

# ENVIRONMENTAL ASSESSMENT

## Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization

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## ACRONYMNS

AMP	Allotment Management Plan
AUM	Animal Unit Month
BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
DPS	Distinct Population Segment
EA	Environmental Assessment
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
GIS	Geographic Information System
INFISH	Inland Native Fish Strategy
IRA	Inventoried roadless area
LAU	Lynx Analysis Unit
LWD	Large woody debris
MIS	Management Indicator Species
NEPA	National Environmental Policy Act
PVZ	Potential vegetation zone
RMO	Riparian Management Objective
TES	threatened, endangered, and sensitive
TMDL	Total maximum daily load
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	USDA Forest Service
USFWS	U.S. Fish and Wildlife Service

# 1. PURPOSE AND NEED

## 1.1 INTRODUCTION

The U.S. Department of Agriculture (USDA) Forest Service (USFS) has prepared this Environmental Assessment (EA) to evaluate the potential effects of continued livestock grazing on the Swan Lake, Quartz, and Trout Creek Grazing Allotments on the Republic Ranger District of the Colville National Forest. The 1995 Rescission Act requires environmental analysis and decisions on allotments within the National Forest System over a 15-year period. In order to meet the timeframe, the analysis of these three allotments is being presented in one document because of cost savings, close proximity, and similarity. This EA discloses the direct, indirect, and cumulative environmental impacts and any irreversible or irretrievable commitment of resources that would result from the proposed action and alternatives.

This EA has been prepared pursuant to the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations, according to the format established by the Council on Environmental Quality (CEQ) regulations implementing NEPA. The EA is organized into five chapters.

**Chapter 1** explains the purpose and need for the proposed action and its relation to the Forest Plan and certain federal and state policies and regulations. Chapter 1 also describes the NEPA scoping process and identifies key issues developed during the EA analysis.

**Chapter 2** describes and compares the proposed action, alternatives to the proposed action, and a no-action alternative, and summarizes the significant environmental consequences by issue described in detail in Chapter 3.

