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Final Supplement to the North Sheep Final Environmental Impact Statement

Fisher Creek, Smiley Creek, North Fork-Boulder, and Baker Creek Sheep and Goat Grazing Allotments

Ketchum Ranger District and

Sawtooth National Recreation Area

Sawtooth National Forest
Blaine and Custer Counties, Idaho

Final Supplement to the
North Sheep Final Environmental Impact Statement
Fisher Creek, Smiley Creek, North Fork–Boulder, and Baker Creek
Sheep & Goat Grazing Allotments
Blaine and Custer Counties, State of Idaho

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Abstract: The final environmental impact statement for the North Sheep Grazing Allotments is being supplemented to include additional analyses concerning Management Indicator Species, capable and suitable grazing lands, and adaptive management strategies.

EXECUTIVE SUMMARY

The Sawtooth National Forest proposes to supplement the analysis in the 2004 North Sheep Final Environmental Impact Statement (North Sheep FEIS). This action is needed, because new information has been discovered in the form of court decisions; and a Supplement to the Sawtooth Forest Plan Final Environmental Impact Statement (Forest Plan FEIS) to update Management Indicator Species (MIS) information has been prepared.

The original Notice of Intent for the North Sheep Allotment analysis was published in the Federal Register Vol. 68, No. 87, May 6, 2003. A revised Notice of Intent was published in the Federal Register Vol. 68, No. 145, July 29, 2003. On September 30, 2004, two Records of Decision were issued, based on the North Sheep FEIS. These decisions were appealed in 2004. In 2005, the Appeal Deciding Officer affirmed both decisions. On May 18, 2005, Western Watersheds Project and Randall Hermann, MD filed a Complaint in U.S. District Court for the District of Idaho on this project. On February 7, 2006, Federal District Judge Winmill ruled there were deficiencies in the North Sheep FEIS and remanded elements of it back to the Forest Service.

The 2004 North Sheep FEIS and two RODs are available for review at the Ketchum Ranger District, 206 Sun Valley Road, Ketchum, Idaho 83340 and on the Sawtooth Forest internet site: http://www.fs.fed.us/r4/sawtooth/projects/ .

The scope and analysis of this Supplement is limited to the MIS assessment, capable and suitable grazing lands, and adaptive management strategies. (40 CFR 1508.25)

Rangeland Resources - The Proposed Action is anticipated to move toward meeting all applicable objectives, standards, and guidelines.

> Adaptive Management –Adaptive management practices tied to annual and long-term monitoring results will be used to meet applicable resource objectives, standards, and guidelines. The North Sheep Supplement provided an in depth discussion on the adaptive management strategy on pages 12-22. The effects of adaptive management are discussed in the Supplement, starting on page 91. Clarification of the adaptive management process has not resulted in changes in the description of environmental consequences.
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> Capability – The North Sheep allotments have sufficient capable rangelands to support the levels of grazing use authorized by the Records of Decision. Capability was discussed in the North Sheep Supplement on pages 32 – 49. The effects analysis for Capability is found on pages 93- 98. The levels of grazing authorization are within allotment specific tentative grazing capacities for this alternative. The grazing authorizations are consistent with achieving Forest Plan and allotment specific management objectives.

Soil & Watershed Resources - The Proposed Action is anticipated to move toward meeting all applicable soil and watershed resource objectives, standards, and guidelines that are affected by livestock grazing on the North Sheep allotments. The proposed action is consistent with the soils resource goals, objectives, and standards set forth in the Forest Plan. However, it is

acknowledged that achieving desired conditions in areas with intensive impacts from historic grazing and other historic impacts (roads, recreation, mining, etc.) will be a long-term process.

Fisheries Resources - The Proposed Action is anticipated to move towards meeting all fisheries resource goals and objectives that are affected by livestock grazing on the North Sheep allotments, and is consistent with all applicable fisheries resources standards and guidelines. Relative to non-native fish, the Supplement concludes that unfortunately, regardless how much habitat conditions improve, non-native brook trout will remain the dominant fish species and will continue to out-compete bull trout and other native fish species. The most significant risk to fish values within the allotments is not related to the Proposed Action of livestock grazing, but is directly attributable to non-native fish species.

Wildlife – MIS Resources – The MIS Capability Supplement did not identify capable MIS habitat for pileated woodpecker, nor did it identify lands in less than satisfactory condition as a result of livestock grazing. As described in the MIS Capability Supplement (pages 7-11), livestock grazing is not identified as a risk or threat to pileated habitats. Travel and use by livestock within pileated woodpecker habitat is limited and incidental because of sparse forage and dense understory trees. Given this, the North Sheep Supplement did not address pileated woodpecker relative to the requirements of 36 CFR 219.20.

Per 36 CFR 219.20 (a) capable habitat for MIS Greater sage-grouse was identified and does occur on all four North Sheep allotments. MIS capable habitat in less than satisfactory condition within the allotments was also identified. Under the Proposed Action, grazing closures and adaptive management strategies would help to move sagebrush communities towards desired condition, thereby contributing to the restoration of lands in less than satisfactory condition for MIS. (North Sheep Supplement, pp. 83-91 and pp.112-114.) As previously described in the North Sheep FEIS, many of the impacts to sage grouse habitat are the result of historic rather than current livestock grazing practices. Recovery of desired habitat conditions will require specific restoration projects which are which is beyond the scope of this analysis. As described in section 4.7.2.3.1 of the North Sheep FEIS, while manipulation of timing and intensity of livestock grazing through the adaptive management process will result in a trend towards desired conditions, some vegetative communities such as the sagebrush steppe may not return to the original community without vegetation manipulation projects or wildfire. This is consistent with the findings in the 2006 Sage-grouse Conservation Plan which states that "while subsequent changes in livestock management may be appropriate to nurture and maintain the restored area, such changes alone in the absence of restoration activities would likely provide little if any progress." (2006 Sage-grouse Conservation Plan, p. 4-55) The effects of livestock grazing on sage–grouse habitat under the Proposed Action Alternative were described in section 4.8.2.3.3.2 on page 4-79 of the North Sheep FEIS and remain valid.

Timeline for Public Review of the Supplement

The Notice of Intent to prepare a supplement to the Environmental Impact Statement (EIS) was published in the *Federal Register* on March 29, 2007 (vol. 72, no. 60). Public scoping is not required for supplements to environmental impact statements (40 CFR 1502.9(c)4(4)). Publication of the Notice of Availability for the Draft Supplement in the *Federal Register* was

published November 9, 2007. This initiated a 45-calendar-day public review and comment period which ended on December 26, 2007.

Responsible Officials
For decisions regarding the Baker Creek and North Fork–Boulder allotments, the Responsible Official is the District Ranger of the Ketchum Ranger District. For the Smiley Creek and Fisher Creek allotments, the Area Ranger of the SNRA is the Responsible Official. Each Responsible Official will decide whether the decision stated in their 2004 ROD should be modified or if the original decision is to remain in effect and unchanged. Each Responsible Official must also decide if the 2003 Sawtooth Forest Land & Resource Management Plan (Forest Plan) standards can be met, and consequently if the primary SNRA values will be substantially impaired by livestock grazing on portions of the subject allotments lying within the proclaimed boundary of the SNRA. If a new decision is made, only that portion of the decision that is changed is appealable (36 CFR 215.11(b)). A determination that the decision does not need to be changed is not appealable (36 CFR 215.12(b)).

Distribution of the Final North Sheep Supplement
The Final North Sheep Supplement document was sent to the mailing list for the Supplement to the North Sheep FEIS. Also on the mailing list are individuals and groups who submitted comments in response to formal 45-day comment period. In addition, copies have been sent to Federal agencies, federally recognized tribes, State and local governments, and organizations representing a wide range of views regarding this allotment analyses. The mailing list is available from the Forest Service and is part of the project record.

Changes from Draft Supplement to Final Supplement
The Notice of Availability (NOA) for the North Sheep Draft Supplement (Draft Supplement) appeared in the Federal Register on November 9, 2007. The NOA initiated a 45-day comment period that ended on December 26, 2007. A total of eight responses were received during the comment period. The responses were analyzed using the content analysis process by the Interdisciplinary Team (IDT). Appendix D of the Final Supplement provides a summary of who commented, what the main comments were, and the Agency's response to those comments.

Based on the comments received, no new significant issues were identified from public comment. Some word clarification within the text of the Supplement occurred based on public comment.

Section 4.2.3 Adaptive Management Effects (p. 90 Draft North Sheep Supplement). This section was expanded in the Final North Sheep Supplement to clarify the expected effects from specific adaptive management actions. It also gives concrete examples of adaptive management actions. Clarification of the adaptive management process in previous chapters of this document has not resulted in changes in the description of environmental consequences. The Effects Analysis for livestock grazing found in the original North Sheep FEIS (Chapter 4) is still valid.

In Section 4.3 Soil and Watershed Resources, soil and watershed resources issues were identified through scoping and internal agency review. The Issue "*The Proposed Action and alternatives could affect soils and soil productivity in these allotments"* was accidentally carried forth into the Draft North Sheep Supplement (p. 96). There is no discussion of this Issue in the Draft North Sheep Supplement, nor was there intended to be. This issue was found to be adequate in the

2004 North Sheep FEIS. Thus, the issue statement has been removed from the Final North Sheep Supplement.

During the time period between the Draft and Final North Sheep Supplement, the Final MIS Capability Supplement was finalized in January, 2008 and Regional Forester Forsgren signed a Record of Decision on January 18, 2008. No amendments to the 2003 Forest Plans were necessary as a result of the supplemental analysis of terrestrial MIS habitat capability and suitability. The Final North Sheep Supplement now makes reference to the completed MIS Capability Supplement (January, 2008). In the reference section it is cited as USDA, 2008a.

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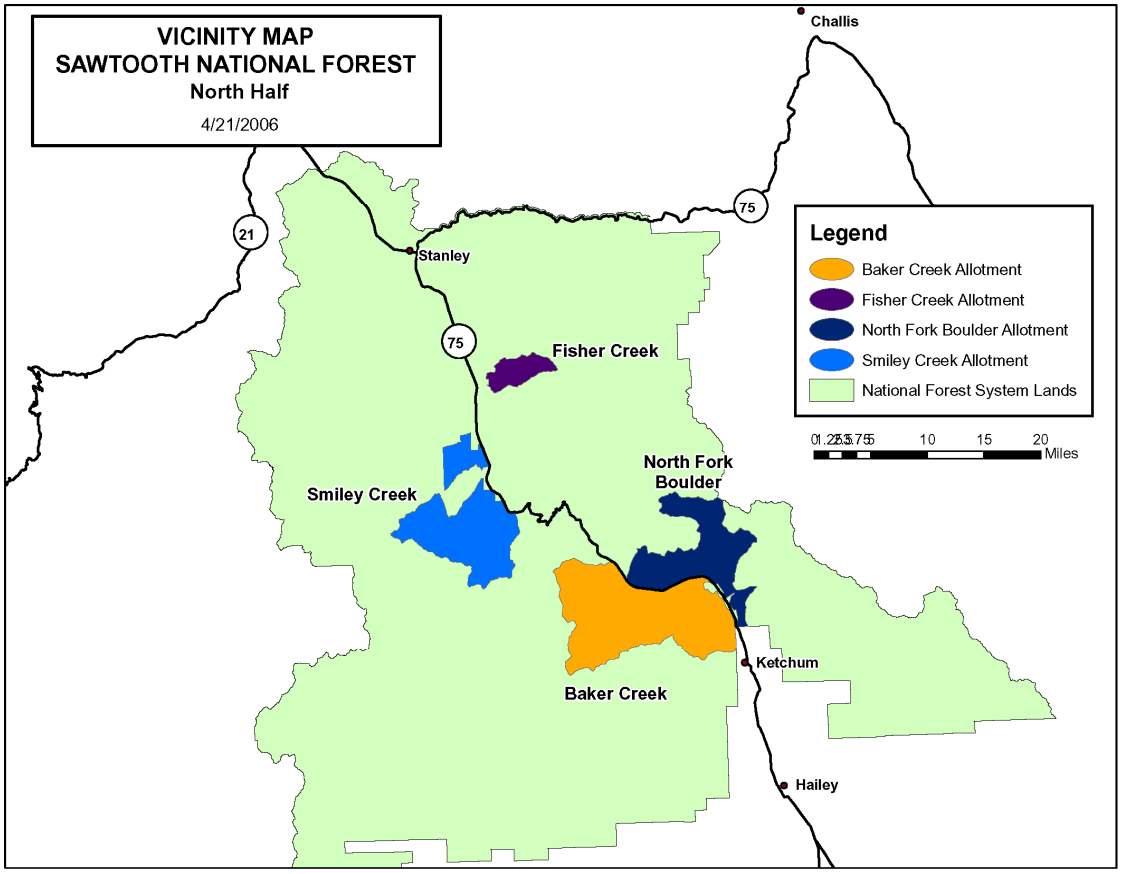
CHAPTER ONE – PURPOSE & NEED

1.1 Introduction & Background

On the northern half of the Sawtooth National Forest, there are four sheep and goat allotments collectively referred to as the North Sheep allotments. The Fisher Creek and Smiley Creek Allotments are entirely within the proclaimed boundary of the Sawtooth National Recreation Area (SNRA) and are administered by the SNRA. The North Fork-Boulder allotment is partially on the SNRA and partially on the Ketchum Ranger District, and is administered by the Ketchum Ranger District. The Baker Creek allotment is located on and administered by the Ketchum Ranger District.

Figure 1-1 Vicinity Map



An environmental analysis was initiated in 2003 for these four allotments. A Final Environmental Impact Statement (FEIS) for the North Sheep allotments was completed in September 2004. There were two Responsible Officials, the Ketchum District Ranger and the Area Ranger for the SNRA. The Responsible Officials each signed a Record of Decision (ROD) on September 30, 2004, approving actions for the North Sheep Allotments (USDA 2004b, 2004c).

Administrative appeals of both Records of Decision were filed and subsequently, Appeal Deciding Officer Ruth Monahan affirmed both decisions on December 23, 2004.

On May 18, 2005, Western Watersheds Project and Dr. Randall Hermann filed a Complaint in U.S. District Court for the District of Idaho alleging violations of the National Forest Management Act (NFMA), the National Environmental Policy Act (NEPA) and the SNRA Organic Act (substantial impairment determination).

On February 7, 2006, Federal District Judge Winmill ruled[1] that the analysis in the North Sheep FEIS as implemented by two RODs, had deficiencies. This Supplement is being prepared to address those deficiencies.

1.1.1 Scope of the North Sheep Supplement _____

The District Rangers, with the help of an interdisciplinary team, reviewed the court findings, the North Sheep FEIS and administrative record, the recent Supplement to the Sawtooth Forest Land & Resource Management Plan (Forest Plan) FEIS on Management Indicator Species (MIS), other relevant events and information, and Forest Service regulations to determine what additional analysis was necessary to ensure a sound and compliant Supplement to the North Sheep FEIS (North Sheep Supplement).

Section 1.1.1 "Scope of the North Sheep Supplement" is a new Section and not found in the North Sheep FEIS

A supplemental document (40 CFR 1502.9 (b) (3); FSH 1909.15 §18) can incorporate new information, and provide additional clarification of the previous analysis. We will focus the North Sheep Supplement on the following elements:

1. Discussion of the 2003 Forest Plan capability and suitability determinations for livestock grazing.

2. Full explanation of the adaptive management strategy and its protocols.

3. Consideration of new information for Management Indicator Species in the January 2008 MIS Capability Supplement (USDA 2008a).

4. Based on the additional information in the North Sheep Supplement, as well as information in the original North Sheep FEIS, a determination relative to "substantial impairment" of the key values of the Sawtooth National Recreation Area (SNRA) will be made. The new determination will be documented in the Record of Decision for the North Sheep Supplement under the "Findings" Section.

The scope of the analysis for this Supplement is <u>not</u> the same as the original analysis. The scope of the analysis has been narrowed to focus on the effects as they relate to the elements identified above.

[1] Western Watersheds Project and Randall Hermann, MD v. United States Forest Service CV-05-0189-E-BLW Court Docket #47 – page 25

1.1.2 Structure of the North Sheep Supplement _____

While certain elements in the North Sheep FEIS will be supplemented, other important aspects of the project and the analysis in the North Sheep FEIS were sufficient and therefore will remain unchanged. At the start of each Chapter is a table showing which sections remain unchanged from the original North Sheep FEIS and which sections are altered or new.

Section 1.1.2 "Structure of the North Sheep Supplement" is a new Section and not found in the original North Sheep FEIS.

Chapter 1 Edited Sections or New Sections Added	**Chapter 1 Sections that remain unchanged**
1.1 Introduction and Background 1.1.1 Scope of the Supplement 1.1.2 Structure of the North Sheep Supplement 1.1.2a New Information 1.1.3 Process for Evaluating Elements To Be Supplemented 1.3 Adaptive Management Section Supplemented 1.4 Decisions to Be Made 1.6.2 *Issues Analyzed in Detail Rangeland Capability and Suitability Issue added here (moved from 1.6.3) 1.8.1 Changes from Draft Supplement to Final Supplement	1.2 Purpose and Need 1.3 Proposed Action * (See Chapter Two – Proposed Action and Adaptive Management) 1.5 Forest Plan and SNRA Organic Act Compliance 1.6 Scoping and Issue Identification 1.6.1 The Scoping Process 1.6.3 Issues Dropped from Detailed Analysis* (Capability/Suitability moved to Section 1.6.2) 1.7 Other Permits and Authorizations 1.8 Changes From Draft EIS to Final EIS For those sections that remain unaltered, please refer to the 2004 North Sheep FEIS (Chapter One) for a full description.

1.1.2.a New Information since the two North Sheep Records of Decision

Management Indicator Species Supplement

The regulations at 36 CFR 219. 20 Rangeland Resources provide the direction for analysis of rangeland resources at the Forest Plan level. This direction includes the requirements for determining capable and suitable rangeland, and for determining capability of suitable rangelands for providing habitat for MIS. The Rangeland Resources section of the Final Environmental Impact Statement for the Southwest Idaho Ecogroup (SWEIG) Land and Resource Management Plan (2003 Forest Plan FEIS), included an analysis of capable and suitable rangeland pursuant to 36 CFR §219.20. The 2003 Forest Plan FEIS (USDA, 2003b) also included an analysis of suitable rangelands relative to terrestrial wildlife species, finding that "all lands, with the exception of talus slopes, water and rock, are suitable for grazing and browsing by wildlife" (2003 Forest Plan FEIS pg 3-674). However, the 2003 Forest Plan FEIS did not include a capability analysis of management indicator species (MIS) habitat.

Specifically, the regulation at 36 CFR §219.20 Grazing Resource requires:

> In forest planning, the suitability and potential capability of National Forest System (NFS) lands for producing forage for grazing animals and for providing habitat for management indicator species shall be determined as provided in paragraphs (a) and (b) of this section. Lands so identified shall be managed in accordance with direction established in forest plans.
>
> (a) Lands suitable for grazing and browsing shall be identified and their condition and trend shall be determined. The present and potential supply of forage for livestock, wild and free-roaming horses and burros, and the capability of these lands to produce suitable food and cover for selected wildlife species shall be estimated. The use of forage by grazing and browsing animals will be estimated. Lands in less than satisfactory condition shall be identified and appropriate action planned for their restoration.

Consistent with 36 CFR §219.20(a), a Supplement for the Rangeland Resources section of the 2003 Forest Plan FEIS was prepared and is referred to in this document as the "MIS Capability Supplement" (USDA, 2008a). The MIS Capability Supplement identified:

- Capable MIS habitat on National Forest System (NFS) lands within the SWIEG by determining where MIS source habitat is coincident with <u>open</u> domestic livestock grazing allotments;
- Capable MIS habitat in less than satisfactory condition where risks associated with livestock grazing have contributed to the less than satisfactory condition;
- Existing Forest Plan direction and/or additional direction needed for restoration of those lands.

NFS lands that exist outside open allotments, while important to MIS species, were not addressed in the MIS Capability Supplement (USDA, 2008a) because forage in these areas for directly or indirectly supporting MIS species is not affected by domestic grazing animals.

The Final MIS Capability Supplement was completed in January, 2008 and Regional Forester Forsgren signed a Record of Decision on January 18, 2008 (USDA 2008b). No amendments to the 2003 Forest Plans were necessary as a result of the supplemental analysis of terrestrial MIS habitat capability and suitability.

The information found in the MIS Capability Supplement (USDA, 2008a) is an important foundation for the North Sheep Supplement discussion on MIS found later in this document in Chapter Three (Section 3.8) and Chapter Four (Section 4.8).

Watershed Conditions Indicators

New information has also been received relative to the watershed condition indicators (WCIs) in the four North Sheep allotments and specifically in the Smiley Creek allotment. This new information shows that many WCIs are in a better condition than portrayed in the North Sheep FEIS (USDA 2004a). When the analysis was conducted for the North Sheep FEIS, the preparers relied solely on default values contained in Appendix B of the Sawtooth Forest Plan (USDA, 2003a). However, as provided for in the Forest Plan, "Default values provided in the Forest Plan – Appendix B can be used, unless better subwatershed or project-specific information is available to update these values" (Forest Plan, p. B-6). Where available, the Natural Conditions Database, which uses values that represent conditions in unmanaged streams in similar geology and Rosgen (1985) channel types, provides the more appropriate values to evaluate some WCIs. As displayed in Chapter 3 of this document, if the Natural Conditions Database data had been used, several WCIs would have been characterized as "functioning appropriately." For example, streambank stability for the entire Frenchman drainage would have been rated "functioning appropriately". Chapter 3, Section 3.3 and Chapter 4 Section 4.4.4.3 summarizes this updated information and its effects.

Monitoring

Monitoring of the four allotments has occurred since the decisions were signed in September, 2004. Monitoring information has been incorporated into the North Sheep Supplement where appropriate.

Projects Implemented

Projects have been implemented since the decisions were signed in September, 2004. These projects include fish habitat improvement projects. The effects of these projects will be incorporated into the effects analysis of this Supplement where appropriate.

Wildfires

The human-caused 40,838 acre Valley Road wildfire, located in the Boulder-White Cloud Mountains southeast of Stanley, started September 4, 2005. It was contained on September 28, 2005 after burning 5,800 acres within the Fisher Creek allotment (75%). The Fisher Creek allotment covers approximately 7,494 acres and incorporates the majority of the Fisher Creek drainage located on public land. Thirty-six percent of the Fisher Creek subwatershed has a high severity burn. Following the Valley Road wildfire, 1,891 acres were treated with straw mulch at a rate of 2000 lbs/acre, dropped from helicopters in the Warm Springs, Fisher, 4th of July and Champion Creek drainages. The straw was applied to provide a protective mulch layer for reducing soil erosion by providing a surface to reduce impacts from rain. Monitoring results to

date show the fire has had little effect to fish or riparian habitat. Base flows have increased slightly, which has transported some fine sediment downstream. But there have been no changes to channel width, bank stability, or habitat.

The lightning-caused Castle Rock Wildfire started on August 16, 2007 at 4 pm. It burned in heavy timber as well as in sagebrush, grass, and aspen stands. The fire area consisted of rolling terrain with discontinuous timber on both north and south slopes. On September 4, 2007 the Castle Rock wildfire was fully contained with handlines, bulldozer lines, and black line completely surrounding the 48,520 acre fire.

The Castle Rock wildfire burned approximately 20% of the Baker Creek allotment acres on the southern half of the Baker Creek allotment from Lower Adams Gulch to Fox Creek. The route used to enter the Baker Creek allotment with the lamb band begins at the Adams Gulch drainage and extends through Fox Creek. A small segment of the East Fork unit in the vicinity of Fox Peak was also impacted. The intensity of the wildfire on the allotment varied from moderate to severe in places forming a mosaic pattern with some areas unburned. Chocolate Gulch and the majority of Oregon Gulch escaped fire impacts. Alternate routing will need to occur for at least the next two grazing seasons.

In compliance with Forest Plan Guideline VEGU05, a "Burned Area Emergency Response" (BAER) Team was convened for both the Valley Road wildfire and the Castle Rock wildfire to evaluate the effects of the wildfire on various resources.

The BAER Team recommended that the Fisher Creek Allotment be rested for a minimum of two seasons, until certain vegetative standards were achieved.

VEGU05	Where wildfire has burned within an allotment, burned areas should be evaluated to determine if rest from livestock grazing is necessary for recovery of desired vegetation conditions and related biophysical resources.
VEGU06	When sagebrush cover types are determined to need rest from livestock grazing following a wildfire, areas should be rested for a minimum of two growing seasons. Evaluate whether additional rest is needed after two growing seasons. Base this determination on the following factors: a) The ecological status of the sagebrush community prior to the wildfire, b) How long the sagebrush community had a density or canopy closure greater than 15 percent prior to the wildfire, c) The severity and intensity of the fire, d) The amount, diversity, and recovery of forbs, grasses and palatable shrubs that are present after 2 years of rest in relation to desired conditions. In areas other than sagebrush cover types, an appropriate rest period should be determined. Base this determination on the following factors: soil conditions, the amount, diversity and recovery of forbs, grasses, and palatable shrubs in relation to the desired condition that are present after the 2 years of rest.

For the Castle Rock wildfire, relative to livestock grazing, the BAER Team recommended that the portion of the Baker Creek Allotment from Adams Gulch to Fox Creek affected by wildfire be rested for a minimum of two seasons. This will result in a loss of about four weeks of

grazing, as well as the trailing route. The BAER Team also recommended monitoring of vegetation recovery which will be keyed to ground cover recovery of sagebrush and grasses. Coverage of from 45-60% ground cover will be one trigger prior to resuming grazing use. Recovery in Aspen stands will relate to stems per acre (500) and a height of 60 inches to protect growing points.

The Valley Road and the Castle Rock wildfires do not change the original analysis found in the North Sheep FEIS nor do they affect this Supplement which is focused on a discussion of capability and suitability determinations for livestock grazing, explaining the adaptive management strategy and its protocols, and considering information for MIS species. Once specific vegetative conditions have been achieved, land managers will evaluate returning livestock grazing to those areas. They will specify the conditions (timing, band size, grazing routes etc.) through the adaptive management process consistent with Forest Plan direction, the North Sheep FEIS and the North Sheep Supplement. It is important to note that while a new site-specific capability assessment could be made at that time for the burned area, it would likely result in additional areas being identified as capable especially where burned forest vegetation has reverted to earlier seral forb/grass/shrub stages. A more conservative approach is to rely on existing analyses in combination with the BAER assessment and resume grazing consistent with BAER findings and Forest Plan direction.

1.1.3 Process for Evaluation of Elements To Be Supplemented

Section 1.1.3 "Process for Evaluation" is a new Section and not found in the North Sheep FEIS.

To organize the analysis systematically, steps that would remedy the specific shortcomings of the original North Sheep FEIS were developed. The steps are identified below, followed by a brief explanation of each.

Capability and Suitability Analysis

1. Supplement the North Sheep FEIS with a discussion on how the capability analysis was conducted that resulted in the Forest Plan calculation of 25% capability for the North Sheep FEIS area. This discussion will focus on the validity of modeling components versus on-the-ground mapping of physical components of the capability criteria. The discussion will validate the significance of land type information and Range Allotment Analysis data collected prior to the North Sheep FEIS and the Sawtooth Forest Plan capability modeling. The discussion will also describe how this data was validated and used in the North Sheep FEIS.

2. Supplement the North Sheep FEIS with a discussion and display of the capability analysis model developed for the Forest Plan revision process. The model will be run and maps developed for the four North Sheep FEIS allotments. Discuss how the Forest Plan modeling compares to the analysis in the North Sheep FEIS and why there is a difference in areas.

3. Supplement the North Sheep FEIS with a discussion of how grazing capacity and allowable grazing use levels are developed. This will include the relevance of the capability model and Range Allotment Analysis (RAA) to determine "tentative" grazing capacities and how this is firmed up over time based on monitoring and administration of grazing uses. Display research data that describes how plant production varies over time, dependent on climate variables (temperature and moisture) during the growing season and how this relates to determinations of capacity. Display how evaluation of actual grazing impacts on lands grazed by livestock are evaluated and managed through the allotment administration and adaptive management process. Discuss how evaluation of actual grazing impacts is a key element in adaptive management decisions. Describe how grazing permits may be modified through adaptive management to reflect actual conditions and use levels that occur on-the-ground.

Adaptive Management

While the adaptive management strategy was not adequately displayed in the North Sheep FEIS, the process is clearly defined. It was the stated intent of the Sawtooth Forest to display the strategy and monitoring protocol in the Allotment Management Plans (AMP) for the four allotments. We will supplement the North Sheep FEIS by including the description of adaptive management that was intended to be placed in the AMPs. Additionally, the AMPs will be included as an Appendix to this Supplement. Adaptive management discussions specific to each allotment will be part of the AMP for that allotment. The AMPs are the documents that implement adaptive management direction. They display management direction applicable to the allotment, the grazing prescription, rangeland improvements, and monitoring. AMPs are adaptive documents that describe the direction and procedures to be followed to ensure attainment of the management objectives and desired conditions identified in the Forest Plan and North Sheep FEIS.

MIS – Pileated Woodpecker and Greater Sage-grouse - 36 CFR 219.20 Requirements

Given the new information in the terrestrial MIS Capability Supplement (USDA, 2008a) to the Forest Plan FEIS for pileated woodpecker and Greater sage-grouse, the Forest Service will identify capable MIS habitat within the four allotments and identify MIS capable habitat in less than satisfactory condition. Based on this new information we will make changes if appropriate.

1.4 Decisions To Be Made

The scope of the North Sheep Supplement is to analyze additional information relative to adaptive management, rangeland capability, and MIS capability. For decisions regarding the Baker Creek and North Fork–Boulder allotments, the Responsible Official is the District Ranger of the Ketchum Ranger District. For the Smiley Creek and Fisher Creek allotments, the Area Ranger of the SNRA is the Responsible Official. Each Responsible Official will decide whether the decision stated in their 2004 ROD should be modified or if the original decision is to remain in effect and unchanged. If a new decision is made, only that portion of the decision that is changed is appealable (36 CFR 215.11(b)). A determination that the decision does not need to be changed, is not appealable (36 CFR 215.12(b)).

One of the primary considerations in determining whether or not to authorize livestock grazing on the SNRA is a determination relative to "substantial impairment". The Organic Act (P.L. 92-400 - 86 Stat. 612), which established the SNRA, defines substantial impairment as "that level of disturbance of the values of the SNRA which is incompatible with the standards of the General Management Plan." (36 CFR 292.17(b)(10)) The Sawtooth National Recreation Area General Management Plan was replaced by the 1987 Sawtooth Forest Plan, which was then replaced by the current 2003 Forest Plan. Therefore the Responsible Officials must also decide if the 2003 Forest Plan standards can be met, and consequently if the primary SNRA values will be substantially impaired by livestock grazing on portions of the subject allotments lying within the proclaimed boundary of the SNRA. Appendix A to this Supplement contains a memo from the Area Ranger documenting the Substantial Impairment review.

1.6.2 Issues Analyzed In Detail

Most of Section 1.6.2 "Issues Analyzed in Detail" remains unaltered from the North Sheep FEIS. However, the issue of Suitability and Capability Analysis was moved into the Issues Analyzed in Detail and is shown below.

Rangeland Resources

Suitability and Capability Analysis

- *The Proposed Action and alternatives may not adequately consider the Forest Plan assessments of capability and suitability for grazing given the site-specific characteristics of the North Sheep allotments. This may lead to overstocking of the allotments.*

As stated in the Forest Plan (p. II-19), capability determinations serve to "determine a Forest's estimated acreage capable of producing forage." Capability analysis at the Forest Plan level was developed using a landscape level model to approximate a conservative estimate of areas capable of sustaining livestock grazing on the Forest. The Forest Plan model was appropriate at the Forest level for providing broader determinations. However, that information needs to be refined in order to provide an adequate analysis of rangeland capability at the site-specific allotment level.

Most of Section 1.6.2 "Issues Analyzed in Detail" remains unaltered from the North Sheep FEIS.

The Rangelands -Suitability & Capability Issue was originally found in Section 1.6.3 - "Issues Dropped from Detailed Analysis".

The Rangelands - Suitability & Capability has now been moved to "Issues Analyzed in Detail".

Suitability analysis identifies areas within the capable land base where grazing is appropriate in the context of other land management considerations. "Typically, suitability decisions are made at the Forest Plan level, but can be done at the project or allotment level. Suitability issues are typically broad in scope and extend across a larger landscape than a single allotment." In regard to suitability, the Forest Plan provides for site-specific analysis and revision of suitability determinations for specific grazing allotments. As discussed in the North Sheep FEIS,

Sections 1.5 and 2.2.2, the Proposed Action includes closure of certain portions of the allotments, and other areas could be closed in the future on the basis of adaptive management.

In Section 3.2 of Chapter 3, this Supplement displays how the capability analysis was prepared for the North Sheep FEIS area and how that relates to the Forest Plan capability and suitability analysis.

1.8.1. Changes from Draft Supplement to Final Supplement

The Notice of Availability (NOA) for the North Sheep Draft Supplement (Draft Supplement) appeared in the Federal Register on November 9, 2007. The NOA initiated a 45-day comment period that ended on December 26, 2007. A total of eight responses were received during the comment period. The responses were analyzed using the content analysis process by the Interdisciplinary Team (IDT). Appendix D of the Final Supplement provides a summary of who commented, what the main comments were, and the Agency's response to those comments.

Based on the comments received, no new significant issues were identified from public comment. Additional information and concerns related to the existing issues were received. This new information has been addressed in the "Response To Comments". Some word clarification within the text of the Supplement occurred based on public comment.

During the time period between the Draft and Final North Sheep Supplement, the Boise, Payette, and Sawtooth National Forests finalized a Supplement to the July 2003 Final Environmental Impact Statement for the Southwest Idaho Ecogroup Revised Forest Plans. (Forest Plan FEIS) The three National Forests work together as the "Southwest Idaho EcoGroup". The Final Supplement is a terrestrial wildlife MIS Capability Analysis prepared in accordance with 36 CFR 219.20. It is cited in the Reference section as USDA 2008a. Intermountain Regional Forester Harv Forsgren made a determination upon review of the supplemental analyses completed, that the 2003 Forest Plans for the Sawtooth, Boise, and Payette National Forests now meet the requirements of 36 CFR 219.20. No amendments to the 2003 Forest Plans are necessary as a result of the supplemental analysis of terrestrial MIS habitat capability and suitability. The Final North Sheep Supplement now makes reference to the completed MIS Capability Supplement.

Section 4.2.3 Adaptive Management Effects (p. 90 Draft North Sheep Supplement) was expanded in the Final North Sheep Supplement to clarify the expected effects from specific adaptive management actions. It also gives concrete examples of adaptive management actions. Clarification of the adaptive management process in previous chapters of the Supplement has not resulted in changes in the description of environmental consequences. The Effects Analysis for livestock grazing found in the original North Sheep FEIS (Chapter 4) is still valid.

In Section 4.3 Soil and Watershed Resources, soil and watershed resources issues were identified through scoping and internal agency review. The Issue "*The Proposed Action and alternatives could affect soils and soil productivity in these allotments"* was accidentally carried forth into the Draft North Sheep Supplement (p. 96). There is no discussion of this Issue in the North Sheep Supplement, nor was there intended to be. This issue was found to be adequate in the 2004 North Sheep FEIS. Thus, the issue has been removed from the Final North Sheep Supplement.

CHAPTER 2. ALTERNATIVES

NEPA requires that federal agencies preparing an EIS develop and analyze a reasonable range of alternatives to a Proposed Action. These alternatives must include the No-Action Alternative as well as other alternatives to ensure that options to meet the stated purpose and need while protecting, enhancing, or restoring the environment are not foreclosed.

The Alternatives developed and analyzed in the North Sheep FEIS remain unaltered. However, a new section on Adaptive Management was added to Alternative B – Proposed Action.

Chapter 2 Sections with Supplemented or New Information	**Chapter 2 Sections that remain unchanged**
Section 2.2.2.1 - Adaptive Management Strategy. This Section is part of Alternative B – Proposed Action. EXPANDED SECTION Section 2.4 Comparison of Alternatives (Updated) • 2.4.1 Rangeland Resources • 2.4.2 Soil and Watershed Resources — *The Proposed Action and alternatives could affect streambank stability and morphology.* — *The Proposed Action and alternatives could affect stream sedimentation and the deposition of fine soil material in gravel beds.* • 2.4.3 Fisheries Resources	Section 2.1 Alternative Development Section 2.2.1 Alternative A (No Action) Section 2.2.2 Alternative B (Proposed Action) with the exception of Section 2.2.2.1 Section 2.2.3 Alternative C (Grazing Phased Out) Section 2.2.4 Mitigation Sections 2.3 Alternatives Considered but Not Analyzed in Detail Section 2.4.2 Soil and Watershed Resources — *The Proposed Action and alternatives could affect soils and soil productivity in these allotments.* Section 2.4.4 Heritage & Cultural Resources Section 2.4.5. Recreation Section 2.4.6. Vegetation Resources Section 2.4.7 Wildlife Resources For those sections that remain unaltered, please refer to the 2004 North Sheep FEIS (Chapter Two) for a complete description.

2.2.2.1 Adaptive Management Strategy within Alternative B – Proposed Action

Adaptive management is a strategy based on three principles:

(1) Achievement of realistic, clearly defined objectives;
(2) Ongoing monitoring to assess progress toward those objectives; and
(3) Flexibility to alter management when adequate progress is not being achieved.

This management strategy is most appropriate in dynamic situations, where change is the norm. Change can be a characteristic of the management setting, or the result of management activities, or both. In such situations, adaptive management is the most efficient way to achieve desired objectives.

Section 2.2.2.1 – "Adaptive Management Strategy" has been updated and expanded upon from the original version in the North Sheep FEIS

The Sawtooth Forest Plan recognizes that most physical, biological, social, and economic systems are dynamic and that management must be correspondingly flexible in order to be effective. The Sawtooth Forest Plan adopts an adaptive management approach (Forest Plan Record of Decision, pp. 6 -7, and Forest Plan, Volume 1, pp. 1-1, 1-3, and 4-5). The Proposed Action implements this management concept.

The adaptive management procedure is based on both annual grazing use and long-term monitoring to determine if management is achieving long-term management objectives. Establishing a relationship between annual grazing use and achievement of long-term objectives necessarily emphasizes use of end-of-season annual grazing use indicators, as well as long-term indicators of rangeland condition. Within-season annual grazing use indicators may also be established through the adaptive management process to determine when livestock should be moved from a grazing unit to achieve appropriate end-of-season grazing use levels and resource management objectives. Grazing use indicators are discussed on pages 17 - 20 of this document and in the Monitoring section of the AMPs, found in Appendix C.

Annual grazing use indicators (including Forest Plan Standards and Guidelines), both within-season and end-of-season, along with other required management practices, are a total package that, when implemented and adhered to, will result in a reasonable expectation that long-term desired condition objectives will be achieved.

