain EA.

Popolizio, C.A., H. Goetz, and P.L. Chapman. 1994. Short-term response of riparian vegetation to 4 grazing treatments. J. Range Manage. 47:48-53.

Stocking Rate was set for 65 percent utilization for this study. The preferred alternative is set at a level much lower (approximately 45-55 percent). Therefore this study does not have any applicability to the Pedro Mountain EA.

Chapman, D.W., and E. Knudsen. 1980. Channelization and livestock impacts in salmonid habitat and biomass in western Washington. Trans. Am. Fish. Soc. 109.

This publications show that livestock grazing can have adverse effects on salmon habitat. However, the forage utilization level or stubble height was not specified. However it is expected that utilization was above 55 percent. A more recent publication indicates that a stubble height of 10 cm is adequate to maintain or improve salmon habitat (Clary 1999 and Clary and Leininger 2000) which is consistent with the preferred alternative.

Publications in (Belsky et al. 1999) that support the Pedro Mountain EA Preferred Action Alternative.

Clary, W.P. 1995. Vegetation and soil responses to grazing simulation on riparian meadows. J. Range Manage. 48:18-25.

This paper shows that proper livestock grazing in riparian areas can maintain high plant vigor and have little to no effect on soil compaction. Utilization level used in this study was 55 percent which is comparable to a 3-4 inch stubble height.

HCPC Comment

Strikingly, this comprehensive survey of peer-reviewed, experimental and comparative studies found no positive environmental impacts due to cattle grazing. The EA itself also acknowledges the critical role that intact riparian habitat plays for native wildlife: "Riparian habitats comprise a small proportion of the analysis area. Nevertheless, riparian areas in general support a disproportionately large number of wildlife habitat requirements. For eastern Oregon, as many as 280 species are either directly dependent on riparian habitat or utilize them more than other habitats (Thomas et al. 1979)." EA, p. 36. The BLM has allowed livestock grazing to heavily degrade this scarce resource within the Pedro Mountain GU for years. None of the allotments covered by this EA are meeting Standard 2-Watershed Function, Riparian Areas. Over half of the streams surveyed within the GU were rated as Functioning-at-Risk with a downward trend, no apparent trend, or completely non-functional. EA, p.19. The problems associated with these failures include "bank trampling, bank erosion, lack of woody species in the riparian areas, decreased vigor of riparian vegetation, headcutting of the stream channel, and high utilization of riparian vegetation by livestock." Id. at 20.

BLM Response:

All action alternatives would either meet or be more restrictive than the minimum riparian stubble height targets recommendation of Clary and Leininger (2000). Clary and Leininger (2000) recommendation has been shown to improve elements of riparian rangeland health, the BLM expects that by implementing minimum stubble height targets in Alternative 2, 2a and 3 would result in significant improvement towards meeting rangeland health. For more information see pages 4, 6, 8, 10, 17, 23, 24, 31, 64 and 68

HCPC Comment

Nothing in the EA supports a reasonable finding that "significant progress" will result under BLM's selected Alternative 3, with respect to Rangeland Health Standard 2-Riparian conditions. In fact the EA

states that even under Alternative 2, which calls for complete rest until standards are being met, it would take over 10+ years for improvement in riparian vegetation conditions that in turn protect soil resources to apparently be detectable. EA, p. 25. Moreover, the EA additionally provides:

BLM Response:
The 10 years that HCPC refers to is when rangeland standards are expected to be met and not when significant progress towards meeting rangeland heath standards will occur. The BLM believes that significant progress towards meeting rangeland health is already occurring, thru interim livestock management changes (see page 6, 8 and 10)

HCPC Comment
"Overall, Alternative 3 would only be a minor improvement to the current management plan in improving stream habitat in all of the streams if the proposed modifications are adhered to…Without a rest period, instream and riparian habitat would be restored at a much slower rate than Alternative 2. Impacts would continue to occur with an upward trend developing over time…Alternative 3 would improve fish habitat, riparian vegetation, and water quality over time, but at a much slower rate than Alternative 2. Therefore, rangeland Standard 2 might eventually be met over time if an improved condition is sustained." EA, p. 34 (emphasis added).

BLM Response:
The BLM used the best available science to develop riparian stubble height targets which have been shown to improve elements of riparian rangeland health (see pages 4, 6, 8, 10, 17, 23, 24, 31, 64 and 68). Therefore, the BLM expects that significant progress towards meeting rangeland health will occur by implementing the preferred alternative.

HCPC Comment
Therefore, BLM clearly acknowledges that the selected alternative will not meet the requisite legal standard under the FRH regulations. The agency itself describes potential improvement under Alternative 3, as only "minor" and even this potentially "minor" improvement is contingent upon tenuous modifications that may never be funded or carried out. Stating that Standard 2 "might eventually be met over time" is almost the antithesis of an Alternative that will result in significant progress towards meeting that standard. What is required is clear, but what improvement might, eventually result, could not be more uncertain.

BLM Response :
The BLM used the best available science to develop riparian stubble height targets which have been shown to improve elements of riparian rangeland health (see pages 4, 6, 10, 17, 23, 24, 31, 64 and 68). Therefore, the BLM expects that significant progress towards meeting rangeland health will occur by implementing the preferred alternative.

HCPC Comment
Of additional concern is the fact that "most of the streams within the Pedro Mountain GU currently do not meet any of the riparian management objectives or State of Oregon water quality standards." EA, p. 35. Section 303 of the CWA addresses water quality via water quality standards, which specify the appropriate uses of water bodies and set standards to protect those uses. Implementation of water quality standards requires states to place those waters not meeting water quality standards on the 303(d) list. 33 U.S.C. § 1313(d)(1)(A)−(B). States must then calculate total maximum daily loads (TMDLs) for those waters not meeting water quality standards. Id. § 1313(d)(1)(C); 40 C.F.R. § 130.7. The North Fork

Dixie Creek and South Fork Dixie Creek are on the State of Oregon's 303(d) list for exceeding stream temperature standards (7 day maximum of 68°.F). EA, p. 20. Both of these creeks flow into the main Dixie Creek which is also on the 303(d) list for exceeding stream temperature standards. Id. The EA should address whether any corresponding TMDLs have been established, and any proposed compliance measures. FRH Standard 4- Water Quality relates to water quality within the different allotments. For the 10 allotments analyzed in this EA, seven are not meeting Standard 4 due to livestock grazing. Id.

BLM Comment

Most of the streams in the Pedro Mountain GU do meet riparian management objectives or State of Oregon water quality standards, refer to table 9. Specifically, the EA documents that 41% of the streams in the Pedro Mountain GU meet riparian management objectives.

The EA will be updated based on your comment. Specifically, the BLM will add the following sentences to the EA on pg. 20, at the end of the 2nd paragraph. For streams listed on the 303(d) list, States must then calculate total maximum daily loads (TMDL) for water quality impaired streams. The State of Oregon has not yet started to develop a TMDL for the Burnt River subbasin. When the State initiates the TMDL process, the BLM will be involved with the development and implementation of the TMDL as outlined in the Forest Service and Bureau of Land Management Protocol for Addressing Clean Water Act Section 303(d) Listed Waters (FS/BLM 1999). This may require setting more restrictive stubble height targets on these 303(d) listed waters during late spring or fall when livestock use of woody vegetation is likely to occur (Clary and Leininger 2000). Alternatives 2 and 3 allow for readjustment of stubble height targets when monitoring (in this case water temperature) warrants a change.