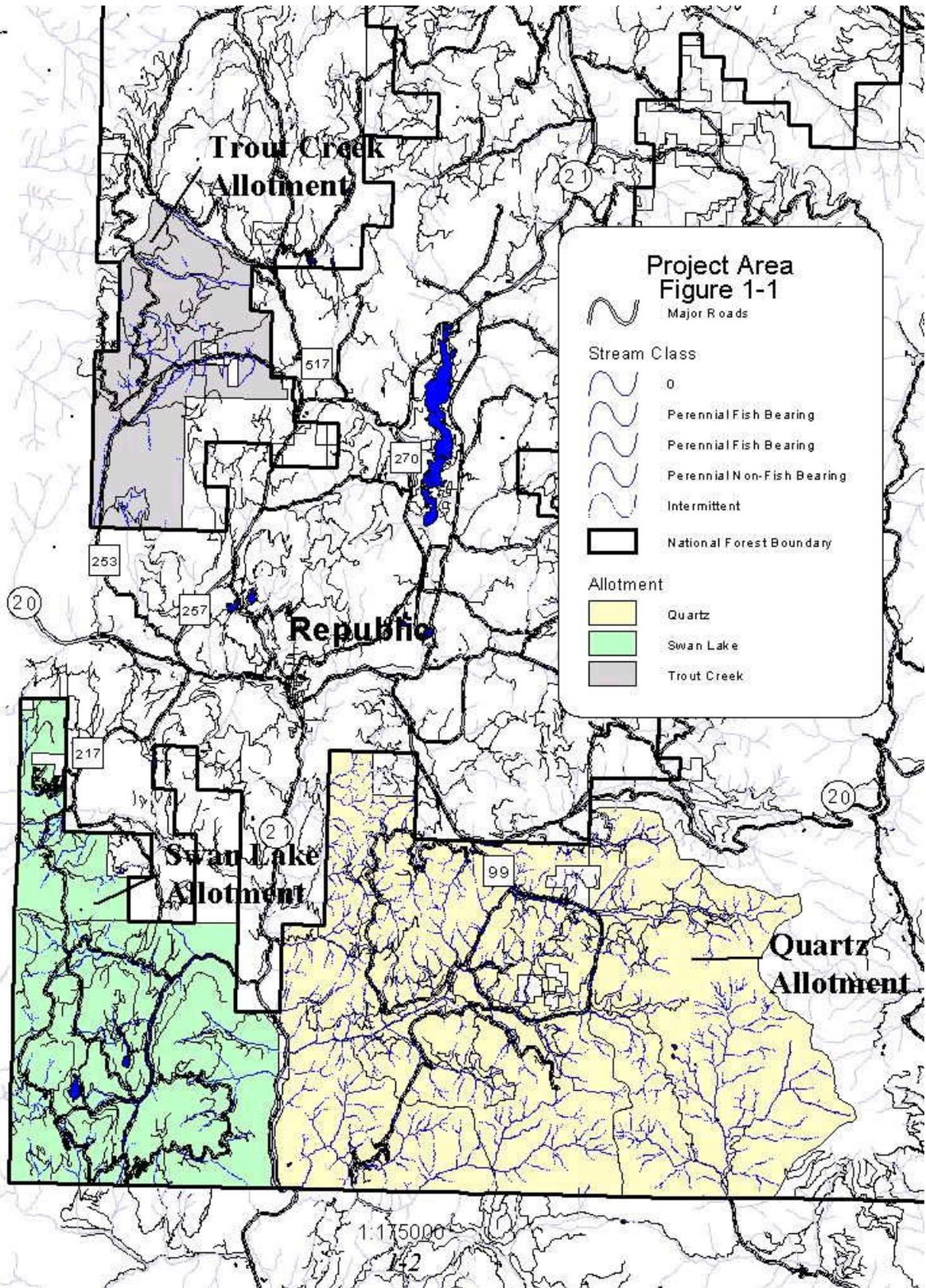
**Chapter 3** describes the physical, biological, and human environments potentially affected by the proposed action and alternatives and the potential effects that are anticipated.

**Chapter 4** presents references.

**Chapter 5** presents the distribution list, including the agencies and persons consulted.

The Swan Lake, Quartz, and Trout Creek Allotments encompass lands suitable for domestic livestock grazing. There are approximately 92,000 acres within the allotment boundaries, of which approximately 85,000 acres can be used for grazing livestock. The remaining area is not usable because of steep slopes or excluded areas (e.g., the Swan Lake recreation area). Together, the three allotments, along with lands acquired from Seattle City Light within the boundary of the Trout Creek Allotment, make up the project area; all are located in Ferry County, Washington, within approximately 10 miles of the town of Republic (Figure 1-1). These allotments are managed independently, but the effects of continued grazing on all three are addressed collectively in this analysis. Grazing is proposed to continue on all three allotments and mitigation measures would be implemented to address various resource concerns.

An Allotment Management Plan (AMP) normally regulates use of forage for livestock. Since existing AMPs were prepared (for Swan Lake in 1976, for Quartz in 1982, and for Trout Creek in 1976), there have been changes in resource conditions, permit administration, and regulations. In addition, the Forest Service issued the *1988 Colville National Forest Land and Resource Management Plan* (Forest Plan).



Changed conditions include the acquisition of 880 acres of land in 1999 from Seattle City Light in a land exchange in West Fork Trout Creek. Regulatory changes include the Inland Native Fish Strategy (INFISH) Biological Opinion, which identifies terms and conditions for maintaining native fish, primarily bull trout, westslope cutthroat trout, and redband trout.