The Allotment Management Plan (AMP) is the document that ties management direction and associated management actions to the achievement of long-term objectives. The AMPs for the four North Sheep allotments provide the link between monitoring and defining needed changes in management. The AMPs contain the specific objectives related to grazing use of the allotment, specific livestock management direction to be carried out to achieve these objectives (includes the grazing prescription and specific management actions, requirements and restrictions), monitoring requirements (includes specification of location, protocol and scheduling), other direction needed to achieve the specified objectives, and direction for

changing or adapting management and monitoring requirements based on the results of annual and long-term monitoring.

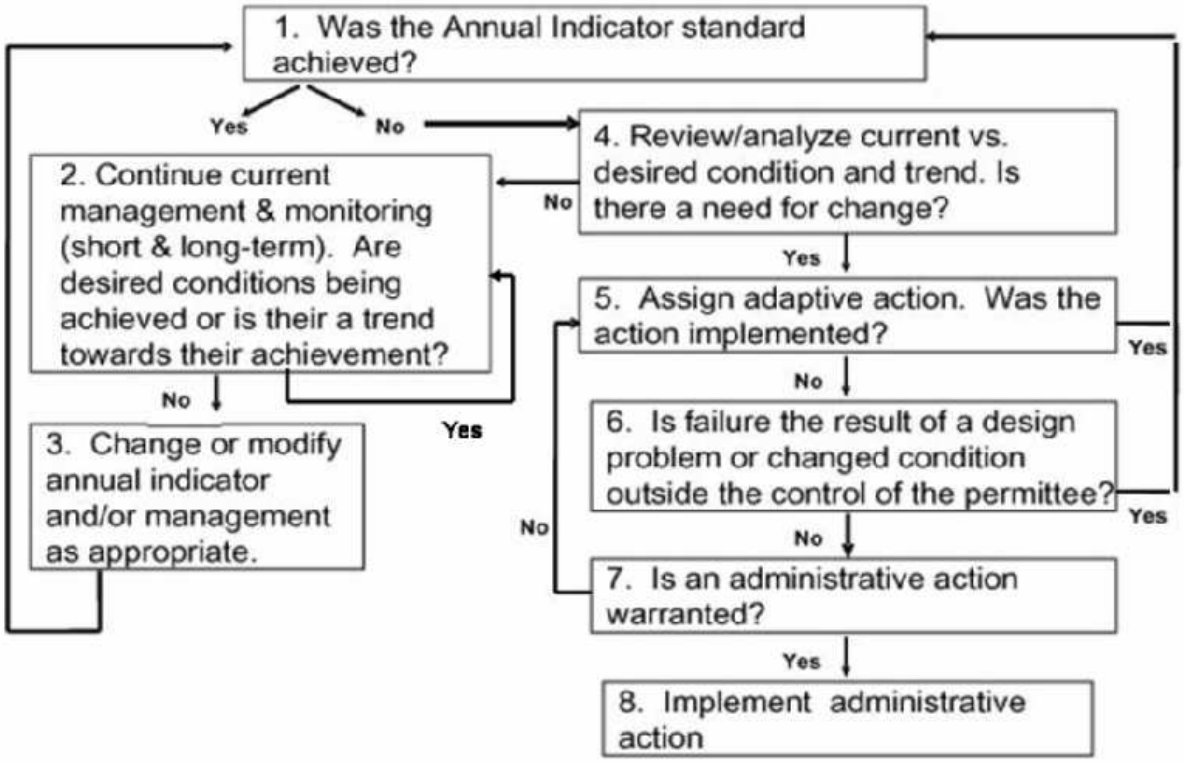
The AMP may be considered as the implementation plan for the Forest Plan and decisions based on allotment analyses. The AMP is a working document that provides direction for both the Agency and the grazing permittee. Adaptive actions may be needed and applied in both the short-term and long-term and may be implemented singly or as a set of management actions. Short-term actions will be implemented through the AOI. Modifications to the AMP and/or term grazing permit should be considered where monitoring shows that these actions need to be continued in the long-term or are implemented repeatedly or consistently over time. The AMP may be modified or adapted based on monitoring results without additional environmental analysis as long as the modifications are consistent with the existing decisions in accordance with NEPA. Typical AMP modifications include: changes to the grazing prescription (timing, intensity, and/or duration of grazing use), clarification of management direction and/or desired conditions to support Forest Plan and North Sheep analysis decisions, and changes to monitoring plan (e.g. desired conditions based on site potential for specific monitoring sites, annual and/or long-term indicators to be evaluated, protocols, addition and or changes in monitoring site locations, etc.). Adaptive management as prescribed in this alternative is implemented through the AMPs using the following adaptive management decision tree. The AMPs provide:

1. Explicit definition of management objectives in terms of the desired condition for resources affected by livestock grazing.

2. Management direction and the grazing prescription including determination of appropriate indicators or limits on annual grazing uses.

3. Monitoring of both annual and long-term indicators related to the defined objectives and identified desired conditions. Monitoring of annual and long-term indicators generally should be conducted at the same monitoring location. The location should be chosen to determine the effects of and response to livestock grazing use and management. If possible, locations should be chosen that isolate grazing response vs. other resource uses and impacts.

Adaptive Management Decision Tree



In Block 1, the grazing permittee(s) and/or land manager evaluates whether the annual grazing use indicator or standard was met. This assumes that the correct indicator and value was being used. These annual indicators are initially set in the Forest Plan (Forest Plan pp. III-45 through III-47) and the monitoring sections of the Allotment Management Plans (Supplement, App. C). The adaptive management process provides the opportunity to evaluate and adjust annual grazing indicators. As the adaptive management process is followed, indicators may be modified based on the results of annual and long-term monitoring.
This may be subject to re-evaluation later in the process.

A. Annual Indicator or Standard is Met: If the annual grazing use indicator is met, current management will continue, including short- and long-term monitoring as indicated in Block 2.

A1. Continue Current Management and Monitoring (Block 2): Long-term monitoring indicators are used to assess whether management objectives for resource conditions and values are being achieved. This data will be used over time to determine the effectiveness of management direction and/or annual grazing use indicators in achieving the desired

conditions. Note: The adaptive management process may begin with this block when long-term monitoring is completed and evaluated.

A2. Modify the Annual Indicator and/or Management as Appropriate (Block 3): If the desired condition objective is not being achieved, there is a need to change management and/or modify either the type or value of annual grazing use indicators being used. The primary situations that could lead to modifying annual indicators are. 1) When long-term monitoring results indicate that desired conditions are not being achieved. Along with other management changes, it may be necessary to change the indicator to a more restrictive use criterion. For example, if bank stability goals are not being achieved with a 4 inch stubble height annual use criteria, raising the threshold to require leaving a 6 inch stubble height after grazing use may be appropriate. 2) The indicator is not sensitive to achieving desired conditions. For example, using a stubble height use criteria may not adequately address recovery of willow species on a site. It may be more appropriate to add or change the indicator to a limit on browsing on seedling and young willow plants. 3) New resource issues or use conflicts surface. If areas are significantly disturbed by fire, flood, or other disturbances that significantly change resource conditions, new or additional use criteria may be needed. 4) When desired conditions have been achieved, criteria may not need to be as restrictive to provide for maintenance of resource conditions as when managing for recovery of resource conditions.

If the desired condition objective is achieved, it may be possible to modify either the value or type of annual grazing use indicator and still maintain the desired condition. An example would be relaxing the numerical value (i.e., 4-inch versus 6-inch stubble height) or changing the type of annual grazing use indicator being used (i.e., change indicator from herbaceous utilization to woody utilization).

B. Annual Grazing Use Indicator or Standard Is Not Met: If the grazing use exceeds the annual grazing use indicator or standard, proceed to the evaluation steps in Block 4.

B1. Analysis and Determination of the Need for an Adaptive Management Adjustment (Block 4): If the grazing use exceeds the established annual grazing use indicator or standard, the resource manager, in consultation with the permittee(s) and others as appropriate, will determine: 1) the potential cause for exceeding the standard, and 2) the significance of the excessive grazing use relative to its impact on the achievement of the desired resource conditions.

The resource manager, in consultation with the permittee(s), should determine whether the failure to meet the annual grazing use indicator is an infrequent occurrence or whether there is routine difficulty in meeting annual grazing use standards. A one-time occurrence due to some unique variable may not be significant and may not require further evaluation or adaptive management adjustments. Routine difficulty in meeting the annual grazing use indicator may indicate further evaluation and the need for adaptive management adjustments.

If further evaluation is warranted, comparison of the current condition with the desired condition should be made. If there is a large departure between current conditions and desired resource conditions, it may be fairly obvious that the need to achieve the annual use indicator is significant and that adaptive management actions are needed to provide for the achievement of the annual use indicator and meet long-term objectives.

While the evaluation of current versus desired conditions should be made with the use of long-term monitoring data, this information may not be available. In that case, utilize the best available information or complete a simple and rapid qualitative analysis to compare current conditions with desired conditions. While long-term trend and condition information is preferred, the lack of such information should not delay the evaluation of the current rangeland condition and needed adaptive management adjustments. Adaptive management adjustments should be temporary modifications until quantitative long-term condition and trend information is available to support permanent changes. If the resource manager's evaluation concludes that current conditions are close to desired resource conditions, then failure to achieve the annual grazing use indicator during that grazing season may not be significant in terms of achieving long-term objectives. In this case, adaptive management adjustments may not be necessary. Existing management and monitoring to achieve desired conditions would continue (Blocks 2 and 3). The exception to this situation may be where available information indicates that the long-term trend is negative, and adaptive management adjustments are needed.

If the resource manager's evaluation concludes that there is a significant gap between current and desired conditions and there is no indication of a positive trend, then the need for adaptive management adjustments are indicated.

Note: Determination of "large departure" may be either qualitative or quantitative depending on available information. Interdisciplinary teams or resource specialists may rely on personal experience, observations, and/or quantitative assessments to make this determination. Where available, quantitative data such as is found in the Natural Conditions Database (Overton et.al. 1995), could be used. For example, a bank stability rating that is greater than the standard error in the Database could be used to define "large departure". Where observational data is used for this determination, specialists should use photographs and/or descriptions of the observed conditions related to desired conditions to support the need for changing management and/or use indicators.

B2. Development and Implementation of Adaptive Management Adjustments (Block 5): If adaptive management adjustments are warranted, the resource manager develops these actions in collaboration with the permittee(s) and others, as appropriate. The adaptive actions are implemented through annual authorizations or operating instructions issued by the resource manager. These actions typically include, implementation of additional or more restrictive annual use criteria; change in season, timing, or duration of grazing; changes in numbers of livestock; changes in herding or routing practices; changes in grazing rotations; closures or resting areas from grazing; changes in salting and watering practices, and changes in other livestock management practices and requirements.

Once adaptive management adjustments are developed and assigned, the resource manager, in collaboration with permittee(s) and others, as appropriate, must assess whether the adaptive management adjustments were implemented as designed during the following grazing period.

If adaptive management adjustments were implemented by the permittee(s), then a determination as to whether these adjustments achieved the annual grazing use indicator would be made the following grazing period (Block 1). If the adaptive management adjustments were effective in achieving the annual grazing use indicator, then management and monitoring would continue as planned (Blocks 2 and 3). If they were not effective, then the resource manager, in collaboration with permittee(s) and others, as appropriate, must determine what additional adaptive management actions are needed (return to Block 5). Adaptive management actions considered in the proposed action are described below.

B3. Adaptive Management Adjustment Not Implemented (Block 6): If the adaptive management adjustments were not implemented, the resource manager must determine if the failure results from a design problem or changed condition, outside the control of the permittee(s). If there were problems with the design or ability to implement the adaptive management adjustments outside the control of the permittee(s), the resource manager and/or permittee(s) would revisit the design or selection of the adaptive management adjustment (return to Block 5).

B4. Determination of Non-compliance (Block 7): If failure to implement the adaptive management adjustment is not related to the design or inability to implement the adaptive action by the permittee(s), the resource manager would assess the need for an administrative action. If the resource manager determines that an administrative action is not warranted, additional changes or adaptive management direction should be considered (return to Block 5).

B5. Issue Notice of Non-compliance (Block 8): If failure to implement adaptive management adjustments is an issue of permittee(s) performance and compliance or is repetitive, then take appropriate action under the grazing regulations (36 CFR Part 222.4), Forest Service Manual direction (FSM 2231.6), and Forest Service Handbook direction (FSH 2209.13 sec. 16 & R4 FSH 2209.13 sec. 16).

Adaptive Management Actions for the North Sheep Allotment AMPs

The AMP is a component of the grazing permit that authorizes grazing use on National Forest System lands. The AMP implements management direction designed to achieve the goals and directives identified in the Forest Plan and decisions based on allotment level analysis.

Annually, Agency personnel meet with the grazing permittees to evaluate management activities and accomplishment of the grazing objectives. During these annual meetings, the previous year's grazing use and monitoring is reviewed, and annual operating instructions (AOI) are developed for the following grazing season. The AOI adapts management direction to the

current conditions and expectations for the grazing season. The AOI sets the stage for the on-the-ground application of management direction for livestock grazing on the allotment. The AOI are used to implement direction within the context of the existing allotment level decisions and the Agency's administrative authority established by law and regulation. Actions implemented through the AOI must be consistent with the direction evaluated in the existing environmental analyses and/or the existing administrative authority of the Agency.

Adaptive management actions may be implemented as long as they are consistent with existing environmental analyses and related decisions and/or the administrative authority of the Forest Service. The administrative authority of the Forest Service is described in Title 36 of the Code of Federal Regulations, part 222; and in Forest Service Manuals and Handbooks. Courses of action that would be considered if monitoring did not indicate progress toward desired future conditions, particularly in light of the constraints discussed above are described in the following section. Such changes would generally be determined in advance and documented in the AOI describing authorized management actions for the upcoming grazing season. Additional environmental analysis would not be required.

Adaptive Management Actions

Adaptive management actions should be applied where:

- Monitoring shows management objectives have not been achieved or that trend towards achieving desired conditions is not improving or improving at an adequate rate. Monitoring plans are included in the AMP (Appendix C).

- Annual indicators of grazing use or grazing standards are not met.

- Climatic events, fire, flood or uses and activities detrimentally impact resource conditions and a modification of grazing use is needed to provide for recovery of the site.

Implementation of adaptive management actions will be consistent with the direction established in the December 19, 2005, Forest Plan Grazing Implementation Guide 1920/2200 Memo to District Rangers signed by the Southwest Idaho Forest Supervisors on Dec. 19, 2005 (USDA Forest Service, 2005). Adaptive actions may be needed and applied in both the short-term and long-term. Adaptive management actions may be implemented singly or as a set of management actions. Short-term actions will be implemented through the AOI. Modifications to the AMP and/or term grazing permit should be considered where monitoring shows that these actions need to be continued in the long-term or are implemented repeatedly or consistently over time.

Table 2.0 lists and describes the probable actions that would be considered and implemented under adaptive management. However, it is not intended to exclude other actions which may be authorized by the grazing permit or under authority of 36 CFR 222, Forest Service Manuals and Handbooks, and other laws and regulations as they exist or may be enacted.

Table 2.0 Potential Adaptive Management Actions	Authority
1. Modify the terms and conditions of a permit to conform to current situations brought about by changes in law, regulation, executive order, development or revision of an allotment management plan, or other management needs.	36 CFR 222.4
2. Modify the seasons of use, numbers, kind, and class of livestock allowed or the allotment to be used under the permit, because of resource condition, or permittee request.	36 CFR 222.4 (Change in livestock kind will require additional NEPA evaluation.)
3. Adjustments to sheep numbers and seasons of use.	North Sheep FEIS, p. 2-11
4. Implement periods of rest for the allotment or areas within the allotment.	North Sheep FEIS, p. 2-11
5. Closure of grazing areas within the allotment.	North Sheep FEIS, p. 2-11
6. Implementation of additional grazing restrictions. Includes: annual grazing use indicators (end of season and/or within season), salting practices, herding practices, and other management practices.	North Sheep FEIS, p. 2-11; Forest Plan p. III-44 - 47
7. Alteration of trailing routes (timing and location).	North Sheep FEIS p. 2-11; Forest Plan p. III-44 - 47
8. Adjust grazing to address conflicts with other resource uses.	Forest Plan p.III-44 - 47
9. Adjust grazing to provide for maintenance or restoration of aquatic and riparian processes and functions and beneficial uses.	Forest Plan p.III-44 - 47
10. Coordinate grazing with timber harvest and forest regeneration activities.	Forest Plan , p. III-44 - 47
11. Temporary corrals.	North Sheep FEIS p. 2-12 and associated RODs.
12. Structural range improvements and handling facilities (water developments, fences, permanent corrals, etc.	Will require additional NEPA evaluation.
13. Vegetation treatments (prescribed fire, brush control, seedings, etc.) implemented to achieve management objectives and desired conditions.	Will require additional NEPA evaluation.

1. Modification of Terms and Conditions of the Grazing Permit. Term grazing permits may be modified at the request of the permit holder to adjust the permit to his/her ranch operation. It may also be modified to achieve consistency with changes in law and regulation, Forest Plan direction, environmental analysis and subsequent decisions based on that analysis, AMP direction, monitoring results, etc. Permit modifications are administrative actions and do not require additional analysis unless they are inconsistent with existing environmental analyses and subsequent decisions. Permit modifications may include the actions described below.

2. Modify the seasons of use, numbers, kind, and class of livestock allowed or the allotment to be used under the permit, because of resource condition, or permittee request. This action may include changing the timing, duration and intensity of grazing use, class of livestock

grazed (ewes with lambs, dry ewes, and rams), changes in allotment boundaries, etc. without additional analysis as long as these actions are consistent with current environmental analysis and related decisions. Changes in kind of livestock such as changing from sheep to cattle use will require additional environmental analysis. These changes may be implemented at the request of the permittee to adapt grazing to his/her ranch operation or they may be the result of monitoring and the need to adapt management to changing conditions using actions such as those described below to achieve resource desired conditions and or resolve conflicts in resource uses.

3a. Modify Season of Use. As appropriate, adjust the season of use for the allotment or areas within an allotment to reduce grazing impacts. These actions include shortening the period of use to reduce or eliminate grazing impacts during periods where plants or other resources are most susceptible to damage, or avoid conflicts with other uses such as during periods of high recreation use. They may include: changing the season of use to avoid grazing impacts or conflicts with critical resource needs of Threatened, Endangered, and Sensitive species and other wildlife, adjusting the season of use at the request of the permittee to provide a better fit to his/her ranch operation, adjusting the season of use to take advantage of the availability of additional forage through extending the grazing season, and adapting the grazing season in response to seasonal variations in climate and productivity such as during periods of drought. Adjustments to stocking and season of use may be considered jointly or separately as appropriate.

3b. Modify Stocking. As appropriate, adjust authorized or permitted livestock numbers during all or a portion of the grazing season to match grazing use to resource conditions and productivity. These actions include adjusting the number of animals authorized to graze on the allotment or portion of the allotment as a result of drought, wildfire, etc. which affect rangeland conditions and/or forage production. Adjustments to stocking and season of use may be considered jointly or separately as appropriate.

4. Rest (i.e. closure to grazing for a full year). Rest the allotment or areas within the allotment for a specific period of years or on a periodic rotation where monitoring shows that trend towards achieving desired conditions are not stable, improving, or improving at an adequate rate. May also be implemented where fire, flood, etc., detrimentally impact resource conditions or where treatment activities require a period of rest to provide for recovery of the site. Where this occurs, specific recovery criteria for when grazing will be allowed should be specified.

5. Closure of Areas. Close areas within allotments where monitoring shows that desired conditions cannot be met while sustaining grazing use. This may include alteration of allotment boundaries or identification of specific areas within an allotment where livestock grazing will not be allowed. Modify the AMP and term grazing permit to identify the change in the allotment boundary or the area closure.

6a. Grazing Restrictions – Modification of Indicators of Annual Grazing Use. Annual grazing use indicators generally consist of measures of allowable grazing use including: forage utilization limits, woody species utilization limits, streambank disturbance limits, soil disturbance limits, once-over grazing, open herding, one-time use of bedding areas, one-time use of watering areas, location of 'nooning' areas, location of watering areas, location of bedding

areas, camp locations, length of stay at camp locations, corral locations, use limits around corrals, season and duration of use, etc. These indicators of livestock use may be modified or other indicators identified as needed to facilitate achievement of objectives and desired conditions. Levels of acceptable use such as forage utilization are set for some of these practices in the Forest Plan and/or the North Sheep FEIS. Where specific allowable use limits are set in the Forest Plan or in the North Sheep FEIS and ROD, they may be modified, if needed, to be more restrictive without additional environmental analysis.

Changes in end-of-year and in-season grazing use indicators will be made based on results of short-term and/or long-term monitoring. Indicators evaluated during monitoring are described in the AMP Monitoring Plan (Appendix C). Modification and/or implementation of these annual use indicators will be consistent with the direction established in the December 19, 2005, Forest Plan Grazing Implementation Guide (USDA Forest Service, 2005).

6b. Grazing Restrictions – Modification of Management Practices. This includes a range of management and herding practices that vary according to conditions and use that are found on individual grazing allotments. These practices may include specification of areas where trailing or open herding techniques are used, location of bedding and 'nooning' areas, use of salt and mineral supplement, location and duration of use of herder camps, etc.

7. Alteration of grazing routes. Designated trailing routes and route rotations may be altered to avoid resource damage, avoid use conflicts, reduce grazing pressure in specific areas, improve distribution, access unused grazing areas, facilitate shipping, or facilitate rest or deferred rotation grazing.

8. Adjust grazing to address conflicts with other resource uses. Modification of grazing use may be appropriate to prevent or manage conflicts with other uses such as dispersed recreation, coordinate with other management activities such as timber harvest and forest regeneration, or mitigate conflicts or impacts to other resources. Examples include management of impacts to roads and trails, herding and trailing practices around developed recreation sites, use of sheep grazing as a tool for noxious weed management and site preparation for reforestation, management of sheep camps, fire and noxious weed prevention, etc.

9. Adjust grazing to provide for maintenance or restoration of aquatic and riparian processes and functions and beneficial uses. This practice may involve use of the adaptive actions described in this section with the specific purpose of reducing grazing impacts or managing grazing use to achieve functioning riparian systems. The focus of these actions will be on ecological conditions or processes that may be impacted by grazing. They include managing for properly functioning riparian vegetation, bank stability, sedimentation, etc.

10. Coordinate grazing with timber harvest and forest regeneration activities. This covers three areas of coordination actions. First, the potential for physical conflict between grazing and timber activities (harvest, thinning, site preparation, etc.) as the timber activities are implemented; second, the potential for physical damage to tree seedlings on new plantations or regeneration sites; and third, the potential for using grazing for vegetation management and site preparation to facilitate timber stand regeneration and reduce competition from other vegetation,

(noxious weeds, brush, etc.). Coordination may include changing use routes, closing or resting areas for periods needed for regeneration, adjusting grazing intensity to remove competing vegetation prior to planting, etc.

11. Temporary Corrals. The location and use of temporary corrals has been provided for in the North Sheep FEIS. These corrals are composed of panels that may be erected at the time of shipping and removed afterwards. They include some permanent structures required to support the corral panels and associated use. Use of fully portable corrals with no associated permanent structures may be considered in other locations as long as they are consistent with direction for management of heritage and archeological resources, Threatened, Endangered, and Sensitive species requirements, noxious weed management direction, recreation management direction, etc. identified in the Forest Plan and other appropriate environmental analysis and related decisions.

12. Range Improvements – Structural. Structural range improvements include construction of water developments, fences, corrals and other permanent livestock handling facilities, trails, bridges, etc. These actions may be proposed as adaptive management actions. Additional analysis will be required for these activities unless they are currently covered under existing environmental analyses in accordance with NEPA.

13. Vegetative Treatments – Nonstructural range improvements. Actions include implementing vegetation treatments to achieve desired rangeland conditions including prescribed fire, noxious weed treatment, seedings, aspen stand treatments, sagebrush manipulation, etc. These actions may be proposed as adaptive management actions. Additional analysis will be required for these activities, unless they are currently covered under existing environmental analyses such as is the case with noxious weed management activities.

Efficacy of Adaptive Management Practices

The adaptive management practices discussed in this section have been used separately and in various combinations as standard management practices or best management practices by public agencies and private landowners. They have been shown to be effective in improving resource conditions on grazed rangelands throughout the western United States. Forest Service Rangeland Management Specialists have considerable experience and capability of with applying these practices and understanding their effects on rangeland conditions and livestock behavior. None of these practices are new or untested. Examples of Best Management Practices direction include:

- National and Regional Forest Service Manuals and Handbooks -- FSM 2200 Range Management Manual; FSH 2209.13 Grazing Administration Handbook, FSH 2209.21 Rangeland Ecosystem Analysis and Monitoring Handbook;
- USDA FS 1995 Herbaceous Stubble Height as a Warning of Impending Cattle Grazing Damage to Riparian Areas;
- USDA FS 1989 Managing Grazing of Riparian Areas in the Intermountain Region,
- USDA NRCS National Range and Pasture Handbook;

- USDI BLM 1998 Successful Strategies for Grazing Cattle in Riparian Zones;
- USEPA 2003, National Management Measures to Control Non-point Source Pollution from Agriculture. Chapter 4E, Grazing Management;
- USEPA 1990 Livestock Grazing on Western Riparian Areas; Idaho Cattle Association undated Idaho Best Management Practices

2.4 Summary of Effects

This section summarizes and compares the environmental effects of the Proposed Action and alternatives. The following sections summarize the detailed discussion presented in Chapters 3 and 4, starting with how current conditions relate to desired conditions, then noting the overall effects of the Proposed Action and alternatives. The summaries conclude by identifying any management objectives, standards, and guidelines that the Proposed Action and alternatives would not either not comply with or be consistent with and determining whether conditions would move toward or away from desired conditions.

2.4.1 Rangeland Resources

- *ISSUE: The Proposed Action and alternatives could affect the functionality of grazing operations on these grazing allotments.*

Adjustments have been made historically to livestock numbers and season of use in an effort to maintain a sustainable resource base. While these adjustments have moved toward sustainability, areas of concern still remain within allotments. Recent AOIs have focused on adjustments to numbers and routing in an effort to move further toward sustainability. The main concerns include the ability to comply with once-over grazing, impacts to high-elevation basins, and ensuring one time/one night bedgrounds. These impacts account for localized problems that prevent full achievement of desired conditions.

The continuation of current conditions is anticipated under the No-Action Alternative. Progress toward desired conditions would continue to improve overall but be marginal in localized problem areas including high elevation rangelands. Under the Proposed Action, area closures would likely result in the reduction of available forage and the ability to move bands of sheep efficiently through the allotments. The adaptive management approach would improve the prospects for achieving desired conditions. Progress would be determined by the efficacy of adaptive management in detecting and addressing grazing management problems. Under Alternative C, grazing at some level would continue for two years until ceasing, which would negatively impact the functioning of each permittee's operation resulting in the need for the permittee to find other sources of summer feed. This may not be consistent with the Forest Plan desired conditions to provide for a sustainable level of forage.

Within the limits established by grazing permits, actual grazing pressure (grazing season and number of livestock, expressed as head-months) is determined each season and documented in AOIs. However, since the Proposed Action would close portions of some allotments to grazing, this analysis projects the potential reduction in head-months associated with the resulting forage reductions. Table 2-1 shows these potential reductions.

Under current grazing management practices, the following objectives, standards, and guides are not being met: RAST02, RAST05, RAST07, RAGU05, RAGU08, RAGU10, Objective 02141, Objective 02142, Objective 04109, and Objective 04110. As the No-Action Alternative would continue the current grazing systems, it is anticipated that the objectives, standards, and guidelines listed above would not be met without continued significant long term management adjustments through the AOI process.

The Proposed Action is anticipated to move toward meeting all applicable objectives, standards, and guidelines. Monitoring and adaptive management actions are key to ensure that the above objectives, standards, and guides will be met and desired conditions achieved. Table 2-1 displays how application of the adaptive management actions (described in Table 2.0) may be considered and applied to achieve the desired resource conditions and the Forest Plan objectives, standards, and guidelines described in the previous paragraph.

Table 2-1 – Potential Application of Adaptive Management Actions

Forest Plan - Objective, Standard or Guideline	Potential Adaptive Management Actions
RAST02 - Livestock trailing, bedding, watering, and other handling efforts shall be limited to those areas and times that maintain or allow for restoration of beneficial uses and native and desired non-native fish habitat. Forest Plan p. 3-45	#4 e.g. resting areas on Smiley Creek until stated riparian resource conditions are achieved #5 e.g. closure of high elevation rangelands #6 e.g. application of additional or other annual use indictors such as bank disturbance and/or riparian browse utilization #7 e.g. alteration of trailing routes to reduce impacts to specific locations #9 e.g. seasonal restrictions on use in areas of potential spawning habitat for ESA listed fish species #11 e.g. use of temporary corrals to pull shipping impacts away from riparian areas
RAST05 - Only one night/one time use of bed grounds is allowed. Forest Plan p. 3-45	#3 (see Table 2-2 below), #6, and #7
RAST07 - Only annual once-over sheep grazing will be allowed, with the exception of designated sheep driveways, travel routes, or where specifically authorized. Forest Plan p. 3-45	#3 (see Table 2-2 below), #6, and #7
RAGU05 - Where rangeland facilities or practices have been identified as potentially contributing to the degradation of water quality, aquatic species or occupied sensitive or watch plant habitat, facilities and practices causing	#11 and #12

degradation should be considered for relocation, closure, or changes in management strategy, alteration, or discontinuance. Forest Plan p. 3-46	
RAGU08 - Sheep should be routed to avoid slopes with loose soil conditions, active gullies, and snowbank areas that have low productivity, soil puddling, and compaction conditions. Forest Plan p. 3-47	#7
RAGU10, - Where recreation prescriptions are applied, adjustments to grazing management practices should be evaluated to resolve conflicts in areas of concentrated recreation use. Forest Plan p. 3-47	#5 e.g. Adams Gulch Closure and #7
Objective 02141 - Maintain soil and vegetation conditions that are functioning properly and restore those that are degraded in the alpine and subalpine communities where sheep trail routes and bedding have occurred, or are occurring. Forest Plan p. 3-120	#5 e.g. closure of high elevation rangelands and #7.
Objective 02142 - Reduce grazing impacts to soil, water, riparian and aquatic resources through more intensive grazing management practices. Emphasize restoration within the Valley Creek system, Frenchman Creek, Smiley Creek, Salmon River headwaters, Pole Creek headwaters, Huckleberry Creek, and Champion Creek. Forest Plan p. 3-120	#6 e.g. application of additional or other annual use indictors such as bank disturbance and/or riparian browse utilization
Objective 04109 - Adjust management practices to minimize livestock/recreation conflicts within high-density recreation areas from Fox Gulch to Galena Lodge, including North Fork Big Wood River, Prairie Creek, and Baker Creek drainages.	#7 e.g. alteration of trailing routes to reduce impacts to specific locations
Objective 04110 - Discontinue sheep grazing in the Adams Gulch drainage to eliminate conflicts between grazing and concentrated recreation use.	#5 e.g. closure of Adam's Gulch

Table 2-2 (below) describes the projected grazing authorization under the Proposed Action and Alternatives based on the North Sheep FEIS. This is displayed in Head Months (HMs) and is unchanged from the North Sheep FEIS, p. 2-19.

Table 2-2. Projected grazing authorization under Proposed Action and alternatives (sheep head-months).			
Allotment	**Current/No Action**	**Proposed Action**	**Grazing Phased Out**
Fisher Creek	930	930[1]	0
Smiley Creek	3,877	3,628	0
North Fork-Boulder	3,518	3,518[2]	0
Baker Creek	6,530	5,159	0
Total	**14,855**	**13,235**	**0**

[1]The Proposed Action includes no closures in Fisher Creek allotment.
[2]The closures in North Fork-Boulder allotment involve areas not grazed in recent years, so no reduction in grazing pressure is associated with them.

- ISSUE: Capability & Suitability. *The Proposed Action and alternatives may not adequately consider the Forest Plan assessments of capability and suitability for grazing given the site-specific characteristics of the North Sheep allotments. This may lead to overstocking of the allotments.*

The acres of capable rangelands do not change by alternative. This is a base assessment established from the Forest Plan and allotment-specific capability assessments. These assessments are described in section 3.2.4 of this document. Table 2-3 displays capable rangelands for the North Sheep allotments based on allotment-specific evaluations of capability.

Table 2-3. Acres of Capable Rangelands in the North Sheep Allotments Based on Allotment Specific Modified REA Model		
Allotment	**Total Acres**	**Capable Acres (Forest Plan Model)**
Fisher Creek	7,494	1,975
Smiley Creek	42,084	5,464
Baker Creek	63,566	13,130
North Fork/ Boulder Creek	34,076	7,303
Total	**147,213**	**27,872**

The acres of suitable rangelands change by alternative as shown in Table 2-4. The differences between alternatives are the result of applying different resource management practices.

Table 2-4. Acres of suitable rangelands under Proposed Action and alternatives.			
Allotment	**Current/No Action**	**Proposed Action**	**Grazing Phase Out**
Fisher Creek	1,975	1,975	0
Smiley Creek	5,464	5,464	0
North Fork-Boulder	7,303	6,033	0
Baker Creek	13,130	10,395	0
Total	**27,872**	**23,867**	**0**

2.4.2 Soil and Watershed Resources

- *ISSUE: The Proposed Action and alternatives could affect streambank stability and channel morphology.*

Historic and current livestock grazing has resulted in localized impacts in some watersheds in the allotments and more general impacts in others. Grazing in some riparian areas has removed vegetation that contributes to bank stabilization. Repeated use of watering sites has degraded stream banks by increasing bank angles and width/depth ratios as well as eliminating overhanging banks. Bedload deposits divert streamflow and create lateral scour in many locations. These deposits are the result of natural and anthropogenic sources including grazing, mining, and recreation. Although streambank conditions are variable throughout the project area, several streams are considered to be functioning at risk. Streambank conditions are generally considered to be improving and desired conditions are being approached or achieved in some areas. However, streambank conditions in a number of areas (e.g., heavily used crossing and watering areas) are not moving towards desired conditions.

Minimal changes are expected to occur in streambank stability under the No-Action Alternative. Streambank conditions would likely remain static or exhibit minimal improvements in functional condition, including those currently functioning at risk or at unacceptable risk. Degraded streambanks at popular watering sites would remain in a degraded condition. Some channel segments would continue to be heavily used as sheep trail through stream and riparian corridors, including the routes to permanent facilities such as the Murdock Creek and Smiley Creek corrals. The Proposed Action would eliminate grazing impacts from sensitive, high-elevation areas as well as areas of intense use surrounding permanent corrals, reducing runoff and improving downstream channel conditions. Use of the adaptive management strategy would also provide a means whereby steady progress toward desired conditions could be maintained. Under Alternative C, grazing impacts would be similar to the No-Action Alternative during the first 2 years and then would be eliminated. Increases to streambank stability would then occur where grazing impacts had previously occurred.

Continued grazing under the No-Action Alternative would not be consistent with Standards SWST01 and SWST04 or Objective 0250 without significant management revisions through the AOI process. The Proposed Action would meet all objectives, guidelines, and standards

associated with soil, water, riparian and aquatic (SWRA) resources that are affected by grazing. Alternative C would not be consistent with the same direction as the No-Action Alternative during the initial 2 years. Non-compliance would be addressed through AOIs during this period (mitigation measure 13), followed by full compliance after the 2-year period phase-out had expired.

- *ISSUE: The Proposed Action and alternatives could affect stream sedimentation and the deposition of fine soil material in gravel beds.*

Sediment loads are generally considered to be the most problematic indicator of watershed health in many of the drainages and subdrainages in the project area. Several stream segments within the project area have been included in the Idaho Department of Environmental Quality (IDEQ) 303(d) (IDEQ, 2003b) list because of sediment load as well as other concerns. Cabin-Vat Creek, is on the draft 2002 IDEQ 303(d) list. Segments of Cabin-Vat Creeks are listed for "unknown" pollutants. IDEQ lists segments as "unknown" impairment of beneficial uses exists, but the exact cause of the impairment are uncertain. IDEQ feels it is reasonable and prudent to leave the cause, as unknown, until it can be accurately determined in the subbasin assessment phase of the total maximum daily load (TMDL).

Sediment loads in the project area are produced from both natural and anthropogenic sources. Some drainages are characterized by granitic parent material and contribute naturally high levels of sediment and bedload material. Natural levels of sedimentation are exacerbated when soil surfaces are exposed or left in a highly disturbed condition following grazing activities. Historically high levels of sediment loading occurred from areas that were intensively grazed during the early 1900s. Existing grazing in upslope areas and riparian corridors is contributing to sediment production through surface disturbance and may be inhibiting recovery from historic impacts. Additional sediment loads are generated by streambank erosion propagated by grazing impacts at watering sites and along stream channels.

Sediment levels would likely maintain their existing functional condition under the No-Action Alternative, including those stream channels that are currently functioning at risk or unacceptable risk. Some annual fluctuations would be expected depending upon the occurrence of intense precipitation events, impacts to vegetation, and land use practices associated with grazing and recreation. The Proposed Action would eliminate disturbance to soils and vegetation in selected high-elevation basins, thus minimizing loads from these areas. The adaptive management approach would monitor conditions in areas known to contribute sediment loads including upslope areas and degraded riparian corridors. Adjustments would be made as necessary to minimize sediment loads and continue improvements toward desired sediment conditions. Under Alternative C, sediment conditions would be similar to the No-Action Alternative during the first 2 years and then would be eliminated. Improvements to sediment conditions would occur following the first 2 years to the extent they were impacted by grazing.

The No-Action Alternative would not be consistent with Forest Plan Standards SWST01 and SWST04 or Objective 0248. To the degree that monitoring efforts were successful in detecting and addressing grazing management problems, the Proposed Action would meet all objectives, guidelines, and standards associated with sediment conditions that are affected by grazing.

Alternative C would not be consistent with the same direction as the No-Action Alternative during the initial 2 years. Non-compliance would be addressed through AOIs during this period, followed by full compliance after grazing permits expired.

2.4.3 Fisheries Resources

- *ISSUE: The Proposed Action and alternatives could affect special status fish species.*

The current status of baseline conditions for special status fish is highly variable depending on the specific stream and indicator in question. Review of the baseline fisheries habitat conditions for the Smiley Creek allotment indicates that several issue indicators influenced by sheep are functioning at risk. Desired conditions are not being met in localized areas, particularly within the Smiley Creek allotment.

Under the No-Action Alternative, little change from current conditions is anticipated. Progress toward desired conditions would be marginal, and problem areas would remain. The area closures, adaptive management approach, discontinued use of the Smiley Creek corral, and mitigation measures under the Proposed Action would improve the prospects for achieving desired conditions, but progress would be determined by the efficacy of adaptive management in detecting and addressing grazing management problems that impact condition indicators. Under Alternative C, the impacts associated with current grazing would continue for 2 years, then grazing would cease, as would the associated impacts to aquatic habitats. Conditions would subsequently improve, to the degree that grazing is holding restoration back.