HCPC Comment

This is particularly troublesome given that sensitive redband trout, a Bureau "species of concern," occupies most of the fish-bearing streams within the GU. Resident redband trout tolerate water temperatures between 56° and 70°F. EA, p. 27. Prolonged stream temperature in excess of 64° are considered "sub-lethal" because it leads to "decreased or lack of metabolic energy for feeding, growth or reproductive behavior, encourage increased exposure to pathogens, decreased food supply, and increased competition from warm water tolerant species." EA, p. 28. Recent stream temperature monitoring results have revealed numerous 7-day maximum readings in excess of 70°F, with the North Fork Dixie Creek substantially exceeding state standards every year. EA, p. 20, 27. As the EA itself states, "[u]sually a stream system has degraded substantially with loss of habitat characteristics before high temperature is evident." EA, p. 27.

Despite these severely degraded stream systems and adverse impacts to sensitive redband trout, the BLM has chosen an alternative that, once again, the agency itself admits may only result in "minor changes in stream and riparian health…" EA, p. 35. The EA goes on to state that under the selected Alternative:

"some reduction in seasons of use would help move streams within the Pedro Mountain GU towards an upward trend, [but] stream and riparian area recovery would be as slow as that under Alternative 1. However, without a major reduction in AUMs and changes to seasons of use, it is unlikely that the cumulative effects to fish and riparian habitat would improve very fast. Alternative 3 would result in improvements to fish habitat, but recovery of riparian habitat would take many years." EA, p. 35.

BLM Response:

Setting minimum stubble height target (Alternative 2 and 3) or excluding livestock grazing has been shown to increase woody vegetation and reduce stream width to depth ratio. Riparian woody vegetation and width to depth ratios have been identified as factors regulating stream temperatures. Therefore, the BLM expects that water temperature would reduce from what is reported in table 10.

Alternative 3 would result in a reduced amount of adverse impacts to fish-bearing streams within the Pedro GU, as compared to the No Action Alternative. However, Alternative 2, which proposes a period of grazing rest prior to implementing the Proposed Action, would reduce grazing impacts and create an upward trend faster than the Proposed Action on its own, resulting in long-term beneficial changes in stream and riparian area health. Compared to Alternative 2, the Proposed Action would create short-term changes in stream and riparian area health and would not create an upward trend as fast as grazing management under Alternative 2 would.

However, grazing management under the Proposed Action would implement changes in seasons of use, a reduction in AUMs, and would establish riparian utilization limits, all of which are designed to foster improvement of riparian areas and show significant progress toward fulfillment of Rangeland Health Standards. Also, proposed fencing would reduce trespass grazing, which would also reduce adverse impacts from livestock grazing within riparian areas. Additionally, if utilization standards are not met for two consecutive years, grazing would be limited in the third year to what is authorized as exchange-of-use

Although grazing management under the Proposed Action would move streams and riparian areas within the Pedro GU towards an upward trend, stream and riparian area recovery would take longer than Alternative 2. Under the Proposed Action, improvements to and the recovery of fish and riparian habitat conditions would occur at a slower rate than Alternative 2.

<u>HCPC Comment</u>
The BLM's conclusion that even minor, gradual improvements to fish habitat would result under the selected alternative is contradicted by the statement that recovery under the selected alternative would be as slow as that under Alternative 1(the no action alternative). The EA actually states that under Alternative 1(no action), there "would be no expectation for, improvement of fish-bearing streams, or riparian areas." EA, p. 34. Thus, it is entirely unclear how there can be any recovery under the selected alternative if the anticipated rate of recovery under this alternative is the same as the no action alternative. Moreover, "some eventual minor" improvement does not at all equate to actual "significant progress" as legally required.

As a result, this EA wholly fails to demonstrate that BLM has met its legal obligations under the FRH regulations to implement changes to grazing management that "will result in significant progress" towards meeting Standard 2 (Watershed Functions, Riparian Areas) and Standard 4 (Water Quality).

<u>BLM Response:</u>
The BLM inaccurately stated improvement to fish habitat under Alternative 3 would be as slow as that under Alternative 1(the no action alternative). The BLM believes that Alternative 3 will make statistical improvement to woody vegetation cover and width to depth ratio which are two factors controlling water temperature and fish habitat (see pages 6, 8 and 10).

HCPC Comment
The detrimental effects of cattle grazing on wildlife are numerous and far reaching. Nearly one-quarter of all of the imperiled species listed under the ESA are imperiled by livestock grazing. Grazing depletes food sources necessary for sustaining wildlife by denuding the landscape of vegetation. Native plants are integral components of the ecosystem, and they not only provide direct nutritional value for herbivorous species, but this serves to nourish the prey base for carnivorous ones. As native vegetation is overgrazed, exotic weeds invade, threatening grass and shrub ecosystems and disturbing the soil surface. Even under moderate stocking rates, livestock grazing can substantially contributes to deterioration of soil stability. This leads to increased soil erosion. Soil erosion is further exacerbated by increased surface runoff triggered by loss of vegetation cover and litter, both of which have been shown by numerous studies to be reduced by livestock grazing.

BLM Response:
There are no ESA listed species within the Pedro Mountain GU. This EA offers a variety of Alternatives that would help strive toward meeting standards in allotments that have failed to meet Standard 5 (wildlife); this would be beneficial for wildlife species. Forage utilization prescribed under Alternatives 2 and 3 will maintain high native plant vigor in both riparian and upland vegetative communities (Clary and Leininger 2000; Brewer et al. 2007). Therefore, noxious or invasive weed spread caused by livestock grazing is not likely to occur, which is supported by Bates et al. (2009). (See pages 50, 85 and 86)

HCPC Comment
The EA acknowledges that "the most important controllable riparian habitat disturbance activity is livestock grazing use." EA, p. 36. More importantly the EA states that "[p]roper grazing use within riparian areas normally includes some combination of rest and/or deferment. Woody and herbaceous riparian plants both offer forage, cover, and structure valuable for wildlife." Id., 36-37. "Grazing rest until standards are met would be highly beneficial and lead to improvement in wildlife habitat composition and structure. It would result in the most favorable outcomes for protection and enhancement of wildlife habitat. " Id.at 41.

BLM Response:
Grazing at the prescribed level recommended in Clary and Leininger (2000) has been shown to improve riparian woody vegetation similar to livestock exclusion. However, it is expected that livestock exclusion will result in a faster response to woody vegetation growth (See pages 6, 8 and 10).

HCPC Comment
HCPC is concerned that the BLM's selected alternative will have significant detrimental effects to sage grouse populations and habitat within the Pedro Mountain GU. Large areas within the GU are devoid of, or deficient in, necessary protective cover, food and other habitat attributes for many special status and important wildlife species. This has resulted in significant habitat fragmentation of this sagebrush habitat. However, the EA does not discuss the degree of existing habitat fragmentation present in the planning area or the potential for expanded fragmentation that would be caused by the many new projects proposed, such as new and existing exclosure fences, new and existing allotment division fences, spring development projects, and juniper removal.

BLM Response:
The following statement HCPC makes is not based on fact. "Large areas within the GU are devoid of, or deficient in, necessary protective cover, food and other habitat attributes for many special status and

important wildlife species. This has resulted in significant habitat fragmentation of this sagebrush habitat". In fact, only 843 of the 23,969 acres of public land within the Pedro Mountain GU are not meeting upland rangeland health standard 5. None of the 843 acres would be considered devoid of protective cover, food and other habitat attributes for many special status and important wildlife species. However, prior to the interim livestock management (initiated in 2007) these acres would be considered to be deficient in necessary protective cover, food and other habitat attributes for many special status and important wildlife species. To improve special status and important wildlife species habitat the preferred alternative set upland utilization targets based on sage-grouse needs for nest concealment (France et al. 2007) and riparian stubble height target was set based on Clary and Leininger (2000) recommendation which have shown to improve elements of riparian health. Upland vegetation trend monitoring shows that significant progress towards meeting rangeland health standard 5 is currently occurring (see page 6).