## 1.2 PROPOSED ACTION

The proposed action was defined early in project-level planning. This served as a starting point for the USFS interdisciplinary team and provided the public and other agencies with specific information that allowed them to focus their comments. Using these comments (see discussion of issues later in this chapter) and information from the preliminary analysis, the team developed alternatives to the proposed action. These action alternatives are discussed in detail in Chapter 2.

The Republic Ranger District of the Colville National Forest proposes to authorize continued livestock grazing on the Swan Lake, Quartz, and Trout Creek Allotments under the following terms and conditions:

- Maintain grass and grass-like forage utilization levels at a maximum of 45 percent in upland designated key areas with no more than 40 percent utilization on riparian shrubs in designated key areas. Establish and monitor key areas to determine use levels in both the uplands and riparian areas. In deer winter range, establish key areas, and monitor them 1 out of every 2 years to determine use by both deer and livestock. Moves between pastures would be regulated by water and forage availability, as well as utilization levels. Use annual operating instructions to ensure that pastures are not grazed during the same portion of the growing season in consecutive years.
- Prevent the introduction and establishment of newly invading noxious weeds by using weed-free hay or straw in allotment management on National Forest System Lands, keeping vehicles free of noxious weeds and solid material that may contain noxious weeds, and removing noxious weed seed such as houndstongue from livestock before entering an allotment. Reduce and prevent the spread of existing populations of noxious weeds following USFS noxious weed prevention guidelines. Treat existing populations of noxious weeds within guidelines in the Forest's current Noxious Weed Environmental Assessment. Inventory and report noxious weed populations to the District noxious weed treatment coordinator.
- Include conditions in the grazing permits that will allow for annual variations in forage production on the allotments, allow forage plant recovery, and mitigate adverse impacts that occur when unforeseen conditions result in utilization levels that do not meet Forest Plan standards and guidelines. All pasture units within the allotment will have deer winter range and rangelands delineated. If qualitative use studies determine that utilization of key forage species in these areas is not meeting Forest Plan standards and guidelines, the following year's scheduled use will be adjusted through the annual operating plan. Rangeland delineations, values for the amount of area not meeting standards, and the resultant adjustments to scheduled use would be determined in the AMPs.
- Reduce the length of the season of use so that it ends no later than October 15th. This would mitigate mule deer winter range forage conflicts with use of browse by livestock.

Site-specific mitigation measures for each allotment are described in Chapter 2.

## 1.3 PURPOSE AND NEED

### 1.3.1 Purpose for Action

The purpose of this proposed action is to authorize continued livestock grazing in a manner that is consistent with the Colville Forest Plan (USDA Forest Service 1988a), as amended by INFISH.

### 1.3.2 Need for Action

Authorization is needed on the Swan Lake, Quartz, and Trout Creek Allotments, because the Forest Plan documented the continuing need for forage production from National Forest System lands and determined that these allotments were suitable for livestock grazing. The action is needed to move towards the desired future condition identified in the Forest Plan. Developing new allotment management plans and making range improvements were identified in the Forest Plan (Appendix C) to achieve desired future conditions. Not updating allotment management plans would be inconsistent with the goals and objectives identified in the Forest Plan (Forest Plan, page 4-2; Record of Decision, page 19).

Additional direction comes from the need to meet the Rescission Bill schedule. Section 504(a) of the 1995 Rescission Act, Public Law 104-19, pertains to grazing on National Forest System lands, specifically allotment analysis, grazing permit issuance, and compliance with NEPA. The Rescission Act requires that environmental analysis and decisions on allotments within the National Forest System under NEPA constraints occur between 1996 and 2010. Surveys of selected riparian/stream reaches and Forest Plan monitoring indicate that current grazing management activities may be contributing in some specific locations and situations to less than satisfactory resource conditions, or may be retarding attainment of applicable Forest Plan standards and guidelines and/or Endangered Species Act consultation management objectives. The primary concerns associated with grazing management activities are based on riparian/stream, fisheries, and wildlife habitat conditions.