Under current management practices, the following Forest Plan standards are not being met: TEST06, SWST01, and SWST04. As the No-Action Alternative maintains the current grazing management practices, it is expected that the standards would continue to not be met without management adjustments through AOIs. The Proposed Action would be consistent with all applicable Forest Plan guidance. Alternative C (grazing phase-out) would not be consistent with the same points of Forest Plan guidance as the No-Action Alternative. Noncompliance with the noted standards would be addressed through AOIs as necessary through the 2-year phase out (mitigation measure 13), but compliance would be met after the 2-year phase out.

CHAPTER 3. AFFECTED ENVIRONMENT

The physical, biological, social, and economic environments and environmental consequences are fully analyzed in the 2004 North Sheep FEIS (Chapter Three). This information is adequate and is not being supplemented except for the specific topics under the subheadings of: Rangeland Resources- Capability and Suitability, Adaptive Management Strategy; and Wildlife Resources - Management Indicator Species.

Chapter 3 **Sections with Supplemented or New Information**	**Chapter 3** **Sections that remain unchanged**
Section 3.2 Rangeland Resources – Supplemented to include the adaptive management strategy and its protocols as well as a discussion on rangeland capability and suitability. (EXPANDED) Section 3.3 Soil and Watershed Resources – (UPDATED) 3.3.1.2 Updated Analysis for Soils and Watershed Resources – Background Information (NEW) Section 3.3.3 Upper Salmon River (UPDATED) Section 3.4. Fisheries Resources Section 3.4.2.1 Upper Salmon River (UPDATED) Section 3.7.1.2 Riparian Vegetation (NEW) Section 3.8.2.3.0 – Sawtooth Forest Plan – MIS Capability Analysis (NEW) Section 3.8.2.3.1.1 Pileated Woodpecker Capability Analysis (NEW) 3.8.2.3.2.1 Greater Sage-Grouse Capability Analysis (NEW)	Section 3.1 Introduction Section 3.3.4 Soils & Hydrology - Big Wood River Section 3.4.2.2 Fisheries – Big Wood River Section 3.5 Heritage and Cultural Resources Section 3.6 Recreation Section 3.7 Vegetation Section 3.8 Wildlife For those sections that remain unaltered, please refer to the 2004 North Sheep FEIS (Chapter Three) for a complete description of the Affected Environment.

3.2 Rangeland Resources

The Rangeland Resources section of the 2003 Final Environmental Impact Statement (FEIS) for the Southwest Idaho Ecogroup Land and Resource Management Plans (USDA 2003b), included an analysis of capable and suitable rangeland pursuant to 36 CFR §219.20. The 2003 FEIS did include an analysis of suitable rangelands relative to terrestrial wildlife species, finding that "all lands, with the exception of talus slopes, water and rock, are suitable for grazing and browsing by wildlife" (USDA 2003b, pg 3-674). However, the 2003 Forest Plan FEIS did not include a capability analysis of management indicator species (MIS) habitat. The required capability analysis for MIS has been completed and was released on June 1, 2007 for public review and comment. It is commonly referred to as the Forest Plan MIS Capability Analysis. It is a Supplement to the 2003 Forest Plan FEIS (USDA, 2003b).

Within the North Sheep Supplement, we evaluate and compare the information found in the Forest Plan MIS Capability Analysis relative to the site-specific analysis found in the North Sheep FEIS. The Reader can find this comparison in this document under Section 3.8.2.3 – Management Indicator Species; and Section 4.8. Wildlife Resources – Effects.

3.2.3 Adaptive Management

The Code of Federal Regulations at 36 CFR 222.4 gives the Forest Service authority to "modify the terms and conditions of a permit to conform to current situations brought about by changes in law, regulation, executive order, development or revision of an allotment management plan, or other management needs." Additionally, the Forest Service is authorized to "modify the seasons of use, numbers, kind, and class of livestock allowed or the allotment to be used under the permit, because of resource condition, or permittee request." The term grazing permits which authorize the grazing use on the North Sheep allotments states in Part 1, item 3 that the permit may be " . . . modified, at any time during the term to conform with needed changes brought about by law, regulation Executive order, allotment management plans, land management planning, numbers permitted or seasons of use necessary because of resource conditions . . ." They also state in Part 2, item 8 that the number of livestock, kind, class, and period of use may be modified when determined necessary by the Forest Service to be needed for resource protection. These types of changes can be made for part or the entire term of the grazing permit. The same clause in the term grazing permit also authorizes annual modifications when livestock are allowed to enter or when they are required to be removed from the allotments to prevent damage to the rangeland resources. With the exception of change in kind of livestock (e.g. sheep to cattle) on an allotment, these modifications are administrative in nature and do not require additional environmental analysis.

In July 2003, the Sawtooth National Forest Land and Resource Management Plan (USDA, 2003a) was implemented which set new direction for livestock management on the Forest. Also, consultation actions have occurred on these allotments during the past decade that have resulted in modifying livestock grazing practices under the authority of the Endangered Species Act (16 U.S.C. 35 §§1531 et seq. 1988).

With these authorities and changes in direction, the Forest Service has worked with the grazing

permittees on the North Sheep allotments to modify their term grazing permits and/or adjust annual livestock grazing practices to meet these changes in management direction and also adapt to seasonal variations in climates, production, resource conflicts, etc. Additionally, changes or adaptations have been made to annual grazing use when requested by the permittee to fit ranch management and operational needs. These changes in management have been documented in annual operating instructions and other direction to the permittees. Documentation of these actions is maintained in the Forest 2230 permit file records, which are also included in the project record.

3.2.4 Capability & Suitability

The determination of capable rangelands on a Forest or allotment by itself is not very meaningful without additional discussion of management practices and management intensity. It needs to be recognized that inclusion of this analysis in the North Sheep FEIS leads towards support of a decision that specifies not only appropriate grazing management practices, but also a decision of the appropriate level of grazing use that will be authorized on the North Sheep allotments. This should be addressed by defining limits to the grazing season, numbers of sheep, and levels of grazing use (head months of sheep grazing) that will be authorized within the context of Record of Decision. Within these limits, adaptive management procedures may be used to adjust seasonal or longer-term livestock stocking levels consistent with monitoring results and management goals and objectives. At best, it would be very difficult to discuss range capability without relating it to some combination of appropriate management direction and livestock stocking levels.

With this in mind, the following terms need to be defined:

Capability: The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends on current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silviculture or protection from fire, insect and disease." (36 C.F.R. § 219.3). Note that capability is a base assessment of potential and does not change by alternative.

Carrying Capacity (grazing capacity): The average number of livestock and/or wildlife that may be sustained on a management unit compatible with management objectives for the Unit. In addition to site characteristics, it is a function of management goals and management intensity (SRM, 1998).

Validating Carrying Capacity: The process of relating actual levels of grazing use to the ability to achieve management objectives.

Proper Use Criteria: The limiting factor or factors that will be measured on a particular site to determine if the site has been properly used. It could be residual forage, impact on other resources or uses, or any other measurable factor on a particular site (USDA 2003c, p. 4)

Stocking Rate (stocking density): The relationship between the number of animals and the grazing management unit utilized over a specified time period. May be expressed as animal units per unit of land area (animal units over a described time period/area of land) (SRM, 1998, p. 27)

Suitability: The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses forgone. A unit of land may be suitable for a variety of individual or combined management practices (36 C.F.R. § 219.3).

Tentative Carrying (Grazing) Capacity: An estimate of carrying capacity based primarily on measurements and/or estimates of production of usable forage on suitable rangelands.

3.2.4.1 Description of the Forest Plan Capability Model

The Forest Plan capability model (model) was designed for use at the programmatic or Forest Plan level. The model was not designed as a decision tool to allocate any specific area of land for livestock grazing, allocate areas to no-grazing, or determine grazing capacity. It was designed to provide an estimate of capable rangeland acreage for the Forests in the Southwest Idaho Ecogroup and establish a foundation for alternative development and evaluation. The model was used to estimate the amount of Forest rangelands that would be capable of supporting livestock grazing under typical management scenarios and conservative grazing management practices.

The model does not attempt to define land that is capable of being grazed under all possible management intensities, prescriptions, management scenarios, etc. The model does not attempt to define areas that should never be exposed to the presence of livestock. It provides a reasonable, conservative assurance that the areas of land depicted are capable of being grazed. It does not define nor depict decisions that lands not displayed as capable are incapable of being grazed or should not be managed for livestock grazing. The model was used to estimate the amount of Forest rangelands that would provide a forage base for supporting livestock grazing under typical management scenarios and conservative grazing management practices.

The model is based on the definition and spatial analysis of a set of biophysical characteristics that are conducive to support livestock grazing. Geographic information system (GIS) analysis techniques were used to approximate, evaluate and filter these characteristics into an approximation of grazing capability.

The accuracy of the model is based on the ability to accurately define these biophysical characteristics and identify the spatial reference or land area where they occur. The relative accuracy of the model is a product of the accuracy of the data sets used to estimate these characteristics and how the model compounds inaccuracy as it filters out or selects land areas in each step of analysis.

For example, if one could state as a certainty that grazing on areas with more than 60% slope always results in unacceptable soil loss and the GIS model has perfect ability to describe land areas that meet this slope criteria, then the modeled output would be 100% accurate. However, since slope is a derivative of change in elevation over distance, the determination needs to be made about what is the unit of distance that the model will use for the calculation. Depictions in change in elevation per each meter, per 100 meters, or per 10,000 meters would yield different levels of accuracy, spatial displays, and acreage determinations of land areas that exceed the 60% slope criteria. Additionally, if one determines that the 60% criteria is not finite; that there are some sites with slopes over 60% that can be grazed and some sites with slopes less than 60% that cannot be grazed, then the level of uncertainty increases. If a more conservative approach were to use a 50% slope criteria, the area excluded from the model that could be grazed without problems would increase. Changing the slope criteria or filter changes the spatial display and acreage determination. As these types of criteria are combined in a modeling process, the inaccuracies associated with the selection of the outputs are compounded.

The intent of the design of the Forest Plan model was to be conservative in depicting capable rangelands. The data sets that were used combined with the analysis tools were selected to provide a relatively high degree of confidence that the depicted lands have the selected biophysical characteristics used to define capable rangelands. Conversely, one would have a low degree of confidence that lands not depicted as capable rangelands would not meet the criteria to be defined as capable rangelands. This approach is appropriate for use at a Forest or multi-Forest scale for defining a base of capable grazing lands for alternative development and effects analysis. Where more accurate information for determining rangeland capability is available, it should be used for allotment specific analysis.

3.2.4.2 Modeled Components

The modeling process was conducted in steps to identify spatial characteristics that described rangelands capable of being grazed by livestock. The following tables describe these steps and the GIS modeling components that were used to approximate definition of capable rangelands.

3.2.4.3 Model for Capable Rangelands for Cattle Grazing

Step	Component	How Modeled
1	Talus slopes, rock, or cliffs.	Montana Vegetation Classification GIS Layer[1] components 7300 – Exposed Rock, 7301 – Basalt, 7800 – Barren removed from consideration for capable rangelands.
Accuracy tests for satellite imagery comparison to ground sample plots for this type ranged from 44% to 95% being acceptably classified as this cover type (Redmond *et. al.* 1997, p. 33). These areas were removed from consideration for capable rangelands.		
2	Areas covered by water.	Areas covered by water and all double lined streams in the Ecogroup GIS cartographic features file were removed from consideration for capable rangelands
3	Areas covered by roads.	Roads in the Ecogroup GIS roads layer were buffered to a 25-foot width and removed from consideration for capable rangelands.

Steps 2 & 3 have a fairly high degree of accuracy. These areas were removed from consideration as part of the land base that could be determined as capable rangelands. These GIS layers were developed from satellite imagery, orthophoto maps, USGS maps and other Forest Service data.		
4	Potential to produce 200 lbs forage per acre.	Potential vegetation groups[2] (PVG) that generally produce over 200 lbs. of forage per acres were included in the model for capable rangelands. PVGs included in the definition of capable rangelands for the Boise and Payette National Forests are: PVG 1, 2, 5, 11 and 99. PVGs included in the definition of capable rangelands for the Sawtooth National Forests are: PVG 1, 5, 11 and 99.[3]
Using modeling based on Landsat data or other types of cover imagery to estimate forage production is highly inaccurate at best. See end notes 2 & 3 below. Accuracy tests for satellite imagery comparison to ground sample plots for this type ranged from 25% to 100% being acceptably classified as meeting this criteria accurately (Redmond *et. al.* 1997, p. 33). Note that Range Environmental Analysis (REA) production data collected in the early 1960s through the early 1980s were used to develop average forage production values for PVG groups for step 4 in order to improve the accuracy of this step. Some of this data is the same data that is used in the site-specific capability analysis process for the NSEIS allotments. However, the REA data for the NSEIS analysis was updated and is therefore more current than the production data used to develop the model.		
5	Areas covered by dense mountain brush	Montana Vegetation Classification GIS Layer[1] component 3210 – Mesic Shrubs with a canopy cover greater than 40% removed from consideration for capable rangelands.[4]
Accuracy tests for satellite imagery comparison to ground sample plots for this type ranged from 56% to 91% being acceptably classified as this cover type (Redmond *et. al.* 1997, p. 33). Differentiation by percent cover added additional inaccuracy to the model		
6	Slope and water availability	Include areas with slope of 0% - 20% within 1 mile of water and with slopes of 20% - 40% within ½ mile of water.
Distance to water determinations in the GIS model are highly accurate with respect to lakes and perennial streams. The model may not have included all developed livestock water sources in this analysis. Slopes were determined based on a 30-meter elevation analysis model.		
7	Soil stability	Landtypes with high inherent surface erosion and low inherent ground cover are removed from consideration for capable rangelands.[5]
Soil and Hydrologic Reconnaissance reports generated for the Ranger Districts in the Ecogroup between 1970 and 1990 were used to develop this GIS layer. These landtype descriptions identify the percentage of the landtype by soil types with differing ranges of inherent surface erosion and ground cover characteristics. Note that these are reconnaissance surveys designed for broad resource management and activity planning. They were not developed for site-specific evaluations. These surveys were developed using aerial photography to delineate or stratify landtypes with field sampling used to describe variable geology, soils, vegetation and other characteristics (see footnote 5 below).		

3.2.4.4 Model for Capable Rangelands for Sheep Grazing

Step	Component	How Modeled
1	Talus slopes, rock, or cliffs.	Montana Vegetation Classification GIS Layer[1] components 7300 – Exposed Rock, 7301 – Basalt, 7800 – Barren removed from consideration for capable rangelands.

Accuracy tests for satellite imagery comparison to ground sample plots for this type ranged from 44% to 95% being acceptably classified as this cover type (Redmond *et. al.* 1997, p. 33). These areas were removed from consideration for capable rangelands.		
2	Areas covered by water.	Areas covered by water and all double lined streams in the Ecogroup GIS cartographic features file were removed from consideration for capable rangelands
3	Areas covered by roads.	Roads in the Ecogroup GIS roads layer were buffered to a 25 foot width and removed from consideration for capable rangelands.
Steps 2 & 3 have a fairly high degree of accuracy. These areas were removed from consideration as part of the land base that could be determined as capable rangelands. These GIS layers were developed from satellite imagery, orthophoto maps, USGS maps and other Forest Service data.		
4	Potential to produce 200 lbs forage per acre.	Potential vegetation groups[2] (PVG) that generally produce over 200 lbs. of forage per acres were included in the model for capable rangelands. PVGs included in the definition of capable rangelands for the Boise and Payette National Forests are: PVG 1, 2, 5, 11 and 99. PVGs included in the definition of capable rangelands for the Sawtooth National Forests are: PVG 1, 5, 11 and 99.[3]
Using modeling based on Landsat data or other types of cover imagery to estimate forage production is highly inaccurate at best. See end notes 2 & 3 below. Accuracy tests for satellite imagery comparison to ground sample plots for this type ranged from 25% to 100% being acceptably classified as meeting this criteria accurately (Redmond *et. al.* 1997, p. 33). Note that Range Environmental Analysis (REA) production data collected in the early 1960s through the early 1980s were used to develop average forage production values for PVG groups for step 4 in order to improve the accuracy of this step. Some of this data is the same data that is used in the site-specific capability analysis process for the NSEIS allotments. However, the REA data for the NSEIS analysis was updated and is therefore more current than the production data used to develop the model.		
5	Areas covered by dense mountain brush	Montana Vegetation Classification GIS Layer[1] component 3210 – Mesic Shrubs with a canopy cover greater than 40% removed from consideration for capable rangelands.[4]
Accuracy tests for satellite imagery comparison to ground sample plots for this type ranged from 56% to 91% being acceptably classified as this cover type (Redmond *et. al.* 1997, p. 33). Differentiation by percent cover added additional inaccuracy to the model		
6	Water availability	Include areas within 1.2 miles of water.
Distance to water determinations in the GIS model are highly accurate with respect to lakes and perennial streams. The model may not have included all developed livestock water sources in this analysis.		
7	Soil stability	Landtypes with high inherent surface erosion and low inherent ground cover are removed from consideration for capable rangelands.[5]
Soil and Hydrologic Reconnaissance reports generated for the Ranger Districts in the Ecogroup between 1970 and 1990 were used to develop this GIS layer. These landtype descriptions identify the percentage of the landtype by soil types with differing ranges of inherent surface erosion and ground cover characteristics. Note that these are reconnaissance surveys designed for broad resource management and activity planning. They were not developed for site-specific evaluations. These surveys were developed using aerial photography to delineate or stratify landtypes with field sampling used to describe variable geology, soils, vegetation and other characteristics (see footnote 5 below).		
8	Slope and land capability groups[6] susceptible to soil erosion .	Land capability groups 6 through 9 with slopes less than 50%. Land capability groups 1 through 5 and 10 with slopes less than 65%.
Slopes were determined based on a 30-meter elevation analysis model.		

1 Redmond, Roland L., Troy P. Tady, Foster B. Fisher, Michele Thornton, and J. Chris Winne, 1997, Landsat Vegetation Mapping of the Southwest and Central Idaho Ecogroups, Final Report, Contract #53-0261-6-25, Wildlife Spatial Analysis Lab, Montana Cooperative Wildlife research Unit, University of Montana, Missoula, MT.

2 "Potential Vegetation Groups (PVG). Vegetation composition is influenced by environmental characteristics." "Vegetation habitat types were grouped into PVGs based on the Ecosystem Matrix (Haufler et al. 1996). The PVGs were mapped using a variety of techniques for the Ecogroup. The Sawtooth National Forest classification used slope, aspect, elevation, Montana Landsat cover types, and local knowledge to develop a Potential Vegetation map. The Boise National Forest used land types, slope, aspect, elevation and a few selected Montana Landsat cover types to develop the Potential Vegetation map. The Payette National Forest used the 1995 inventory strata (with updates) to model PVGs along with aspect, slope, and elevation." Southwest Idaho Ecogroup Land and Resource Management Plans Final Environmental Impact Statement, Appendix B, p. B-3.) Habitat types that produce over 200 pounds of livestock forage include Potr types, Habitat Type Group 1 (Pipo/Agsp, Pipo/ Syor, Psme/Feid), Habitat Type Group II (Psme/Cage, Psme/Caru, Psme/Syal, Psme/Phma). Habitat Type Group V (Abgr/Caru), Abgr/Vaca. Alba/Caca, and Habitat Type Group XI (Alba/Cage-artr, Pial/Abla).

3 Using modeling based on Landsat data or other types of cover imagery to estimate forage production is highly inaccurate at best. Field production data was not collected. However, Range Allotment Analysis data was reviewed for sites within these classifications. This showed that the PVG types included in the modeled estimate of capability produce the prerequisite 200 pounds of livestock forage. The assumption was made that the excluded PVG groups generally had tree cover, tree density, or other characteristics that precluded production of over 200 pounds per acre of livestock forage or that the density of the stands generally precluded access for use by livestock. This is substantiated by the Range Allotment Analysis for some areas but is not consistent throughout the Ecogroup. Limiting capable rangelands to the included PVG types generates a conservative estimate of capability. It is also noted that PVG types not included for the capability determination contain areas where tree cover has been reduced by fire, harvest, disease, etc. that currently produce more than 200 pounds per acre of livestock forage.

PVG Code Definitions for the Ecogroup.

0	Not Classified
1	Dry ponderosa pine/xeric Douglas fir
2	Dry Douglas fire/moist Ponderosa pine
3	Cool, moist Douglas fir
4	Dry Douglas fir/moist Ponderosa pine
5	Dry Grand fir
6	Cool, moist Grand fir
7	Warm, dry subalpine fir
8	Warm, moist subalpine fir
9	Hydric subalpine fir
10	Persistent lodgepole pine
11	High elevation subalpine fir/whitebark pine
70	Climax Aspen
71	Juniper
97	Lake, Reservoir, Water
98	Barren, Rock, Snow, Shadow
99	Non Forest (Grass, Shrub)

4 Mountain brush types consistently provide a considerable amount of forage used for sheep grazing. These vegetation types are generally highly productive. Exclusion by the model of areas within this type with greater than 40% cover is a conservative estimate of areas available for classification for capable rangelands.

5 Landtypes in the Ecogroup with poor inherent soil stability or where the soil profile was likely to be damaged by grazing were removed from consideration as capable grazing lands. Detailed information for these factors and landtypes are found in the District Soil and Hydrologic Reconnaissance reports generated for the Ranger Districts in the Ecogroup between 1970 and 1990.

Landtypes Excluded From Consideration for Capable Grazing Lands

Forest	Landtype	District
Boise NF	120b-1 moderately dissected mountain slopeland	Cascade, Cascade-Landmark
	120c-2 strongly dissected mountain slopeland	Lowman
	120c-8 strongly dissected mountain slopeland	Mountain Home, Mountain Home-D2, Emmett
	120d, steep rocky headland	Cascade
	120d-2, steep rocky headland	Mountain Home, Mountain Home-D2, Cascade-Landmark
	120d-3, steep headland	Mountain Home, Mountain Home-D2, Idaho City, Lowman
	122-1, rocky oversteepened canyonlands	Mountain Home, Mountain Home, Emmett
	122, oversteepened canyonlands	Idaho city, Cascade-Landmark, Cascade, Lowman
	122, oversteepened canyonlands with xeric soils	Emmett
Sawtooth NF	252-2c, cryic glaciated headwalls, granitic	Burley, Albion Division
	452-2c, cryic glaciated headwalls, sedimentary	Burley, Albion Division
	Mc, mountain canyonlands	Burley, Black Pine Division
	A, rocky ridgeland	Ketchum
	A1, alpine ridgeland A1c, alpine ridgeland with Challis volcanics A1b, granitic intrusion rockland	Fairfield, Ketchum
	A2. alpine talus slopes	Fairfield, Ketchum
	A4b, cryoplanated dissected headlands	Fairfield
	C1a. canyonland spur ridge, nonforested	Fairfield, N. Fk. Lime Creek
	C2a, river canyonland, southerly exposures	Fairfield
	C1f, canyonlands, rejuvenated slopes	Ketchum
	02, wet alluvial lands	SNRA
	10d, scoured cirque basin lands	SNRA
	11, steep Rocky Lands	SNRA
	12, high elevation uplands	SNRA
	22c, strongly dissected glaciated lands	SNRA
	23b, moderately dissected rock	SNRA

	structured glaciated lands	
	G23b, moderately dissected rock structured granitic glaciated lands	SNRA
	G23c, strongly dissected rock structured granitic glaciated lands	SNRA
	C32c, strongly dissected rock structured Challis mountain lands	SNRA
	C33, Rock structured Challis canyon lands	SNRA
	G33, rock structured granitic canyon lands	SNRA
	C1f, canyonlands, rejuvenated slopes	Ketchum
	G3w, glacial	Ketchum
	M4s, strongly dissected mountain slopelands, south exposure	Ketchum
Payette NF	113, rocky ridgeland	Council, Weiser, New Meadows, McCall Big Creek
	120d-1, steep rocky headlands	Council
	122-1, rocky oversteepened canyonlands	Council, Weiser
	122-5, oversteepened canyonland	Council
	101-3, Meadowland	Council, New Meadows, McCall
	122, oversteepened canyonlands	New Meadows, McCall
	120d, steep rocky headland	McCall
	114-1, rocky subalpine rimland	McCall
	120c-3, strongly dissected mountain slope land	Big Creek
	122-7, oversteepened canyonland	Big Creek

6 Land Capability Groups are aggregations of Landtype Associations that have similar land characteristics, capabilities (i.e. timber, forage, and water production), and responses to land management activities. These groupings are important to assessing management activities for broad level planning purposes. Capability Groups can be developed for any level in the Land Systems Inventory.

Land Capability Groups, for the purpose of the Forest Plan Revision in Southwest Idaho, are hierarchically intermediate to Subsections and Landtype Associations and have been developed using the Land Capability Groupings contained in the publication "Land Systems Inventory, Boise National Forest", June 1975 by Wendt, Thompson, and Larson as a guide. Land Capability Group 10 was developed and added to the original nine Groups to recognize Mass Wasting Lands that have been inventoried on the Payette National Forest. Descriptions of the Land Capability Groups are included in the project record.

3.2.4.5 Forest Plan Capability Model for the North Sheep Allotments.

Application of the Forest Plan capability model to the North Sheep allotments yields the following information and spatial display of capable rangelands.

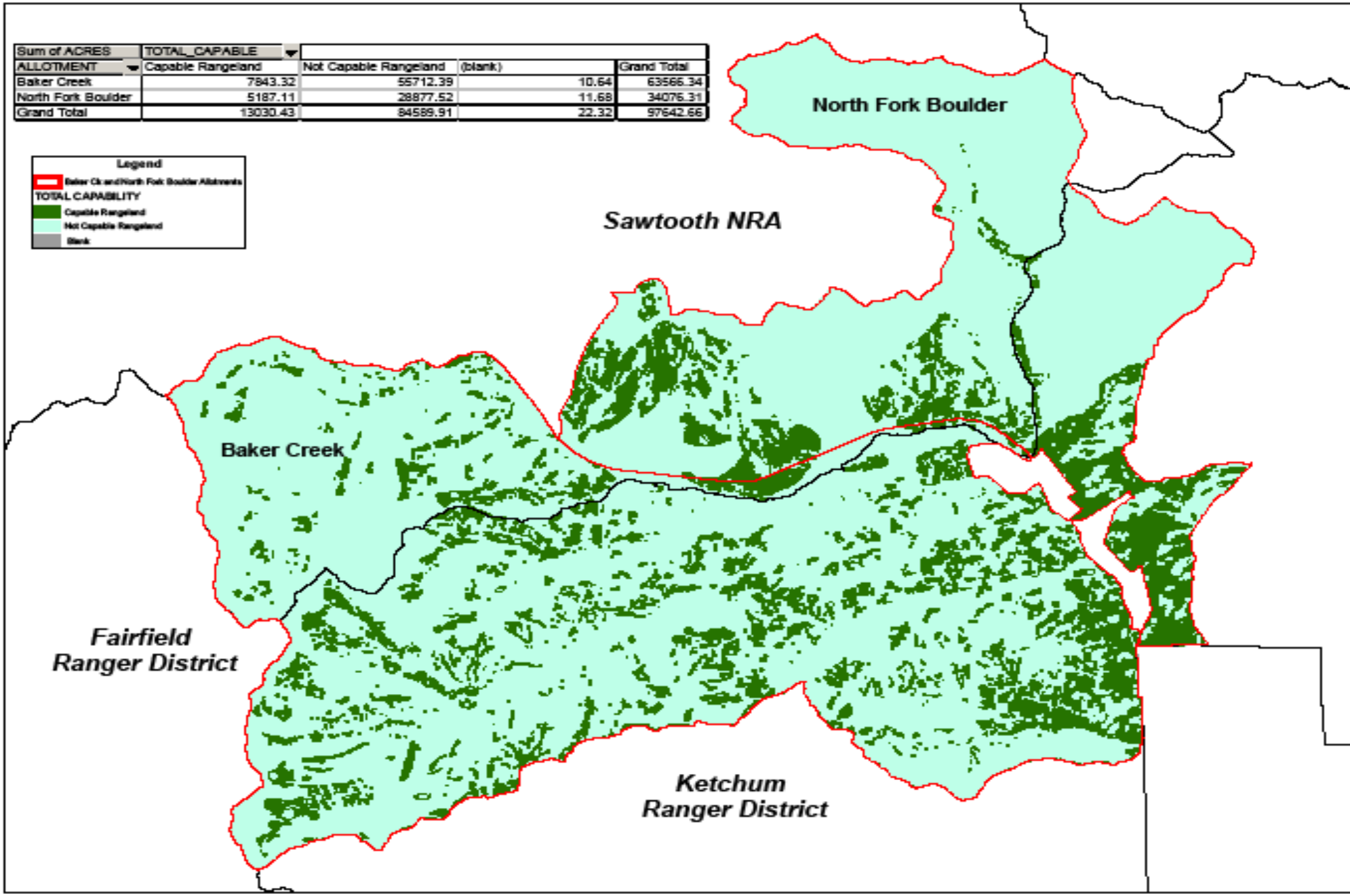
Table - Range 3-0. Acres of Capable Rangelands in the North Sheep Allotments Based on Forest Plan Capability Model

Allotment	*Total Acres*	*Capable Acres*
Fisher Creek	7,494	1,882
Smiley Creek	42,084	5,564
Baker Creek	63,566	7,843
North Fork /Boulder Creek	34,076	5187
Total	147,213	20,475

Baker Creek and North Fork Boulder Allotments
Range Capability (Total)
02/21/2007

1:150,000

Sum of ACRES	TOTAL_CAPABLE			
ALLOTMENT	Capable Rangeland	Not Capable Rangeland	(blank)	Grand Total
Baker Creek	7843.32	55712.39	10.64	63566.34
North Fork Boulder	5187.11	28877.52	11.68	34076.31
Grand Total	13030.43	84589.91	22.32	97642.66



Smiley Creek and Fisher Allotments
Range Capability (Forest Plan Model)
05/10/2007

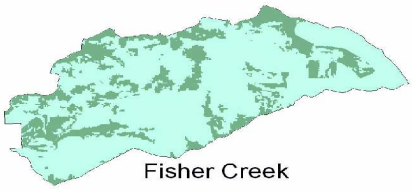
1:45,561

Legend

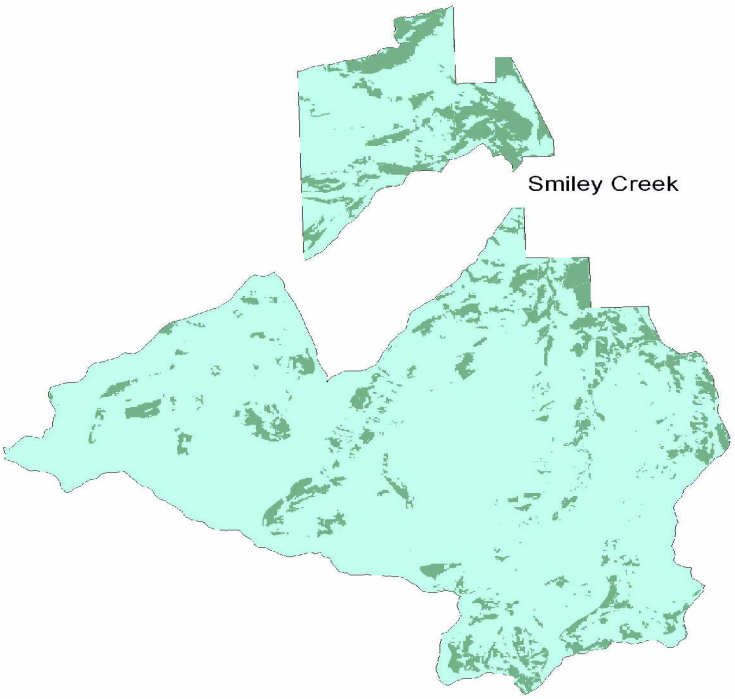
SHEEP_CAPA

Capable Rangeland

Allotment	Acres of Sheep Capable Rangeland
Fisher Creek	1,882
Smiley Creek	5,564
TOTAL	7,446



Fisher Creek



Smiley Creek

3.2.4.6 Allotment Specific Capability Analysis

While the Forest Plan capability model provides information about capable rangelands on the North Sheep allotments, more accurate allotment-specific information is available for evaluating the effects of livestock grazing.

Sheep have grazed the North Sheep allotments since the late 1800's. Permit records and payments related to grazing use on these allotments can be traced back to shortly after the establishment of the Forest Reserves in this area. Current stocking is approximately 10 to 15 percent of stocking levels in the 1920's (North Sheep FEIS p. 3-6). Much of the management of livestock grazing through this period has been concerned with matching the levels of grazing use with the potential of the grazing resource. Beginning in the early 1960s, the Intermountain Region of the Forest Service implemented a program to address this issue and evaluate the carrying capacity of Forest Service allotments. Program instructions and procedures were identified in the Regional Range Environmental Analysis Handbook with various editions being issued (USDA Forest Service, Region 4 Range Analysis Handbook, 1964 through 1983). This Range Analysis (REA) program field mapped lands that were accessible or could be made accessible for grazing, produced or had the potential for producing livestock forage, and that could be grazed on a sustained-yield basis without damaging watersheds or other resource values. Criteria for identifying these grazing lands were similar in nature to the criteria used for the Forest Plan capability analysis.

The REA was conducted on the North Sheep EIS allotments between 1964 – 2000. Crews of range technicians mapped capable grazing lands based on REA definitions on the ground. Capable grazing units were identified and mapped on aerial photographs. Each mapped unit of capable rangeland was evaluated using vegetation and soil health analysis procedures prescribed in the REA Handbook. These analyses measured ecological factors related to vegetation composition, forage conditions, soil characteristics, soil health, and forage production. The base aerial photography, mapping and data sets from the REA are included in the North Sheep FEIS project record. As stated in the description of the Forest Plan capability model, this data was used to help develop and validate production estimates for potential vegetation classifications used in the Forest Plan capability model. At the allotment level, actual mapping and resource data were used to evaluate capability.

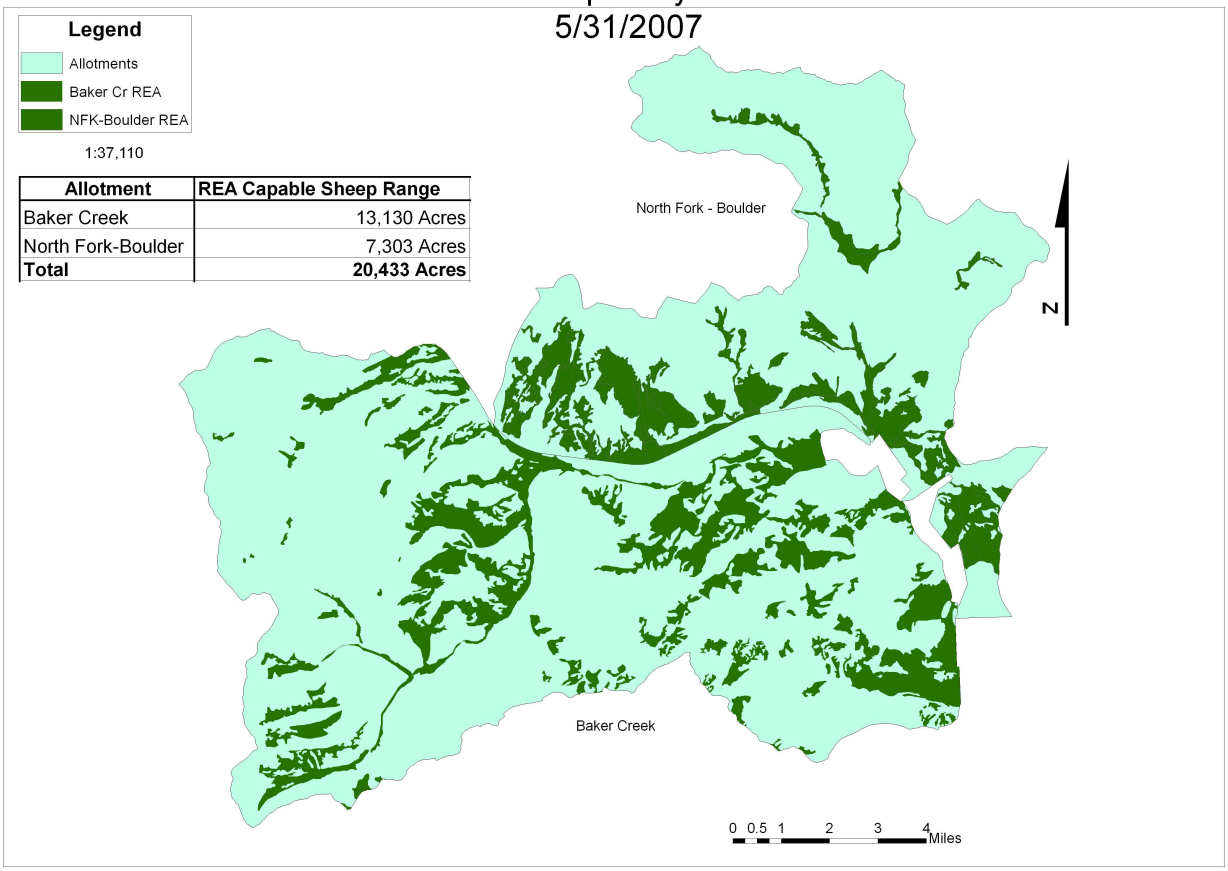
Field mapping of rangeland capability is significantly more accurate than modeled approaches such as the Forest Plan model. Mapping carried out on an aerial photo base allows for accurate interpretation in changes in mapped units based on observed changes in vegetation, soils, topography, etc. at a more accurate scale than satellite imagery used in the Forest Plan Capability Model. While changes in vegetation composition may change over time, other criteria used in mapping capable rangelands including soils, topography and landform, slope, etc. do not. Where wild fire or timber harvest have changed the nature of the vegetation cover, it has not changed these factors. The REA data was reviewed on-the-ground, validated by revisiting numerous analysis sites, and digitized into GIS data layers. The REA determination of rangeland capability units (as modified and validated for this analysis) remains very accurate and is a better description of capable rangelands than what was described in the Forest Plan level model.

Some of the criteria used to identify capable grazing lands in the REA process are slightly different than some of the criteria used in the Forest Plan capability model. For example, the original REA process used a threshold of 50 pounds per acre forage production as one of the capability factors. Forest Plan direction requires the threshold be raised to 200 pounds per acre or greater to be considered as capable rangeland. Allotment specific direction for this type of analysis is provided in the Forest Plan in Range Guideline RAGU01 (USDA 2003a, p. III-46). The REA analysis was modified based on this direction to conform to the criteria used in the Forest Plan capability model so it would be compliant with the Forest Plan direction. REA mapped units were digitized and developed into a GIS layer. Selected mapped areas were reviewed in the field to validate mapping and data accuracy. REA map units that did not meet the current Forest Plan direction for consideration as capable rangeland were removed from the analysis. Acreage calculations and spatial displays of allotment specific capable rangelands developed with the modified REA data were developed with GIS tools after completion of this validation process.