Under Alternative 3 the BLM propose to build no fences in sage-grouse habitat identified by ODFW. However, under Alternative 2 and 2a, 3.5 miles of new fence would be built in low density sage-grouse habitat and 0.5 miles would be built in core sage-grouse habitat. These fences would be needed to rest the BLM portion of the allotments. For additional information see pages (64, 65 and 68)

Removing juniper within aspen stands is an effective management strategy to restore declining aspen stands (Bates et al. 2005). This management strategy is proposed in areas that would benefit and preserve the biological integrity of a stand (See pages 67 and 69).

<u>HCPC Comment</u>
Three allotments within the GU are failing to meet Standard 5 (Native or Locally Important Species), due to livestock grazing. To protect the existing sage grouse in the GU and beyond, the BLM's strategy should include the significant reduction or elimination of major causes of disturbance, such as livestock grazing. See David Dobkin, Management and Conservation of Sage Grouse, Denominative Species for the Ecological Health of Shrubsteppe Ecosystems, USDI, Bureau of Land Management (1995). The selected alternative, however, does not reduce numbers of livestock and instead relies heavily on structural "range improvements," mainly increased fencing, and vegetative treatments to cure current failures to achieve standards.

<u>BLM Response:</u>
The BLM analyzed and disclosed effects of drastically reducing livestock grazing on public lands in sage-grouse habitat (see page 64). The BLM used the best available science to develop the preferred alternative (Alternative 3) that makes minor reductions to livestock AUMs and still makes significant progress towards meeting rangeland health standards which includes improving the 843 acres of sage-grouse habitat identified in 2006 as not meeting rangeland health (see page 64).

<u>HCPC Comment</u>
The EA states that the preferred alternative would be consistent with the Baker RMP, OR/WA S&Gs, and the Oregon Sage-grouse Management Strategy (the "Sage-grouse Strategy"). HCPC questions this assertion, which is not well-supported in the EA. For example, the Sage-grouse Strategy's guidelines requires that the construction of " new livestock facilities (livestock troughs, fences, corrals, handling facilities, "dusting bags," etc.)" be located " at least 1 km (0.6 mi.) from leks to avoid concentration of livestock, collision hazards to flying birds, or avian predator perches." Sage-grouse Strategy, p. 76. The Strategy also instructs that "[s]pring developments both new and old should be constructed and/or modified to maintain their free-flowing natural and wet meadow characteristics." Id. The EA fails to

provide any information as to the location of sage grouse leks, particularly in relation to proposed new fencing and other range projects. Nor does the EA address whether and how spring developments will conform to these guidelines.

BLM Response:
All proposed fences are located more than 1 mile from a sage-grouse lek. Alternative 3 does not authorize fence construction in ODFW classified core or low density sage grouse habitat (see map 1) whereas Alternative 2 and 2a requires the construction of 3.5 miles of fence in low density sage-grouse habitat and 0.5 miles of fence in core sage-grouse habitat. These fences in sage-grouse habitat are needed separate private lands from public lands which is needed to rest livestock allotments (see pages 64, 65 and 68 and maps)

HCPC Comment
More than 1000 km of fences were built on public lands each year from 1996 to 2002. Connelly et al. Conservation Assessment of Sage-grouse and Sagebrush Habitats (WAFWA, June 2004), at ES-3. Fences "provide perches for raptors, and modify access and movements by humans and livestock, thus exerting a new mosaic of disturbance and use on the landscape." Id; see also EA, p.40 (also noting that "birds may collide with existing fences, often resulting in either injury or death.") Moreover, fences result in habitat fragmentation and the loss of habitat connectivity that is very problematic to sage grouse and other sage-steppe dependent species. The Sage-grouse Strategy indicates that "the Baker Resource Area birds are likely isolated from the population in northern Malheur County." Because, increased fencing will further contribute to this already existing problem of isolated populations and lack of connectivity, it is troubling that the BLM relies so heavily on fencing and other rangeland improvements under the selected alternative.

BLM Response:
In the Pedro Mountain Geographic Unit there were no fences built on public lands between 1996 and 2002 in the area that is the subject of this EA. All proposed fences are located more than 1 mile from a sage-grouse lek. Alternative 3 does not authorize fence construction in ODFW classified core or low density sage grouse habitat (see map 2) whereas Alternative 2 and 2a requires the construction of 3.5 miles of fence in low density sage-grouse habitat and 0.5 miles of fence in core sage-grouse habitat. These fences in sage-grouse habitat are needed separate private lands from public lands which is needed to rest livestock allotments (see pages 64, 65 and 68 and map 1)

HCPC Comment
HCPC believes the BLM must make drastic changes to its current management of the Pedro Mountain GU in order to recover the large percentage of lands that have been adversely impacted by unsustainable livestock grazing practices. Unfortunately, this document does little in the way of achieving this goal and the selected alternative suffers from a number of significant flaws. Because the EA covers a vast landscape with a host of special values the BLM should either prepare a full EIS or supplement its EA to address these flaws. The EIS or revised EA should contain the site specific, current, baseline data the EA lacks, as well as information on the current productivity and carrying capacity of the public lands within the GU subject to livestock grazing.

BLM must prepare an EIS for all major federal actions that "may significantly affect the quality of the human environment." 42 U.S.C. § 4332(2)(C). An agency may first prepare an EA to determine whether the action may have a significant environmental effect, thus requiring an EIS. 40 C.F.R. §§ 1501.4, 1508.9. The factors used to determine significance are "context" and "intensity" and include

consideration of the uniqueness of the geographic area, public controversy, and the uncertainty of the project's possible effects. 40 C.F.R. § 1508.27. Because the proposed project covers ten grazing allotments, thousands of acres of public lands, 67 miles of perennial streams and over 230 miles of intermittent streams, imperiled redband trout, sage-grouse and other sage-brush dependent species, "improvement projects" that could take many years to fully implement an EIS or supplemental EA is in order.

BLM Response:
As stated in the FONSI, "The proposed action allows BLM to strike a balance between natural values and commodity uses in a manner consistent with the principles of multiple use and applicable law. Specific resource objectives are identified in the Baker RMP. The proposed action provides the opportunity to achieve RMP objectives as well as meet The Standards for Rangeland Health (USD1 1997) through a variety of management actions, standard design features, and projects, without creating significant impacts. Table 2 on page 4 of the EA and Table 16 on page 81 list the active AUMs in each allotment in the entire Pedro Mountain Geographic Unit, and these two tables therefore address the "current productivity and carrying capacity of the public lands within the GU subject to livestock grazing". If the respondent is suggesting there should be a recent ecological site inventory, there is none. Active AUMs were set after inventories between 1955 and 1962, and in the absence of newer inventory data, BLM policy has been to use current numbers and conduct monitoring to determine appropriate changes to those numbers. The reductions the EA discussed in Dixie Creek and Rattlesnake Gulch allotments were all the downward adjustments in livestock AUM numbers that the allotment evaluations determined were appropriate based on all the monitoring data collected over multiple years. As explained in the EA, riparian standards were the ones most commonly not met, and controlling the amount of riparian use can be done through the various proposed actions in the EA and has been shown to improve rangeland health in other areas (Clary and Leininger (2000) and Clary (1999). The few uplands (1,800 acres) that fell short of standards can be improved with changes in seasons of use (Brewer et al. 2007) rather than changes in AUMs.