Where consistent with other multiple use goals and objectives, there is Congressional intent to allow grazing on suitable lands (Multiple-Use Sustained Yield Act of 1960, Wilderness Act of 1964, Forest and Rangeland Renewable Resource Planning Act of 1974, Federal Land Policy and Management Act of 1976, National Forest Management Act of 1976). It is USFS policy to make forage available to qualified livestock operators from lands suitable for grazing consistent with land management plans (FSM 2203.1). USFS policy also directs continued contributions to the economic and social well-being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on range resources for their livelihood (FSM 2202.1). By regulation, forage-producing lands will be managed for livestock grazing where consistent with land management plans (36 CFR 222.2 (c)).

The current management plan for the Swan Lake Allotment is achieving desired conditions. Management is consistent with Forest Plan standards, guidelines, goals, and objectives. Thus, there appears to be no need for change from the current management plan. However, there is a need to change the current management plans for the Quartz and Trout Creek Allotments, because they are not moving toward desired conditions. Specific desired conditions not being met include the following:

- Riparian areas around beaver ponds in Ninemile Creek, in a tributary of South Fork O'Brien Creek, around Hougland Meadows (Bowe Meadows), and around Culvert and Seven Dollar #2 water developments do not meet standards for stream channel and riparian conditions in the Forest Plan.
- Winter range shrub use is not meeting utilization standards in two areas.

- Snow Peak Trailhead and trail (new portion) are not being protected during grazing activities. Damage in this area is increasing.

Areas that do not meet desired future conditions are described in greater detail in Section 1.3.3 (Assessment of Need for Action), below. Additional information, including maps, are on file at the Republic Ranger District Office.

### **1.3.3 Assessment of Need for Action**

#### **1.3.3.1 Existing Condition**

##### **Swan Lake Allotment**

The *Scatter Watershed Analysis Report* (Scatter Report; USDA Forest Service 2000a) covers all of the Swan Lake Allotment. Specific areas identified in the Scatter Report have since received restorative treatments by hardening stream crossings, fencing, barricades, and planting. Subsequent monitoring will determine if additional work is necessary and if other measures are needed. Sites identified in the report as being impacted by livestock grazing include the following (Scatter Report, page 11):

- A 1-acre wetland 1 mile west of the USFS Road 5314 corral;
- A small wetland at the headwaters of Sheep Creek, between roads 5314 and 5330;
- A 0.5-acre wetland north of Ferry Lake near an old beaver pond;
- A 2-acre area in Grazing Unit 1, near the junction of USFS Roads 53 and 5320; and
- A congregating and trailing site near USFS Road 5320, milepost 0.1, where an enclosure fence is intersected by a Scatter Creek tributary.

Swan Lake and Ferry Lake are excluded from grazing. Periodically, livestock enter the area primarily through open gates or breaches in the fence.

##### **Quartz Allotment**

The Ninemile/Thirteenmile Pilot Watershed Analysis Report (9/13 Report; USDA Forest Service 1994) covers most of the Quartz Allotment. South Fork O'Brien Creek and Hall Creek were not part of the analysis. Findings of this analysis and field inventory pertaining to grazing livestock for the Quartz Allotment include the following:

- The beaver pond riparian area in Ninemile Creek shows a change in riparian vegetation from its potential plant community partly in response to livestock grazing (9/13 Report, page 10). The existing condition includes an alder/bluegrass plant community when its potential plant community should be alder/snowberry or alder/red-osier dogwood. This portion of Ninemile Creek does not fully meet Forest Plan standards and guidelines.
- There is a tributary of South Fork O'Brien Creek where road construction and riparian harvest have facilitated livestock access to the stream. Degrading streambank stability and increasing channel downcutting by livestock grazing have resulted in riparian conditions that do not meet Forest Plan standards and guidelines.

In addition to the findings in the watershed analysis, more than incidental damage occurs on the Snow Peak Trailhead facility and the Snow Peak trail tread (to the old trail junction) because of livestock

grazing. These conditions do not meet the Forest Plan standard and guideline to protect these facilities during management activities (Forest Plan, page 4-37).