Table – Range 3-1. Comparison of Capable Rangelands in the North Sheep Allotments Forest Plan Model vs. Allotment Specific Analysis

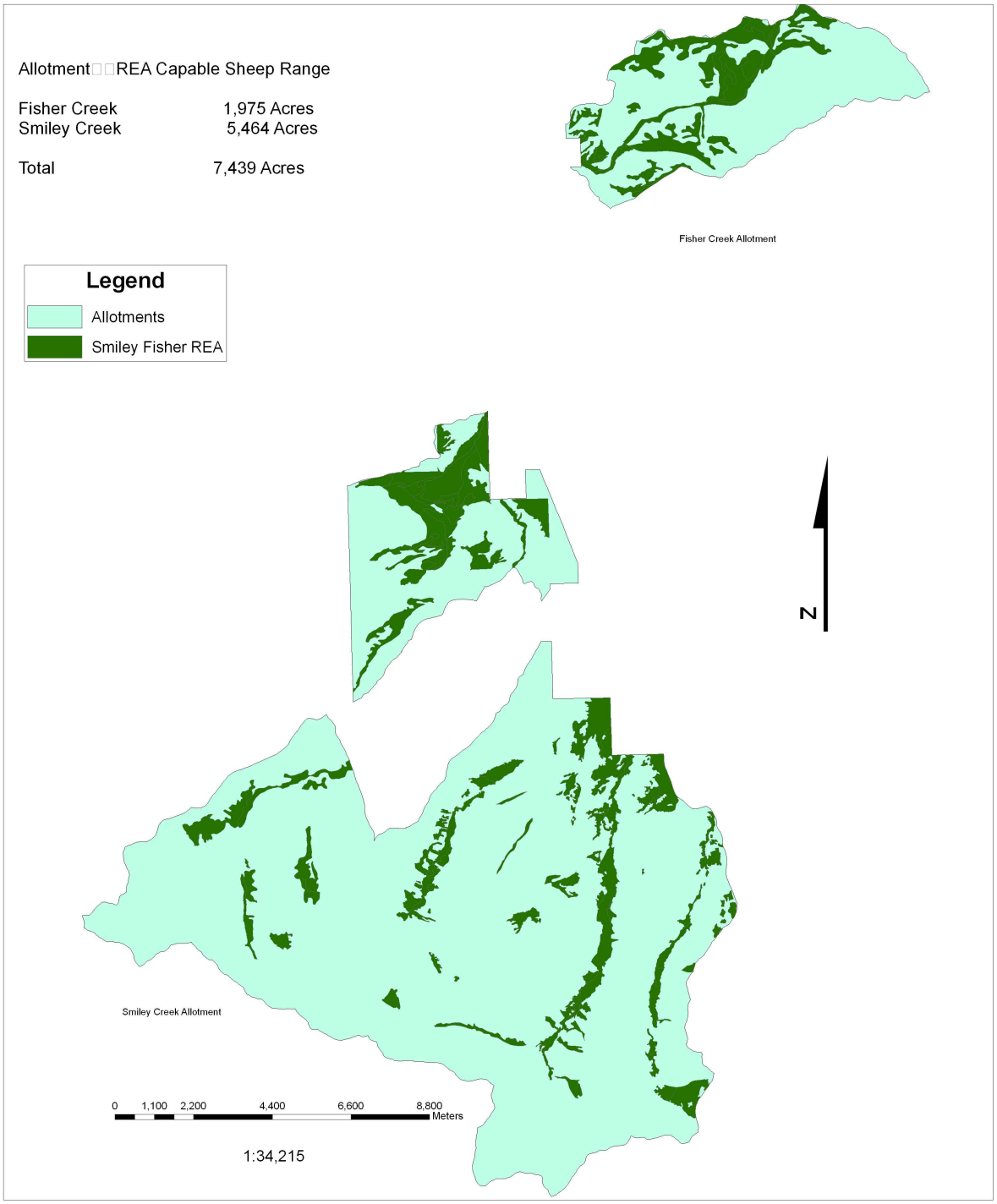
Allotment	*Total Acres*	*Capable Acres* (Forest Plan Model)	*Capable Acres* (Allotment REA Model)
Fisher Creek	7,494	1,882	1,975
Smiley Creek	42,084	5,564	5,464
Baker Creek	63,566	7,843	13,130
North Fork /Boulder Creek	34,076	5187	7,303
Total	**147,213**	**20,475**	**27,872**

Baker Cr. & N. Fork Boulder Allotments
REA Capability Model
5/31/2007



Allotment	REA Capable Sheep Range
Baker Creek	13,130 Acres
North Fork-Boulder	7,303 Acres
Total	**20,433 Acres**

Smiley Creek and Fisher Creek Allotments
REA Capability Model
05/23/2007



3.2.4.7 Analysis of Grazing Capacity

The evaluation of grazing capacity or carrying capacity on an allotment is a multistage process and can be carried out in different ways. Chapter 70 of the REA Handbook (USDA Forest Service, Region 4 Range Analysis Handbook, 1964 – 1983) describes a two-step process for making a grazing capacity determination: Determining Tentative Grazing Capacity and Validating Grazing Capacity.

3.2.4.7.1 Determining Tentative Grazing Capacity.

This is a simple mathematical process that combines four basic factors on capable rangelands. These factors are:

1. Determining the area of capable range where grazing will be allowed and where it will occur on the allotment. This is basically the definition of suitable rangeland for the allotment.
2. Calculating the total acres suitable for grazing.
3. Calculating the total forage production for these suitable grazing areas.
4. Setting the allowable level of grazing use for these suitable grazing areas.

A mathematical calculation is used to determine the total forage available for grazing use.

(no. of acres) X (production per acre) X (allowable use rate) = total available forage.

The total available forage is divided by the amount of forage a typical animal consumes per day or per month to determine the number of animals and period of time that the allotment will support grazing. The term used in this definition is head month. A head month of forage is the amount of forage that a particular type of animal will consume in a 30-day grazing period. Typically, an adult ewe with an 80 to 90 pound lamb will consume an average of 7 pounds of forage per day. A head month of forage then in this instance would be 210 pounds of forage. It should be noted that some ewes have twin lambs, the weight of lambs varies during the time that sheep are on the allotment, and lambs are generally removed from the sheep bands in early August and shipped to other sites for finishing or sale. We use the 7-pound per day forage rate to approximate forage use for the entire season sheep are on the allotment even though actual rates vary according to factors such as those just described.

Table Range 3-2. Tentative grazing capacity in Sheep Head Months based on Allotment REA Capability Analysis.

Allotment	Current Management (HM)	Authorized Under Current Term Permit (HM)
Fisher Creek	1,538	930
Smiley Creek	4,561	3,877
North Fork-Boulder	4,284	3,518
Baker Creek	7,036	6,530
Total	**17,419**	**14,855**

There are some inherent problems with this type of a calculation of forage use. It is called a "tentative" capacity because of the variation and lack of precision that enter into the calculation. Forage production is highly variable and is related to seasonal climatic variations in temperature and precipitation. One study conducted on southern Idaho rangelands by the University of Idaho from 1956 through 2005 showed average forage production at the study site of 515 lbs/acre. However, forage production in relationship to the amount and timing of precipitation varied from 130 lbs/acre to 1392 lbs/acre over the 50-year study period (Sanders, 2006).

Other factors in addition to production also need to be considered in determining capacity. Variations in lamb weight, twin rates, and size of the ewes affect the amount of daily forage consumption that needs to be considered. The way an area is grazed also needs to be considered. Areas that are not grazed would not contribute to capacity determinations. Actual areas that are grazed by sheep vary from season to season based on factors such as herder preference, predator impacts, Forest Service prescribed changes in grazing routes, etc. Therefore, any determination of grazing capacity has to be evaluated and adjusted over time or validated based on actual grazing practices and conditions that occur on the allotments.

3.2.4.7.2 Validating Grazing Capacity

Validating grazing capacity is the process of relating actual levels of grazing use to meeting or achieving management objectives described in the Forest Plan and other decision documents. This involves both the evaluation of meeting annual grazing use criteria and long-term trend and condition data. It inherently has to be adaptive to changing conditions and monitoring information.

Sheep have grazed the North Sheep allotments since the late 1800's. Permit records and information on levels of grazing use can be traced back to the beginning of the Forest Reserves. During this period, data and observations have lead to significant changes in levels of permitted grazing use. Current stocking is only 10 to 15 percent of stocking levels in the 1920's. The Forest Plan (p. III-45) sets proper use criteria for use of these allotments (USDA 2003a). The stocking levels evaluated in the North Sheep FEIS were based on actual stocking levels that had been in place on the allotments as a result of the current grazing permits and annual grazing instructions.

Forest Service and contract specialists validated the REA allotment capability data in the North Sheep FEIS. This review included on-the-ground review and analysis of selected REA data sites. REA mapping and classification were evaluated and mapping lines were found to be accurate. The REA data was used to help determine if adjustments in stocking were needed in the North Sheep FEIS for alternatives that closed portions of the allotments to grazing.

The process for validating REA data and validating current stocking levels (grazing capacity) on the North Sheep FEIS allotments is the same. It includes 3 steps:

1. Understanding actual grazing use patterns or use intensities on the allotments.
2. Determining the effects of the grazing use on resource conditions and uses on areas grazed under each alternative.
3. Adjusting grazing use consistent with the observed effects.

The validation process bridges the gap from modeled approaches for estimating grazing capacity to validating capacity based on observation and monitoring of actual grazing use and evaluation of effects on grazed rangelands.

3.2.4.7.2.1 Understanding use patterns and intensities.

Forest Range personnel and the permittees have evaluated and reviewed the grazing use patterns (band routes) on the allotment over a period of several years. This entailed determining the routes the sheep were following, the duration and intensity of grazing along the routes, and compliance with grazing direction (proper use standards) identified in the Forest Plan. Duration and intensity of grazing are quantified in terms of band days (number of days the specific sheep band grazed a particular area or location) or head months along with observations and measurements of forage use and other grazing impacts. Planned grazing routes were identified (mapped) in annual planning meetings. Forest specialists tracked grazing use along these routes or spot-checked the grazing routes to determine how they were followed. Permittees also provided season-end information used in evaluating actual grazing use. Forest personnel evaluated grazing use and grazing impacts along these routes. Knowledge of current use patterns (grazing and trailing routes) and use intensities are the core of this process. This information is documented in annual inspection and allotment administration records. These records are maintained in 2210 Allotment Records and/or 2230 Permit Records.

Table - Range 3-3. Authorized grazing use in head months.

Year	Fisher Creek[1]	Smiley Creek[2]	Baker Creek	North Fork/ Boulder[3]
2003	930	2803	5566	2241
2004	868	4104	3488	3518
2005	878	3680	3155	3518
2006	198	1210	3530	Rested
Average Use	892	3595	3934	3092
Permitted Use	930	3877	6530	3518

[1]A large portion of the Fisher Cr. allotment burned in the Valley Road Fire in the fall of 2005. Grazing in 2006 occurred only in the unburned portion of the allotment. Grazing use in 2006 is not used in computing the average grazing use.

[2]The Vat Creek and Alturas Lake drainages were the only areas grazed on the allotment in 2006. Grazing use in 2006 is not used in computing the average grazing use.

[3]The allotment was rested in 2006, consistent with the permittees ranch operations grazing rotation system.

3.2.4.7.2.2 Determining the effects of grazing use.

When Forest specialists tracked or spot-checked grazing use along the grazing routes, they evaluated compliance with Forest Plan and annual management direction. They also evaluated the effects of grazing on soil conditions, streambanks, recreation uses, wildlife habitat, etc. as appropriate to the specific areas being evaluated. During the North Sheep EIS process, Forest Specialists reviewed this information and made additional on-the-ground evaluations of resource conditions and grazing effects (North Sheep FEIS Chapters 3 and 4).

3.2.4.7.2.3 Adjusting grazing use (capacity)

Forest specialists assembled and reviewed the information and observations made during annual grazing reviews and the evaluations made during preparation of the North Sheep FEIS. They determined if the grazing routes and levels of use were appropriate for the EIS alternatives. This included determining if the grazing routes could be adjusted to include ungrazed areas or to avoid areas where grazing impacts or practices were not consistent with management direction. They determined if the number of band days in particular drainages or specific areas were appropriate relative to management direction and observed grazing effects on other resources and uses.

Forest specialists reviewed the REA allotment capability information for the areas identified for closure to grazing in the North Sheep FEIS alternatives to determine tentative capacity that could be lost. They compared this information with information about actual grazing use occurring within these areas to determine if adjustments to stocking levels might be needed.

These reviews and analyses indicated that current levels of grazing could be sustained on the Fisher Creek and North Fork-Boulder Allotments. They also indicated that the levels of grazing use on the Smiley Creek and Baker Creek Allotments needed to be adjusted to be consistent with Forest Plan management direction. This information was used to identify the projected grazing allocation for the proposed action alternative.

Range 3-4. Projected grazing allocation under the Proposed Action Alternative (sheep head months)

Allotment	Current Management	Proposed Action
Fisher Creek	930	930
Smiley Creek	3,877	3,628
North Fork – Boulder	3,518	3,518
Baker Creek	6,530	5,159
Total	14,855	13,235

Adjustments in grazing use allocations are not intended only to be set in the RODs for the North Fork FEIS allotments. Validating grazing use or grazing capacity is an ongoing part of the administration of grazing permits. The adaptive management process provides for adjusting grazing use when annual proper use criteria are not met, when monitoring indicates that adequate progress is not being made toward achieving desired conditions, and when unacceptable conflicts occur with other resource uses. These adjustments may include changes in stocking rates (number of animals and/or grazing season), grazing restrictions, grazing closures, adjustments in grazing and trailing routes, etc. The adaptive management process is a continuing process of adapting (validating) grazing use to fit changing conditions observed on the North Sheep FEIS allotments. Changes in grazing use will continue to be made administratively based on the results of permit administration, allotment management, and grazing monitoring activities.

3.3 Soil and Watershed Resources

- *The Proposed Action and alternatives could affect streambank stability and channel morphology.*

Livestock grazing in riparian areas and watering from streams can impact the stability of streambanks and the morphology of streams. Excessive removal of riparian vegetation and excessive disturbance due to hoof action can destabilize banks, leading to changes in channel configuration, sedimentation, and linkages between the stream and its floodplain.

- *The Proposed Action and alternatives could affect stream sedimentation and the deposition of fine soil material in gravel beds.*

As noted under the preceding two issues, grazing can reduce soil stability on upland and riparian sites as well as on streambanks. This in turn can increase the sediment loads in streams, and sediment deposited in gravel stream bottoms can clog and cover gravel beds.

3.3.1.2 Updated Analysis for Soils and Watershed Resources – Background Information

Desired conditions for the project area associated with Soil, Water, Riparian, and Aquatic (SWRA) resources are described in Appendix B, Table B-1 of the Forest Plan. Functioning appropriate values described in Table B-1 represent desired conditions for each watershed condition indicator (WCI) that should be used, unless better subwatershed or project-specific information is available to update these values (Forest Plan - Appendix B, page 6).

Section 3.3.1.2 is a new Section and not found in the original North Sheep FEIS.

This section discusses different approaches for determining desired conditions for Soils and Watershed Resources.

When a WCI value identified in the matrix is not physically or biologically appropriate, given the inherent characteristics (geoclimatic setting) of the subwatershed, the WCI should be modified (Appendix B, page 13). WCIs should be refined to better reflect conditions that are functionally attainable in a specific watershed or stream reach based on local geology, land and channel form, climate, historic and potentially recoverable fish species habitat, and potential vegetation (Appendix B, page 13). Such is the case with some WCIs for the Smiley Creek and Fisher Creek Allotments.

The more appropriate values to evaluate some WCIs in the Smiley and Fisher Creek allotments are from the Natural Conditions Database (Overton, et al., 1985). This is because Natural Conditions Database values represent conditions in unmanaged streams in similar geology and Rosgen channel types to those that occur in the Smiley and Fisher Creek allotments. The parent geology in these allotments is underlain by rocks of the granitic Idaho Batholith that have coarse textures, and high infiltration and permeability rates. This is the same parent geology that occurs in many of the unmanaged streams that were surveyed in the Salmon River drainage and represented in the Natural Conditions Database. Furthermore, surveyed streams in the Natural Conditions Database occur in nearby subbasins in the Upper Salmon and have similar climatic (precipitation and temperature) conditions as those in the assessed allotments.

Desired conditions for the Baker and North Fork-Boulder project areas associated with Soil, Water, Riparian, and Aquatic resources used the values described in Appendix B, Table B-1 of the Forest Plan. Data from the Natural Conditions Database (Overton et al. 1995) provided more specific information about some of the WCIs in the Smiley and Fisher Creek allotments and so the desired conditions for the streams in these allotments were appropriately modified. For the Baker and North Fork-Boulder allotments, however, the parent geology and some of the other physical attributes were not as well represented in the Overton et al. data. Therefore, the default "functioning appropriate" values described in Appendix B of the Forest Plan are used in this analysis for the two Big Wood River subbasin allotments.

Analysis of the Big Wood River did not change from the North Sheep FEIS and will not be addressed here.

3.3.2 Streambank Stability, Morphology, and Sedimentation

A review of existing water quality and flow data was completed for all grazing allotments within the project area. This included an examination of studies completed within the Upper Salmon River watershed, which encompasses the two grazing allotments addressed in this section. Studies completed within the Upper Salmon River watershed include the Upper Salmon River Subbasin Assessment and TMDL (IDEQ 2003a), IDEQ Beneficial Use Reconnaissance Program (BURP) surveys, PacFish, Infish Biological Opinion Monitoring (PIBO), and several field assessments of stream and riparian corridors completed by the SNF during 1991 – 2003 (Forest Service 2003a, 2003b, and 2003c, and unpublished data). Water quality assessments completed by the IDEQ have determined compliance to water quality standards and support of state-designated beneficial uses for some of the waterbodies within the project area. Field reviews of the project area were also completed between 2002 to 2006 to determine pre and post grazing impacts to selected locations within stream and riparian corridors located on each grazing allotment. Scientific literature defining physical processes that contribute to streambank morphology and sedimentation within the project area was reviewed and used to supplement and verify information contained in the documents listed above.

Data from studies, field reviews, monitoring, etc. were documented through Forest Plan – Appendix B- Matrices of Pathways and Indicators (MPIs) (USDA 2003a, Vol. 2). MPIs are used to assess the existing (i.e, baseline) instream, riparian, and watershed conditions of stream drainages and the likely effects of proposed actions on these conditions. The MPI baseline conditions for each habitat indicator are categorized as Functioning Appropriately (FA), Functioning at Risk (FR), or Functioning at Unacceptable Risk (FUR) and these determinations are typically based on a combination of objective data and professional judgment. Baseline habitat conditions for those indicators most reflective of recent and current grazing impacts are streambank stability, surface fine sediment, and mean width-to-maximum depth ratio. It should be remembered, however, that many streams and subwatersheds unaltered (or relatively so) by human influence may not meet the FA criteria used in the MPI due to natural high sedimentation rates from erosive geologies and natural disturbances (floods, fires, etc.). Several WCIs may also reflect the cumulative effects of all management activities (e.g. dispersed recreation, mining, grazing, roads, etc.) that occur in a subwatershed or specific stream reach. Therefore, an FR or FUR baseline assessment may not be totally reflective of the recent and current impacts of grazing on the subwatershed in question.

Results of the MPIs and studies, assessments and reviews are summarized in the following section. The MPIs and more detailed information from these studies, assessments and reviews can be found in the project record.

3.3.3 Upper Salmon River Watershed

The headwaters of the Salmon River originate within the Upper Salmon River watershed near Bromaghin Peak. This headwater area also includes Frenchman Creek, Smiley Creek, Beaver Creek and Alturas Lake Creek which are all parallel drainages, running generally south to north. The hydrology of stream systems in the area is primarily driven by contributions from snowmelt during the late spring and early summer, although high intensity thunderstorms occurring in this same time period can create flash flooding and damage to streambanks from channel erosion. Annual peak flows vary widely depending upon precipitation and temperature levels occurring within any given year.

Many of the watersheds and sub-watersheds located in this area maintain steep narrow drainages with V-shaped valleys occurring primarily in the higher elevations. Wide U-shaped valleys are predominant in the lower elevations, formed by past glacial activity. Low ridgelines that extend to the edge of valley bottom areas were also created by glacial scour during this same time period. Large flat meadows surround stream channels in the valley bottom areas. These meadows contain thick layers of organic matter, produced by years of vegetative growth and die-off. This layer of organic material serves to regulate streamflow by absorbing water during periods of snowmelt and surface runoff and slowly releasing these volumes during periods of baseflow.

The IDEQ has assigned designated beneficial uses for all waters of the state including those assigned to specific waterbodies and general uses assigned to non-designated waterbodies. The upper segment of the main stem Salmon River from the headwaters to a point below the project area has been assigned several beneficial uses including Domestic Water Supply, Cold Water Biota, Salmonid Spawning, Primary Contact Recreation and Special Resource Water. All other waterbodies within the project area are considered Undesignated Waters and are protected for Cold Water Biota and Primary or Secondary Contact Recreation. In addition, all waters in the state of Idaho are designated for Agricultural and Industrial Water Supplies, Wildlife and Aesthetic uses. Surrogate measures of sediment concentration are used by the IDEQ to determine support of beneficial uses. Depth fine measurements exceeding 28 percent are generally considered to be unhealthy for salmonid species. Bank stability levels below 80 percent are also considered to be contributing unhealthy levels of sediment to cold water aquatic species. The 2002 303(d) list included 21 assessment units on the Sawtooth NRA of which only one (Cabin-Vat Creek subwatershed) is within the project area. The results of an assessment of the state's water quality problems can be found in Idaho's 2002 integrated report that was completed by IDEQ in April 2004 (IDEQ, 2004).

3.3.3.1 Fisher Creek Allotment

The Fisher Creek grazing allotment covers approximately 7,494 acres and incorporates the majority of the Fisher Creek drainage located on public land. The lower portion of the drainage is located on private land between the SNF boundary and state highway 75 and encompasses roughly 1.5 stream miles of Fisher Creek. Pass Creek is the only named tributary to Fisher Creek within the allotment boundary. The composition of these streams with respect to the allotment boundary is provided in Table: Water 3-1. The lower end of Fisher Creek is seasonally dry in the summer due to irrigation diversions located on public and private land. Historic impacts to Fisher Creek include patented mine development, road construction, and sheep grazing. The largest developed mine in the drainage is the Aztec Mine, located on the northeast boundary of the allotment. Impacts from previous intensive land use within the drainage are still evident.

Current use of the drainage includes grazing, recreation, firewood harvesting, construction of residential homes on private land, and agriculture. A large firewood harvesting operation was noted within the upper portion of the Fisher Creek drainage during the site reconnaissance conducted in July 2003. It was also noted that much of the firewood harvesting appeared to be taking place in areas that were within 200-300 feet of the stream channel.

In 2005 the Valley Road Fire burned approximately 40,800 acres, including 5,800 acres within Fisher Creek (75%). Thirty-six percent of the subwatershed has a high severity burn. Monitoring results show the fire has had little affect to fish or riparian habitat. Base flows have increased slightly, which has transported some fine sediment downstream. But there have been no changes to channel width, bank stability, or habitat.

Development within Riparian Conservation Areas (RCAs) located adjacent to Fisher Creek total 5.7 miles of roads including 16 stream channel crossings. As a result, 19 percent of stream miles within the drainage have roads located nearby. The forest road paralleling Fisher Creek has caused localized impacts to the stream channel in the middle portion of this drainage. In an effort to reduce some of these impacts, the channel crossing of Fisher Creek that provided access to the Pass Creek subdrainage was removed in 1999. Several road improvements were also made after the Valley Road Fire due to the threat of increased runoff from burned hillsides. Road improvements included construction of drivable dips and replacement of five tributary or mainstem culverts to accommodate increased water flows and associated bedload and debris. Development of residential homes within RCAs near the drainage mouth has also produced severe, localized conditions.

A survey of 0.5 miles of Fisher Creek was completed by the SNF in 1996. Results from this survey of a representative channel segment indicated that channel stability was functioning appropriately. Bank stability measurements collected during this survey were equivalent to 96.6 percent. Stream channels were assessed again by the IDEQ in 1996 and in 2001 (Table: Water 3-1). Results from this study indicated some variation in Rosgen channel types between the top and bottom of the drainage. A Rosgen E-type channel was identified in the lower portion of the drainage, indicative of a low-gradient, highly sinuous channel formed in meadow areas with well vegetated, stable banks (Rosgen 1996). Channels identified in the upper reaches included

Rosgen A-type and B-type channels that are typical of upper drainage conditions. Percent stable banks ranged from 22 percent to 100 percent with the lowest readings measured on stream segments in the upper drainage area. IDEQ notes forestry activities, roads and recreation activities near the monitoring site in the upper drainage, but doe not associate these or other activities as the reason for the lower values. Percent bank cover ranged from 86 percent to 100 percent.

The Forest Service completed surveys in two transects in 2005 and 2006 to assess the effect of the Valley Road Fire and found stream banks to be 100% stable in both sites. Additionally, bank stability at the designated monitoring site in 2006 was 91% where sheep typically graze. Based on data from unmanaged streams in the Natural Conditions Database (Overton, et al, 1995), this is within the range for a functioning appropriate condition determination relative to bank stability. All Forest Service surveyed or monitored sites have bank stability ratings of 91% or higher and the majority (2 of 3) of IDEQ sites are above 79%.

Table: Water 3-1. BURP data collected by IDEQ from Fisher Creek (1996, 2001).

					% Stable Banks		% Bank Cover	
Site ID	**Name**	**Rosgen Type**	**W/D ratio**	**% Fines**	**L. Bank**	**R. Bank**	**L. Bank**	**R. Bank**
96-Y102	Upper Fisher Creek	A	16.3	88	28	22	93	86
96-Y103	Mid - Fisher Creek	B	12.2	59	79	79	92	92
01-A150	Lower Fisher Creek	E	16.7	62	96	100	96	100

Table: Water 3-2. Forest Service data from Fisher Creek (2005, 2006).

			Wolman Pebble Count		Grid Toss		% Stable Banks		% Bank Cover	
Site ID	**Name**	**Rosgen Type**	**% Fines 2005**	**% Fines 2006**	**% Fines 2005**	**% Fines 2006**	**2005**	**2006**	**2005**	**2006**
Transect 1	Mid - Fisher Creek	B	33	12	53	53	100	100	100	100
Transect 2	Mid - Fisher Creek	B	50	11	65	60	100	100	100	100
DMA 1	Mid - Fisher Creek	C	--	--	--	--	--	91	--	100

Sediment data has been collected in lower gradient Rosgen C and E channels within Fisher Creek. The Forest Service surveyed ½ mile of stream in 1996 and found 30.1% surface fines in Rosgen C channel types. In 1996 IDEQ estimated surfaces fines at two 100 meter sites and in 2001 at one 100 meter site. Surface fines averaged between 52-88%, and IDEQ concluded the stream "fully supported" cold water biota. Finally, the Forest Service completed Wolman pebble counts and grid toss surveys in two transect in 2005 and 2006. Grid toss fines in pool tailouts averaged between 53 to 65% and Wolman fines in riffles averaged 33 to 50%. Riffle fines decreased in 2006 averaging 12%, where pool tailout fines remained the same. Decreases were thought to be from higher peak and baseflows following the Valley Road Fire.

Based on data from unmanaged streams in the Natural Conditions Database, surface fine sediment for a functioning appropriate condition should be defined as 33% average (25-41 range) in C channels that have a wetted width of 4.7 to 6m; B channels with wetted widths 1.5 to

3m would average 24% (18-30); and A channels with wetted widths 1.5 to 3m would average 26% (16-36). Forest Service and IDEQ sites in C and B channels have more sediment than Natural Conditions Database values resulting in a functioning at risk condition. In the North Sheep FEIS surface fine sediment was considered to be functioning at unacceptable risk based on criteria in Appendix B of the forest plan. This criteria was based upon the 1998 bull and steelhead trout biological opinions that summarized stream surveys across the Columbia River basin representing several different parent geologies. Excessive fine sediment in the Fisher Creek is believed to be produced from existing roads within RCAs, exposed areas associated with past mining development, and localized grazing impacts to stream watering sites and some upland areas.

3.3.3.2 Smiley Creek Allotment

The Smiley Creek grazing allotment is comprised of two allotment units that cover a total of approximately 42,084 acres. The larger of these two units is located between Alturas Lake and the Smokey Mountains. Major streams channels that are located within this unit include Frenchman Creek, Smiley Creek, Beaver Creek and Alturas Lake Creek. The smaller unit is located between Alturas Lake and Petit Lake. Alturas Lake Creek flows along the east boundary of this smaller unit and is supported by discharge from Alturas Lake as well as tributary inflow from Vat Creek and Cabin Creek. The actual lengths of major streams and tributaries within the Smiley Creek grazing allotment are included in Table: Water 3-3.

3.3.3.2.1 Smiley Creek

The Smiley Creek drainage originates on the south boundary of the allotment within the Smoky Mountains. The upper headwater area of the drainage has experienced heavy impacts from patented mining development during the past century from the Vienna, Solace, and Webfoot mines. Other historical use of this area has included livestock grazing from sheep and cattle and timber harvesting. Streambank stability and sediment levels on the Smiley Creek allotment are for the most part functioning at risk or not properly functioning due in part to natural erosive processes, historic impacts from mining development and livestock grazing, as well as localized impacts from sheep grazing.

Current land use practices within the drainage include sheep grazing and recreation on public land, and cattle grazing and land development for vacation homes on private land located near the bottom of the drainage. A corral is located adjacent to the west side of Smiley Creek, approximately 4 miles above the confluence with the Salmon River and is used for temporary holding and loading of sheep during the summer months.

Development within the RCAs located along Smiley Creek incorporate 6 miles of roads and 4 miles of recreational trails that include 13 road and 14-trail stream channel crossings. The most intense development within RCAs has occurred just above state highway 75 on private land where multiple vacation homes exist adjacent to or within the floodplain of Smiley Creek. Thirteen percent of stream miles within the Smiley Creek drainage are adjacent to roads within the RCA.

A review of aerial photos taken of the Smiley Creek area indicate that the stream channel has remained in relatively the same location since 1984, yet also provided evidence of old abandoned channels in some locations, indicating a historically active channel (Forest Service 2003c). Channel adjustments have occurred when debris flows from steep tributary streams (Sawmill Canyon, Mill Gulch, etc.) contribute high amounts of bedload sediment. This causes Smiley Creek to move across the valley floor as it attempts to flow around and move the additional bedload. Lateral bank erosion was noted in many locations where stream channels were cutting into high terraces. Additional sources of bank instability and erosion occur from failed beaver dams, dispersed recreation, and past grazing impacts.

The entire length of the Smiley Creek stream channel was surveyed by the SNF during 1994 (Forest Service 2003b). Results from this survey are included in Table: Water 3-4. A Rosgen assessment of stream reaches identified the presence of B1 and C1 stream types indicating moderate to slightly entrenched stream channels comprised of bedrock material (Rosgen 1996). Width/depth ratios ranged from 16.0 to 28.4. Bank stability ranged from a low of 74.4 percent in Reach 1 to a high of 100 percent in Reach 6. The percent undercut bank was low in reaches 1 through 3 (less than 3.5 percent) but increased in Reaches 4 through 6, ranging from 14.8 percent to 20.4 percent. Bank slumping and tension fractures were noted along stream segments where willow vegetation was absent. Unstable banks were occasionally attributed to beavers, but comments included "right bank trampled to mud for 6 meters due to sheep" and "bank has been significantly altered/trampled and cut back ~4 meters" (Forest Service 2003b). Hoof tracks, crushed banks, and trampled and compacted vegetation were also noted in most reaches.

A second survey measuring streambank stability was completed on Smiley Creek by the SNF during fall 2003 (Forest Service 2003c). Point data from 1,000 observation data points along approximately 20,000 linear feet of stream was obtained at five sites along Smiley Creek after sheep grazed through the area. Data obtained included type of bank vegetation, bank condition, and other observations related to bank stability (Table: Water 3-4). Results from this survey indicate that approximately 75 percent of channel banks within the surveyed reaches are stable. However, since hydric grass/sedge and upland areas are prone to detachment, slumping, and cracking, approximately 71 percent of the surveyed reaches are susceptible to future bank instability. Approximately 15 percent of the stream bank showed signs of recent sheep grazing impacts in the form of bank detachment, slumping, and cracking.

Table: Water 3-3. Smiley Creek 2003 streambank stability survey results.

Greenline Bank Vegetation				Greenline Bank Condition			Other Observations			
	Willow	Hydric G/S	Upland	Stable	Vertical & Eroding	Non-Vertical and Eroding	Undercut	Bank Detached	Slumped	Cracked
Mean (%)	29	63	8	75	13	13	13	6	8	1
Range (%)	8 to 50	43 to 73	0 to 23	51 to 89	4 to 22	3 to 30	3 to 28	1 to 21	1 to 24	0 to 3

Beneficial use of Smiley Creek was also assessed by IDEQ from 1995-2002 at six BURP monitoring locations (Table Water 3-4). BURP data indicated that bank stability averaged 74% and ranged from 57 to 94%. Finally monitoring at the DMA where sheep graze averages 59% in

2005 and 100% stable at DMA 2 that was rested. Both DMAs are in C channel types. (Table: Water 3-5)

Based on data from unmanaged streams in the Natural Conditions Database, bank stability for a functioning appropriate condition should be defined as greater than 76 percent stable in C channel types and greater than 79% in B channel types. Data from 1994 R1/R4 habitat inventory show bank stability consistently meeting the Natural Conditions Dataset. However, bank stability at half (3 of 6) of IDEQ sites and at DMA 1 do not meet this criteria indicating some reaches have too much bank instability. Unstable banks can be attributed to beavers, natural bank erosion, and sheep grazing. A high intensity thunderstorm on July 27, 1998 also resulted in several headwater tributaries (primarily south and west) being severely damaged. Although the mainstream channel of Smiley Creek experienced little damage, floodwaters produced severe damage to several headwater tributary channels.

Bank cover for surveyed BURP sites in Smiley Creek averages 60% (34-66 range) for the left bank and 62% (26-79 range) for the right bank. Most sites have greater than 56% bank cover, except site 02-A093 which averages 26-34%. IDEQ notes road and recreation activities near the site, but does not associate these or other activities as the reason for the lower values.

Table: Water 3-4. BURP data collected by IDEQ from Smiley Creek (1995, 1996, and 2002).

					% Stable Banks		% Bank Cover	
Site ID	**Name**	**Rosgen Type**	**W/D ratio**	**% Fines**	**L. Bank**	**R. Bank**	**L. Bank**	**R. Bank**
96-Y087	Smiley Creek	C	21.3	45	75	71	66	66
96-Y086	Smiley Creek	C	14.4	46	57	57	60	56
96-Y085	Smiley Creek W.F.	A	10.6	55	94	83	59	62
96-Y084	Smiley Creek E.F.	A	13.0	65	89	69	83	79
02-A093	Smiley Creek	C	27.0	10	70	90	34	26
95-A089	Smiley Creek	C	14.8	36	60	70	60	80

Table: Water 3-5. Forest Service data from Smiley Creek (2005).

Site ID	Name	Rosgen Type	% Stable Banks	% Bank Cover
DMA 1	Lower - Smiley Creek	C	59%	56%
DMA 2	Mid - Smiley Creek	C	100%	100%

Sources of sediment in the Smiley Creek drainage include eroding streambanks that contribute directly to stream sedimentation as well as upslope areas that introduce sediment to overland flow. Soils in this area are composed from granitic parent material that produces a natural sediment load including high bedload and suspended sediment volumes that contribute to depositional features. These features are most notable where the stream moves through low gradient segments of glacial trough (Forest Service 2003a). The locations of sediment sources include those areas of streambank instability mentioned above. Upslope sources of sediment include exposed areas with minimal vegetation that contribute to surface runoff and detachment of soil such as roads, trails, land developed for mining purposes and localized areas of livestock grazing. Current sheep use in some upland and riparian areas has resulted in the overuse of

vegetation, soil compaction, and exposed soil surfaces producing localized sediment sources (Forest Service 2003c).

Surface fines as measured in 1994 by R1/R4 surveys averaged 22.3% (8.8-46.2%) in Rosgen C channel types and 11.2% (9.6-12.8) in B channel types (Forest Service 2003b). IDEQ estimates of percent surface fines (< 6mm) at six sites within Smiley Creek based on Wolman pebble counts averaged 43% (range 10-65) and concluded the stream "fully supported" cold water biota (Table 3-5).

Based on data from unmanaged streams in the Natural Conditions Database, surface fine sediment for a functioning appropriate condition should be defined as 28-38% average (21-48 range) in C channel types that have a wetted width of 3.0 to 7.6 meters; B channel types with wetted width 1.5-4.7m would average 22-24% (16-30); and A channel types with wetted width 1.5-3m would average 26% (16-36). Based on this criteria the majority (5 of 6) of R1/R4 surveyed reaches and four IDEQ sites would have lower surface fines than similar streams in the Natural Conditions database. Two IDEQ sites in the West and East Forks of Smiley Creek have higher amounts of surface fines and would not meet the A channel criteria. Although most sampling sites fall within the range of Natural Condition Database values, fine sediment is still believed to be elevated above natural conditions due to historic effects from roads and grazing, and a high intensity thunderstorm in 1998 that resulted in substantial headwater sediments being delivered to the Smiley Creek via the western tributaries. It is for these reasons that surface fine sediment is functioning at risk. In the North Sheep FEIS surface fine sediment was considered to be functioning at unacceptable risk based on criteria in Appendix B of the forest plan.

3.3.3.2.2 Alturas Lake Creek

Alturas Lake Creek can be divided into two segments for discussion purposes, including stream reaches above and below Alturas Lake. Lower Alturas Lake Creek is approximately 8 miles long, and includes roughly 3 miles of stream channel that are within the Smiley Creek allotment. Major tributaries to Lower Alturas Lake Creek include Cabin Creek and Vat Creek. Upper Alturas Lake Creek is 14 miles long with approximately 8 miles of stream channel that fall within the allotment. Major tributaries include Jake's Gulch, Eureka Gulch, and Alpine Creek. The largest tributary to Upper Alturas Lake Creek is Alpine Creek. Only the lowest mile of this 4.5 mile tributary is within the allotment boundary. Upper Alturas Lake Creek is dry for roughly 0.5 miles above the confluence with Alpine Creek. Historic impacts to Alturas Lake Creek have resulted from patented mine development and grazing. The Eureka Mine is located in the upper portion of Eureka Gulch, while other smaller mines are located to the west within Jake's Gulch. Intensive sheep grazing has occurred in the past in some localized areas of the watershed, including some ridgetop areas and near corrals used for loading and unloading sheep. This has resulted in substantial changes to stream channels in these areas (Forest Service 2003a). Current land use in the Alturas Lake Creek drainage includes sheep grazing and recreation on public land while private land is utilized for construction of vacation homes, cattle grazing and a limited amount of irrigated agriculture.