HCPC Comment
As stated above, the EA does not discuss adequately the potential effects of the proposed fences on sagebrush species or the surrounding habitat, particularly with respect to increased habitat fragmentation and loss of connectivity. In addition to a more informed discussion of impacts to sage grouse and other sagebrush-dependent species and their habitat, the EA should show the locations of nearby leks and sage grouse habitat on a map, particularly in relation to the locations of any proposed fences and other projects.

BLM response:
All proposed fences are located more than 1 mile from a sage-grouse lek. Alternative 3 does not authorize fence construction in ODFW classified core or low density sage grouse habitat (see map 1) whereas Alternative 2 and 2a requires the construction of 3.5 miles of fence in low density sage-grouse habitat and 0.5 miles of fence in core sage-grouse habitat (see map 2). These fences in sage-grouse habitat are needed separate private lands from public lands which is needed to rest livestock allotments (see pages 64, 65 and 68). The maps that show fence projects by allotment were updated to include areas of low density and core sage-grouse habitat.

HCPC Comment
Moreover, the EA fails to address the simple, yet crucial question--what are the cumulative environmental impacts of continuing to authorize high levels of grazing and new fencing construction, in the face of widespread failures to meet Rangeland Health Standards.

Cumulative impact is 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 . . . or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Ocean Advocates v. U.S. Army Corps of Eng'rs, 361 F.3d 1108, 1128 (9th Cir. 2004) (quoting Kern v. U.S. Bureau of Land Mgmt., 284 F.3d 1062, 1075 (9th Cir. 2002)(requiring a thorough consideration of cumulative impacts in preparation of an EA); see also 40 C.F.R. § 1508.7 (CEQ definition). Moreover, in considering cumulative impacts, an agency must provide "some quantified or detailed information;…[g]eneral statements about "possible" effects and "some risk" do not constitute a hard look absent a justification regarding why more definitive information could not be provided." This cumulative analysis must be more than perfunctory; it must provide a useful analysis of the cumulative impacts of past, present, and future projects." Ocean Advocates, 361 F.3d at 1128.

BLM response:
This section was updated and now addresses the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions (see cumulative effects).

HCPC Comment
A much more detailed cumulative impacts analysis is required because sensitive species such as sage grouse, redband trout and possibly pygmy rabbit, have significantly declined within the GU; BLM's own analysis identifies grazing as the primary cause for the degradation of these species' habitats for this area; chronic violations of Rangeland Health Standards exist on all ten allotments; and BLM's selected alternative would authorize grazing with only minor reductions to two allotments, for the next ten years along with increased fence construction. Despite these factors, BLM's cumulative effects analysis mainly consists of a couple sentences under each affected resource that focus almost exclusively on the anticipated long-term beneficial impacts of the proposed "changes." The cumulative effects analysis largely ignores the adverse effects of BLM's decision with respect to native vegetation, soils, riparian habitat, aquatic species, sage-brush dependent wildlife, invasive weeds, recreation and visual resources, and the socio-economic impacts to the public, when: 1) added to decades of past unsustainable grazing levels and practices; 2) combined with any other land use on the GU; or 3) added to any past, present, and future rangeland projects.

The Ninth Circuit has held that a mere listing of cumulative effects is insufficient. Neighbors of Cuddv Mtn. v. U.S. Forest Serv., 137 F.3d 1372, 1379 (9th Cir. 1998). Here, the EA contains only very conclusory and unsupported comments concerning the hoped for gradual improvements, but largely fails to mention adverse impacts vis-à-vis any past, present or future uses and projects on the GU. BLM's cumulative effects analysis therefore fails to meet NEPA's mandate and as such is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A); Id. at 137 F.3d at 1378-82.

BLM response:
This section was updated and now addresses the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions (see cumulative effects).

HCPC Comment
FLPMA requires BLM to manage the public lands consistent with the "principles of multiple use and sustained yield." 43 U.S.C. § 1732(a). BLM must manage the public lands "without permanent impairment of the productivity of the land or quality of the environment." 43 U.S.C. § 1702(c). The cornerstone of FLPMA's multiple-use framework requires that BLM "shall . . . take any action necessary to prevent unnecessary or undue degradation of the lands." Id. § 1732(b). Accordingly, "BLM is obligated to consider in its [NEPA document] whether there will be any unnecessary or undue degradation to the lands as a result of" the proposed action. Soda Mtn. Wilderness Council v. Norton, 424 F.Supp.2d 1241, 1269–70 (E.D. Cal. 2006). The "unnecessary or undue degradation" standard evinces a clear intent on the part of Congress: "Interior is to prevent, not only unnecessary degradation, but also degradation that, while necessary to mining [the land use at issue in that case], is undue or excessive." Mineral Pol'y Ctr. v. Norton, 292 F.Supp.2d 30, 43 (D.D.C. 2003); Sierra Club v. Hodel, 848 F.2d 1068, 1075 (10th Cir. 1988) ("unnecessary or undue degradation" is an enforceable duty and provides "law to apply"). Soda Mtn., 424 F.Supp.2d at 1270–71 (BLM violated "unnecessary or undue degradation" standard where proposed land use plan amendment was based on contradictory and inconsistent grazing decisions that "fail[] to draw rational connections between the facts found and the decisions made) (citing Lowe, 109 F.3d at 526; 5 U.S.C. § 706(2)(A)).

BLM response:
The BLM used the best available science in developing interim livestock management, Alternative 2, sub-alternative 2a and 3. The best available science (peer reviewed manuscripts) has been shown to improve both riparian and upland rangeland health (Brewer et al. 2007 and Clary and Leininger 2000). Therefore, no undue degradation is expected with implementation of either of these alternatives (see pages 6, 8 and 10). However, reverting back to management prior to 2007 (described in Alternative 1) will result in continued undue resource degradation (see page 4).

HCPC Comment
Here, BLM's decision to reauthorize grazing for the next ten years with only minor changes to the currently unsustainable management practices that have resulted in widespread FRH violations is directly at odds with FLPMA's nondegradation mandate. BLM is thereby violating this mandatory duty by refusing to implement an alternative, such as Alternative 2, that will prevent further grazing-caused damage to riparian conditions, aquatic species, and other undue resource degradation.

BLM Response:
This statement is incorrect. Similar to Alternative 2 and 2a, Alternative 3 was developed using the best available science (Brewer et al. 2007 and Clary; Leininger 2000 French et al. 2008). In fact the only expected difference between these two alternatives is the rate of improvement. Specifically, it is expected that Alternative 2 will result in the attainment of meeting rangeland health standards faster than Alternative 3. Therefore, Alternatives 2 and 3 are not at odds with FLPMA but Alternative 1 (No Action) is at odds with FLPMA's nondegradation mandate.

HCPC Comment
The Secretary of the Interior must manage the public lands consistent with land use plans ("RMPs") developed pursuant to FLPMA. 43 U.S.C. §§ 1712 & 1732(a). This in turn means that grazing permits must be consistent with RMPs. 43 U.S.C. § 1732(a); 43 C.F.R. §§ 1601.0-5(b), 4100.0-8. In this case, BLM manages the lands in the Pedro Mountain GU pursuant to the Baker Resource Management Plan. The Baker RMP places the management needs of riparian areas, crucial wildlife habitat, soils/watersheds, recreation and cultural resources ahead of grazing. See Baker RMP at p. 12. The Baker RMP makes this point clear by stating that these management priority rankings "indicate which resource value would be considered most important when resolving resource conflicts." Id.