High use of browse, primarily serviceberry, occurs around Bear Mountain, Camel Mountain, Brown Mountain, Cougar Mountain, Quartz Mountain, and Thirteenmile Mountain. This use is attributed to both livestock and deer.

Limited livestock use occurs south of the cattleguard in Hall Creek. There are no barriers to prevent livestock from grazing on Barnaby Buttes and Hall Creek in the neighboring Lake Ellen Allotment. There are no range improvements in this area. There is a desire to have no more than occasional incidental livestock use in this area.

Low livestock use occurs around the Clark and Pine water developments. There are no barriers to keep livestock from leaving this part of the allotment and returning to private land. This is especially true when the unit is used first in the rotation. There is an opportunity to increase use in this area while meeting Forest Plan standards and guidelines for forage utilization.

### **Trout Creek Allotment**

None of the Trout Creek Allotment has been covered by watershed analysis. Through a land exchange with Seattle City Light, the USFS acquired a large meadow (known locally as Bowe Meadows or Hougland Meadows) and other acreage not included in the current AMP. The lands acquired were not fenced out of the allotment. They had historically been used by the Trout Creek Allotment permittee with the permission of the private landowner. When the lands were acquired by the USFS, no additional livestock were granted to the permittee as a result of the additional forage area. At the time of exchange, the permittee repaired the fence around the meadow, approximately 46 acres, and used it as a holding and gathering area for approximately 10 to 15 days per season.

Resource impacts identified through a field inventory for an ongoing project (Trout Vegetation Management Project) include the following:

- The fence around Bowe Meadows does not meet standards. In addition, the meadow has been drained by a ditch along its southern edge and is believed to have been more of a wetland at one time. In the future, the USFS may propose to eliminate the ditch and restore the wetland. As the water table rises, more fence construction is going to be needed to enclose more of the wetlands, approximately 68 acres including the existing fenced area.
- Stream channel and riparian conditions around Culvert and Seven Dollar #2 water developments are not meeting Forest Plan standards.

Additional conditions affecting livestock management in the Trout Creek Allotment include the following:

- Grasslands and grazing lands are being lost as a result of invasion and/ or encroachment of conifers north of Hougland Meadows (Bowe Meadows). Primary conifers invading these grasslands are lodgepole pine and Douglas-fir. Some of these grasslands have been farmed in the past, and some of this invasion is attributed to old-field succession.
- Old fencelines from lands acquired through land exchange are either of no use in management of the allotment or are in need of repair. These fences are a hazard in some instances, and removal of some would provide improvements to management of the allotment.

- Redband rainbow trout have been identified in the West Fork Trout Creek. This is a native species of fish and is listed by the Regional Forester as a sensitive species.
- Limited livestock use occurs south of Storm King Mountain in Unit 3. Most use occurs in older harvest units. The use is limited due to lack of water developments in this area. There is available forage and an opportunity to increase use in this area while meeting Forest Plan standards and guidelines for forage utilization.
- Unit 2 has very little primary range, and most livestock use occurs on private land and in old harvest units. The water developments are located in timbered areas not generally used by livestock, which increases the use of riparian areas in West Fork Trout Creek. Lands acquired in the area from Seattle City Light are fenced to exclude livestock grazing. In the past, it has been difficult to manage livestock in this unit without adequate improvements.

### **1.3.3.2 Desired Condition**

The Colville Forest Plan (page 4-63) states that livestock grazing will be more intensively managed. Livestock use will stay within the established use rates. Permittee control will be at an adequate level and, overall, more intensive management systems will be employed. All allotments will emphasize riparian habitat protection and/or recovery.