Development within RCAs found in this drainage includes approximately 1.7 miles of roads and 6.4 miles of trails. These travel routes incorporate 10 road and 19 stream channel crossings. RCAs have been primarily impacted along some segments of Alturas Lake Creek including areas

along the inlet to Alturas Lake and along the north shore of the lake. Both of these areas of intensive use are outside of the Smiley Creek allotment boundary. A site-specific field assessment of RCAs associated with Upper Alturas Lake Creek and Jake's Gulch was completed in 2003 based on sheep collar data collected during 2001 and 2002. Although sheep were observed within these areas during the survey, general grazing use within RCAs was very light with no impact to RCA functions and ecological processes (Forest Service 2003c). Three features were noted to influence RCAs in the upper elevation areas including dense stands of conifer species; large deposits of bedload sediments, and high intensity precipitation events occurring over subdrainages in this area. RCAs located within one mile of Alturas Lake are not controlled by valley walls and permit stream meandering to occur within floodplains and adjacent stream terraces. A relatively wide wetlands complex (200-800 feet wide) interspersed with Rosgen E type tributaries are located on either side of the main stream channel in this area (Rosgen 1996). Observations of several abandoned channel segments in this area filled with runoff and the presence of bedload deposits indicate the stream is very dynamic in forming new pools and channel alignment.

A survey completed on Alturas Lake Creek in 1991 by the SNF indicated that stream channels on Lower Alturas Lake Creek were consistent with moderately-entrenched low-gradient alluvial channels typical of a Rosgen C-type stream (Forest Service 2003b). Width-depth ratios were measured from 38.5 to 81.8 (Table Water 3-6). Perennial stream channel segments on Upper Alturas Lake Creek were characterized by Rosgen C1-type and B1-type streams (Rosgen 1996). Width depth ratios were measured at 31.6 and 34.3.

Bank stability from the 1991 R1/R4 habitat inventory averages 84% for C channels and 90% in B channels (Table 3-6). Bank stability from the 1994 R1/R4 habitat inventory averages 89% for C channels (Table 3-6). No evidence of trampling, compacted soils, or livestock grazing was noted for streambanks assessed during this survey (Forest Service 2003c). IDEQ estimates of bank stability in Alpine Creek averaged 93% in Rosgen C channel type; Cabin Creek averaged 96% (A channel type) and 77% (G channel type); and Vat Creek 100% (E channel type) (Table 3-7). The PIBO monitoring site in Alpine Creek averaged 88% stable banks in a C channel type. Bank stability from the 2006 Forest Service DMA in Vat Creek was 98% (Table: Water 3-7).

Based on data from unmanaged streams in the Natural Conditions Database, bank stability for a functioning appropriate condition should be defined as greater than 76 percent stable in C channel types, greater than 79% in B channel types, and greater than 86% in an A channel type. Data is not available for E or G channel types. Data from 1991 R1/R4 habitat inventory, IDEQ and PIBO monitoring all show the majority of bank stability measurements meet the Natural Conditions Dataset. Reaches 2, 3, and 4A do not meet the Natural Conditions Database criteria.

Table: Water 3-6.
BURP data collected by IDEQ from Alturas Lake, Cabin and Vat Creeks (1996, 1998).

					% Stable Banks		% Bank Cover	
Site ID	**Name**	**Rosgen Type**	**W/D ratio**	**% Fines**	**L. Bank**	**R. Bank**	**L. Bank**	**R. Bank**
98-C058	Cabin Creek	A	9.0	29	100	92	74	100
96-Y115	Cabin Creek	G	6.7	96	71	82	95	94
02-A097	Alpine Creek	C	17.0	18	93	93	64	79

98-C059	Vat Creek	E	8.0	42	100	100	92	90

Table: Water 3-7. Forest Service data from Vat Creek (2006).				
Site ID	**Name**	**Rosgen Type**	**% Stable Banks**	**% Bank Cover**
DMA 1	Mid – Vat Creek	E	98	100

At the present time, sediment is believed to be the most limiting cumulative effect within the Alturas Lake Creek drainage. Natural loads of stream sediment originate from granitic parent soils located throughout the area. Contributions to bedload and suspended sediment loads are the natural result of high intensity rainfall and/or rapid snowmelt occurring on oversteepened and largely unvegetated slopes. These processes have resulted in sediment deposits throughout the main channel of Alturas Lake Creek. High amounts of sediment are also delivered by tributaries to Lower Alturas Lake Creek, including Cabin Creek and Vat Creek.

Surface fines as measured in 1991 by R1/R4 surveys in Alturas Lake Creek averaged 22% (range 2-67) in Rosgen C channel types and 24% in B channel types. A conclusion of 8% fines within a PIBO monitoring site in Alpine Creek may indicate conditions are still functioning in headwater areas. IDEQ recorded percent surface fines (< 6mm) based on Wolman pebble counts at 18% in Alpine Creek (C channel type), 29% in Cabin Creek (A channel type) and 96% (G channel type) and in Vat Creek 42% (E channel type).

Based on data from unmanaged streams in the Natural Conditions Database, surface fine sediment for a functioning appropriate condition should be defined as 10-22% average (10-22 range) in C channel types that have a wetted width of 7.6 to 19.8 meters. B channel types with wetted widths 3-4.7m would average 22% (16-28). A channel types that have a wetted width of 1.5 to 3 meters would average 26% (16-36 range). Data is not available for E or G channel types.

Based on this criteria, A and B channel types have similar amount of surface fines as the Natural Conditions database. Most C channel reaches also have similar values to the Natural Conditions database, with the exception of Reaches 6, 7, which are directly below and 8 above Alturas Lake. Sediment deposits are particularly noted in reach 8 immediately above Alturas Lake, where gradients decrease. Point bars comprise approximately 35 percent of stream channel banks near the inlet to Alturas Lake, so it not unexpected that Reach 8 has a high amount of sediment. The PIBO site has slightly lower surface fine sediment than the Natural Condition database, while the IDEQ site is within the range of Natural Condition database values. Therefore based on new data and the Natural Condition database information surface fine sediment is considered to be functioning at risk in Alturas and Cabin/Vat Creeks. In the North Sheep FEIS surface fine sediment was considered to be functioning at unacceptable risk in Alturas Creek and functioning at risk in Cabin/Vat Creeks based on criteria in Appendix B of the forest plan.

3.3.3.2.3 Frenchman Creek

Frenchman Creek is located along the east boundary of the Smiley Creek allotment, eventually flowing into the Salmon River. The entire 7.5-mile length of Frenchman Creek is located within the allotment boundary. Numerous unnamed tributaries contribute seasonal flow to Frenchman

Creek. Historic use of this drainage includes development of small mining claims, grazing, and road construction. Past intensive use from these activities are evident in many locations including sensitive streamside areas found on private and public lands. Current land use includes recreation, firewood gathering, grazing, and some irrigated agriculture. Irrigation diversions located on private land will seasonally dewater Frenchman Creek in areas immediately below diversions, many of which are located in the lower portion of the drainage. Stream segments located in the middle portion of this drainage on public land will also go dry during most years.

Development within RCAs includes approximately 12 miles of roads and 0.3 miles of trails associated with 35 road crossings. These numbers result in 16 percent of stream miles that have roads located adjacent to them. Substantial modification from past use of RCAs has occurred in this drainage, resulting in an overall level of improvement to these areas. Many of these modifications have included the obliteration of degraded road segments associated with past mining development. Other modifications include new construction of bridges and reinforcement of existing fords to restore hydraulic function and aquatic habitat. However, severely degraded RCAs remain in some locations found on both private and public lands. Current land use includes recreation, firewood gathering, grazing, and some irrigated agriculture. Irrigation diversions located on private land will seasonally dewater Frenchman Creek in areas immediately below diversions, many of which are located in the lower portion of the drainage. Stream segments located in the middle portion of this drainage on public land will also go dry during most years.

A survey completed in 1992 by the SNF on Frenchman Creek indicated that stream segments were consistent with Rosgen B-type and C-type channels that were slightly to moderately entrenched (Rosgen 1996). Width-depth ratios were measured from 11.6 to 17.7. Streambank stability for these segments was very high and ranged from 94.7 percent to 100 percent. Percent undercut banks ranged from 9 percent to 38 percent. Stream segments flowing through meadows have low channel banks and are braided in some locations. Stream bank stability collected by IDEQ averaged 89% (A channel type), 67% (C channel type), and 99% (B channel type), while bank cover ranged from 71 percent to 95 percent (Table: Water 3-8). Finally, Forest Service monitoring in 2005 at the DMA where sheep graze found that bank stability averaged 77% (Table Water 3-9).

Based on data from unmanaged streams in the Natural Conditions Database, bank stability for a functioning appropriate condition should be defined as greater than 76 percent stable in C channel types, greater than 79% in B channel types, and greater than 86% in an A channel type. All R1/R4 habitat inventory reaches have bank stability results of 94.7% or higher and the majority (2 of 3) of IDEQ sites have better bank stability than Natural Conditions Database criteria. Therefore, bank stability for the entire drainage is functioning appropriately.

Table: Water 3-8. BURP data collected by IDEQ from Frenchman Creek (1995, 1996, and 2002).

					% Stable Banks		% Bank Cover	
Site ID	**Name**	**Rosgen Type**	**W/D ratio**	**% Fines**	**L. Bank**	**R. Bank**	**L. Bank**	**R. Bank**
96-Y082	Frenchman Ck.	A	11.6	52	96	82	78	71
96-Y083	Frenchman Ck.	C	11.5	48	81	53	88	77
95-B061	Frenchman Ck.	B	8.0	33	100	97	95	95

Table: Water 3-9. Forest Service data from Frenchman Creek (2005).				
Site ID	**Name**	**Rosgen Type**	**% Stable Banks**	**% Bank Cover**
DMA 1	Mid – Frenchman Creek	C	77	81

In 1996 the Salmon River "Headwaters to Hell Roaring Creek" was listed for sediment. However, in 2000, EPA proposed to remove this area from their "Water Quality Limited" 303(d) list, due to IDEQ results that suggested it is in full support of beneficial uses. The 2002 list of impaired waterbodies did not list FRSH as a 303 (d) stream for any pollutant.

Fine sediment in Frenchman Creek from 1992 R1/R4 habitat surveys ranges from 13 to 76% in Rosgen B and C channel types. IDEQ Wolman pebble count estimates of percent surface fines (< 6mm) at three sites averaged 52% (A channel type), 33% (B channel type), and 48% (C channel type).

Based on data from unmanaged streams in the Natural Conditions Database, surface fine sediment for a functioning appropriate condition should be defined as 33-40% average (25-50 range) in C channel types with wetted widths of 1.5 to 6 meters. Surface fines in B channel types with wetted widths of 1.5 to 4.7 meters should average between 22-24% (16-30 range). Finally, surface fines in A channel types with wetted widths of 1.5 to 3 meters should average 26% (16-36 range). Based on these criteria 3 of the 5 reaches sampled by the R1/R4 protocol would be functioning appropriately. However, only one of the IDEQ sites would meet the Natural Conditions Database criteria. Because several sample sites do not meet the Natural Conditions Database criteria, fine sediment is considered to be functioning at risk. This conclusion is similar to ones made in the North Sheep FEIS.

3.3.3.2.4 Beaver Creek

Beaver Creek is approximately 11 miles in length and is supported by an additional 11 miles of intermittent and perennial tributary channels. The lower mile of Beaver Creek extends beyond the north boundary of the allotment. Little Beaver Creek is the largest tributary and includes roughly 4 miles of stream channel. Historic use of this drainage is associated with patented mining development including a mining town and livestock grazing. Historic mines located in the upper portion of the watershed include the USMM 3 mine, Pilgrim Mine, and the Silver King Mine. Sawtooth City is located near the lower portion of this drainage and once provided support to many mining claims in the area. Current land use practices include recreation, grazing and irrigated agriculture on private land.

Development within RCAs has resulted in significant impacts to stream corridors, particularly on private land (Forest Service 2003a). A total of 6.4 miles of roads and 0.5 miles of trails currently exist within RCAs in this drainage including 14 road and one trail stream crossing. As a result, 21 percent of stream miles have roads located adjacent to them, including private and public roads. FS Road 204 is adjacent to much of the length of Beaver Creek. Private roads adjacent to streams and tributaries in the lower portion of the drainage are associated with private ranching, while private roads in the upper portion of the drainage included old mine access roads. Most of the RCAs located on public land are in relatively good condition. However, is evidence of

significant amounts of dispersed camping and off-road vehicle (ORV) use where openings along the stream are accessible. Sheep grazing has also caused localized impacts to headwater riparian areas.

A review of low elevation aerial photos completed in 1984 indicated that streambank stability in this drainage is highly variable on public land and likely meets forest objectives in many locations (Forest Service 2003a). Two areas where objectives were not met included lower reaches of the drainage where intensive livestock grazing has altered stream channels on private land and upper drainage areas associated with mine development. The results of a survey completed on Beaver Creek during 2000 classified stream channels as Rosgen B-type or C-type channels that were slightly to moderately entrenched in alluvial gravels (Rosgen 1996). Width depth ratios were from 41.5 to 67.9.

Bank stability from the 2000 R1/R4 habitat inventory averages 90% for C channel types and 84% in B channel types. IDEQ estimates of bank stability at 4 sites averaged 94% in Rosgen C channel types, 51% in B channel types, and 78% in an A channel type. Field observations completed in 2006 indicate that much of Beaver Creek is characterized by heavy lodgepole pine stands and willow cover that provide stable stream banks. Sheep grazing has had little impact on bank stability due to heavy lodgepole pine stands and beaver dam complexes. Headwater reaches in the main Beaver Creek channel are characterized by steeper gradients, large substrate (cobble and boulder) and heavily armored streambanks. Sheep use in these armored portions of the stream has very little potential to affect streambank stability.

Based on data from unmanaged streams in the Natural Conditions Database, bank stability for a functioning appropriate condition should be defined as greater than 76 percent stable in C channel types, greater than 79% in B channel types, and greater than 86% in an A channel type. Data from 2000 R1/R4 habitat inventory show bank stability consistently meets the Natural Conditions Dataset. However, bank stability at some IDEQ sites (A and B channel types) do not meet this criteria indicating some reaches have too much bank instability. While the exact causes of this instability are unclear, IDEQ noted that roads, mining, and recreation influenced their sampled sites. Natural bank erosion and localized sheep grazing impacts may have also influenced these findings.

Table: Water 3-10. BURP data collected by IDEQ from Beaver Creek (1996 and 2002).

					% Stable Banks		% Bank Cover	
Site ID	**Name**	**Rosgen Type**	**W/D ratio**	**% Fines**	**L. Bank**	**R. Bank**	**L. Bank**	**R. Bank**
96-Y094	Beaver Creek	A	13.0	24	72	83	49	44
96-Y093	Little Beaver	B	31.8	68	41	35	97	97
02-A095	Beaver Creek	C	9.0	20	94	93	76	80
96-Y095	Beaver Creek	B	10.0	14	59	68	82	60

It is believed sediment is the most limiting condition currently within Beaver Creek. Granitic parent material results in a high natural sediment load, which easily accumulates in as it flows through the very low gradient glacial trough and in beaver influenced habitat. Naturally high sediment loads are delivered by soils created from granitic parent material. Historic impacts from mining and intensive grazing have contributed to these loads by exposing additional surface

area associated with mined areas, roads, and localized overgrazing on ridgetops. Existing impacts associated with sheep grazing occur in the upper portion of this drainage (referring to intermittent and ephemeral streams based on field reviews). Stream channel corridors are more open and provide ready access to water and vegetation. Concentrated use of these areas by sheep grazing has minimized vegetative cover on channel banks and upslope areas, resulting in soil erosion and sediment delivery to streams.

Surface fines as measured in 2000 by R1/R4 surveys in lower Beaver Creek averaged 19% in Rosgen C channel types and 26% in B channel types. IDEQ estimates of percent surface fines (< 6mm) at four sites within Beaver Creek based on Wolman pebble counts averaged 20% in Rosgen C channel types, 41% in B channel types, and 24% in A channel types. (Table Water 3-10)

Based on data from unmanaged streams in the Natural Conditions Database, surface fine sediment for a functioning appropriate condition should be defined as 33% average (25-41 range) stable in C channel types that have a wetted width of 4.7 to 6 meters, B channel types with wetted widths 3 to 4.7m would average 22% (16-28 range), A channel types with wetted widths 3 to 4.7m would average 22% (14-30 range). Based on these criteria most B channel types have similar amount of surface fines as the Natural Conditions database. Little Beaver Creek averages 68% fines in a B channel type exceeding the Natural Condition Database values. The C and A channel types have similar surface fines as the Natural Conditions database. Although several sampling sites fall within the range of Natural Condition Database values, fine sediment is still believed to be elevated above natural conditions due to historic effects from roading, mining, and grazing resulting in a functioning at risk condition. In the North Sheep FEIS surface fine sediment was considered to be functioning at unacceptable risk based on criteria in Appendix B of the forest plan.

3.3.5 Desired Condition – Soils & Watershed

Desired conditions for the project area associated with Soil, Water, Riparian, and Aquatic (SWRA) resources are summarized in Appendix B of the Sawtooth Forest Plan (USDA 2003a). Desired condition descriptions are from Chapter III of the Forest Plan (p. 3-18). Chapter III provides a broad desired condition description of how Forest resources should look and function to provide diverse and sustainable habitats, settings, goods, and services. These conditions are defined by objectives, guidelines and standards that are designed to maintain or restore SWRA resources to appropriate levels. A major focus of desired conditions associated with SWRA resources is to fully support beneficial uses of water bodies, native and desired non-native fish species and their habitat. Additional emphasis has been placed on water bodies that are recognized by the IDEQ as water quality impaired and included on a current 303(d) list.

As stated in the Forest Plan, one of the desired conditions of the Forest is “to have ecological and watershed integrity, meaning they have a viable combination of all the diverse elements and processes needed to sustain the systems and to perform desired functions.” Soil resources, as one of the components of the ecosystem, should “retain all or most of their natural productivity and are in a condition that promotes vegetative growth, hydrologic function, long-term nutrient cycling, and erosional stability.” The Forest Management Direction states “soils protective

cover, soil organic matter, and coarse woody material are at levels that maintain or restore soil productivity and soil-hydrologic functions where conditions are at risk or degraded. Soils also have adequate physical, biological, and chemical properties to support desired vegetation growth." (p. III-7) In addition, "management actions result in no long-term degradation of soil, water, riparian and aquatic resources condition."

As discussed above, soils within the study area generally have moderate to high surface erosion potential, and productivity is typically low to moderate. Localized impacts that include soil instability, compaction, reduced productivity, as well as accelerated sedimentation and stream channel modification are presently occurring. These impacts, which can be individually severe, are primarily from management activities such as livestock grazing and dispersed and developed recreation. In terms of compliance with the Forest Plan, the desired soil resource conditions are currently being met. However, while localized areas are slowly recovering from the severe impacts of historic grazing practices, there are other locations where current management activities are impeding soils from achieving desired conditions. The majority of these areas are where grazing occurs on lands that are marginally capable for this use (i.e., high-elevation slopes, cirque basins). Site-specific impacts from the use of corrals, bedding, and watering – combined with recreation impacts – within or near riparian areas also exist.

Desired conditions for the project area associated with Soil, Water, Riparian, and Aquatic (SWRA) resources are further described in Appendix B, Table B-1 of the Forest Plan (USDA, 2003a, Vol. 2). Functioning appropriate values described in Table B-1 represent desired conditions for each watershed condition indicator (WCI) that should be used, unless better subwatershed or project-specific information is available to update these values (Forest Plan - Appendix B, page 6).

When a WCI value identified in the matrix is not physically or biologically appropriate, given the inherent characteristics (geoclimatic setting) of the subwatershed, the WCI should be modified (Forest Plan Appendix B, page 13). WCIs should be refined to better reflect conditions that are functionally attainable in a specific watershed or stream reach based on local geology, land and channel form, climate, historic and potentially recoverable fish species habitat, and potential vegetation (Forest Plan Appendix B, page 13).

The more appropriate values to evaluate some WCIs in the Smiley and Fisher Creek allotments are from the Natural Conditions Database (Overton, et al., 1995). This is because Natural Conditions Database values represent conditions in unmanaged streams in similar geology and Rosgen channel types to those that occur in the Smiley and Fisher Creek allotments. The parent geology in these allotments is underlain by rocks of the granitic Idaho Batholith that have coarse textures, and high infiltration and permeability rates. This is the same parent geology that occurs in many of the unmanaged streams that were surveyed in the Salmon River drainage and represented in the Natural Conditions Database. Furthermore, surveyed streams in the Natural Conditions Database occur in near by subbasins in the Upper Salmon and have similar climatic (precipitation and temperature) conditions as those in the assessed allotments.

Desired conditions for the Baker and North Fork-Boulder project areas associated with Soil, Water, Riparian, and Aquatic resources are further described in Appendix B, Table B-1 of the

Forest Plan. Functioning appropriate values described in Table B-1 represent desired conditions for each WCI that should be used, unless better subwatershed or project-specific information is available to update these values (Forest Plan, Appendix B, page 6). In that circumstance, the WCI should be modified (Forest Plan, Appendix B, page 13). Data from the Natural Conditions Database (Overton et al. 1995) provided more specific information about some of the WCIs in the Smiley and Fisher Creek allotments and so the desired conditions for the streams in these allotments were appropriately modified.

For the Baker and North Fork-Boulder allotments, however, the parent geology and some of the other physical attributes were not as well represented in the Overton et al. data. Therefore, the default "functioning appropriate" values described in Appendix B of the Forest Plan (Volume 2) are used in this analysis for the two Big Wood River subbasin allotments.

3.4 Fisheries Resources

The following fisheries resources issue was identified through scoping and internal agency review:

- *The Proposed Action and alternatives could affect special status fish species.*

The streams, rivers, and lakes of the allotments include habitat for several special status fish species. Changes in grazing management could potentially impact such habitat, and the species themselves, in various ways. Sedimentation from upland areas could indirectly reduce water quality. Livestock activity in riparian areas could directly impact water quality as well as streambank stability, riparian vegetation, and water temperature. Sedimentation of gravel spawning beds is a key concern.

Section 3.4.2.2 Big Wood River as described in the North Sheep FEIS (pp. 3-43 to 3-47) remains unchanged and will not be discussed in Fisheries Resources.

3.4.1 Project Area and Methods

The project area includes four sheep grazing allotments in the Salmon River and Big Wood River subbasins (Figure 1-1). Allotments within the Salmon River subbasin include Fisher Creek and Smiley Creek. Allotments within the Wood River subbasin include North Fork–Boulder and Baker Creek. The fisheries resources associated with these two subbasins are extremely varied, while existing stream habitat conditions tend to exhibit similar trends identified throughout the Pacific Northwest.

Existing literature and scientific data were reviewed to determine species distribution, habitat requirements, and other pertinent biological parameters. The Forest Service, U.S. Fish and Wildlife Service (FWS; [Appendix D of the North Sheep FEIS]), National Marine Fisheries Service – National Oceanic and Atmospheric Administration (NOAA Fisheries; Appendix D of the North Sheep FEIS), Idaho Department of Fish and Game (IDFG), Idaho Department of

Environmental Quality (IDEQ), and Pacific States Marine Fisheries Commission – StreamNet data base (PSMFC 2003) were consulted for information on species occurrence.

On-site investigations of the project area were conducted between 2002 and 2006 to evaluate general existing habitat conditions. Habitat suitability for each of the subject fish species was assessed. The extent of potential sheep grazing effects to these species and their habitats was evaluated through review of pertinent literature, previous studies, and conditions in the field.

Existing stream habitat and fish distribution data for the upper Salmon River were obtained from the Forest Service, IDEQ, and IDFG. The Forest Service conducted several stream habitat surveys in portions of the upper Salmon River allotments between 1991 and 2000. Various versions of the Region 1/Region 4 habitat survey method were used, as the stream survey protocol has undergone several revisions. Due to differences in data collection, the quantity and type of data varies from stream to stream. Baseline condition summaries for the upper Salmon River allotments are as outlined in the *Biological Assessment of Effects of Ongoing and Proposed Federal Actions on the Sawtooth Valley Subpopulation of listed Snake River Sockeye, Snake River Spring/Summer Chinook Salmon, Snake River Steelhead, and Columbia River Bull Trout, and sensitive Westslope Cutthroat Trout* (Forest Service 2003a). The IDEQ data utilized includes *Upper Salmon River Subbasin Assessment and TMDL* (IDEQ 2003a) and Beneficial Use Reconnaissance Program (BURP) surveys. PacFish, Infish Biological Opinion Monitoring (PIBO) also helped inform baseline conditions. The status of existing habitat conditions for the upper Big Wood River subbasin are as outlined in *Current Conditions Report for The Upper Wood River Basin* (Slominski 1997), and *The Big Wood River Watershed Management Plan* (IDEQ 2002).

Baseline data were compared against watershed condition indicator criteria in Appendix B of the forest plan. The matrix includes WCIs relative to population size, growth and survival, life history, population persistence, and genetic integrity. Functioning at risk or unacceptable risk ratings were made for the biological WCIs when:

1.) local populations of native species had fewer than 500 adults in a subwatershed;
2.) overall population size was reduced and not likely to improve within two generations;
3.) populations were fragmented or isolated in headwater areas;
4.) only 1 or 2 local populations represent most of the fish production in adjacent subwatersheds, and
5.) the probability of hybridization or displacement by competitive species (non-native brook trout) is imminent or high.

Because all these factors exist most streams were found to be FR or FUR for species persistence. Even absent livestock grazing, most streams would continue to be found FR or FUR for species persistence.

GEO/Graphics in Logan, Utah, provided stream length and allotment size data (GEO/Graphics 2003). Data layers utilized include the SNF stream data, which are cartographic feature files at a 1:24,000 scale. Analysis was conducted in GIS using ESRI Arc/Info software.

3.4.2 Aquatic Habitat Existing Conditions

3.4.2.1 Salmon River

The study area is located within the upper Salmon River representing the southeastern portion of the headwaters of this drainage. The Salmon River is a primary tributary to the Snake River, which eventually enters the Columbia River near Pasco, Washington, prior to reaching the Pacific Ocean. The upper Salmon River subbasin supports both anadromous (migrate to the ocean) and resident salmonids (salmon, trout, and whitefish) as well as several non-salmonid species. Anadromous salmonids known to utilize the upper Salmon River include Chinook (*Oncorhynchus tshawytscha*) and sockeye (*O. nerka*) salmon, and steelhead trout (*O. mykiss*). Native resident salmonids, including fluvial (river-dwelling), adfluvial (lake-dwelling), and resident headwater populations known to utilize the upper Salmon River include rainbow trout (*O. mykiss*), westslope cutthroat trout (*O. clarki lewisi*), bull trout (*Salvelinus confluentus*), and mountain whitefish (*Prosopium willaimsoni*). Shorthead sculpin (*Cottus confusus*) and mottled sculpin (*C. bairdi*) have also been documented in the upper Salmon River. Non-native resident trout include brook trout (*S. fontinalis*).

Species diversity within the upper Salmon River increases farther downstream. The IDEQ reported longnose dace (*Rhinichthys cataractae*), speckled dace (*Rhinichthys osculus*), northern pikeminnow (*Ptychocheilus oregonensis*), largescale sucker (*Catostomus marcocheilus*), chiselmouth (*Acrocheilus alutaceus*), redside shiner (*Richardsonius balteatus*), Pacific lamprey (*Entosphenus tridentatus*), and white sturgeon (*Acipenser transmontanus*) have been documented in the Salmon River between the towns of Clayton and Challis (IDEQ 2003a). Some of these species likely also utilize the upper reaches of the Salmon River.

Listing Status

Several species that utilize the upper Salmon River subbasin have declined in abundance and are recognized as needing additional protection by the agencies with jurisdiction over them. Some species are listed under the Endangered Species Act (ESA) as endangered or threatened by the federal government. The FWS has jurisdiction over bull trout (threatened) while National Oceanic and Atmospheric Administration (NOAA) Fisheries has jurisdiction over ESA-listed salmon and steelhead trout.

Sockeye salmon were listed as an endangered species on November 20, 1991; endangered status was reaffirmed on June 28, 2005. The evolutionarily significant unit (ESU) includes all anadromous and residual sockeye salmon from the Snake River Basin, Idaho, as well as artificially propagated sockeye salmon from the Redfish Lake captive propagation program.

Spring/summer Chinook salmon were listed as a threatened species on April 22, 1992; threatened status reaffirmed on June 28, 2005. The ESU includes all naturally spawned populations of spring/summer-run Chinook salmon in the mainstem Snake River and the Tucannon River, Grande Ronde River, Imnaha River, and Salmon River subbasins, as well as fifteen artificial propagation programs.

Critical habitat was designated shortly after the initial listing of spring/summer Chinook salmon (Table: Fish 3-1). The designation essentially included "river reaches of the Columbia, Snake, and Salmon Rivers, and all tributaries of the Snake and Salmon Rivers (except the Clearwater River) presently or historically accessible to Snake River spring/summer Chinook salmon (except reaches above impassable natural falls and Hells Canyon Dam)". The Magnuson-Stevens Fishery Conservation and Management Act designated Essential Fish Habitat (EFH) for spring/summer Chinook salmon. EFH is coincident with Chinook salmon designated critical habitat (PFMC 1999).

Snake River steelhead were listed as a threatened species on August 18, 1997; threatened status was reaffirmed on January 5, 2006. The distinct population segment (DPS) includes all naturally spawned anadromous O. mykiss (steelhead) populations below natural and manmade impassable barriers in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho, as well as six artificial propagation programs. NOAA fisheries initially designated critical habitat for Snake River steelhead in 2000, however, as a result of a consent decree, this designation was withdrawn on April 30, 2002. In 2005 NOAA once again designated critical habitat for Snake River steelhead (Table: Fish 3-1).

Columbia River bull trout were listed as a threatened species on June 10, 1998. No critical habitat has been designated within the analysis areas. The USFWS have prepared a draft Recovery Plan for bull trout within the Columbia and Klamath River basins. The analysis area falls within the Upper Salmon Core Area, which is within the Salmon River Recovery Unit. Alturas Lake Creek is the only stream within the analysis area to be identified as a "local populations" by the draft recovery plan.

Table: Fish 3-1. Upper Salmon River species status summary.

Species Common Name	Federal Jurisdiction	Federal Status	Critical Habitat	Essential Fish Habitat	State Status	Forest Service Status
Bull Trout	FWS	Threatened; June 10, 1998; 63 FR 31647	Not Applicable	Not Applicable	Game Fish Species of Concern	
Steelhead Trout	NOAA Fisheries	Threatened; August 18, 1997; 62 FR 43937	Designated September 2, 2005; 70 FR 52630	Not Applicable	Listed Threatened	
Westslope Cutthroat Trout	Not Applicable	Species of Concern	Not Applicable	Not Applicable	Game Fish Species of Concern	Sensitive Species
Sockeye Salmon	NOAA Fisheries	Endangered; Nov. 20, 1991; 56 FR 58619	Designated December 28, 1993; 58 FR 68543	Not Applicable		
Chinook Salmon	NOAA Fisheries	Threatened; April 22, 1992; 57 FR 14653	Designated October 25, 1999; 64 FR 57399	Designated 1999; 50 CFR Part 600.920		

The FWS is also interested in what it terms species of concern. Although species of concern do not have legal status under the ESA, they recommend including them in project planning and review. The State of Idaho also lists species as threatened or endangered, but also has a game fish species of concern list. The Forest Service has forest-specific lists for sensitive species.

3.4.2.1.1 Smiley Creek Allotment

The Smiley Creek allotment includes two areas in the vicinity of Alturas Lake (Figure 1-1). The larger unit is located south of Alturas Lake and includes upper Alturas Lake Creek (upstream of Alturas Lake), Beaver Creek, Smiley Creek, and Frenchman Creek (plus their tributaries). The smaller unit, the Vat Creek unit, is located immediately north of Alturas Lake. The entire Smiley Creek allotment covers 42,084 acres. Streams associated with the Vat Creek unit include lower Alturas Lake Creek (downstream of Alturas Lake), Cabin Creek, and Vat Creek (plus their tributaries). Table: Fish 3-2 summarizes the stream composition within the Smiley Creek allotment.

The following section summarizes some of the available data for each major stream within the allotment. The data provided below in Table: Fish 3-3 is from Forest Service stream surveys conducted between 1991 and 2000 (Forest Service 2003b).

Table: Fish 3-2. Smiley Creek and Fisher Creek allotment fisheries distribution.

Stream Name	Bull Trout	Steelhead /Rainbow Trout	Westslope Cutthroat Trout	Sockeye/ Kokanee Salmon	Chinook Salmon	Brook Trout	Mtn. Whitefish	Sculpin
Alturas Lake Creek	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Alpine Creek	Yes		Yes	Yes		Yes		Yes
Beaver Creek	Yes	Yes	Yes		Yes	Yes	Yes	
Smiley Creek		Yes	Yes		Yes	Yes	Yes	Yes
Frenchman Creek		Yes	Yes		Yes	Yes	Yes	
Cabin Creek			Yes			Yes		
Vat Creek					Yes	Yes		
Fisher Creek		Yes	Yes			Yes		

Source: Forest Service 2003a and b. Original FEIS

Table: Fish 3-3. Smiley Creek allotment stream composition.

Stream Name	Tributary to	Total Stream Length	Stream Length in Allotment	Miles Unnamed Tribs. (total/within Allotment)
Alturas Lake Creek	Alturas Lake	22.4 miles	10.8 miles	15.3/9.5
Jakes Gulch	Alturas Lake Creek	3.6 miles	3.6 miles	4.8/4.8
Eureka Gulch	Alturas Lake Creek	2.5 miles	2.5 miles	2.4/2.4
Alpine Creek	Upper Alturas Lake Creek	4.5 miles	1.0 mile	18.6/0.7
Beaver Creek	Upper Salmon River	10.8 miles	9.8 miles	11.2/11.2
Little Beaver Creek	Beaver Creek	4.2 miles	4.2 miles	1.5/1.5
Smiley Creek	Upper Salmon River	11.4 miles	10.1 miles	21.3/21.3
Mill Gulch	Smiley Creek	3.4 miles	3.4 miles	4.8/4.8
Sawmill Canyon	Smiley Creek	1.9 miles	1.9 miles	1.8/1.8
Frenchman Creek	Upper Salmon River	7.5 miles	7.5 miles	12.8/12.8
Cabin Creek	Lower Alturas Lake Creek	4.2 miles	2.3 miles	4.6/1.8
Vat Creek	Lower Alturas Lake Creek	3.1 miles	3.0 miles	6.1/6.1
Total		**79.5 miles**	**60.1 miles**	**105.2/78.7**

Source: GEO/Graphics, 2003.

3.4.2.1.1.1 Smiley Creek

Smiley Creek is an 11.4-mile-long tributary to the upper Salmon River. Smiley Creek has two named tributaries including Mill Gulch (3.4 miles long) and Sawmill Canyon (1.9 miles long), plus an additional 21.3 miles of unnamed tributaries. The Forest Service surveyed the entire length of Smiley Creek during the summer of 1994. The results of the 1994 survey are shown in Table: Fish 3-4.

Table: Fish 3-4. Smiley Creek allotment habitat summary.

Stream	Reach	Rosgen Type	Mean Width (meters)	Cover Type	Width to Depth	Pools per Mile	Pools per 100 (meters)	LWD per 100 meters	Percent Bank Stable	Percent Bank Undercut	Percent Surface Fines
Smiley Creek 1994	1	C1	3.3	Meadow	22.9	64.1	ND	6.3	74.4	3.5	11.7
	2	B1	3.9	Wooded	21.4	56.3	ND	9.2	92.8	1.4	9.6
	3	C1	6.8	Wooded	28.4	11.0	ND	0.0	84.7	3.5	8.8
	4	C1	5.8	Meadow	17.8	59.7	ND	0.0	92.7	29.0	46.2
	5	C1	3.9	Meadow	16.0	73.9	ND	12.6	88.7	20.4	22.4
	6	B1	2.6	Meadow	22.1	87.8	ND	0.0	100	14.8	12.8
Lower Alturas Lake Creek 1991	1	C	19.3	ND	71.8	ND	2.9	ND	87	ND	2.0
	2	C	12.4	ND	39.1	ND	9.6	ND	72	ND	3.0
	3	C	9.3	ND	38.5	ND	6.4	ND	70	ND	10.0
	4A	C	9.7	ND	56.8	ND	13.4	ND	55	ND	4.0
	4B	C	9.4	ND	51.3	ND	13.7	ND	89	ND	7.0
	5	C	9.2	ND	42.4	ND	27.6	ND	95	ND	8.0
	6	C	16.8	ND	81.8	ND	11.1	ND	98	ND	64.0
	7	C	24.9	ND	65.6	ND	6.0	ND	100	ND	67.0
Upper Alturas Lake Creek 1994	8	C1	8.6	Wooded	31.6	43.1	ND	10.8	87.1	18.8	29.1
	9	C	Dry	Wooded	Dry	Dry	Dry	Dry	Dry	Dry	Dry
	10	B1	4.2	Wooded	34.3	80.8	ND	10.9	89.9	12.7	24.0
Alpine 1991	1	C	8.3	Wooded	21.2	ND	ND	12.4	100	ND	25.4
Frenchman Creek 1992	1	B	2.4	Wooded	17.3	ND	ND	3.7	99.9	12.5	14.5
	2	C	2.7	Meadow	16.8	ND	ND	0.8	96.8	23.3	32.1
	3	B	3.3	Wooded	17.7	ND	ND	0.6	100	9.0	51.5
	4	C	3.5	Meadow	11.6	ND	ND	0.2	95.7	28.5	76.0
	5	C	5.0	ND	17.4	ND	ND	0.1	94.7	38.0	12.9
Beaver Creek 2000	1	C	5.5	Meadow	41.5	ND	ND	1.3	84.6	15.0	14.3
	2	C4b	5.6	Meadow	67.9	19.1	ND	2.1	94.6	13.5	23.4
	3	B4	3.4	Meadow	45.2	48.0	ND	6.4	83.6	14.8	26.3

Key: ND = No Data Source: Forest Service, 2003b

The predominance of the stream was noted as flowing through meadow habitat (93.9 percent). The percent pool habitat ranged from a low of 7.0 in Reach 3 to a high of 73.7 in Reach 4. The percent run/glide habitat ranged from a low of 14.5 in Reach 4 to a high of 48.7 in Reach 3. The percent riffle habitat ranged from a low of 6.6 in Reach 5 to a high of 44.3 in Reach 3. The amount of large woody debris (LWD) per 100 meters ranged from zero in Reaches 3, 4, and 6, to a high of 12.6 in Reach 5. The two reaches classified as wooded (2 and 3), contained 9.2 and 0.0 pieces of LWD per 100 meters, respectively.