In this instance, BLM has ignored this prioritized management direction for years by consistently elevating the interests of a handful of grazing permittees over the needs of essential riparian areas and other crucial wildlife habitat, soils, watersheds, cultural resources, and recreational opportunities. The chronic failure to meet Rangeland Health Standards, which BLM itself has identified as primarily resulting from livestock grazing, demonstrates that a resource use conflict clearly exists within the Pedro Mountain GU. Although, BLM has finally made some management adjustments that actually take the needs of impaired public resources into consideration, the agency's priorities have not shifted ranks. BLM's decision still places the continuation of grazing in the GU above these other resource values because it proposes to continue current grazing management with only minor on the ground adjustments. One of the main "changes" proposed relates to seasons of use and appears to have already been implemented over ten years ago and the allotments are still failing to achieve standards concerning resources identified in the RMP as higher priorities than livestock grazing. This is in direct contravention to the management direction called for in the Baker RMP and thus violates FLPMA's consistency requirement. See Oregon Natural Resources Council v. Brong, 492 F.3d 1120, 1125-1132 (9th Cir. 2007)(holding that BLM's interpretation of its management direction was inconsistent with the applicable land use plan and consequently violated FLPMA).

BLM Response:
Neither Alternative 2, 2a nor 3 puts livestock management above riparian areas, crucial wildlife habitat, soils/watersheds, recreation and cultural resources. Specifically, livestock grazing systems were designed to promote upland and riparian rangeland (see pages 6, 8 and 10)

HCPC Comment
Although continued grazing in the Pedro Mountain GU may bring a slight benefit to a handful of individual permittees, it delivers a heavy burden to the public at large. The Government Accountability Office (GAO) has reported that the federal government spends at least $144 million each year managing private livestock grazing on federal public lands, but collects only $21 million in grazing fees. This equates to an annual net loss of at least $123 million. Considering the additional direct and indirect costs not included in the GAO report, economists have estimated that the federal public lands grazing on BLM and USFS lands may cost as much as $500 million to $1 billion annually.

BLM Response:
The cost associated with administering the range program on all public lands is beyond the scope of this project. This project was designed to improve resource conditions within Pedro Mountain GU not reduce the cost of administering the federal range management program. In addition, the BLM would still need to monitor these allotments if livestock grazing was excluded to insure trespass grazing was not occurring.

HCPC Comment
The benefits that would flow from the elimination of cattle, however, are numerous. Besides its inherent value, livestock-free and fence-free wildlife habitat enhances opportunities for ecological services and recreational uses. There is rising demand for outdoor recreation on our public lands. As a recently released report emphatically illustrates, the economic contribution of recreationists to the national economy is staggering in the United States today. From birdwatchers to mountain bikers, outdoor enthusiasts bring in almost $300 billion in annual retail sales, and contribute more than twice that to the United States economy. Outdoor recreationists spend $46 billion a year on the gear they need to recreate in the American woods, rivers, and slopes. They spend five times that much- $243 billion--on the food, lodging, entertainment, and transportation they require along the way. In all, active outdoor recreation pumps $730 billion annually into the United States economy. The recreation industry supports about 6.5 million jobs, and associated annual tax revenues add up to $88 billion a year. Wildlife viewing is currently the most common outdoor activity, with birding alone attracting 66 million people last year. HCPC strongly urges the BLM the socio-economic impacts to the larger public when analyzing grazing permit renewals that would reauthorize grazing for the next ten years on thousands of acres of public lands.

BLM Response:
Eliminating livestock grazing within the Pedro Mountain GU would not result in reduced mileage of fence. Rather, eliminating grazing would increase the need for the livestock operator to fence out public lands from private (see page 24, 26 and 65)

HCPC Comment
The EA also fails to address whether the Pedro Mountain GU has been inventoried for wilderness characteristics. The EA should state whether such an inventory has been conducted, when it was performed, and any corresponding results.

BLM Response:
A GIS model was developed to look for continuous BLM land ownership patterns in conjunction with Federal, State, County, BLM, USFS road systems layers to determine areas that could meet the minimum size requirement for containing wilderness character. We set the lower limit of the GIS model to identify BLM lands that were in blocks of 4,500 acres or more which is 500 acres below the minimum required. With the broken ownership pattern of BLM lands in the Baker Resource area, as well as the extensive road network that exists, there were found to be no areas within the Pedro Mountain project that met the 4,500 acre qualifier.
HCPC Comment
Finally, HCPC is concerned about the financial resources required to implement the extensive range of improvement projects called for under the selected alternative. Due to the large expanse of land covered by the Pedro Mountain GU and the state of degradation evidenced by high percentage of BLM lands that are failing to meet FRH standards, projects listed in the EA are both numerous and intensive.

Without strictly defining and explaining the factors that would enable the BLM to implement these projects and identifying what action would be taken in the event “time and funding” do not permit these projects to be implemented, a proposed decision under this EA would run afoul of NEPA’s requirement of full public disclosure and informed agency decision-making. In addition, the EA provides no estimate of the cost of the projects proposed under the selected alternative. As you know, to satisfy the requirement that it take a “hard look” at the consequences of its actions, the BLM must engage in a “reasoned evaluation of the relevant factors” to ensure that its ultimate decision is truly informed.

Greenpeace Action v. Franklin, 14 F.3d 1324, 1332 (9th Cir. 1992). An agency's failure to include and analyze information that is important, significant, or essential renders an EA or EIS inadequate. 40 C.F.R. § 1500.1 ("The information must be of high quality."). These fundamental NEPA principles apply to the economic as well as environmental analyses included in an EA or EIS. See Kettle Range Conservation Grp. v. U.S. Forest Serv., 148 F.Supp.2d 1107, 1134–35 (E.D. Wash. 2001) ("'Most important, NEPA documents must concentrate on the issues that are truly significant to the action in question . . . .' 40 C.F.R. § 1500.1. That duty includes a specific requirement to adequately discuss cost/benefit considerations 'which are likely to be relevant and important to a decision.' 40 C.F.R. § 1502.23.") (emphasis in original). The BLM must ensure the professional integrity of all discussions and analyses in an EA or EIS, including economic analyses. Id. §§ 1502.24, 1508.8 (The "effects" that an EIS must evaluate include economic impacts). Thus, an EIS that relies on misleading economic information or fails to include all relevant costs in its economic analysis violates NEPA, because it cannot fulfill NEPA's purpose of providing decision makers and the public a valid foundation on which to judge proposed projects. See, e.g., Ore. Natural Res. Council v. Marsh, 832 F.2d 1489, 1499 (9th Cir. 1987); Animal Defense Council, 840 F.2d at 1439. Accordingly, courts will invalidate NEPA documents with incomplete or absent economic analyses, as is the case here.

BLM Response:
If the proposed fences are not constructed the livestock permittee will still be required to meet the minimum riparian stubble height and upland utilization targets (see pages 13 and 14). Once these targets are met the livestock permittee will be required to remove all livestock from the allotment(s). Therefore, regardless of fence construction or funding significant progress will be made to rangeland health which is supported by Brewer et al. (2007) and Clary and Lininger (2000).

CTUIR Comment
I appreciate that the EA acknowledges the mission of DNR on page 56 in the Cultural Resources section. However, the only mention of the Treaty of 1855 is in the quoted language of the DNR mission statement. Under the Treaty, CTUIR tribal members retain the right to fish at all usual and accustomed stations as well as the right to hunt, graze and gather on unclaimed lands. BLM lands fit the category of unclaimed lands. Further, the fact that tribal members retain a treaty right to hunt and gather on BLM lands renders these resources "trust resources" for the purpose of the federal Trust Responsibility. This matter does not belong solely in the Cultural Resources section, but also in the Human Uses and Values section. The BLM Manual, H-8160-1, General Procedural Guidance for Native American Consultation, states that managers and staff must evaluate the legal requirements posed by treaties. To date, it does not appear that BLM has made a satisfactory effort to do so. We are willing to arrange for training on this point.