Grazing permits and allotment management plans will support these goals by providing for the following specific objectives:

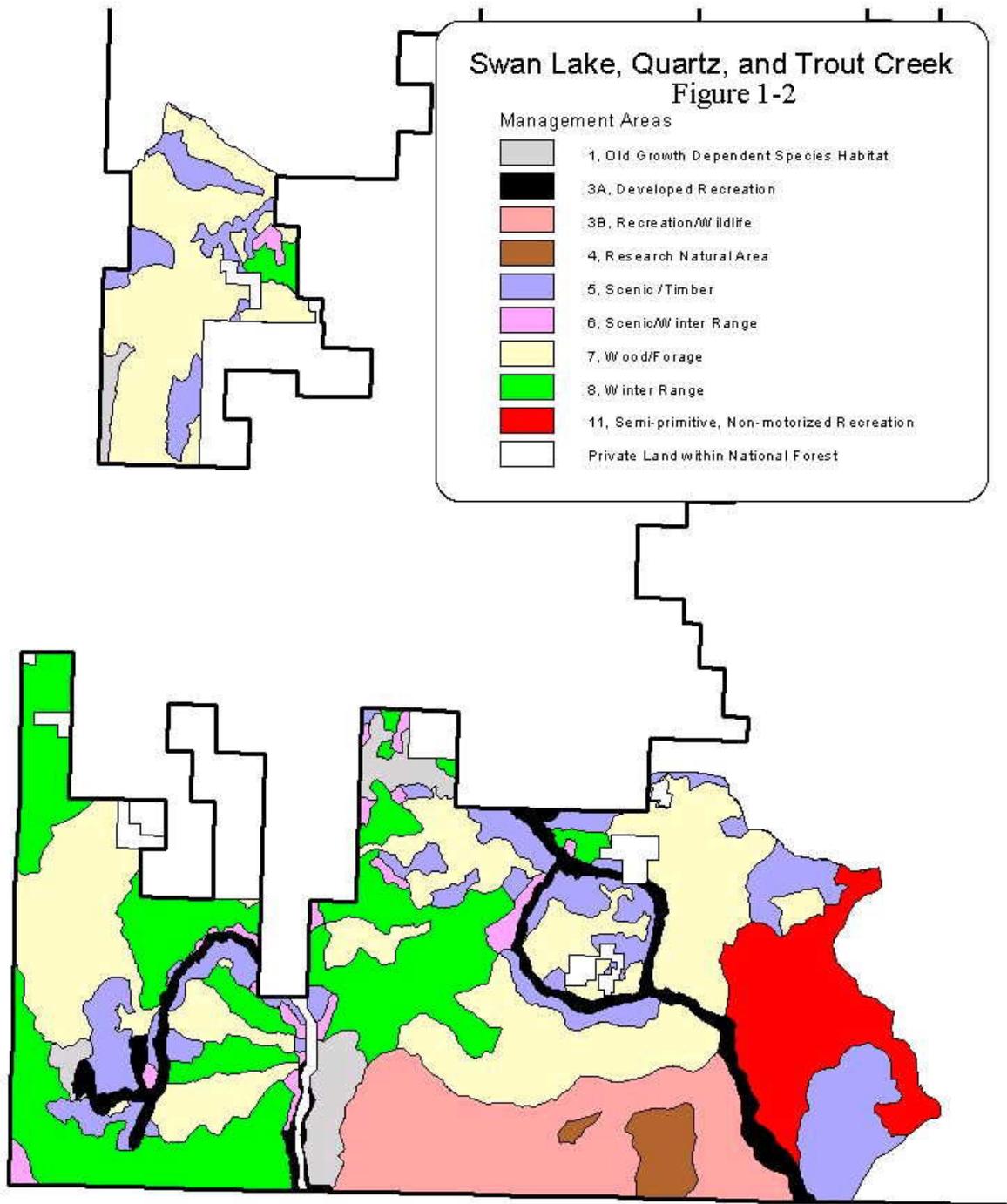
- Correct grazing activities contributing to unsatisfactory riparian conditions.
- Maintain or improve forage habitat in mule deer winter range.