The number of pools per mile ranged from a low of 11.0 in Reach 3 to a high of 87.8 in Reach 6, but was higher than 56 in all reaches except Reach 3. The number of deep pools per mile was zero in Reaches 1, 2, 3, and 6, while Reaches 4 and 5 had 2.4 and 0.7, respectively. The number of large pools per mile was also low; ranging from zero in Reaches 2 and 3 to a high of 34.3 in Reach 4.

The lower reaches of Smiley Creek on private land are dewatered on a regular basis during the summer months from irrigation withdrawals. Ten rights to divert water from Smiley Creek for

various uses, with the largest being a right to divert 2.56 cfs for irrigation of pastureland near the community of Smiley Creek. Previous stream surveys have noted water diversions and hoses with pumps in the channel, primarily in the lower reaches. During August 1994, stream flow was measured at 3.0 cubic feet per second (cfs) in a lower portion of Smiley Creek and almost 9 cfs in an upstream reach, indicating that approximately two-thirds of the flow is diverted from the stream channel.

Diversions of water from the lower reaches of Smiley Creek may create a barrier to the upstream migration of anadromous and fluvial fish from the Salmon River. None of the diversions have fish screens installed and most of the water usage is for flood irrigation of pastureland.

IDFG redd count data indicates that adult Chinook salmon used Smiley Creek in the mid 1970s. Fifty-eight Chinook redds were found in 1972, 9 in 1973, 33 in 1977, and 123 in 1978 (IDFG 1979). The Forest Service documented Chinook salmon, steelhead trout, brook trout, sculpin, and mountain whitefish during their 1994 snorkel surveys (Forest Service 2003b). Chinook salmon and steelhead trout were restricted to Reaches 1 through 4 while brook trout were observed throughout Smiley Creek.

Chinook salmon were observed at various locations in Smiley Creek with snorkeling surveys in August of 1995 (IDFG unpublished data), indicating that the species is either present with a limited distribution or is only intermittently present when conditions are suitable for fish to ascend the watershed from the Salmon River. The abundance of both juvenile Chinook salmon and steelhead trout has been influenced by IDFG outplants from 1986 through 1995, since no Chinook have been observed in more recent surveys. Bull and cutthroat trout were also not observed during these surveys.

No bull trout were observed during the Forest Service survey in 1994 or the IDFG transect surveys from 1986 through 1995. Cutthroat trout were observed during the IDFG transect survey in 1994 only. Sockeye salmon are not known to have historically utilized Smiley Creek.

IDFG completed extensive electrofishing surveys (nine 100m transects) in Smiley Creek in the summer of 2004. Although previous surveys utilizing snorkeling observations found juvenile Chinook salmon in Smiley Creek in the 1990's, none were found at any site. No bull trout were found at any of the surveyed sites either. In every site sampled, brook trout were the dominant fish. A total of 425 brook trout were sampled from all but the uppermost site electrofished on Smiley Creek. Densities of fish sampled in the first pass of electrofishing ranged from 3.0-fish/100 m2 to 14.1-fish/100 m2. The high density and broad distribution of brook trout throughout Smiley Creek imply that this species has successfully out-competed native salmonids and may have eliminated or reduced bull trout numbers in this drainage. For these reasons bull trout are considered functioning at unacceptable risk for most biological WCIs.

Steelhead/rainbow trout were sampled from three of the nine sites electrofished. One specimen was sampled from each of the three sites for a total of three steelhead/rainbow trout from the entire watershed. Seven westslope cutthroat trout were sampled from one of the nine sites in the headwaters of Smiley Creek. The density of fish over 70 mm sampled in one pass of electrofishing in this site was 1.1-fish/100 m2. Due to low numbers of chinook, steelhead, and

westslope cutthroat found in recent surveys, each species is considered to be functioning at unacceptable risk for most biological WCIs.

Data from the hot summer of 1994 show water temperatures may compromise spawning or rearing. Again in 2004, temperatures at two locations low in the watershed recorded maximum 7-day average daily maximum water temperatures of approximately 20º C. The naturally wide, shrub-dominated glacial trough of Smiley Creek lacks conifer cover resulting in some natural heating. Management activities, mainly sheep grazing, may have exacerbated temperatures through reduced streamside vegetation in localized areas. Below, on private land, irrigation withdrawals may also contribute to elevated water temperatures during many summer days. For these reasons water temperature is considered functioning at unacceptable risk.

Bank slumping and tension fractures were noted during the stream survey. The surveyors noted that stable banks occur where willows line the banks and unstable banks occur where willows were absent. Unstable banks were occasionally attributed to beavers, but comments included "right bank trampled to mud for 6 meters due to sheep" and "bank has been significantly altered/trampled and cut back ~4 meters" (Forest Service 2003b). Hoof tracks, crushed banks, and trampled and compacted vegetation were noted in most reaches. Moss, algae, and water buttercup was very abundant in some sections.

Several of the side channels were dry during the survey period. Seeps were noted in Reach 5. Beaver activity (new and old) was evident throughout, but several of the dams were washed out. During field surveys in August 2003 by Sawtooth NF fisheries biologists, similar bank trampling as mentioned previously by the surveyors in 1994 was noted upstream and down stream from the corrals in Smiley Creek (Kenny 2004, personal communications). Trailing sheep to and from the Smiley Creek corrals along with bedding, grazing and stream crossing that accompanies the trailing has resulted in high vegetative use levels and bank slumping resulting in negative impacts to aquatic resources.

Additional data on streambank stability was obtained for Smiley Creek from October 7 through 22, 2003 (Forest Service 2003c). Point data from 1,000 observation data points along approximately 20,000 linear feet of stream was obtained at five sites along Smiley Creek after sheep grazed this area. Data obtained included type of vegetation, greenline bank condition, and other observations (Table: Fish 3-5). Vegetation type was categorized as willow, hydric grass/sedges (G/S), or upland. Greenline bank condition was categorized as stable, vertical and eroding, or non-vertical and eroding. The "other observations" category shown in Table Fish 3-5, includes undercut, bank detached, slumping, or cracked.

Based on the data presented above, approximately 75 percent of the stream bank within the surveyed reaches is stable. However, since hydric grass/sedge and upland areas are prone to detachment, slumping, and cracking, approximately 71 percent of the surveyed reaches are susceptible to future bank instability. Approximately 15 percent of the observed stream bank showed signs of recent sheep grazing impacts in the form of bank detachment, slumping, and cracking.

Table: Fish 3-5. Smiley Creek 2003 streambank stability survey results.										
	Greenline Bank Vegetation			Greenline Bank Condition			Other Observations			
	Willow	Hydric G/S	Upland	Stable	Vertical & Eroding	Non-Vertical and Eroding	Undercut	Bank Detached	Slumped	Cracked
Mean (%)	29	63	8	75	13	13	13	6	8	1
Range (%)	8 to 50	43 to 73	0 to 23	51 to 89	4 to 22	3 to 30	3 to 28	1 to 21	1 to 24	0 to 3

3.4.2.1.1.2 Alturas Lake Creek

Alturas Lake Creek is a 22.4-mile-long tributary to the upper Salmon River, 10.8 miles of which are within the Smiley Creek allotment. Alpine, Cabin, and Vat creeks, and Jake's and Eureka gulches are the only named tributaries in the allotment. Overall, an additional 51.8 miles of tributaries are associated with Alturas Lake Creek, 25.3 miles of which are within the allotment. Perkins Lake and Alturas Lake are located approximately mid-way up the basin, but both are outside of the allotment. For purposes of this discussion, Alturas Lake Creek was segmented into two sections. Upper Alturas Lake Creek is defined as that section of stream above Alturas Lake, while lower Alturas Lake Creek is the downstream section. This distinction is important due to variations in species use in that adfluvial bull trout and non-migratory sockeye salmon (kokanee) spawn primarily upstream of Lake Alturas, while spawning Chinook salmon likely utilize lower Alturas Lake Creek more frequently. The disparity in Chinook salmon use of the lower and upper reaches of Alturas Lake Creek is supported by IDFG redd count data that states "the majority (90 percent +) of all counts in this unit were in the first mile below Perkins Lake" (IDFG 1979).

All four federally listed species known to occur within the upper Salmon River are associated with Alturas Lake Creek. Bull trout, steelhead trout, westslope cutthroat trout, sockeye/kokanee salmon, Chinook salmon, mountain whitefish, brook trout, and sculpins utilize Alturas Lake Creek (Forest Service 2003a and b).

Within the SNRA, sockeye salmon are believed to have historically utilized Stanley, Alturas, Pettit, Yellowbelly, and Redfish lakes (Chapman *et al*. 1990). The Alturas Lake population was extirpated due to dewatering of Alturas Lake Creek during juvenile and adult migration (Chapman *et al*. 1990). Although the IDFG has planted sockeye fry in Alturas Lake, no adult sockeye salmon have returned to date. Redfish Lake contains the only remaining wild population.

In addition to the anadromous form of sockeye salmon, two additional life history forms of *O. nerka* are recognized. Kokanee commonly exist in landlocked and anadromous accessible waters and residual sockeye salmon (the nonmigratory form) associated with anadromous populations (Burgner 1991). Kokanee are reproductively isolated from anadromous populations where they occur together. Kokanee were observed in Alturas Lake Creek immediately upstream of Alturas Lake during the Forest Service stream survey (Forest Service 2003b). The

Forest Service comment reports generated from the habitat survey data states over 150 were noted in Reach 8 (immediately upstream of Alturas Lake). The IDFG reported observing 100 to 150 kokanee spawning in the first 0.5 miles of upper Alturas Lake Creek during their August 25, 1978, redd count survey (IDFG 1979).

Based on IDFG redd count data, adult Chinook salmon use in the mid 1970s of lower Alturas Lake Creek was as follows: 0 in 1972, 0 in 1973, 20 in 1977, and 27 in 1978 (IDFG 1979). Use of upper Alturas Lake Creek during this same time was as follows: 0 in 1972, 0 in 1973, 0 in 1977, and 3 in 1978 (IDFG 1979). During 1978, a high percentage of the adult Chinook salmon died prior to spawning and a water diversion was responsible for a significant loss of in-stream flow (IDFG 1979). Two adult Chinook salmon were observed in lower Alturas Lake Creek during a field visit conducted on August 26, 2003.

Bull trout were observed during the 1994 Forest Service habitat survey, including approximately 15 in a pool created by a beaver dam and 20 in a mid-channel scour pool created by LWD in Reach 8. Two of the larger bull trout were estimated to be between 15.7 and 19.7 inches long. Spawning activity by bull trout was noted in a pool tailout in Reach 8. The lack of flow upstream of the confluence of Alpine Creek likely resulted in bull trout and kokanee being confined to the lower 2.5 miles of stream.

A brook trout/bull trout hybrid was noted as paired with a bull trout. Recent research indicates that bull trout/brook trout F1 generation hybrids can reproduce, though less successfully than pure crosses between parent species (Markle 1992, Leary, et al. 1993, Kanda et al. 2002) Bull trout hybridization with brook trout is recognized as a major threat to the persistence of bull trout, largely as a result of population-scale wasted reproductive effort and genetic introgression.

IDFG has observed bull trout, Chinook and steelhead in transect monitoring conducted in 1987-1995 above the Alturas Lake. Sawtooth NRA reconnaissance surveys in 1979, 1997, and 2005 also observed large adfluvial bull trout in the upper reaches of the drainage, and cutthroat in Alpine Creek. Brook trout were also found in large numbers.

Electrofishing surveys in Cabin Creek in 2006 observed cutthroat throughout the drainage. Several rainbow trout and one juvenile Chinook near the mouth were also found, but no bull trout. A snorkel and electrofishing survey of Vat Creek in 2006 observed juvenile Chinook near the confluence with Alturas lake Creek. Brook trout were the most abundant salmonid in both streams. Based on the above surveys bull, steelhead, and chinook populations in Alturas, Cabin, and Vat Creeks are believed to be functioning at risk for most biological WCIs. Persistence and genetic integrity, however, for these species is considered to be functioning at unacceptable risk due to the presence of large number of brook trout and low returns of adult anadromous fish.

Thermographs from 2002 and 2005 recorded maximum 7-day average daily maximum water temperatures (MWMT) at or below 15º C above lake (functioning appropriate). Thermographs from 2001 - 2003 recorded MWMT in Alturas Lake Creek below the Lake as high as 25º C. Temperatures in Alturas Lake Creek below the lake are greatly influenced by surface heating from the lake. In addition, these valley bottom reaches are naturally wide, and shrub dominated, and more susceptible to solar influences. However, a past intensive use of public and private lands has likely exacerbated these conditions, which is why temperatures below the lake are

considered functioning at risk. Thermographs in Cabin Creek in 2001 recorded maximum 7-day average daily maximum water temperatures of only 12° C (functioning appropriately).

Lower Alturas Lake Creek is 8.4 miles long with 2.7 miles in the allotment and was surveyed in 1991 by the Forest Service (Forest Service 2003b). It was divided into eight reaches. The results of the 1991 survey are present above in Table: Fish 3-4. In summary, the entire length of lower Alturas Creek was a Rosgen C stream type.

Upper Alturas Lake Creek is 14.0 miles long with 8.1 miles within the allotment and was surveyed by the Forest Service in 1994 (Forest Service 2003b). Upper Alturas Lake Creek was segmented into three reaches (8 through 10) as a continuation of the survey of lower Alturas Lake Creek conducted in 1991. Field survey data was not obtained for Reach 9 because it was dry during the 1994 survey season. Reach 8 began at the inlet to Alturas Lake and ended at the confluence with Alpine Creek. Reach 9 began at the confluence of Alpine Creek and continued approximately 0.6-mile up the dry stream channel. Reach 10 began approximately 0.6-mile upstream of the confluence with Alpine Creek and ended at the confluence with Jake's Gulch. The results of the upper Alturas Lake Creek survey are presented above in Table: Fish 3-4. Percent pools in Reaches 8 and 10 were 77.7 and 56.2, while the number of LWD per 100 meters was 10.8 and 10.9, respectively.

Alpine Creek is a 4.5-mile-long tributary to upper Alturas Lake Creek that originates in the Sawtooth Wilderness. However, only the lower 1.0 mile is within the Smiley Creek allotment. Alpine Creek was surveyed on June 30, 1991, starting at its confluence with Alturas Lake Creek and ending 0.5 mile upstream. The results of the stream habitat survey are presented above in Table: Fish 3-4. In summary, 25.7 percent was pool habitat, 48.7 percent run habitat, 9.0 percent glide habitat, and 16.7 percent low-gradient riffle habitat. The cover type was noted as wooded and LWD was determined to occur at a rate of 12.4 pieces per 100 meters.

As mentioned above, the stream channel associated with Reach 9 was dry upstream of where Alpine Creek enters Alturas Lake Creek. LWD was very abundant in some habitat units with at least one tree being approximately 3.3 feet wide. Vertical and cut banks in several of the habitat units were noted as actively eroding. Erosion and trampling was noted where an access road reaches the stream, but floodwaters were also reported as a cause of some unstable banks.

3.4.2.1.1.3 Frenchman Creek

Frenchman Creek is a 7.5-mile-long tributary to the upper Salmon River. Approximately 5.6 miles of Frenchman Creek was surveyed in 1992. The results of the 1992 stream survey at Frenchman Creek are presented above in Table: Fish 3-4. In summary, Frenchman Creek oscillated between a Rosgen C and B stream type, and between the wooded and meadow cover types. The number of single pieces of LWD per 100 meters ranged from a low of 0.1 in Reach 5 to a high of 3.7 in Reach 1. During a redd count survey conducted by the IDFG, surveyors noted that beaver dams and ponds inundated most of the potential spawning habitat between river miles 3 and 4, and overall anadromous salmonid habitat was poor (IDFG 1979).

Based on IDFG redd count data, adult Chinook salmon use during the mid 1970s of Frenchman Creek was as follows: 12 in 1972, 8 in 1973, 6 in 1977, and 0 in 1978 (IDFG 1979). The IDFG

surveyed Frenchman Creek from 1986 through 1995 and observed a few bull trout and cutthroat trout. The Forest Service conducted snorkel surveys of select habitat units in Frenchman Creek during 1992 and 1994 (Forest Service 2003b). Numerous juvenile Chinook salmon were observed during these surveys that were attributed to IDFG adult outplants during the previous season. No bull trout or cutthroat were observed. Electrofishing surveys in 2005 in Frenchman Creek detected a few steelhead lower in the drainage and a few cutthroat in headwater reaches, but no Chinook or bull trout. Brook trout were the dominate species in all seven 100m sites in Frenchman. Due to low numbers of chinook, steelhead, and westslope cutthroat found in recent surveys, each species is considered to be functioning at unacceptable risk for most biological WCIs.

A thermograph in the Salmon River within Frenchman Creek during the very warm summer of 1994 recorded temperatures exceeding 15°C for several weeks. Maximum temperatures also exceeded bull trout spawning criteria into October. The wide, shrub dominated, valley bottom is naturally susceptible to such heating; however, historic uses (recreation, grazing, timber, mining, roads) of streamside vegetation has likely exacerbated these conditions. For this reason water temperature is believed to be functioning at risk according to the criteria in Appendix B of the forest plan. Thermographs in 2004 and 2005 generally recorded maximum 7-day average daily maximum water temperatures of approximately 15º C throughout Frenchman Creek. The one exception occurred within the Salmon River at its confluence with Frenchman Creek, where the MWMT was recorded at 18º C.

3.4.2.1.1.4 Beaver Creek

Beaver Creek is a 10.8-mile-long tributary to the upper Salmon River, 9.8 miles of which are within the allotment. Beaver Creek has an additional 11.2 miles of unnamed tributaries. Little Beaver Creek is a 4.2-mile-long tributary with an additional 1.5 miles of unnamed tributaries. Approximately 1.24 miles of Beaver Creek was surveyed and segmented into 3 reaches during 2000 starting at its confluence with the upper Salmon River. The results of the 2000 Beaver Creek stream survey are presented above in Table: Fish 3-4. In summary, stream habitat was degraded throughout but started to improve slightly in Reach 3. The percent pool habitat ranged from a low of 9.4 in Reach 2 to a high of 36.0 in Reach 1. Deep pools were not present in any surveyed reach and only a few large pools were noted in Reach 3. The number of single pieces of LWD per 100 meters ranged from a low of 1.3 in Reach 1 to a high of 6.4 in Reach 3.

The IDFG reported three Chinook redds two miles above its confluence with the Salmon River, but no live or dead Chinook were observed (IDFG 1979). IDFG observed numerous Chinook and steelhead, but generally neither cutthroat or bull trout, during transect monitoring conducted in 1986 through 1995. They observed a total of 20 bull trout in Beaver Creek in two of these seven years, and only one cutthroat. Chinook and steelhead use of Beaver Creek has been influenced in some years by IDFG research outplants, 1986 - 1995. Natural use of Beaver Creek by these species may be very infrequent. The Forest Service conducted snorkel surveys in 2000 within the segments passing through private land near the mouth observing only steelhead/rainbow and brook trout. In 2003, IDFG electrofishing surveys noted one chinook in the lower section, numerous rainbow trout in the lower and middle sections, numerous cutthroat in the headwaters, and numerous brook trout distributed throughout the drainage. Sockeye did

not historically occupy habitats within Beaver Creek. Fish surveys have not been completed in Little Beaver Creek.

Based on the above surveys steelhead and chinook populations are believed to be functioning at risk for most biological WCIs. Bull and westslope cutthroat populations are functioning at unacceptable risk for most indicators due to the presence of large number of brook trout.

In 2000 a thermograph recorded water temperatures during the summer months just above the mouth on Beaver Creek. Temperatures routinely peaked between 20° and 24°C for a six week period. Upstream of the mouth on private land Beaver Creek was dewatered during this period. Water temperatures within the National Forest still further upstream was generally 6° to 8°C cooler than at the mouth. Thermographs from 2001 recorded maximum 7-day average daily maximum water temperatures (MWMT) of 18º C above all diversions with MWMT of 20-21º C downstream of diversions (functioning at risk). It is possible that during some summer periods water temperatures may exceed the standard upstream on public land due to the many naturally wide, shrub-dominated, segments. However, on the majority of irrigation rights from Beaver Creek have been leased to the State of Idaho's Water Supply Bank for the period 2004 to 2015. Cattle grazing of these same private lands have been substantially reduced to dry land pasture of only a few animals. These changes may promote conditions that improve water temperatures.

3.4.2.1.2 Fisher Creek Allotment

The Fisher Creek allotment includes 7,494 acres immediately southeast of Obsidian, Idaho (Figure 1-1 Vicinity Map). Fisher Creek is a 9.67-mile-long tributary to the upper Salmon River. Pass Creek, the only named tributary, is 1.69 miles long (Table: Fish 3-6). Fisher Creek has an additional 17.42 miles of unnamed tributaries and Pass Creek has an additional 0.66-mile of unnamed tributaries. The lower 1.61 miles of Fisher Creek where it flows through private land is not within the allotment.

Table: Fish 3-6. Fisher Creek allotment stream composition.

Stream Name	Tributary to	Total Stream Length	Length within Allotment	Miles Unnamed Tribs. (total/within Allotment)
Fisher Creek	Upper Salmon River	9.7 miles	8.1 miles	17.4/16.3
Pass Creek	Fisher Creek	1.7 miles	1.7 miles	0.7/0.7
Total		**11.4 miles**	**9.8 miles**	**18.1/17.0**

Source: GEO/Graphics, 2003.

Approximately 1.12 miles of lower Fisher Creek was surveyed during 1996 (Forest Service 2003b). This section of stream was segmented into one reach. Reach 1 began approximately 100 to 200 feet downstream of the Forest Service boundary and extended upstream to the confluence of Pass Creek. In summary, 65.9 percent of the surveyed reach was pool habitat. The number of single pieces of LWD per 100 meters was 10.0. The mean width to depth ratio was 11.8.

Snorkel and electrofishing surveys since 1996 in Fisher Creek on public lands have routinely observed cutthroat and brook trout exclusively (Forest Service 2003a and b). In 2006 only brook and westslope cutthroat trout were observed in four 100m electrofishing sites. No other

salmonid species are known to utilize Fisher Creek, nor is any substantial improvement anticipated due to poor habitat access to the Salmon River. Private irrigation diversions on both public and private land dewater Fisher Creek for the last mile seasonally during the summer irrigation season in nearly all years. At least one road culvert near the mouth is also a barrier to fish moving upstream from the Salmon River. Sockeye salmon never historically utilized Fisher Creek (Forest Service 2003a). Based on the above information all native populations are believed to be functioning at unacceptable risk.

Thermographs from 2001 and 2004 recorded maximum 7-day average daily maximum water temperatures (MWMT) between 14º C and 17° C at 3 locations in the lower watershed above all diversions on public lands. These conditions are believed to be near natural since Fisher Creek passes through patchy conditions of both forest and open shrub areas upstream. Following the 2005 Valley the Valley Road Fire, the MWMT in 2006 was 16° C, consistent with pre-fire conditions. No thermograph data is available below diversions, since this segment is typically dewatered during the irrigation season.

3.7 Vegetation

3.7.1.2 Riparian Vegetation

Section 3.7.1.2 "Riparian Vegetation" is a new section and not found in the North Sheep FEIS.

Riparian vegetation is dominated by a variety of species, age classes, and structures, including deciduous trees, willows, alders, sedges, and hydric grasses, depending on stream substrate, gradient, elevation, soil-hydrologic, and disturbance processes. Riparian areas have their own internal disturbance processes that influence vegetative dynamics, with an almost continual readjustment in successional stages in many areas. Riparian vegetation is also influenced by processes in the uplands, as well as by those upstream in the watershed.

Three of the riparian types identified in Appendix A of the Sawtooth Forest Plan (Vol. 2) occur in or near the four allotments addressed in this document. These include the riverine, shrub, and herbaceous riparian types. Descriptions of these types, based on descriptions in Appendix A of the Forest Plan, are provided below. A fourth type, deciduous riparian, was identified in the Forest Plan, but since it generally occurs below 5,500 feet and all the allotments are above this elevation, it is not included in this analysis.

Riverine Riparian. This cover type consists of vegetative communities dominated by conifer species and shrubs. The primary conifers are subalpine fir, Engelmann spruce, lodgepole pine, and Douglas fir, with some aspen. Other trees and shrubs include Rocky Mountain maple, serviceberry, chokecherry, thinleaf alder, currants, and several willow species. These communities generally occur on steep slopes and occupy edges of riparian zones with A and B stream channel types (based on Rosgen channel classification protocol). Dense timber stand and large woody debris (fallen dead timber), especially in lodgepole dominated areas, on the North Sheep allotments create barriers to livestock access. These riparian communities are generally protected from grazing impacts. Observations made during allotment inspections, evaluation of

riparian conservation areas, and monitoring indicate that this cover type is predominantly in late seral condition. Lodgepole pine densities on some of these sites have resulted in loss of some significant riparian plant communities, especially understory species important for providing for bank stability. These sites are often in mid-seral condition. While these lodgepole stands are generally too dense to be impacted by livestock grazing, these communities will probably remain in mid-seral condition until stand density is reduced through fire, disease, etc. It should be noted that streambank conditions are generally stable and system stability is enhanced by the large amounts of large woody debris found in these sites.

Shrub Riparian. This cover type is dominated by willow species. Primary associated tree and shrub species include a variety of willow species, cottonwoods, swamp birch, thinleaf alder, Rocky Mountain maple, shrubby cinquefoil, and chokecherry. Grasses and forbs include hydric sedges and rushes, tufted hairgrass, geranium, louseworts, and American bistort. This type is found in mid to upper elevations in broad wet meadows and alluvial terraces on relatively low gradient Rosgen B and C channel types . These riparian plant communities typically exhibit heavy stands of willows and other woody species along the streambanks that are barriers to livestock access. These heavy stands protect the streambanks from physical damage from livestock and other herbivores and provide important structure needed for resilient stable streambanks. This cover type intermixed with the herbaceous riparian cover type form a mosaic of riparian plant communities associated with beaver ponds. Wet boggy conditions in these complexes provide additional protection from grazing impacts to streambanks. Loss of beavers and beaver ponds in some drainages has resulted in lowering of water tables and corresponding reductions in this mosaic of riparian plant communities. Additionally, historic heavy grazing has impacted this community type significantly in some locations resulting in a significant reduction or loss of willows and other woody species with a corresponding reduction in bank stability. Observations made during allotment inspections, evaluation of riparian conservation areas, and monitoring indicates that the majority of this cover type is in late seral condition.

Herbaceous Riparian. This cover type is typically found in mountain meadows where soil moisture is abundant throughout the growing season. Principle species include sedges, woodrush, reedgrass, pinegrass, timothy, bluegrass, tufted hairgrass, saxifrage, and fireweed. Deep-rooted hydric sedge, rush and grass species provide stability and resiliency to streambanks in riparian meadow ecosystems. This type has a wide range of occurrence, and is typically found in broad flat riparian meadows along Rosgen C channel types with low gradients (less than 3 percent). Heavy historic grazing and lowering of water tables have resulted in loss of this riparian plant community in some locations with resultant loss or reductions in streambank stability. These communities are often interspersed with shrub riparian and riverine riparian plant communities. Where this occurs, they often are selected for dispersed camping sites and receive heavy recreation use. Dispersed recreation impacts to riparian vegetation and streambank stability from recreation livestock, ORV use, and other camping uses have been and continue to be a major impact to these plant communities. Observations made during allotment inspections, evaluation of riparian conservation areas, and monitoring indicates that the majority of this cover type is in mid-seral to late seral condition. Specific sites within this cover type continue to receive grazing impacts that exceed Forest Plan standards. These sites currently

receive significant management emphasis in AOIs. Monitoring of grazing impacts and condition in riparian plant communities on the allotments is focused on these sites.

In addition to the riparian areas that are associated with the streams, there are other wetlands associated with sites where groundwater discharge occurs or where surface water collects and remains for prolonged periods. Wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, wet meadows, seeps, and similar areas. These lands are transitional between terrestrial and aquatic systems. Vegetative species found in wetlands are heavily influenced by local site conditions. Three general classes of wetlands occur on the SNF:

- Marshes. This cover type is permanently or semi-permanently flooded and dominated by hydric species located adjacent to small streams, beaver ponds, lakes, and meadows. Sedges are the most common species. This type usually occurs around the 7,000-foot elevation level. Sites are dominated or co-dominated by bulrushes, cattails, woodrushes, or sedges.

- Bogs, Fens, and Peatlands. These are wetlands that typically have sub-irrigated cold waters sources. Peatlands are generally defined as wetlands with waterlogged substrates and at least 30 centimeters of peat accumulation (Moseley et al. 1994). The vegetation is often dense and dominated with low-growing perennial herbs (Skinner and Pavlick 1994).

- Wet Meadows and Seeps. These are wet openings that contain grasses, sedges, rushes and herbaceous forbs, and in some locations willows, that thrive under saturated moist conditions. These habitats can occur on a variety of substrates and may be surrounded by grasslands, forests, woodlands, or shrublands (Skinner and Pavlick 1994).

Several riparian areas have been identified as specific areas of concern with respect to current sheep grazing impacts. They include the open meadows along Smiley Creek, Baker Creek and the creeks coming off of the Boulder Face. Aspen stands adjacent to streams or other water sources that are favored as bedding grounds have also been noted as areas of concern. Areas with wetland concerns include the hill-side springs in the East Fork of Baker Creek, the wyethia-dominated meadows in Baker Creek and Quadrant/Dooley Creek areas, and the mouth of the East Fork of the North Fork Big Wood River.

3.7.1.2.1 Desired Condition – Riparian Vegetation

Appendix B (Vol. 2) of the Sawtooth Forest Plan summarizes direction for this community. In general terms, it has defined the desired condition as one in which riparian vegetation is dominated by a variety of species, age classes, and structures including coniferous and deciduous trees, willows, alders, sedges, and hydric grasses, depending on stream substrate, gradient, elevation, soil-hydrologic, and disturbance processes. Riparian areas have their own disturbance processes that influence vegetation dynamics, with an almost continual readjustment in the mosaic or mixture of plant communities in various successional stages in many areas. Riparian vegetation is also influenced by processes in the uplands, as well as by those upstream in the watershed.

Specifically, the Forest Plan addresses the desired condition for riverine riparian types, which include coniferous potential vegetation, by assuming that the same desired conditions for adjacent forested potential vegetation groups (PVG) also exists in the riverine riparian communities. The desired condition for the forested PVGs has been established in the Forest Plan based on the historical range of variability for each PVG. Within the four allotments, most of the riparian occurs within PVG 4 (cool, dry Douglas-fir), PVG 7 (warm, dry subalpine fir), and PVG 10 (persistent lodgepole). The Forest Plan FEIS (USDA, 2003b) assessed the current condition of the forested riparian types in terms of the percent of the RCAs that are dominated by the trees in the large size class for the PVG and in terms of distribution of canopy closure between the low, medium and high closure classes. It found that the large tree component was low in PVG 4, but there were only small variances in PVG 7 and PVG 10 from the desired condition. For canopy closure, PVG 4 and PVG 7 did not meet the desired condition because they had more acres in the denser canopy closure classes than they should. However, PVG 10 met the desired condition.

The Forest Plan indicates that the desired condition should specify that riparian areas are functioning appropriately and/or have improving trends in vegetative composition, age class, structure, and vigor. The Forest Plan does not establish specific desired conditions for the shrub and herbaceous riparian types. Because there is a high variability in site conditions in the individual riparian communities, the Forest Plan directs that site-specific desired conditions should be established on a project basis for these areas. Desired conditions for these riparian areas are specified in the AMP for the allotments and are included in the monitoring that is central to adaptive management. Desired conditions definitions for these plant communities are defined in the AMP for each of the four allotments consistent with Forest protocol (Ririe, W.J., 2005).

Riparian systems naturally have a high degree of variability as described in the Natural Conditions Database for Central Idaho (Overton, C.K., et al. 1995). While desired conditions for riparian vegetation may be set for an allotment or drainage within an allotment, not all sites within that area would be expected to be able to achieve that condition. Several impacts to achieving natural conditions in addition to impacts from livestock grazing exist on the allotment. They include high natural levels of sediment in the stream systems; impacts from snow slides, high intensity summer storms, and high intensity spring runoff events; impacts from dispersed recreation and camping; impacts from road systems; impacts from past mining disturbance; and changing density of lodgepole pine stands. If possible, the locations for monitoring the effects of grazing on riparian vegetation desired conditions should be established at sites where these and other non-grazing impacts are negligible.

Thus, desired conditions for riparian vegetation are set in the AMPs (Appendix C) as late seral condition, with expected variations. This is measured in terms of the composition of expected riparian vegetation that would be found in the plant community versus the amount actually found. (Winward, Alma H. 2000)

3.8 Wildlife Resources

3.8.2.3 Management Indicator Species

Two terrestrial wildlife species, the pileated woodpecker (*Dryocopus pileatus*) and greater sage-grouse (*Centrocercus urphasianus*), are designated in the Forest Plan as Management Indicator Species (MIS) because their populations are believed to indicate the effects of management activities. By monitoring and assessing habitat conditions of these species, managers can estimate effects on other species within similar habitats.

New Sections

Section 3.8.2.3.0 –MIS Capability Analysis per 36 CFR 219.20

Section 3.8.2.3.1.1 Pileated Woodpecker Capability Analysis per 36 CFR 219.20

Section 3.8.2.3.2 Greater Sage-Grouse Capability Analysis per 36 CFR 219.20

These are all new sections and not found in the original North Sheep FEIS.

They evaluate and compare the information found in the Forest Plan MIS Capability Analysis relative to the site-specific analysis found in the North Sheep FEIS.

3.8.2.3.0 –MIS Capability Analysis (36 CFR 219.20)

The Boise, Payette, and Sawtooth National Forests prepared a Supplement to the July 2003 Final Environmental Impact Statement for the Southwest Idaho Ecogroup Revised Forest Plans. This supplement is commonly known as the MIS Capability Supplement (USDA 2008a). The Final MIS Capability Supplement was released to the public in January, 2008. The information found in the MIS Capability Supplement is an important foundation for the discussion on MIS that follows.

In accordance with 36 CFR 219.20, the MIS Capability Supplement identifies capable MIS habitat by analyzing those lands identified as suitable for livestock grazing through the Forest Planning process to determine their capability for producing suitable food and cover for terrestrial MIS. It also includes a determination of those MIS capable lands that are in less than satisfactory condition, and the applicable Forest Plan direction for restoration of those lands. (MIS Capability Supplement, p. 1) For an MIS to be considered in detail in the MIS Capability Supplement capability analysis, the following criteria had to be met:

1) MIS Source Habitat must occur within open domestic livestock grazing allotments.
2) Domestic livestock grazing must pose a direct or indirect effect that either:
    a. has measurably contributed to the less than satisfactory condition of capable MIS source habitat within an open allotment, and/or
    b. measurably threatens the ability to restore capable source habitat.

As described below, both criteria were met for the Greater sage-grouse but not for pileated woodpecker.

3.8.2.3.1.1 Pileated Woodpecker Capability Analysis

As described in the MIS Capability Supplement, pileated woodpecker habitat does occur within open allotments within the Sawtooth, Payette, and Boise National Forests. However, analysis of the potential effects of livestock grazing on pileated woodpecker habitat found that livestock impacts have not measurably contributed to the less than satisfactory condition of pileated woodpecker habitat.

> The term "Capable MIS Habitat" can mean different things to different audiences.
>
> In this case, the term "Capable MIS Habitat" is used as defined in 36 CFR 219.20.

Impacts to pileated woodpecker habitat associated with livestock grazing are incidental and limited to localized areas. Livestock grazing has little effect on pileated woodpeckers because higher tree densities found in the potential vegetation groups that provide pileated habitat restrict livestock travel and are therefore used infrequently (MIS Capability Supplement, p. 7-8).

These findings are consistent with section 3.8.2.3.1 of the North Sheep FEIS (p. 3-90) which found that, while pileated woodpeckers have been observed in all four North Sheep allotments, livestock grazing generally has not impacted coniferous forest used by pileated woodpeckers. The North Sheep FEIS did identify localized impacts which have contributed to the poor condition of some aspen stands in the forest as a result of grazing in the North Sheep Allotments. (North Sheep FEIS p. 3-90)

The MIS Capability Supplement did not identify capable MIS habitat for pileated woodpecker, nor did it identify lands in less than satisfactory condition as a result of livestock grazing for pileated woodpecker. Given this, there will be no further consideration of pileated woodpecker relative to the requirements of 36 CFR 219.20 in this Supplement.

3.8.2.3.1.2 Greater sage-grouse Capability Analysis

MIS Capable Habitat for Greater sage-grouse

The first component of the 36 CFR 219.20 requirements relative to MIS is the identification of those grazing lands capable of producing habitat for MIS. The MIS Capability Supplement found that 60 of the 64 watersheds that comprise the Sawtooth National Forest historically provided habitat for the Greater sage-grouse. Of the 60 watersheds that provided habitat, all have open grazing allotments and are identified as providing MIS capable habitat for Greater sage-grouse (MIS Supplement p. 12-13). All four North Sheep allotments fall within watersheds identified in the MIS Capability Supplement as having capable MIS habitat for the Greater sage-grouse.

According to the MIS Capability Supplement, the watersheds that the North Sheep allotments fall within contain greater than 0% but less than 25% of the total watershed acres in capable Greater sage-grouse source habitat (MIS Capability Supplement, Figure 1, p.13,). This is consistent with local occurrence data and the findings in section 3.8.2.3.2 of the North Sheep FEIS (p. 3-90 – 3-91) which state that "sagebrush habitat is limited in these allotments, comprising less than 12 percent of the vegetation." Table Wildlife 3-1 displays the acres of sage-grouse source habitat within the North Sheep project area by allotment. This is further validated by the species range map in relation to the Sawtooth National Forest for greater sage-grouse

(Marcot et al. 2004). Figure: Wildlife 3-1, below displays the North Sheep Allotments in relation to capable MIS habitat.