BLM response:
Language regarding treaty rights will be added to the Human Uses and Values section as requested. The additional section will be called Indian Trust Resources and will be located in section 3.3. BLM staff would be interested in training on treaty rights as time and budget allows.

CTUIR Comment
I understand that grazing over multiple ownerships is extremely difficult to manage. Private landowners do not manage their land consistently with federal mandates, creating more opportunity for confusion. Obviously, environmental problems do not know fence lines or political boundaries so this system can only work if the private landowners buy into the process. Does the BLM have individual operator cooperation regarding this EA?

BLM response
Yes, the permittees are all cooperating. In fact, the interim livestock management that was implemented in 2007 is similar to Alternative 3 with the exception of proposed fences, juniper treatment and cattle guard.

CTUIR Comment
1) The EA does not seem to reference any past forage inventories, so it is difficult for DNR to evaluate the effectiveness or appropriateness of the stocking rates. Was there annual data collected on utilization or any other use measurement? We would like BLM to provide DNR with the past forage inventories for these allotments.

2) It is clear that many of the range standards are not met. However, the EA does not provide for any objective measurements of range health. BLM should develop measurable objectives, standards and monitoring guidelines to evaluate the effectiveness of the standards. With only subjective standards, there is no way to measure success or failure.

3) The EA eliminates much of the hot season grazing, which is an excellent approach. It is unclear why the resources are in such poor condition when grazing is already eliminated during the hot season. This might indicate overstocking or improper cattle distribution which may lead to localized damage by unmanaged livestock. The permittees need to spend more time on the range with their cattle making sure distribution is adequate and utilization is not more that 40-50%.

4) The EA should have considered an alternative that eliminates grazing for the permit period. Such an alternative would allow for the appropriate range of impact comparison. It is understood that the cattlemen that have these permits would most likely sue, were this option selected, but there is no reason not to consider it and it would also be a subtle reminder to grazers that they need to manage their cattle more carefully on public land.

BLM response:
1) The amounts of authorized use given in the EA are the same amounts set by the most recent range inventories, which took place between 1955 and 1962. Current use is based on these inventories. Utilization data has been presented as appendices in the allotment evaluations, and enclosed are copies of these appendices.

2) An interdisciplinary team would be used to determine when rangeland health standards are fully met and livestock grazing would be re-authorized. The data used by the interdisciplinary team would include; a follow up rangeland health assessment, rangeland trend (plant frequency and ground cover) monitoring, utilization and where appropriate multiple indicator monitoring).Please see page 6.

3) Alternative 1 refers to conditions prior to the implementation of the interim livestock management which eliminated hot season grazing. The interim livestock management was implanted in 2007 and current upland trend data shows that these changes to livestock grazing are resulting in significant progress towards meeting rangeland health (see page 6, 8 and 10)

4) Sub-alternative 2a was developed to address issues raised by this comment. Please see page 7.

CTUIR Comment
The EA does not adequately address limiting cattle access to streams and fisheries, either by fences or actual on-the-ground management of the livestock. BLM should make more efforts to require off-stream watering. BLM has a great degree of leverage and authority to require permittees to make infrastructure and water development upgrades.

BLM Response
Although there are several existing off-site water developments within the Pedro GU, no new developments or riparian fencings have been proposed due to a lack of feasibility and funding. A visit to the allotments in question would verify that there are very few if any options for off-stream watering, and so fencing streams off is really the way this option would go. Fencing off all riparian areas for hundreds of stream miles is not feasible or affordable, and in some cases, not practicable. So the BLM is addressing streambank stability, water quality, and riparian vegetation issues by restricting livestock grazing through seasons of use, stubble height, fencing and reducing livestock numbers.

CTUIR Comment
The BLM needs to propose and carry out some habitat enhancement projects. The first project should be to address the dying aspen communities. Other federal agencies have moved forward with aspen regeneration projects and BLM should follow their lead. There are a number of livestock barriers that could be placed on the ground to avoid aspen use by livestock. A full array of tools should be considered to enhance wildlife habitat including water development, planting and seeding of preferred species (upland and riparian), prescribed fire, Western Juniper reductions, and others. BLM should make a stronger effort to use grazing to enhance the public lands. BLM should identify areas where there is obviously no benefit from grazing and eliminate it.

BLM response:
A project, as suggested, has been proposed within this EA to restore an important aspen stand within the Lost Basin Allotment. See page 14.

CTUIR Comment
The National Historic Preservation Act (NHPA) requires agencies to take into account the effects of undertakings on historic properties. The CTUIR Cultural Resources Protection Program (CRPP) does not believe that the BLM has made a reasonable and good faith effort to carry out appropriate identification efforts of historic properties under the EA and is therefore out of compliance with the NHPA. This information is vital in order to properly determine effects. That being said, the CRPP appreciates the BLM stating that historic properties of religious or cultural significance to the Tribes may exist within the project area.

BLM Response:
Although BLM has limited existing surveys for historic properties within the Pedro Mountain GU, we are making an effort, given current staff, timing, and budget, to perform cultural surveys in areas that have been identified as potentially affected by livestock grazing and in areas where projects from the 1950s-1970s never had surveys for historic properties (See page Sec.3.4 of the Pedro Mt. EA). Because of limitations the BLM cannot commit to surveying the whole project area and every developed spring within this large geographic unit within the life of the permit. However, the BLM is planning to make significant progress in this direction. Fifteen developed springs will be surveyed within the next three years in the 10 allotments considered in the EA. Developed springs that are not on the survey schedule are in allotments currently meeting standards and not considered in the EA. Five areas including

segments of: Shirttail Creek, Rattlesnake Gulch, Little Deer Creek, French Creek, and North Fork Dixie Creek have also been identified as possible areas where livestock grazing maybe having negative impacts on areas with high potential for historic properties. As opportunities arise, sampling surveys will be conducted within these areas, to determine where historic properties are located and if they are being impacted by livestock grazing. If impacts are found mitigation will occur in consultation with affected Tribes.

CTUIR Comment
On page 5, the EA states that the Lost Basin Allotment is 83% private and would have no reduction in AUMs; however, it would receive added protection through "suggested projects and specified period of use for Upper Reagan Creek." If the BLM does not make such projects mandatory, what is the assurance that they will be implemented?

BLM response:
The BLM changed suggested to propose in the EA as a result of this comment. This aspen treatment would be mandatory.

CTUIR Comment
Page 8 of the EA indicates that the permittees would maintain all spring developments and fences in the Upper Shirttail Allotment #1024 prior to turnout. However, the lack of maintenance at the spring developments and fences in the past contributed to heavy use of the creek bottoms and unauthorized use. How is the BLM planning on enforcing permittee compliance with this requirement?

BLM response:
In the Upper Shirttail Allotment, BLM is planning to inspect the fences and spring developments prior to turnout and not allow turnout until they are satisfactorily repaired. BLM is also planning to make inspections to see that the adjacent landowner maintains their fence.

CTUIR Comment
The BLM indicated on page 13 that 15 previously un-surveyed, existing rangeland spring developments will be surveyed over the next two years. What is the total number of existing rangeland spring developments in the ten units that have never been surveyed? If it is greater than 15, how will these spring developments be addressed? Additionally, page 57 of the EA indicates that twelve spring developments were installed during the 1950s-1970s without any cultural resource surveys. Are these twelve spring developments part of the 15 that will be surveyed? If not, what is BLM's plan to determine whether or not these sites are being impacted by grazing activities?