## **1.4 FOREST PLAN DIRECTION**

The guiding management direction for the project area is provided by the Forest Plan, as amended by INFISH. INFISH directs that grazing practices should not prevent or retard the attainment of Riparian Management Objectives (RMOs). In order to determine progress towards achieving RMOs (pool frequency, water temperature, large woody debris, bank stability, lower bank angle, width-to-depth ratio, and fine sediment), the related Biological Opinions detailed non-discretionary direction for implementation, effectiveness, and validation monitoring.

Forest Plan Management Areas in the project area are summarized below and depicted in Figure 1-2.

- Management Prescription 7 (33,302 acres) areas are managed for production of forage and timber products (Forest Plan, page 4-101).
- Management Prescription 6 (1,866 acres) and Management Prescription 8 (19,599 acres) areas are managed to provide habitat conditions for mule deer on their winter ranges (Forest Plan, pages 4-97, 99, 105, and 107).
- Management Prescription 5 (13,486 acres) areas are managed to provide a natural appearing setting along major travel routes, while providing wood products (Forest Plan, pages 4-93 and 94).
- Management Prescription 3B (11,495 acres) areas are managed to provide semi-primitive recreation opportunities, while meeting objectives of wildlife management (Forest Plan, pages 4-81 and 82).



- Management Prescription 4 (1,623 acres) areas are managed to provide opportunities for research in ecosystems influenced only by natural processes (Forest Plan, pages 4-89 and 91).
- Management Prescription 11 (7,390 acres) areas are managed to provide dispersed, non-motorized recreation opportunities (Forest Plan, pages 4-81 and 82).
- Management Prescription 3A (3,634 acres) areas are managed to provide roaded and unroaded recreation opportunities. Conflicts between range and recreation uses will be resolved in favor of recreation (Forest Plan, pages 4-77 and 78). Swan Lake and Ferry Lake are both within this management area and are currently fenced out of the allotment pastures.
- Management Prescription 1 (3,458 acres) areas are managed to provide essential habitat for wildlife species that require old forest components (Forest Plan, pages 4-69 and 71).

## 1.5 DECISIONS TO BE MADE

For each of the allotments, the decision to be made by the District Ranger of the Republic Ranger District, Colville National Forest, is whether to authorize continued grazing. If grazing is authorized, the District Ranger will decide what conditions and mitigations would be necessary to implement the action.

If continued grazing is authorized, the outcome of the decisions would be used to develop the AMP for each allotment. The AMP would identify specific objectives, management practices, and range improvement needs and would include mitigation measures identified in this environmental assessment. The AMP would be developed with the permittee as part of the term grazing permit that is needed to implement any action alternative. A term grazing permit is a written authorization the USFS issues a party to graze domestic livestock on National Forest System lands. The permit contains terms and conditions that further define the requirements for holding the permit.

## 1.6 PUBLIC INVOLVEMENT

The CEQ defines scoping as “...an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action” (40 CFR 1501.7). Among other things, the scoping process is used to invite public participation, help identify issues important to the public, and obtain public comment at various stages of the EA process. Although scoping should begin early, it is an iterative process that continues until a decision is made.

The public was initially notified of this project through a scoping letter mailed to addressees on the Colville National Forest mailing list on March 19, 2004. The mailing list included residents, agencies, businesses, and organizations. The scoping letter described the project and its purpose and need. It included a project map and opportunity for public comment. A legal notice was published in the Republic News-Miner newspaper, requesting comments. The comment period lasted through April 5, 2004. Five letters and contact forms were received.

The scoping document, the mailing list, and comments received are included in the administrative record for this project. Scoping comments are summarized in Appendix A. The administrative record is available for review at the Republic Ranger District office.