Figure Wildlife 3-1. Greater Sage-grouse Capable Habitat Within the North Sheep Allotments

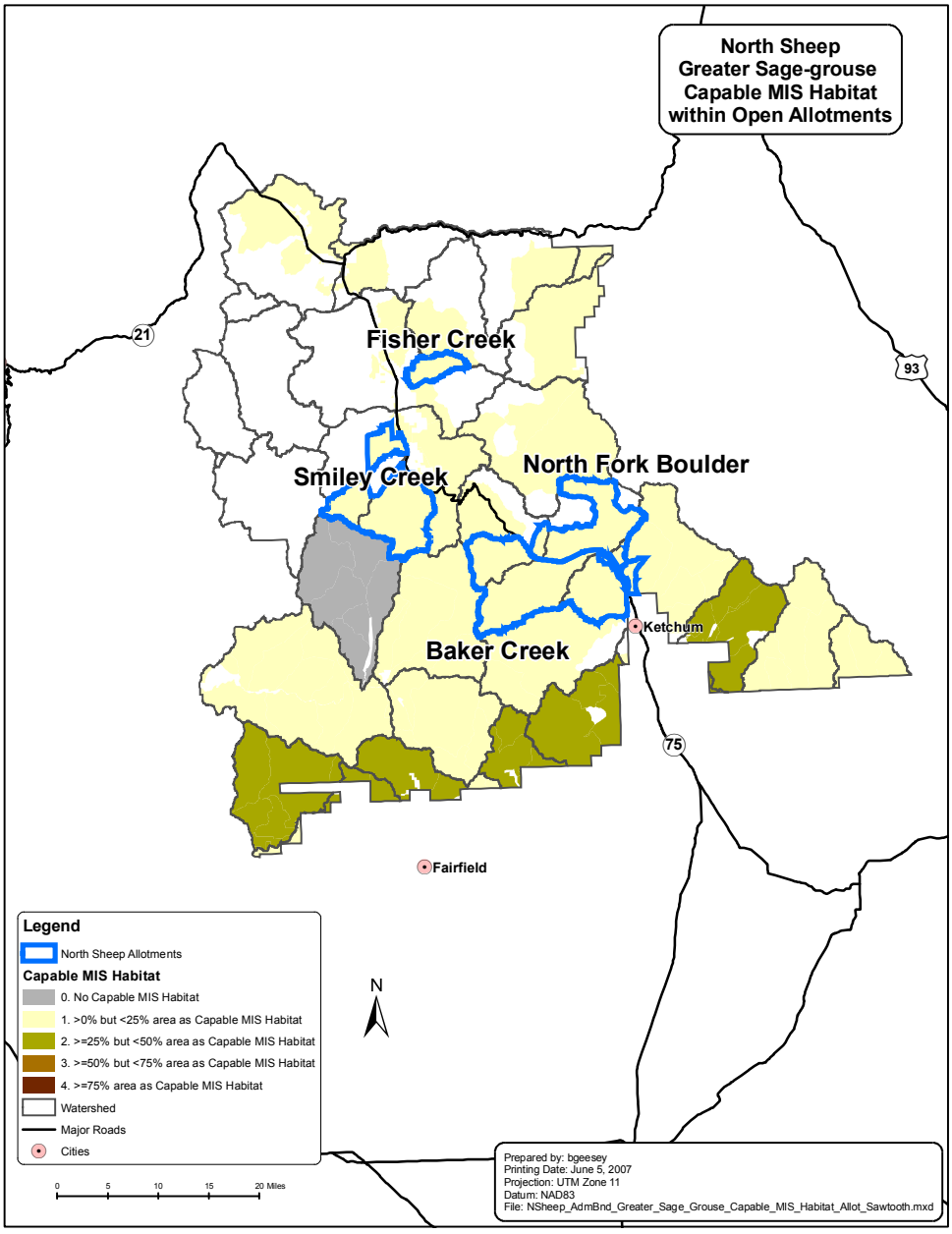


Table: Wildlife 3-1. Acres of Greater Sage-grouse Source Habitat within the North Sheep Project Area Livestock Grazing Allotments.

Allotment	Total Allotment Acres	Acres sage-grouse source habitat by allotment	Percent of Allotment Providing sage-grouse habitat
Baker Creek	63,561	3,894.3	5%
Fisher Creek	7,494	803.9	11%
North Fork Boulder	34,084	4,656.1	14%
Smiley Creek	42,084	1,851.8	4%
Grand Total	147,213	11,206.2	8%

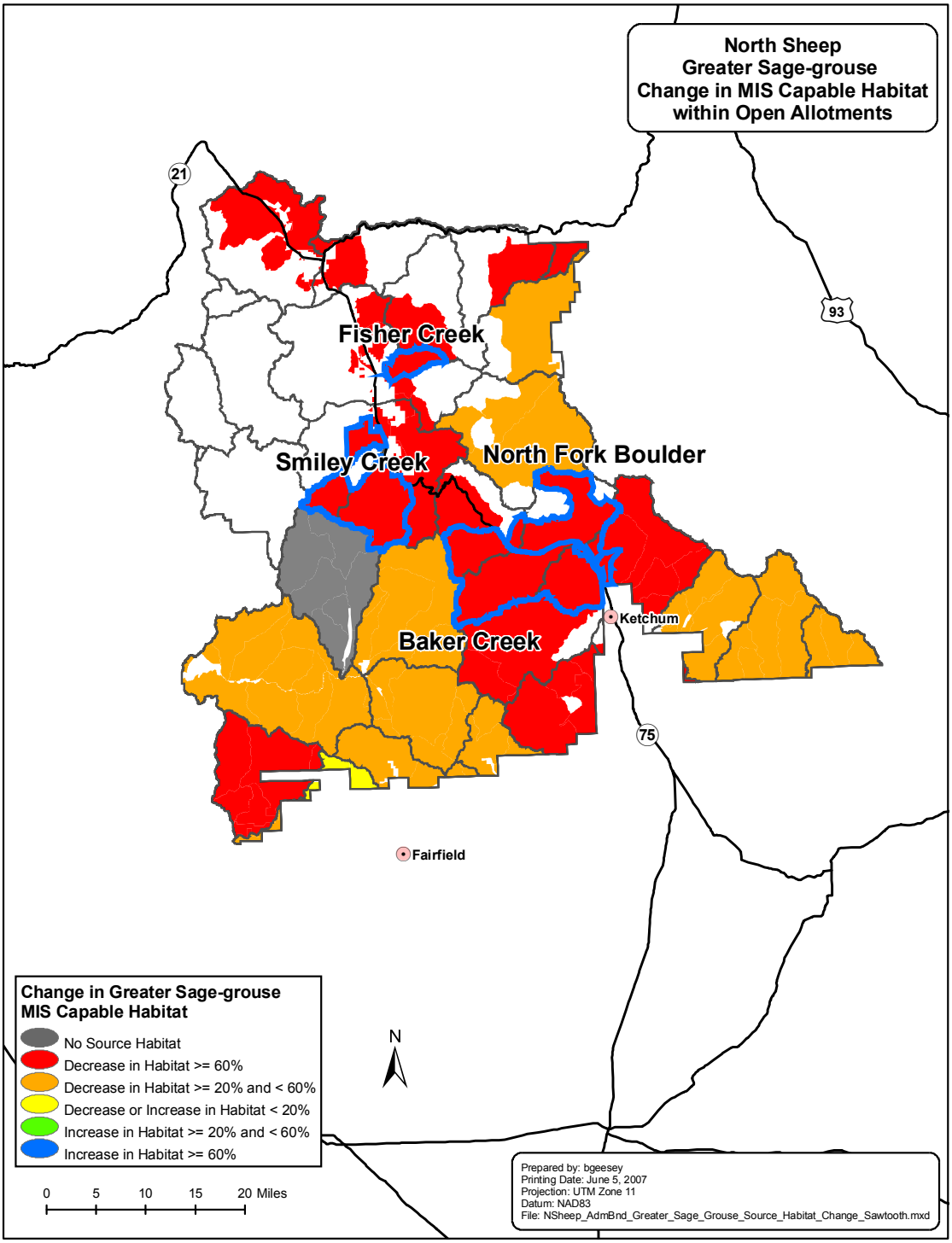
Lands in Less Than Satisfactory Condition for Greater sage-grouse

The second component of the 36 CFR 219.20 requirements relative to MIS is the identification of lands in less than satisfactory condition and actions necessary for restoration of those lands.

As displayed in Figure: Wildlife 3-2 below, the MIS Capability Supplement identifies the watersheds that the four allotments fall within as being in less than satisfactory condition, having experienced a 60% or greater decrease in MIS capable habitat from historical conditions. This is consistent with the findings in section 3.8.2.3.2 of the North Sheep FEIS (p. 3-91) that within the allotments, species composition of the vegetation has been simplified resulting in the reduction of the quality and quantity of forbs for food as well as a reduction in escape cover.

As described in the MIS Capability Supplement, the primary risk factor to Greater sage-grouse source habitats is the continued loss of sagebrush dominated desert shrub habitats through incompatible human land uses and degradation of desert shrub habitat quality through exotic weed invasions and other factors. The MIS Capability Supplement includes a ranking of the range-wide threats to sage-grouse habitat, of which invasive species is listed as the greatest threat, with wildfire and grazing listed as the 3rd and 5th most important threats respectively. The MIS Capability Supplement further describes that the shift from historic to current percentages of cover type on the Forest is believed to be, in order of descending importance, the result of: 1) the suppression wildfire for several decades; 2) historic grazing impacts; and 3) the seeding of introduced grasses for site stabilization or forage production. This is consistent with the findings in section 3.8.2.3.2 of the North Sheep FEIS, which attributes terraced slopes, pedestaling of shrubs, reduced forb cover and bare patches throughout portions of the allotment as evidence of past overgrazing of sagebrush habitats; and section 3.7.1.4.3 which describes that, in addition to effects from historic livestock grazing, decreased fire frequency as a result of human interruption of natural fire cycles, combined with insufficient post-fire recovery periods likely account for the imbalance between canopy cover and classes of sagebrush.

Figure Wildlife 3-2. Change in MIS Capable Habitat on the North Sheep Allotments



While the MIS Capability Supplement does identify that capable MIS habitat within the four

North Sheep allotments is in less than satisfactory condition, none of the allotments fall within watersheds identified as being a high priority for restoration in the short-term. To be considered as a high priority for restoration in the short-term, the watersheds had to have been identified as:

- High priority watersheds in the Conservation Plan for the Greater sage-grouse in Idaho 2006 (Sage-grouse Conservation Plan);

In addition to being identified as a "high priority watershed", one of the following two elements must also be present:

- ≥ 50% of the total watershed acres had to have been identified as capable MIS habitat; and the watersheds had to have a high susceptibility for noxious weeds and/or
- ≥50% suitable rangeland coincident with capable MIS habitat (MIS Supplement pg 23-25).

Because none of the allotments fall within high priority watersheds in the Sage-grouse Conservation Plan or provide ≥50% of the total watershed acreages as capable MIS habitat, they were not considered a high priority for restoration in the short-term.

The identification of priority is based on the analysis in the MIS Capability Supplement which identifies the highest priority watersheds for restoration in the short-term. Relative to the assignment of priorities for treatment, without the establishment of some type of priority, restoration efforts, which are needed throughout the Forest, could be diluted across such a large area that it minimizes any real progress toward restoring degraded habitat conditions in those places where the most benefit to the species could be achieved. The prioritization of areas requiring restoration is appropriate because it allows the Forest to focus resources on the areas that need restoration the most and will provide the best restoration benefit to the Greater sage-grouse habitat. The MIS Capability Supplement does specifically recognize that not all areas where Greater sage-grouse occur on the Forest lie within a Greater sage-grouse planning area (MIS Capability Supplement, p. 38). As described in the MIS Capability Supplement, watersheds within the range of the Greater sage-grouse where source habitat has declined by greater than 60%, and that are not encompassed by a Greater sage-grouse planning area, were also identified as a high priority for restoration (MIS Capability Supplement, p.39).

Sawtooth Forest Plan Direction Addressing Restoration of Lands in Less Than Satisfactory Condition

Although the four allotments are not considered a high priority for restoration in the short-term, that does not mean that restoration actions aren't occurring. To address concerns over declining habitat conditions, management direction in the form of Forest-wide and Management Area goals, objectives, standards and guides was developed as part of the Forest Plan.

The Sawtooth Forest Plan contains considerable management direction, both Forest-wide and Management Area specific, relative to livestock grazing and restoration of vegetative communities including sagebrush cover types. Both the MIS Capability Supplement and the North Sheep FEIS recognize that with proper management, livestock grazing should maintain or

minimally impact sagebrush communities (North Sheep FEIS p. 4-51; MIS Capability Supplement p. 23).

Following is a list of some of the more applicable management direction relative to proper livestock management and the restoration of lands in less than satisfactory condition:

Forest-wide direction applicable to all four allotments

Rangeland Resources Direction:

- **RAST01 -** Maximum forage utilization of representative areas within each pasture shall not exceed the values shown at the end of growing season. Variation in utilization standards in order to achieve specific vegetative management objectives shall occur with a site-specific or project-level decision according to direction in FSM 1922.5.
  a) Riparian Areas: Maximum 45 percent use or retain a minimum 4-inch stubble height of hydric greenline species, whichever occurs first.
  b) Upland Vegetative Cover Types: Early season or season long pastures – 40 percent use. Vegetative slow growth, after seed ripe conditions, or late season pastures – 50 percent use.
- **RAST06** - Only open or loose sheep herding will be practiced, except where site-specific vegetation management (e.g., noxious weed control or reforestation) is needed and has been prescribed.
- **RAST07 -** Only annual once-over sheep grazing will be allowed, with the exception of designated sheep driveways, travel routes, or where specifically authorized.
- **RAGU09** - Season-long grazing practices should be discontinued where they preclude restoration of upland or riparian vegetation communities

Wildlife Resources Direction

- **Standard: WIST02 -** Design and implement projects within occupied habitats of Sensitive species to help prevent them from becoming listed. Use Forest Service-approved portions of Conservation Strategies and Agreements, as appropriate, in the management of Sensitive species habitat to keep management actions from contributing to a trend toward listing for these species.

Vegetation Direction

- **VEGO01** - Maintain or restore desired plant community components, including species composition, size classes, canopy closures, structure, snags, and coarse woody debris as described in [Forest Plan] Appendix A.
- **VEGO02**- Maintain or restore vegetative conditions as described in [Forest Plan] Appendix A to provide for ecological processes, including disturbance regimes, soil-hydrological processes, nutrient cycles, and biotic interactions.
- **VEGO03** - Maintain or restore vegetation conditions as described in [Forest Plan] Appendix A to reduce frequency, extent, severity, and intensity of uncharacteristic or undesirable disturbances such as fire, insects, and pathogens.
- **VEGO04** - Maintain or restore distribution and abundance of habitats that contribute to viable populations of existing native and desirable non-native plant, fish, and wildlife species.

- **VEOB06 -** Determine high-priority areas for vegetation management actions that restore or maintain vegetation desired attributes.
- **VEGU05** - Where wildfire has burned within an allotment, burned areas should be evaluated to determine if rest from livestock grazing is necessary for recovery of desired vegetation conditions and related biophysical resources.
- **VEGU06 -** When sagebrush cover types are determined to need rest from livestock grazing following a wildfire, areas should be rested for a minimum of two growing seasons. Evaluate whether additional rest is needed after two growing seasons. Base this determination on the following factors:
    a. The ecological status of the sagebrush community prior to the wildfire,
    b. How long the sagebrush community had a density or canopy closure greater than 15 percent prior to the wildfire,
    c. The severity and intensity of the fire,
    d. The amount, diversity, and recovery of forbs, grasses and palatable shrubs that are present after 2 years of rest in relation to desired conditions.

  In areas other than sagebrush cover types, an appropriate rest period should be determined. Base this determination on the following factors: soil conditions, the amount, diversity and recovery of forbs, grasses, and palatable shrubs in relation to the desired condition that are present after the 2 years of rest.

Management Area Direction Specific to Smiley and Fisher Creek Allotments
MA-02 – Upper Salmon River Valley (Sawtooth Forest Plan, Volume 1 pages III-100-123)

- **Vegetation Objective 0261 -** Restore the Mountain Big Sagebrush, Low Sage, and Basin Big Sage vegetation groups to desired range of composition and structure, as described in [Forest Plan] Appendix A, to improve sagebrush-obligate species habitat by improving the diversity and distribution of age classes.

Management Area Direction Specific to Baker and North Fork Boulder Allotments
MA-04 – Big Wood River (Sawtooth Forest Plan, Volume 1 pages III-144-163)

- **Rangeland Resources Objective** 04111 - Prevent the spread of noxious weed seeds due to domestic sheep by adjusting or changing management practices, such as trailing route locations and driveway/grazing area seasons of use.
- **Vegetation Objective** 0447 - Restore dry meadows by improving species composition, reducing compaction, and increasing plant vigor in the Cove Creek and Warm Springs Creek drainages, and from Baker Creek north, due to the effects of livestock grazing, dispersed recreation, and road alteration on natural drainage patterns.
- **Vegetation Objective** 0448 - Restore structure and native species composition, as described in [Forest Plan] Appendix A, in the Alpine Meadows, Dry Meadows, and Mountain Big Sagebrush vegetation groups in the Deer Creek, Warm Springs Creek, Trail Creek, Greenhorn Gulch, and East Fork Big Wood River drainages where these groups have been altered.
- **Wildlife Objective** 0456 - Maintain and restore habitat for deer, elk, migratory land birds, and sage grouse in lower elevation sagebrush communities.

CHAPTER 4. ENVIRONMENTAL CONSEQUENCES

The purpose of this chapter is to identify the environmental effects of implementing the Proposed Action and alternatives, specifically in regard to the issues identified in section 1.6.2.

Chapter 4 Sections with Supplemented or New Information	**Chapter 4 Sections that remain unchanged**
4.2.3 – Adaptive Management (EXPANDED) 4.2.4 – Rangeland Capability & Suitability (EXPANDED) Section Soil and Watershed Resources Upper Salmon River only (UPDATED) Section 4.4 Fisheries Resources 4.4.4.3 Non-Native Fish Species (NEW) 4.8 Wildlife Resources 4.8.2.2.3 Alt. A – MIS Sage-grouse (NEW) 4.8.2.3.3 Alt B – MIS Sage-grouse (NEW) 4.8.2.4.3 Alt. C – MIS Sage-grouse (NEW)	Section 4.1 Introduction Section 4.1.1 Cumulative Actions Section 4.2 Rangeland Resources (with the exception of 4.2.4) Section 4.3 Soil & Watershed (with the exception of the Upper Salmon River discussions) Section 4.4 Fisheries (with the exception of the new Section 4.4.4.3 added) Section 4.5 Heritage & Cultural Resources Section 4.6 Recreation Section 4.7 Vegetation Section 4.8 Wildlife Resources (with the exception of the MIS Section for Sagegrouse) Section 4.9 Other Required Disclosures For those sections that remain unaltered, please refer to the 2004 North Sheep FEIS (Chapter Four) for a complete description of the Environmental Consequences.

4.2 Rangeland Resources

4.2.3 Adaptive Management - Effects

Clarification of the adaptive management process in previous chapters of this document has not resulted in changes in the description of environmental consequences. The Effects Analysis for livestock grazing found in the original North Sheep FEIS (Chapter 4) is still valid.

ASSUMPTION FOR ADAPTIVE MANAGEMENT EFFECTS

- In the North Sheep FEIS, adaptive management practices were considered inherent in the Proposed Action. The Chapter 4 –Effects Analysis factored in these adaptive management actions, thus the various resources (fisheries, plants, wildlife, etc.) wrote the effects with these actions in mind. Unfortunately, the adaptive management actions were not clearly stated in the FEIS. Through this Supplement, we are taking the opportunity to clarify the assumptions built into the effects analysis.

- All actions listed below must be consistent with current agency decisions for the allotment. The actions must also be consistent with the North Sheep FEIS. Proposed changes that are not consistent with the existing environmental analysis (e.g. converting the allotment from sheep to cattle use), will require additional site-specific analysis. The Reader is directed to the North Sheep FEIS, Chapter 4 for the complete Effects Analysis.

- The Forest Service Adaptive Management process is authorized for all agency projects as part of the agency planning and implementation process for Forest Planning and Implementation (Forest Plan p. I-1 & III-2). For agency grazing authorizations, direction and guidance for project implementation of Adaptive Management is incorporated as part of the agency Permit Administration Handbook (R4-FSH 2209.13, Chapter 90, section 93). This process provides for timely adjustments or “course corrections” to management actions incorporated in the agency project decisions toward attainment of Desired Future Resource Conditions and project objectives.

- The adaptive management process does not apply to willful or obvious violations of the grazing permit terms and conditions, but applies to situations where monitoring of short-term or long-term indicators show a need for management action changes. The adaptive management process does not alter the District Ranger's authority to implement adverse actions against permittees who violate terms and conditions of grazing permits.

- The adaptive management taken by managers is directly related to the degree of the situation indicating a need for change. When monitoring may lead to changes in management will depend upon the significance of the deviation from meeting annual management requirements and long-term desired conditions. For example, different actions or degrees of adaptive management changes would be considered for failure to meet the four inch riparian stubble height requirement when monitoring shows an annual

measurement of two inch stubble height remaining verses 3.5 inch stubble height remaining. In like manner, only minor management adjustments may be needed where monitoring indicates that conditions are very close to desired conditions verses more significant adjustments may be needed where this is not the case or monitoring indicates a trend moving away from meeting the desired conditions.

- The adaptive management practices discussed in this section have been used separately and in various combinations as standard management practices or best management practices by public agencies, research, and private landowners. They have been shown to be effective in improving resource conditions on grazed rangelands throughout the western United States. Forest Service Rangeland Management Specialists have considerable experience and capability in applying these practices and understanding their effects on rangeland conditions and livestock behavior. None of these practices are new or untested. Examples of Best Management Practices direction include:

    - National and Regional Forest Service Manuals and Handbooks -- FSM 2200 Range Management Manual; FSH 2209.13 Grazing Administration Handbook, FSH 2209.21 Rangeland Ecosystem Analysis and Monitoring Handbook;
    - USDA FS 1995 Herbaceous Stubble Height as a Warning of Impending Cattle Grazing Damage to Riparian Areas;
    - USDA FS 1989 Managing Grazing of Riparian Areas in the Intermountain Region,
    - USDA NRCS National Range and Pasture Handbook;
    - USDI BLM 1998 Successful Strategies for Grazing Cattle in Riparian Zones;
    - USEPA 2003, National Management Measures to Control Non-point Source Pollution from Agriculture. Chapter 4E, Grazing Management;
    - USEPA 1990 Livestock Grazing on Western Riparian Areas; Idaho Cattle Association undated Idaho Best Management Practices

- The Adaptive Management process is designed to provide land managers and permittees the ability to respond appropriately to results from monitoring of both short-term activities and long-term management objectives in order to meet desired conditions. The Monitoring section of the Allotment Management Plans (Appendix C) describe monitoring locations, protocols, frequency, thresholds or triggers, measures of desired condition, and current condition relative to desired condition.

EFFECTS: Alternative A – No Action
and Alternative B – Proposed Action

1. Modification of Terms and Conditions of the Grazing Permit. Term grazing permits may be modified at the request of the permit holder or the Agency. Permit modifications are administrative actions and do not require additional analysis unless they are inconsistent with existing environmental analyses and related decisions. Permit modifications may include the actions described below.

Effects: The types of actions that may modify the grazing permit are described below. Overall, the effects of implementing any of the actions below, will generally be beneficial to meeting or moving towards Forest Plan direction and desired conditions. Domestic livestock and recreation or wildlife conflicts can be reduced, attainment of desired conditions is improved, and responsiveness to seasonal variations can be more rapidly addressed. Examples of each of the actions are given are given below.

2. Modify the seasons of use, numbers, kind, and class of livestock allowed or the allotment to be used under the permit, because of resource condition, or permittee request.

This typically is an administrative action. These changes may be implemented at the request of the permittee to adapt grazing to his/her ranch operation. Just as grazing management needs to be responsive to Forest resource condition, it also needs to be responsive to the needs of the livestock permittee relative to his/her ranch operation. For example, market economics may lead to short-term reductions in breeding cattle and consequently the need to reduce the number of animals grazed in a given year on the Forest rangelands. Before approval, proposed changes would be evaluated to ensure the fall within the scope of the North Sheep FEIS.

Effects: The effect of such a change would be beneficial to the permittee's grazing operation in the context of improving economics or social values. It could also result in improved ecological conditions where it resulted in an overall decrease in grazing use on the allotments. Permittee requested changes in the kind of livestock (e.g. changing an allotment from sheep to cattle), would trigger new environmental analysis as the North Sheep FEIS did not address changes in the kind of the livestock.

The change may be the result of monitoring or seasonal climatic fluctuations such as drought which result in the need to adapt management to changing conditions using actions such as those described below to achieve resource desired conditions and or resolve conflicts in resource uses.

Effects: This is a direct response to monitoring that indicates a need to change this aspect of grazing management. Reducing total number of sheep grazed and/or the amount of time grazed would result in reducing the overall grazing impacts and improving attainment of Desired Resource Conditions through grazing within the affected area of the allotment.

3a. Modify Season of Use.
As appropriate, adjust the season of use for an allotment or areas within an allotment to reduce grazing impacts and improve attainment of Desired Resource Conditions. These actions include shortening the period of use to reduce or eliminate grazing impacts during periods where plants or other resources are most susceptible to damage, or avoid conflicts with other uses such as during periods of high recreation use.

Effects: For example, changing the season of use to avoid grazing impacts or conflicts with critical resource needs of Threatened, Endangered, and Sensitive species and other wildlife eliminates the resource conflict. Adapting the grazing season in response to seasonal variations in climate and productivity such as during periods of drought will

reduce impacts to vegetation. Another example would be scheduling grazing so that a high recreation use area would not have sheep present over the Fourth of July holiday period.

3b Modify Stocking. As appropriate, adjust authorized or permitted livestock numbers during all or a portion of the grazing season to match grazing use to resource conditions and productivity.

Effects: For example, matching grazing use to actual resource conditions and productivity allows grazing use to stay in compliance with Forest Plan direction. For example, the size of the band of dry ewes after shipping lambs might be reduced on a year where lower rainfall has resulted in lower forage production.

4. Rest (i.e. closure to grazing for a full year). Rest the allotment or areas within the allotment for a specific period of years or on a periodic rotation where monitoring shows that trend towards achieving desired conditions are not stable, improving, or improving at an adequate rate. May also be implemented where fire, flood, etc; detrimentally impact resource conditions or where treatment activities require a period of rest to provide for recovery of the site. Where this occurs, specific recovery criteria for when grazing will be allowed should be specified.

Effects: Multi -season rest has been practiced on portions of all four allotments in recent years as a result of adaptive management processes. Periodic rest of some areas with associated reduction in days was practiced in Baker Creek in 2006 and 2007 and the effects have proven to be beneficial. Additionally, the areas burned in the 2007 Castle Rock wildfire will be rested until recovery objectives have been met.

5. Closure of Areas. Close areas within allotments where monitoring shows that desired conditions cannot be met while sustaining grazing use. This may include alteration of allotment boundaries or identification of specific areas within an allotment where livestock grazing will not be allowed. Modify the AMP and term grazing permit to identify the change in the allotment boundary or the area closure.

Effects: The upper basins in Baker Creek, Prairie Creek, and North Fork-Boulder are examples where it was determined that further sheep grazing would be detrimental to the resource with little value to livestock use.

6a. Grazing Restrictions – Modification of Indicators of Annual Grazing Use. Where indicators or threshold values set for indicators of annual grazing use are not sensitive to monitoring the achievement of desired conditions, the threshold values may be adjusted, additional indicators added, or replacement indicators selected to monitor annual grazing use.

Effects: Levels of acceptable use such as forage utilization are set in the Forest Plan and/or the North Sheep FEIS and/or the Allotment Management Plans. Where specific allowable use limits are set in the Forest Plan or in the North Sheep FEIS and ROD, they may be modified, if needed, to be more restrictive without additional environmental analysis. For example, if monitoring of riparian vegetation conditions where a 6 inch

stubble height use limit is applied shows that woody vegetation is not increasing as desired, a utilization limit on woody vegetation that would allow for woody species regeneration at the site could by applied.

6b. Grazing Restrictions – Modification of Management Practices. This includes a range of management and herding practices that vary according to conditions and use that are found on individual grazing allotments.

> **Effects:** For example, limiting the amount of time sheep bands are allowed in the vicinity of corrals at shipping time as described in the Fisher Creek and Smiley Creek AMP reduces the impacts to vegetation and watershed conditions around the corrals.

7. Alteration of grazing routes. Alteration of designated trailing routes and route rotations to avoid resource damage, avoid use conflicts, reduce grazing pressure in specific areas, improve distribution, access unused grazing areas, facilitate shipping, or facilitate rest or deferred rotation grazing.

> **Effects:** For example in 2007, the trailing routes on the Baker Creek Allotment were modified to avoid areas burned in the Castle Rock wildfire. Similar modifications to trailing routes will be implemented until conditions within the burned areas recover sufficiently to allow grazing use.

8. Adjust grazing to address conflicts with other resource uses. Modification of grazing use may be appropriate to prevent or manage conflicts with other uses such as dispersed recreation, coordinate with other management activities such as timber harvest and forest regeneration, or mitigate conflicts or impacts to other resources.

> **Effects:** Adaptive Management Action was taken in 2007 on the North Fork-Boulder allotment. The decision to defer livestock grazing on the North Fork-Boulder allotment to avoid conflict with denning wolves was in conformance with direction outlined on pages 12-22 of this Supplement.

9. Adjust grazing to provide for maintenance or restoration of aquatic and riparian processes and functions and beneficial uses.

> **Effects:** Resting the Smiley Creek drainage until specific riparian conditions have been achieved is an example of this practice.

10. Coordinate grazing with timber harvest and forest regeneration activities.

> **Effects:** As an example, if trees are replanted as part of the restoration activities for the Castle Rock wildfire, grazing routes will need to be adjusted until tree height is sufficient to where it will not be damaged by sheep trailing.

11. Temporary Corrals.

Effects: The location and use of temporary corrals has been provided for in the North Sheep FEIS. The effects of using temporary corrals were described in Chapter 4 of the North Sheep FEIS (p. 4-25).

12. Range Improvements – Structural. Structural range improvements include construction of water developments, fences, corrals and other permanent livestock handling facilities, trails, bridges, etc. These actions may be proposed as adaptive management actions. Additional analysis will be required for these activities unless they are currently covered under existing environmental analyses.

Effects: Specific effects will be analyzed in associated environmental documents in accordance with NEPA. The most likely types of structural improvements that would be considered are water developments with protection fences around the spring source. Additional water developments may be developed to improve distribution of livestock, draw sheep away from riparian areas where adaptive monitoring indicates there is a need to reduce grazing impacts, protect springs and seeps from grazing impacts, etc. The effect of the development of these watering sources would be a reduction in grazing impacts and soil disturbance to riparian areas and improvement in riparian vegetation, streambank stability, the condition of seeps and springs, etc.

13. Vegetative Treatments – Nonstructural range improvements.

Effects: Additional environmental analysis is required for vegetation activities such as prescribed fire, aspen stand treatments, etc. These actions may be proposed as adaptive management actions. The exceptions to this are the noxious weed management activities which are covered within the Forest Noxious Weed Management Plan. Effects of the action associated with noxious weed management are described in the North Sheep EIS in Section 4.7.4.

Alternative C – Grazing Phased Out
The effects of using adaptive management for livestock grazing as shown for Alternatives A and B would be the same for Alternative C for the first two years. After the first two years, livestock grazing would be discontinued and adaptive management practices would no longer be relevant.

4.2.4 Capability & Suitability

As stated in the Forest Plan (p. II-19) capability determinations serve to "determine a Forest's estimated acreage capable of producing forage." Capability analysis at the Forest Plan level was developed using a landscape level model to approximate a conservative estimate of areas capable of sustaining livestock grazing on the Forest. The Forest Plan model does not provide an adequate analysis of rangeland capability at the allotment level.

The grazing suitability determination provides the forage base from which site-specific project authorizations are made. Areas determined as "non-suited" for grazing may still be utilized for

grazing use to facilitate access to and use of areas determined "suitable" for grazing use. The effects described here and in the North Sheep FEIS are based on an analysis of all lands grazed by livestock, and not just on those lands identified as suitable for grazing use.

An Issue was carried forth in this Supplement:

- *The Proposed Action and alternatives may not adequately consider the Forest Plan assessments of capability and suitability for grazing given the site-specific characteristics of the North Sheep allotments. This may lead to overstocking of the allotments.*

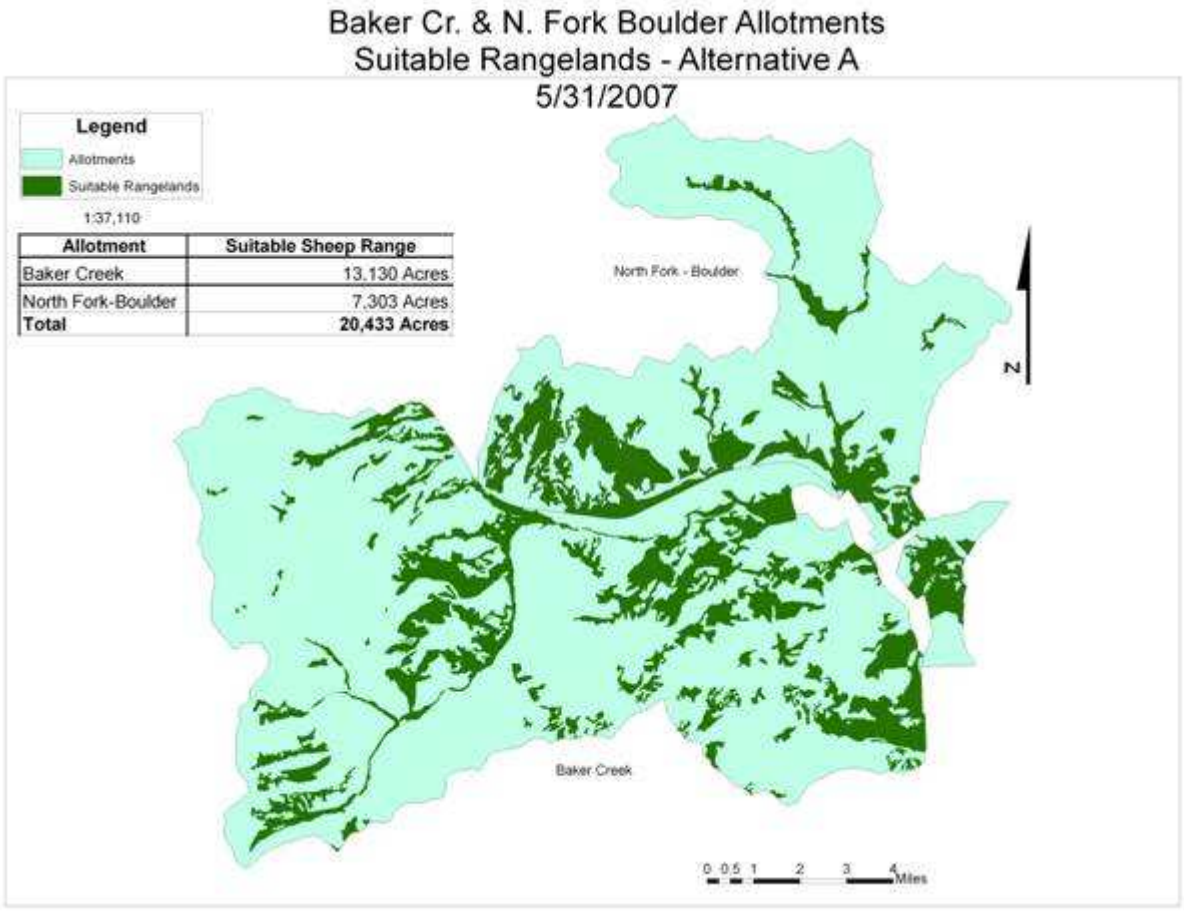
Alternative A – No Action

The levels of grazing authorization shown in Table Range 4-0 (below) are based on the authorization in the current term grazing permits. These levels of grazing use are within allotment specific tentative grazing capacities for this alternative. The grazing authorizations for the Fisher Creek and North Fork/Baker allotments are consistent with Forest Plan and allotment management direction. Stocking at the levels of grazing authorization identified in this alternative for the Smiley Creek and Baker Creek allotments may not be consistent with Forest Plan management direction. Inconsistencies and problems with meeting Forest Plan direction are described in Chapter 4 of the North Sheep FEIS and Supplement. For example, Management Objective 04110 for the Big Wood River Management Area would discontinue grazing in the Adams Gulch drainage to eliminate conflicts between grazing and concentrated recreation use (Forest Plan, p.III-160). The closure of Adams Gulch to grazing would not occur in this Alternative.

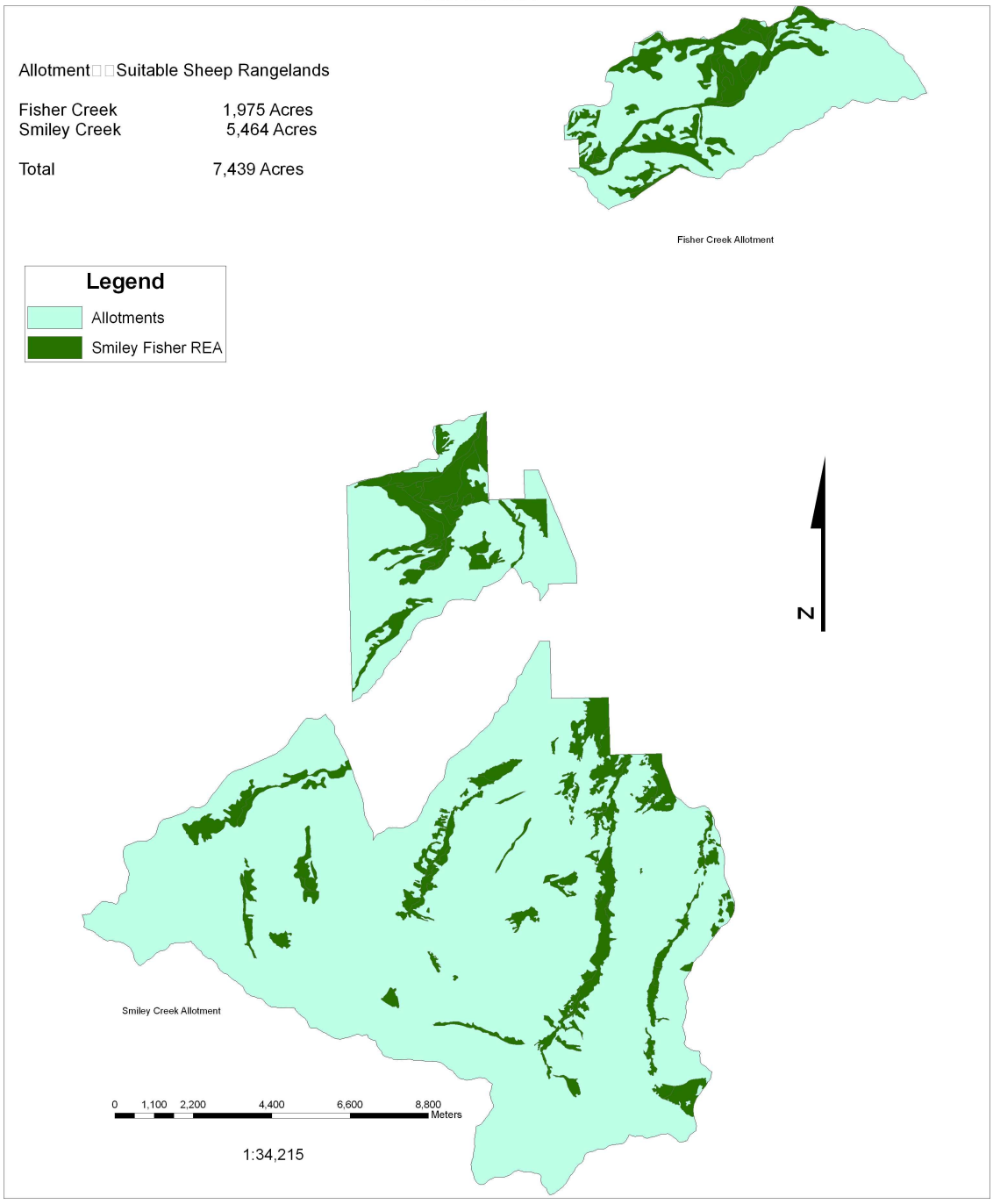
Table: Range 4-0. Grazing Capacity in the North Sheep Allotments – Current Management (Sheep Head Months)

Allotment	*Total Acres*	*Suitable* Acres	*Tentative Capacity* (Forest Plan Model)	*Tentative Capacity* (Allotment REA Model)	*Grazing Authorization*
Fisher Creek	7,494	1,975	1,465	1,538	930
Smiley Creek	42,084	5,464	4,643	4,561	3,877
Baker Creek	63,561	13,130	3,940	7,036	6,530
North Fork/Boulder	34,074	7,303	3,026	4,284	3,518
Total	**147,213**	**27,872**	**13,075**	**17,419**	**14,855**

Rangeland Suitability Maps for Current Management Alternative.