BLM Response:
The 15 previously un-surveyed existing rangeland spring developments will be changed to a three-year schedule to ensure that all 15 springs are surveyed on a time schedule that BLM can accommodate given current staffing. The total number of existing rangeland spring developments in the ten allotments that have never been surveyed is 15. The twelve spring developments mentioned on page 57 of the EA is an error it refers to the same 15 spring developments on page 13 of the EA. Five of the fifteen developed spring locations have been surveyed for archaeological resources in 2010. Of the first five developments surveyed no archaeological resources have been impacted by grazing.

CTUIR Comment
Page 13 goes on to indicate that "[d]uring the 10 year term of the grazing permits, BLM will conduct cultural resource sampling inventories of un-surveyed perennial stream reaches and springs in the allotment(s). Sampling inventories may be conducted opportunistically during other cultural activities." The DNR requests that the BLM commit to surveying a certain number of acres over the 10-year life of the permit in order to assure that surveys will occur.

BLM Response:
The BLM has not committed to a certain number of acres over the life of the permit. It has committed to sampling inventories of five areas including segments of: Shirttail Creek, Rattlesnake Gulch, Little Deer Creek, French Creek and North Fork Dixie Creek identified as high potential areas for cultural resources and impacts by livestock.

CTUIR Comment
On page 17, the EA addresses the fact that 83% of the land in the Lost Basin Allotment is private and will have no reduction in AUMs of grazing. On page 5, the EA states: "The private land use is authorized as either exchange-of-use or as percent federal range, so that there is no charge for grazing use that takes place on the private land. Either way, the permittee agrees to confine his livestock to the number, kind, periods of use, and areas of use authorized by BLM." Why does the BLM not reduce AUMs for the Lost Basin Allotment when 3 of the 5 range standards are not being met?

BLM Response:
The proposed fence, aspen regeneration projects, restricting season of livestock use and setting a minimum stubble height target will make significant progress towards meeting rangeland health standards 3 and 5 with no reduction in AUMs (see page 33, 34, 67 and 69)

CTUIR Comment
On page 38, there is a paragraph on sage grouse which is inaccurate. It states: The sage-grouse, which is a Bureau sensitive species, is located throughout the GU. Sage-grouse are large, chicken-like birds, which nest on the ground. Historically, sage-grouse live in the sagebrush steppe regions of southern British Columbia, Canada and throughout eastern Washington and Oregon. Sage-grouse prefer a sagebrush cover class of approximately 15-25% and slopes <30% (ODFW 2011) for nesting activities. Due to the steepness in some areas, it is unlikely that sage-grouse use the Pedro Mountain GU for nesting and brooding.

This section indicates that sage-grouse are present throughout the GU, but do not use the GU for nesting and brooding. This seems highly unlikely. If sage-grouse are present in the GU, it is certain that they are nesting and brood-rearing in the GU. While the slopes in some areas may be inconsistent with sage-grouse nesting, it is doubtful that the entirety of the allotment is not being used for nesting. Please update your information on sage-grouse. DNR has spoken to the Oregon Department of Fish and Wildlife (ODFW), which has confirmed the presence of historic and currently-used leks within the Pedro Mountain GU. DNR recommends that BLM survey all known and historic leks within 8 miles of the unit to document the presence and habitat needs of sage-grouse.

BLM Response:
The BLM determined that there are 5033 acres of sage grouse habitat, as defined by ODFW, within the allotments analyzed (see page 58). There are no leks within the allotments analyzed therefore the 5,033 acres of sage-grouse habitat is considered nesting, brooding or wintering habitat.

CTUIR Comment
On page 43, the EA describes the difficulty of keeping the cattle in the uplands on the Rye Valley Allotment due to hay production in the lowlands. This allotment should use alternate grazing and use spring grazing every other year or every third year. These types of obstacles are unavoidable and may require reduced or no grazing use.

BLM Response:
The proposed action for Rye Valley Allotment is to require fall use 2 out of 4 years. This is probably essentially rest 2 out of 4 years because of the difficulty you mentioned. The cattle would come down from the hills and have to be let in to the private land earlier than scheduled, meaning the fall use would normally result in such a short period of use it would be nearly the same thing as a rest treatment. There

are advantages to spring use, including lighter use on riparian zones and consumption of the annual grasses which grow on the lower slopes of this allotment along the county road and provide a fire hazard if not grazed in the spring, so forcing fall use two out of three years is not necessary.

CTUIR Comment
On page 44, the Dixie Creek unit has an objective to enhance water quality and stream bank stability. There should be strict guidelines on riparian use and either fence construction or livestock management activities to keep cattle away from the stream. Additionally, there are management tools that the BLM could use to enhance the stream bank and plantings that could be made to speed up recovery with cattle grazing. Such tools involve bioengineering including streambank redesign, lighter use of riparian zones earlier in the season, and replantings. These principles and management tools should be applied to the rest of the grazing units as water quality and stream back stability problems seem to occur regularly.

BLM response:
To make significant progress towards meeting riparian rangeland health standards Alternative 3 proposes to set minimum stubble height targets, eliminate hot season grazing, fencing and reducing livestock numbers (see page 10).

CTUIR Comment
On page 46, the EA notes that a number of allotments were apparently addressed in other NEPA documents such as Mormon Basin. ODFW has identified Mormon Basin as having multiple sage-grouse leks, yet the BLM 2006 Evaluation of Mormon Basin Allotment (#01318) Relative to Rangeland Health Standards failed to document the presence of sage-grouse. This area is ideal sage-grouse habitat and their presence was identified in the 1970 Allotment Management Plan for the Mormon Basin and identified in the 1977 Mormon Basin AMP Evaluation. I believe that this and other allotments, even those meeting the standards for rangeland health, should be individually evaluated for the resource impacts of grazing through an environmental assessment rather than individual permit issuances. Has the BLM issued the permits for Mormon Basin? If the BLM has, it has failed to address the presence and treatment requirements for a Bureau Sensitive Species. In the future, we advise the BLM to conduct the EA related to the Geographic Unit for the grazing allotment prior to issuing the permit for those pastures which meet rangeland health. At that point, resource managers would be able to point out errors prior to the issuance of the permits.

BLM response:
Yes Mormon Basin permits have been issued. This was because standards and Guidelines evaluations were conducted on this allotment and determinations indicated all standards were met for all pastures. A Determination of NEPA adequacy may be issued in these circumstances even if sensitive species are present because all standards are met. DNA # 030-08-004 was issued November 17, 2008 and the permit was renewed. Therefore, as stated on page 1 of the EA, Mormon Basin allotment is not included within this EA.

CTUIR Comment
The BLM states on page 55 that it is not aware of any current tribal use, sacred sites or currently used subsistence locations in the analysis area. Other than the distribution of this EA, did the BLM solicit data from the affected tribes?

BLM Response:
BLM has not solicited information on tribal uses except for information provided in the First Foods Project. A letter will be sent to Confederated Tribes of the Umatilla Indian Reservation to invite further discussion on the permit renewal process and tribal concerns.

CTUIR Comment
Page 57 indicates that 495 acres within the Pedro Mountain Geographic Unit have been surveyed for cultural resources; however, the document states that approximately 300 acres were surveyed by the environmental consulting firm SWCA in the Mormon Basin—one of the allotments not considered in the EA. How many of the 495 acres surveyed are within the ten units discussed in the EA and, how many total acres are within the ten units?

BLM Response:
Of the 495 acres, 5.4 acres were surveyed with the ten allotments discussed within the EA, however, all future surveys scheduled (15 developed springs and 5 areas of concern) are within the 10 allotments not meeting standards.

CTUIR Comment
On page 58 of the EA, it states that "[i]n eight allotments where rangeland health standards were met and no change in grazing is proposed, it is assumed that present grazing management is not affecting cultural resources or traditional foods." We appreciate the fact that rangeland health bears some relationship to traditional foods and that some of the proposed actions may improve the health of the landscape and therefore indirectly reduce the probability of impacting cultural resources. However, rangeland health standards do not necessarily bear as direct a relationship to cultural resources health as the EA attempts to draw. Forage cover will not impact the placement of a fence through an archaeological site; therefore, surveys and cultural resource evaluations are critical. Evaluation of the presence and condition of archaeological resources is required under the NHPA and National Environmental Policy Act. How many acres within these allotments have been surveyed for archaeological resources and how many sites have been monitored to determine if they are adversely affected from grazing activities? Also on page 58, the EA indicates that there is insufficient data to determine the effects of continued current management, or proposed alternative management activities on cultural resources and traditional foods. Why is the BLM not conducting surveys of these areas prior to reissuing the permits in order to get the data, or a sample of the data, needed to make these determinations? This is what is required to meet the reasonable, good faith effort standards under the NHPA regulations, 36 CFR § 800.4(b)(1).

BLM Response:
BLM agrees with CTUIR that forage cover is only one component of resource protection. All new rangeland improvement projects will be surveyed prior to implementation. Within allotments that met standards, 490 acres have been surveyed and/or monitored. These surveys and monitoring trips occurred in 2008 and no impacts by livestock were noted to known sites located within this 490 acre area. Five of the fifteen developed spring locations have been surveyed for archaeological resources and impacts by livestock grazing. Of the first five developments surveyed no archaeological resources have been impacted by grazing. A cooperative project between BLM and Confederated Tribes of the Umatilla Indian Reservation has created a GIS layer that models traditional plant habitat for certain species of tribal interest. The model predicted potential for at least three different species to exist within the Pedro Mountain GU. Four locations had field visits within this GU to verify plant species existence. All four field verifications came up negative. However, plants of traditional interest may occur in areas not field tested. BLM has developed a GIS model for high potential archaeological sites. These locations that overlap with areas of potential livestock grazing impacts are high priority for future survey. Two traditional plant areas also overlap with two of these potential areas for grazing impacts. These areas (Little Deer Creek and Rattlesnake) would be highest priority for field inventory locations.

CTUIR Comment
On page 59 under Alternative 3 there are a variety of proposed improvements within the ten allotments and the BLM states that cultural resource surveys will occur for all of the listed projects. This does not clarify under what timeframes the surveys and improvements will occur. Page 60 states that "[f]inancial commitments necessary to implement the alternative would be secured by BLM as funding becomes available, and through cooperation with grazing permittees." Can the CTUIR be assured that the surveys will be conducted in a reasonable timeframe prior to the improvements? Also, we would like to be provided copies of the surveys conducted on these lands after they are completed.

Further, on page 59, the EA does not discuss any past management practices, approved management plans, plant or resource surveys or other past activities which could inform the decision process undertaken in this EA. This is a significant omission. The Pritchard Creek EA provided detailed information regarding past management plans and survey results. This EA does not. This information should be summarized in the final EA.

BLM Response:
BLM is unclear which summary CTUIR is talking about in the Pritchard Creek EA. Perhaps it is the Effects Common to all Alternatives? BLM will provide a summary section under Effects Common to all Alternatives. Further clarity on this subject should be worked out during consultation.

CTUIR Comment
One archaeological site in Lost Basin has been identified as suffering from grazing impacts and Alternative 3 would require fencing of the spring source. Page 59 states that this fencing would "provide some protection to the archaeological site." Is it not possible to fence out all impacts, or is the site suffering from additional types of impacts not addressed here? Why is this fence not required under Alternative 2? If the BLM is trying to mitigate impacts to an archaeological site, the NHPA requires more than just providing "some protection."

BLM response:
BLM has submitted a survey and site report including recommendations for protective measures at Lost Basin to the Oregon State Historic Preservation Office (OSHPO) and CTUIR. SHPO concurred with the recommended protective measures as long as a cultural resource monitor is provided during construction (SHPO # 09-1700). CTUIR did not provide comments to BLM regarding the BLM's proposed protective measures.

CTUIR Comment
We still have some questions regarding Alternative 3. On Page 60, in the cumulative analysis section, the EA states:

A reasonable level of livestock management flexibility and sustained forage availability would be provided to permittees with this alternative. Customary permittee grazing practices would be changed in order to protect riparian/wetland and upland vegetation health. Financial commitments necessary to implement the alternative would be secured by BLM as funding becomes available, and through cooperation with grazing permittees. Improved protection of cultural resources and traditional foods would result with this alternative.

In the event that this funding is not secured, would this "flexibility" be implemented? The BLM cannot plan implementation of this EA based upon funding that is not currently within the agency's base budget without concurrently providing for consequences in the event these funds are not appropriated. The EA must reflect what practical effects of funding reductions will have on permitted activities.

BLM response:
Until funding is obtained, there are provisions in the EA (Table 5) that restrict the amount of grazing on two allotments until fences are constructed. In addition, stubble targets will be established and to comply with these targets livestock may have to be moved earlier than planned until all of the projects are completed (see page 13 and 14)

CTUIR Comment
The EA states on page 61 that known cultural resources will be monitored at least once in the 10-year term of the lease. The CTUIR would like to see language added to the document indicating that if adverse impacts to the sites are noted, consultation with the affected tribes will occur to determine what efforts need to be undertaken to address these impacts.

BLM Response:
If adverse impacts are noted at historic properties, affected tribes will be notified and consulted to determine what efforts will be taken to address these impacts. This language exists in section 1.1 Design Features Common to All Alternatives, second paragraph.

CTUIR Comment
Alternative 3 would be appropriate if it included clear livestock management guidelines and BLM staff available and funded to monitor grazing activities to ensure that the guidelines were being implemented. The BLM must immediately begin planning and funding resource improvement projects on the grazing units. Chronic underfunding can result in additional resource degradation if BLM consistently plans to use the Best Management Practices (BMPs) when issuing permits, but never obtains the appropriate level of resources to carry out those BMPs. Without clear standards and clear progress towards positive trends in the GU, DNR supports Alternative 2 or eliminating grazing for the 10-year planning period.

The observation on page 47 of the EA is very appropriate: With the full number of public land AUMs being unavailable until standards are met, there would be an incentive for permittees to take actions to advance range recovery.

BLM Response:
Alternative 3 does provide clear management guidelines through the alternative design, seasons of use, project construction and maintenance, and design features common to all alternatives. The proposed and final grazing decision and annual permit authorization will also include all these details.

Funding for BLM administration and implementation is provided annually by Congress. Change to this is beyond the jurisdiction of the authorized officer. Long term planning and annual budget requests are consistent with decisions made in the EA and grazing decisions.

CTUIR Comment
BLM must engage with the permittees and demonstrate that livestock can be used to enhance the habitat. BLM relies almost exclusively on socio-economic impacts as criteria to select an alternative. However, this cannot continue to be the only reason for continuing grazing. The selected alternative should demonstratively protect and enhance resources. Throughout the EA, it is acknowledged that Alternative 2 dramatically improves the natural resources of the Pedro Geographic Unit faster and more reliably than Alternative 3.

BLM Response:
The BLM used the best available peer reviewed science to develop livestock management systems which have been shown to improve elements of rangeland health. It is true that Alternative 2 will improve resource conditions faster than Alternative 3.