Smiley Creek and Fisher Creek Allotments
Suitable Rangelands
Alternatives A & B
05/23/2007



Alternative B – Proposed Action

The levels of grazing authorization shown in Table Range 4-1 are based on the evaluation of observed levels of grazing use relative to complying with Forest Plan management direction (See discussion on validating grazing capacity in Chapter 3 (section 3.2.4.7.2). These levels of grazing use are within allotment specific tentative grazing capacities for this alternative. The grazing authorizations described in the above table are consistent with achieving Forest Plan and allotment specific management objectives. Within the context of adaptive management, these authorizations may be modified administratively either annually or for the term of the grazing permit as appropriate based on monitoring results, changes in ranch operations, etc.

Table: Range 4-1. Grazing Capacity in the North Sheep Allotments – Proposed Action (Sheep Head Months)

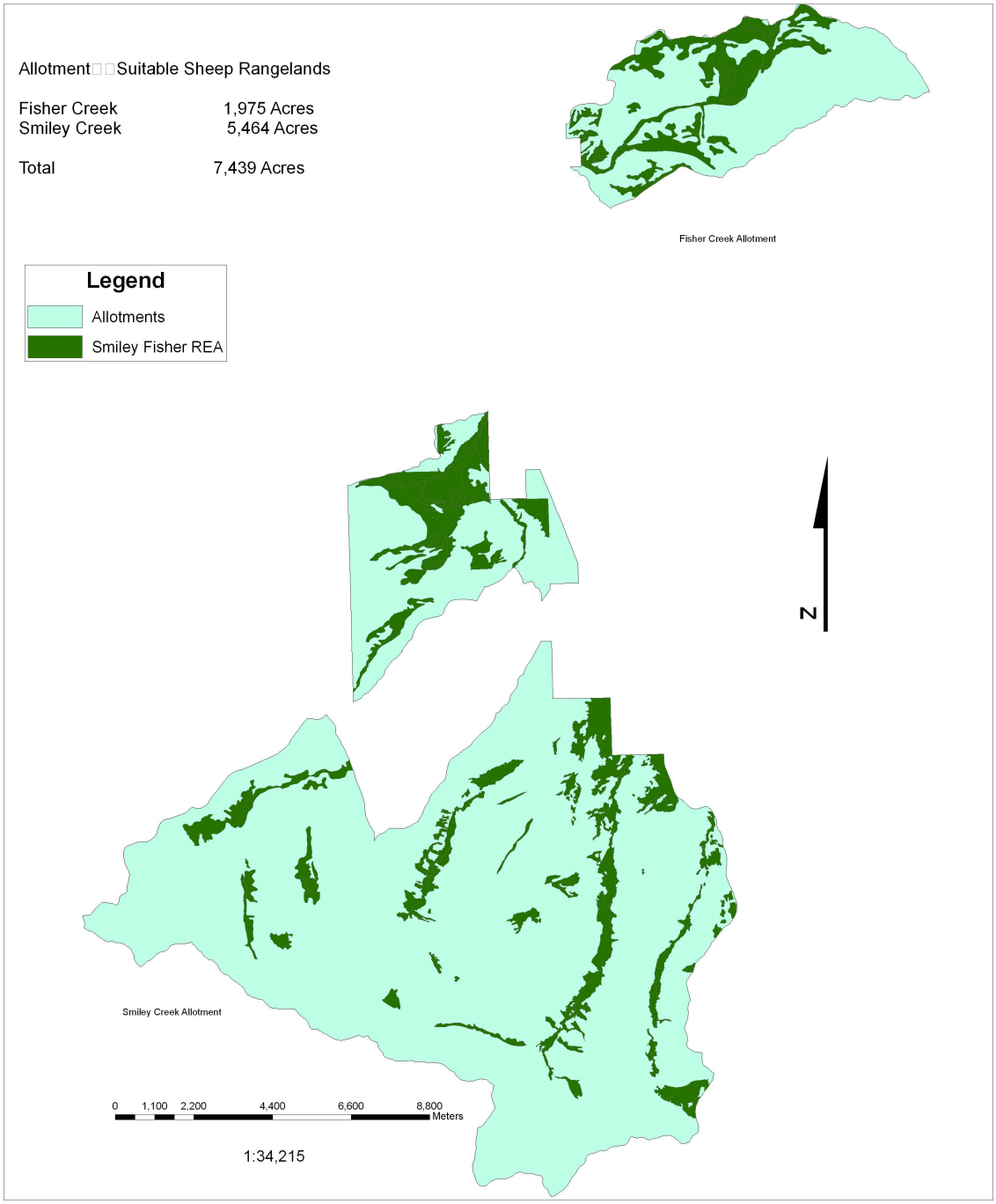
Allotment	*Total* Acres	*Suitable* Acres	*Tentative Capacity* (Forest Plan Model)	*Tentative Capacity* (Allotment REA Model)	*Grazing Authorization*
Fisher Creek	7,494	1,975	1,465	1,538	930
Smiley Creek	42,084	5,464	4,186	4,561	3,628
Baker Creek	63,561	10,395	2,870	5,279	5,159
North Fork/Boulder Creek	34,074	6,033	2,545	3,534	3,518
Total	**147,213**	**23,867**	**11,066**	**14,912**	**13,235**

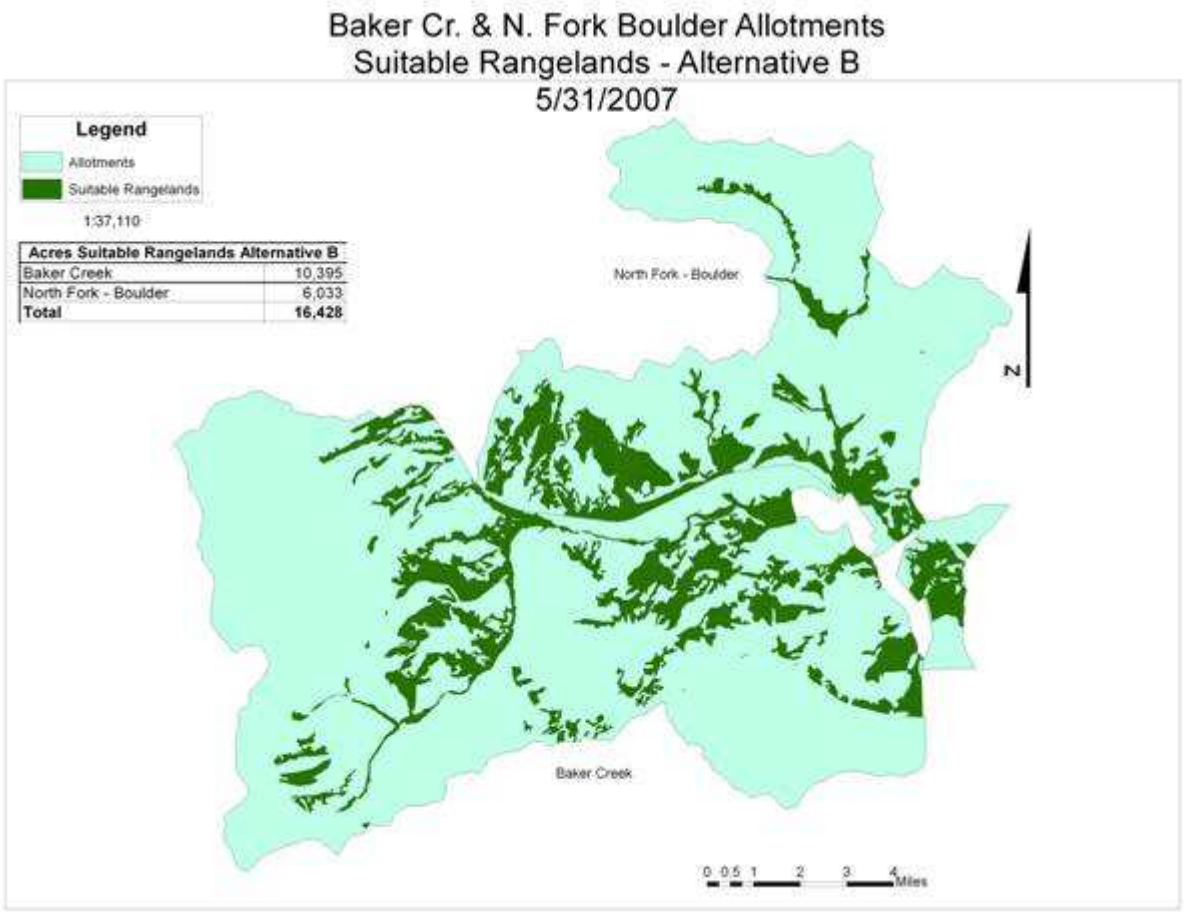
Alternative C – Grazing Phased Out

The levels of grazing authorization shown in Alternative A, Table Range 4-0 would continue for the first two years. After the first two years, grazing would be discontinued and the allotments identified as not suitable for livestock grazing.

Rangeland Suitability Maps for Proposed Action Alternative.

Smiley Creek and Fisher Creek Allotments
Suitable Rangelands
Alternatives A & B
05/23/2007





4.3 Soil and Watershed Resources

The following soil and watershed resources issues were identified through scoping and internal agency review:

- *The Proposed Action and alternatives could affect streambank stability and morphology.*

  Livestock grazing in riparian areas and watering from streams can impact the stability of streambanks and the morphology of streams. Removal of riparian vegetation and soil disturbance due to hoof action can destabilize banks, leading to changes in channel configuration, sedimentation, and linkages between the stream and its floodplain.

- *The Proposed Action and alternatives could affect stream sedimentation and the deposition of fine soil material in gravel beds.*

  As noted under the preceding two issues, grazing can reduce soil stability on upland and riparian sites as well as on streambanks. This in turn can increase the sediment loads in streams, and sediment deposited in gravel stream bottoms can clog and cover gravel beds.

4.3.1 Methods and Assumptions

4.3.1.2 Streambank Stability and Morphology

Measurements and observations of streambank stability provided in Chapter 3 have been used to define the existing condition of these features within each allotment. Spot surveys and measurements collected at monitoring locations are assumed to be representative of the entire stream channel. The effect of each alternative on the existing condition is determined based on the total length of available stream channels and the anticipated level of streambank impact that would result from management activities. Qualitative assessments of grazing impacts to streambanks are supported by information obtained from review of professional literature.

4.3.1.3 Stream Sedimentation

The existing condition of sediment source areas and sediment levels within stream channels were defined in Chapter 3. Measurements and descriptions used at individual locations are assumed to be representative of the surrounding drainage area or stream channel segment where they were collected. The influence of each alternative on stream sedimentation is assessed based on the potential for grazing impacts and management activities to maintain or decrease sediment delivery to stream channels within grazing allotments. The total area and stream channel length associated with grazing closures is also considered. Qualitative assessments of grazing disturbance of soil surfaces and sediment production are supported by information obtained during literature review and discussion with grazing professionals.

4.3.3 Streambank Stability and Morphology

Stream channel stability is a dynamic process that is influenced by many parameters, some of which may be unique to a given watershed or greater river basin. In order for a stream channel segment to be stable, it is neither agrading nor degrading and channel features remain consistent over time. Stream channels that migrate laterally but continue to maintain proper morphological features for their channel type are considered active but stable (Rosgen 1996). Observed channel types and measurements of streambank stability were previously described in Chapter 3 for selected streams within each grazing allotment. Several impacts associated with livestock grazing are known to influence streambank stability including a decrease in plant roots and surface vegetation along streambanks and shearing forces associated with hoof action (Belsky et al. 1999, Glimp and Swanson 1994). Intense use of stream and riparian corridors by sheep can

result in wide, shallow stream channels, increased bank slope, and elimination of overhanging banks (Platts 1981a).

4.3.3.1 Impacts Common to All Alternatives

Streambank erosion and changes in channel morphology would continue for stream channels within the project area under each of the alternatives. Drainage basins located within the upper Salmon River watershed are characterized by granitic parent material and contribute annual loads of bedload and sediment to stream channels in the area. Streambank impacts that are associated with recreation including stream channel crossings and use of roads within RCAs will continue under each of the alternatives and possibly increase due to the existing trends in recreational use of public lands. Stream channel crossings tend to increase channel width, degrade streambanks and disturb substrate material at crossing sites. Roads located adjacent to stream channels can restrict normal meander patterns and contribute bedload and sediment material from erosion of fill slopes and road surfaces. Streambank impacts associated with private land development will also continue at their present level or increase due to demand for recreational housing. The extent of streambank impacts associated with this source is limited to the amount of private land available for development within RCAs which is typically located near the lower portion of drainages and subwatersheds in the project area.

4.3.3.2 Alternative A – No-Action

Grazing impacts to streambank stability and morphology under the No-Action Alternative would continue to occur in the project area. These impacts are associated with the current animal numbers and the stream lengths provided in Table: Fish 3-3, 3-6, and 3-8. Measurements of percent stable banks for the Fisher Creek and Smiley Creek grazing allotments and qualitative assessments of streambank conditions in the North-Fork Boulder and Baker Creek allotments are presented in Chapter 3. This information provides a general indication of streambank conditions in these areas. No information is currently available that specifically defines grazing impacts to streambanks versus similar impacts associated with recreation, roads or natural stream morphology. As described in Chapter 3, the existing condition of streambanks in the project area is influenced by all of these processes. Streambank conditions in the Smiley Creek allotment are currently functioning at risk while streambank condition in the Fisher Creek allotment is functioning acceptably.

Streambank conditions would maintain their respective levels of functional condition under the No-Action Alternative, including those streams that are currently at levels of functioning acceptably or functioning at risk. Degraded streambanks located at stream watering sites would remain in a degraded condition. Channel segments will continue to receive impacts as sheep trail through stream and riparian corridors during the grazing season, including the routes to permanent corral facilities such as the Smiley Creek corrals. Temporary closures made through AOIs could occur to address concern areas. However, without increased monitoring, the potential for proactively identifying and addressing the degraded conditions would remain low.

The Forest Plan indicates that management actions "will neither degrade nor retard attainment of properly functioning SWRA desired conditions" unless demonstrable short or long-term benefits

outweigh these actions. At the present time, streambank conditions are not meeting this standard in several of the grazing allotments as indicated by measured functioning at risk levels. Where grazing is a contributing factor, the desired conditions associated with these standards are not likely to be met under the No-Action Alternative.

4.3.3.3 Alternative B – Proposed Action

Management strategies and development activities associated with the Proposed Action include the implementation of an adaptive management strategy for livestock, closure of select high-elevation areas, and the installation and use of temporary corrals in the Smiley Creek allotment. The influence of each of these actions on streambank stability within the project area is discussed below.

Use of an adaptive management strategy would allow adjustment of grazing impacts based on the current condition of streambanks and other resources within an individual allotment. If measurable improvements (trends) are not being made toward desired conditions, changes can be made in the AOIs that will alter the impacts to streambanks from grazing. If monitoring results show that trends are not improving or desired conditions are not met after five adaptive management cycles, suitability of these areas for grazing would be re-examined by a Forest Service interdisciplinary team. In addition, if at any time it is noted that forest plan standards are not being met within grazing allotments, the specific items of noncompliance will be addressed in AOIs. Implementation of the adaptive management strategy would require adjustments by herders as they are required to adhere to stricter standards that are designed to avoid or minimize impacts to riparian resources, including streambanks. The effect of the adaptive management strategy would influence both the Fisher Creek and Smiley Creek allotments and would be designed to increase the functional condition of streambanks that are currently at a level of functioning at risk to the desired level of functioning acceptably. Particular attention would be paid to riparian areas within meadows and lower drainages of Smiley Creek as well as all of Upper Alturas Lake Creek. Progress toward streambank stability for all channels in the project area will be achieved if stability levels are greater than 90 percent of their inherent potential. A detailed description of streambank stability monitoring activities associated with the adaptive management strategy can be found in the Allotment Management Plans.

Closure of select high-elevation areas in the Smiley Creek Allotment would reduce the total length of stream channels that would be subject to grazing impacts. Information describing the change in stream and tributary length associated with closure of these areas is provided below in Table: Water 4-1. No high-elevation areas have been selected for closure within the Fisher Creek allotment.

Closure of selected high-elevation areas within the Smiley Creek allotments would remove approximately 11.5 miles of stream channels located in headwater drainages from exposure to grazing impacts,. A small corridor traversing the headwater area between Beaver Creek and Jake's Gulch within the Smiley Creek allotment would be opened to sheep trailing as the herd moves between drainages. Sheep presence in this corridor would be limited to one day.

Removal of sheep through grazing closures would allow streambanks and riparian corridors to heal from impacts produced by watering and trailing. The greatest changes would likely occur along channel segments that were previously grazed or trailed more than once in a given year. These conditions have occurred in the past due to topographical constraints or unnecessary trailing required by the location of permanent corrals. Significant impacts to streambanks and shorelines from dispersed camping (including soil compaction and vegetation trampling) in these areas would continue to occur.

A shift in use of permanent corrals to temporary corrals would likewise influence stream and riparian habitat. The permanent corrals located adjacent to Smiley Creek would no longer be used during shipping and handling of sheep under the Proposed Action. Temporary corrals would be located lower in the drainage or at other locations outside of RCAs, depending on the grazing rotation schedule. Use of temporary corrals would greatly reduce streambank impacts in areas near the Smiley Creek corrals. Removing the intense use at this location would provide the opportunity for channel width-depth ratios to return to normal and allow vegetation to stabilize degraded streambanks. Restrictions on sheep use of the areas around corrals during shipping would reduce such impacts (mitigation measure 7). In addition, the location of the permanent corrals requires multiple trailing routes to and from the corrals when lambs are shipped. Use of temporary corrals would allow once-over use of the allotment and minimize impacts to streambanks along trailing routes.

Table: Water 4-1. Named stream lengths within allotments and exclusion areas

Stream Name	Excluded Length (mi.)	Non-Excluded Length (mi.)	Total Length (mi.)
Smiley Creek			
Alturas Lake Creek	1.25	9.58	10.83
Alturas Lake Creek unnamed tributaries	0.33	9.17	9.49
Jake's Gulch	1.17	2.42	3.60
Jake's Gulch unnamed tributaries	0.39	4.42	4.82
Beaver Creek	0.57	9.23	9.81
Beaver Creek unnamed tributaries	0.93	10.27	11.20
Smiley Creek	0.82	9.24	10.07
Smiley Creek unnamed tributaries	2.26	19.08	21.33
Mill Gulch	1.01	2.36	3.36
Mill Gulch unnamed tributaries	0.11	4.69	4.80
Frenchman Creek unnamed tributaries	2.74	10.03	12.77
Smiley Creek allotment total (mi.)	**11.58**	**90.49**	**102.07**

The overall influence of the Proposed Action on streambank stability based only on closure of select high-elevation areas would be minimal in the Fisher Creek and Smiley Creek allotments. Additional improvements would result from the use of temporary corrals due to their location and the once-over use of stream and riparian corridors that would occur under the Proposed Action. The greatest changes to streambank stability under the Proposed Action would result from proper implementation and enforcement of the adaptive management strategy. This strategy provides a means whereby the condition of streambanks at watering sites and along trail

routes would be continually monitored. Information from monitoring would be used to adjust management to ensure that grazing impacts to streambanks would not inhibit progress toward desired conditions.

4.3.3.4 Alternative C – Grazing Phased Out

Grazing would be phased out over a 2-year period under Alternative C. During this period, grazing impacts to streambanks would be similar to those occurring under the No-Action Alternative. Following this period, livestock grazing impacts to streambanks would be eliminated in each allotment and recovery from grazing impacts would begin. Immediate reductions in the level of trampling and bank shearing would be observed at watering sites and along trail routes. Longer-term streambank improvements would include recovery of riparian vegetation and increased root biomass at depth. In the absence of grazing impacts, streambank condition would progress more rapidly toward a desired stable condition, but would still receive significant impacts in some areas from roads, dispersed recreation, and natural channel morphology.

4.3.4 Stream Sedimentation

Sediment production and delivery to streams is dependent upon several factors including soil type, vegetative cover, slope, precipitation regime and distance to a receiving water body. As described in Chapter 3, soils within much of the upper Salmon River watershed contribute naturally high loads of sediment and bedload material. High intensity thunderstorms generate overland flow capable of transporting sediment within all grazing allotments. A thorough description of soil erosion processes associated with grazing impacts to upslope areas is provided above in section 4.3.2.1. Sediment can be delivered to stream channels by sheet erosion from upslope areas. The total amount of sediment delivered to streams from this source is a function of soil type, surface disturbance, slope, percent cover, intensity of precipitation and surface runoff, and distance to the receiving water body. Additional sediment is produced by lateral scour and erosion of unstable streambanks as well as from natural channel morphology. Sedimentation of streams is of a particular concern as it relates to impairment of aquatic habitat. A detailed description of these processes with respect to aquatic resources is provided in section 4.4 Fisheries Resources.

4.3.4.1 Impacts Common to All Alternatives

Sediment production from upslope sources and eroding channel banks would occur under each of the alternatives. As described previously, sediment loads within the project area are produced from both natural and anthropogenic sources. Drainages within the upper Salmon River watershed are characterized by granitic parent material and contribute naturally high levels of sediment and bedload material. Natural levels of sedimentation are exacerbated when soil surfaces are exposed or left in a highly disturbed condition. Historic levels of sediment loading have occurred from areas that were intensively grazed during the early 1900s. Although many of these areas have been vegetated, the influence on channel morphology and subsequent channel erosion is still evident, including high bedload deposits that remain in stream channels. In

addition, continued grazing on upslope areas and within accessible riparian corridors may be inhibiting the full recovery of vegetation. As a result, sediment production and transport from these areas may be occurring at greater than normal levels. Other sediment sources include stream channel crossings, roads within RCAs (including Forest Service and user-created roads), and dispersed camping sites. Additional sediment is produced from streambanks and trails where riparian vegetation has been removed by trampling. These sources are associated with managed campsites and dispersed recreation. Sediment loading associated with recreational use of Forest Service land will continue to occur under each of the alternatives and will likely increase if corrective actions are not taken.

4.3.4.2 Alternative A – No Action

The existing level of sediment loading associated with grazing impacts would continue under the No-Action alternative. Sediment loads from upslope areas would continue to be produced by sheet erosion events. Marginal vegetation cover and fragile soils located in high-elevation cirque basins would continue to be impacted during grazing and trailing through these areas. Riparian vegetation located in open or moderately open stream corridors would continue to be browsed by sheep. Dense willow stands within stream corridors would continue to be browsed along their margins, but would likely remain at the current level of coverage.

Sediment loads are generally considered to be the most limiting cumulative effect by the Forest Service within many of the drainages and subwatersheds in the project area. Measurements of percent fines for the Fisher Creek and Smiley Creek grazing allotments have been collected by the SNF, IDEQ, and PIBO monitoring program. This information provides a general indication of the current level of sediment loading to streams produced by disturbance and use of Forest Service lands. No data is currently available defining sediment loads from individual sources, including grazing. Sediment conditions in Smiley Creek and Fisher Creek allotments are currently functioning at risk (see Chapter 3).

Sediment levels would likely maintain their existing functional condition under the No-Action Alternative including those stream channels that are currently functioning at risk. Some annual fluctuations would be expected depending upon the occurrence of intense precipitation events, impacts to vegetation, and landuse practices associated with grazing and recreation.

The Forest Plan indicates that management actions "will neither degrade nor retard attainment of properly functioning SWRA desired conditions" unless demonstrable short or long-term benefits outweigh these actions. At the present time, sediment levels are not meeting this standard in several areas within the grazing allotments as indicated by measured functioning at risk levels. As discussed in Chapter 3, sediment loads within the project area are the result of both natural and anthropogenic factors and in some areas may be largely attributable to sources other than current grazing practices, particularly in the Smiley Creek allotment. However, the contribution of grazing to the overall sediment load is uncertain at this time.

4.3.4.3 Alternative B – Proposed Action

Sediment loads associated with grazing will be reduced as a result of management activities associated with the Proposed Action. These activities include use of an adaptive management strategy for livestock, closure of select high-elevation areas, and the installation and use of temporary corrals in the Smiley Creek allotments. The influence of each of these activities on sediment loads delivered to streams within the project area is discussed below.

The use of an adaptive management strategy would allow changes to be made in grazing practices as implemented through directions outlined in the AOI for each respective permittee. This strategy would assess conditions of upslope areas that may receive intense use on an infrequent basis including locations where salting, 'nooning', bedding, and trailing occur. Regular assessment and monitoring of these areas, along with corrective actions as needed, would help to minimize the potential for sediment production and transport to streams. Other areas of focus would include riparian areas found within meadows and lower drainages of Smiley Creek, Fisher Creek, Frenchman Creek and all of Upper Alturas Lake Creek. A detailed description of upslope and riparian monitoring activities associated with the adaptive management strategy can be found in the Allotment Management Plans.

Closure of selected high-elevation areas would remove these lands from exposure to grazing impacts including disturbance of soil surfaces and removal of vegetative cover within fragile cirque basins. The length of stream channels that would be removed as a result of grazing closures has been discussed above in section 4.3.3.3. No areas have been selected for closure within the Fisher Creek allotment.

Sediment loads produced from areas associated with grazing closures would gradually be reduced under the Proposed Action. The extent of these reductions would be a function of increases to soil stability and density of vegetation cover and root biomass. Initial reductions in sediment loading may be small as recovery from surface disturbance in high mountain ecosystems is typically a gradual process. Establishing a direct correlation between the level of stream sediment and surface erosion from upslope areas is a difficult process and would require a substantial amount of data that is currently not available. However, the current knowledge base of these areas indicates that sediment loads will be reduced in the absence of grazing.

The use of temporary corrals would allow herders to sort and load sheep outside of RCAs along Smiley Creek, as well as better adhere to once-over grazing policies, thus reducing the amount of surface disturbance in sensitive areas. Eliminating use of the Smiley Creek corrals would provide the riparian vegetation in this area to recover from periodic intensive use. Increased riparian cover and root biomass would likewise increase the ability of this vegetation to trap and retain soil that has previously entered Smiley Creek.

4.3.4.4 Alternative C – Grazing Phased Out

Grazing permits would not be renewed under Alternative C and would expire within two years. During this 2-year period, grazing impacts that result in sediment production would be similar to those occurring under the No-Action Alternative. Grazing impacts would be eliminated

following the 2-year period. Recovery of grazing impacts to soil surfaces and vegetation cover would eventually occur in all areas previously used by sheep. The rate at which these areas recover would be generally dependent upon precipitation levels and soil properties that enhance stabilization and growth of vegetation. Improvements to soil surfaces would be most noticeable in areas that received intense use, including permanent corrals and trail routes. Recovery of upper cirque basins would be more gradual due to the harsh environment and shallow soils found in these areas.

4.3.5 Forest Plan Compliance

The desired conditions of soil resources, described in Chapter 3, indicate that soils should retain all or most of their natural productivity and should be in a state that promotes vegetative growth, hydrologic function, long-term nutrient cycling, and erosional stability. The focus of the management direction for soil, as outlined in the Forest Plan, is to maintain or restore its productivity and soil-hydrologic functions where conditions are at risk or degraded. Thus, in order to be consistent with the Forest Plan, management actions within the grazing allotments should not result in the long-term degradation of soil resources.

As stated above, the No-Action Alternative would continue with the current grazing authorizations and management practices. Without restrictions imposed by temporary AOIs, these management practices can retard attainment of desired soil resources condition in localized areas and only maintain conditions in others.

Continuing with current grazing practices for 2 years until the end of grazing activities, as stated under the grazing phase-out alternative (Alternative C), would result in similar impacts on soil resources. Ceasing all grazing activities would be consistent with the soils resource goals, objectives, and standards set forth in the Forest Plan. Although the cause of the effects would be eliminated, achieving desired conditions in areas with intensive impacts from historic grazing would be a long-term process.

The proposed action would be consistent with the soils resource goals, objectives, and standards set forth in the Forest Plan. However; achieving desired conditions in areas with intensive impacts from historic grazing would be a long-term process.

The desired condition of SWRA resources associated with streambank stability and sediment levels includes water quality levels that fully support beneficial uses associated with native and non-native aquatic species. In addition, management actions will neither "degrade nor retard attainment of" desired conditions associated with SWRA resources. A review of the existing condition of streambank stability and sediment within the project area has indicated that desired conditions are currently not being met in several of the drainages within the project area. Therefore, in order to remain in compliance with Forest standards, management actions will need to improve upon the existing condition of streambanks and sediment levels where currently functioning at risk.

Streambanks and sediment levels that are currently functioning at risk would continue to do so under the No-Action Alternative, resulting in non-compliance with Forest standards. Under the

No-Action Alternative many of the objectives directed toward specific drainages within the project area would not be met. Sediment delivery from grazing-related sources would not be reduced for Fisher Creek, Frenchman Creek, Smiley Creek, and Beaver Creek (Objective 0248). Riparian vegetation would not be provided along significant tributaries to the Salmon River to restore streambank stability, low width-depth ratios, and riparian areas (Objective 0250).

Grazing impacts under Alternative C would be similar to those that would occur under the No-Action Alternative during the first 2 years. If Alternative C is selected, any Forest Plan standards that are not complied with during the initial 2-year period will be addressed in AOIs (mitigation 10). After grazing permits have expired, grazing impacts would be eliminated and progress would continue toward the desired condition.

The Proposed Action would result in compliance with standards and objectives set forth in the Forest Plan and, if followed as outlined in Chapter 2, would meet all objectives, guidelines, and standards associated with SWRA resources that are affected by grazing. Under the Proposed Action, the adaptive management strategy would provide a means whereby continued progress could be made toward full support of beneficial use for all waterbodies within the project area, including Alturas Lake Creek. It is also intended that information provided in Chapter 3 and Chapter 4 of this document will be fully consistent with Guidelines SWGU07, SWGU08, and SWGU09 that define the necessary level of analysis and adherence of the Proposed Action to the Idaho Non-point Source Management Plan.

4.4 Fisheries Resources

Section 4.4 as described in the North Sheep FEIS (pp. 4-33 to 4-43) remains unchanged except for the addition of the following new section under Cumulative Effects.

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4.4.4.3 Non-Native Fish Species

Section 4.4.4.3 Non-Native Fish Species is a new section and not found in the original North Sheep FEIS

As described in the environmental baseline, many streams within the analysis area are dominated by non-native brook trout. It appears in the Smiley, Frenchman, Cabin, Vat, and Fisher Creeks that brook trout have successfully out-competed many native salmonids and may have eliminated or reduced bull trout. Current research indicates that the presence of brook trout can result in reduced productivity or extirpation of native fish stocks (Dunham et al. 2004). In addition, current research indicates that brook trout can displace bull trout from some lower elevation stream reaches, though the root causal factors associated with displacement remain unclear (Reiman et al. 2006). Bull trout hybridization with brook trout is recognized as a major threat to the persistence of bull trout, largely as a result of population-scale wasted reproductive effort and genetic introgression (Markle 1992, Leary et al. 1993, Kanda et al. 2002).

Unfortunately, regardless how much habitat conditions improve, non-native brook trout will remain the dominant fish species and will continue to out-compete bull trout and other native

fish species. This implies that biological indicators such as local population size, growth and survival, and genetic integrity in Appendix B for the Sawtooth Forest Plan will remain in a poorer functioning condition (i.e. functioning at risk or unacceptable risk) because bull trout populations will be absent or small, and the threat of hybridization and competition from brook trout will remain high.

4.7 Vegetation

4.7.1.4 Riparian Vegetation

Section 4.7 as described in the North Sheep FEIS (pp. 4-50 to 4-66) remains unchanged except for addition of the following paragraph.

The desired condition for the riparian vegetation was identified in Chapter 3 of this document. A late seral desired condition for riparian vegetation was defined in the AMPs (Supplement, Appendix C) for the allotments. Monitoring and adaptive management is key to preventing impacts and degradation and achieving desired conditions in the riparian habitats and upland meadows. All effects described in the North Sheep FEIS – Section 4.7, including compliance with the Forest Plan direction, remain unchanged.

4.8 Wildlife Resources

4.8.2.2.3.2.1 MIS Capable Habitat Greater sage-grouse

Alternative A- No Action Effects on Greater sage-grouse
Under the No Action alternative, all acres of MIS capable habitat for sage-grouse would remain open to livestock grazing. The effects of livestock grazing on sage–grouse habitat under the No Action Alternative are described in section 4.8.2.2.3.2 on page 4-75 of the North Sheep FEIS.

Alternative B – Proposed Action Effects on Greater sage-grouse
Under the Proposed Action, a total of 1,300 acres (12% of sage-grouse capable habitat) have been excluded from livestock grazing within the North Sheep project area. These capable habitat acres are at high elevations that would generally be used by sage-grouse males during the late-summer and fall.

A total of 9,906 acres (88% of sage-grouse capable habitat) are considered open for livestock grazing within the North Sheep project area. These acres are generally scattered through out the project area. The effects of livestock grazing on sage–grouse habitat under the Proposed Action Alternative are described in section 4.8.2.3.3.2 on page 4-79 of the North Sheep FEIS.

Alternative C – Grazing Phased Out Effects on Greater sage-grouse
Under Alternative C, all acres of capable sage grouse habitat will be excluded from livestock grazing. As described in section 4.8.2.4.3, page 4-80, the effects of livestock grazing on sage–grouse habitat in the North Sheep allotments would be eliminated under Alternative C.

4.8.2.2.3.2.2 Restoration of Lands in Less Than Satisfactory Condition

Per 36 CFR 219.20 (a), "Lands in less than satisfactory condition shall be identified and appropriate action planned for their restoration."

Section 4.8.2.2.3.2.2 Restoration of Lands in Less Than Satisfactory Condition is a new section and not found in the North Sheep FEIS.

This Section evaluates if and how the restoration strategies can be implemented given the grazing strategies presented in the alternatives

Effects Common to All Alternatives
As described in section 4.7.2.3.1 of the North Sheep FEIS, while manipulation of timing and intensity of livestock grazing through the adaptive management process will result in a trend towards desired conditions, some vegetative communities such as the sagebrush steppe may not return to the original community without vegetation manipulation projects or wildfire. This is consistent with the findings in the 2006 Sage-grouse Conservation Plan which states that "while subsequent changes in livestock management may be appropriate to nurture and maintain the restored area, such changes alone in the absence of restoration activities would likely provide little if any progress." (2006 Sage-grouse Conservation Plan, p. 4-55)

Alternative A- No Action
Sections 4.7.2.2 and 4.7.2.2.1 of the North Sheep FEIS describe the effects of continued livestock grazing on vegetation under the No Action Alternative. As described in these sections, localized heavy utilization would potentially affect the composition of important plant communities, woody shrubs would continue to become more dominant replacing forbs and grasses, and the graminoid and forb understory would continue to be altered, reducing cover and species composition. This alternative would be unlikely to trend towards desired conditions for vegetation, and therefore would not contribute to the restoration of lands in less than satisfactory condition from a vegetation standpoint. Section 4.8.7.1.3 of the North Sheep FEIS describes the effects of the alternatives in meeting the Forest Plan restoration objectives relative to MIS. As described in this section, the No Action alternative would not be consistent with Management Objective 0456 as it would maintain sagebrush communities in a less than satisfactory condition. Therefore, the No Action Alternative would not contribute to the restoration of lands in less than satisfactory condition from a MIS habitat standpoint.

Alternative B- Proposed Action
Sections 4.7.2.3 and 4.7.2.3.1of the North Sheep FEIS describe the effects of continued of livestock grazing on vegetation under the Proposed Action Alternative. As described in these sections, while removal or destruction of some above ground plant material through grazing or trampling may still occur, a trend towards desired conditions would occur due to the more careful management of grazing to meet specific goals. As described in section 4.7.2.3.1 of the North Sheep FEIS, while manipulation of timing and intensity of livestock grazing through the adaptive management process will result in a trend towards desired conditions, some vegetative communities such as the sagebrush steppe may not return to the original community without vegetation manipulation projects or wildfire. This is consistent with the findings in the 2006 Sage-grouse Conservation Plan which states that "while subsequent changes in livestock

management may be appropriate to nurture and maintain the restored area, such changes alone in the absence of restoration activities would likely provide little if any progress." (2006 Sage-grouse Conservation Plan, p. 4-55)

Given the closures to protect sensitive plant communities and the more careful management under the adaptive management process (as described in Chapter 2, Section 2.2.2.1), the Proposed Action would likely result in a trend towards desired conditions for vegetation and thereby contribute to the restoration of lands in less than satisfactory condition. As described in Section 4.8.7.1.3 of the North Sheep FEIS, grazing closures and adaptive management strategies would effectively move sagebrush communities towards desired condition, thereby contributing to the restoration of lands in less than satisfactory condition for MIS.

Alternative C – Grazing Phased Out

Sections 4.7.2.4 and 4.7.2.4.1of the North Sheep FEIS describe the effects of continued livestock grazing on vegetation under the Grazing Phased Out Alternative. As described in this section, livestock grazing impacts to vegetation would be removed and vegetative communities that were not historically severely overgrazed would move towards desired conditions. However, as described for the Proposed Action Alternative, without active vegetation recovery programs or wildfire these communities may not return to the original communities.

Given the elimination of the effects of livestock grazing on plant communities, Alternative C would result in a trend towards desired conditions for vegetation, and thereby contribute to the restoration of lands in less than satisfactory condition. As described in Section 4.8.7.1.3 of the North Sheep FEIS, elimination of livestock grazing would effectively move sagebrush communities towards desired condition, thereby contributing to the restoration of lands in less than satisfactory condition for MIS.