## **1.7 ANALYSIS ISSUES**

An interdisciplinary team developed the initial list of issues from comments received during public scoping. Pertinent comments were used to develop the issues concerning the proposed action and its potential effects on physical, biological, social, and/or economic resources. A number of the concerns identified were determined to be outside the scope of this proposal. Other concerns identified were not relevant or concerned impacts that could be mitigated. The discussion and the rationale for these concerns are included in Appendix A. Following the review of public issues and additional field assessments by USFS specialists, the proposed action was modified to address these issues.

The following issues were determined to be relevant and within the scope of the project decision. These issues are addressed through the proposed action and alternatives.

### **1.7.1 Issue 1: Feasibility and Effectiveness of Mitigation Measures**

#### **Issue Statement**

Implementation of some mitigation measures designed to reduce impacts to resources may not be feasible, or the measures themselves may not be effective.

#### **Background**

There is concern that the proposed mitigation measures threaten water rights, are not feasible, and are not effective.

#### **Indicators**

Indicators for alternatives will be the number of mitigation measures with low effectiveness.

### **1.7.2 Issue 2: Recreation**

#### **Issue Statement**

Grazing may impact recreation sites.

#### **Background**

Livestock have damaged the Snow Peak Trail and trailhead. Continued grazing in the area may cause additional damage. Members of the public have also identified concerns about the effects of grazing management upon roadless area characteristics and of mitigation measures (i.e., fences in riparian areas) on access to dispersed recreation sites.

The proposed action addresses these concerns by including the construction of 1 mile of fence to exclude cattle from a portion of the Snow Peak Trail and the Snow Peak trailhead and by assuring that dispersed recreation sites will not be fenced into riparian areas.

#### **Indicators**

Indicators for differences among the alternatives will be the number of miles of trail from which cattle are excluded and the number of dispersed recreation sites fenced into riparian areas.

### **1.7.3 Issue 3: Riparian/Water Quality**

#### **Issue Statement**

Grazing in riparian areas may impact riparian habitats, water quality, and overall watershed health.

#### **Background**

Site-specific concerns associated with this issue include increased sedimentation and stream widening in Ninemile Creek, the north tributary to South Fork O'Brien Creek, and the wetland in West Fork Trout Creek.

The proposed action addresses these concerns by including the construction of fence to exclude cattle from specified wetland and riparian areas.

#### **Indicators**

Indicators for differences among the alternatives will be the number of miles of stream and the number of acres of wetland habitat that have been identified as not meeting Forest Plan standards and guidelines, where grazing is allowed.

### **1.7.4 Issue 4: Economics**

#### **Issue Statement**

The proposed mitigation measures may impact the local economy.

#### **Background**

Implementation of mitigation measures that were designed to reduce resource impacts would decrease the amount of grazing area available to permittees and would incur costs to permittees and the USFS. Members of the public have expressed concern that additional mitigation measures would create a substantial financial hardship on permittees.

#### **Indicators**

Indicators of differences among the alternatives will be the estimated cost of implementing mitigation measures, the permittee costs per Animal Unit Month (AUM) to maintain improvements and operate on the allotments, and the number of AUMs available to be permitted.

### **1.7.5 Issue 5: Wildlife (Big Game)**

#### **Issue Statement**

Mule deer winter range forage habitat may be altered by livestock grazing.

#### **Background**

Over-utilization of shrubs may reduce available forage during critical winter months. To address the concern, the length of the season of use was reduced during the late fall to October 15 in the proposed action.

## **Indicators**

The indicator for differences among the alternatives will be how many acres of inventoried winter range that do not currently meet Forest Plan browse utilization standards, where grazing is permitted beyond September 30.

### **1.7.6 Issue 6: Vegetation**

#### **Issue Statement**

Grazing may impact native plant communities by altering the distribution and abundance of plant species and through introduction and spread of noxious weeds.

#### **Background**

The proposed action addresses these concerns by establishing key areas for monitoring and by including measures designed to prevent the introduction and establishment of invasive noxious weeds. In addition, the proposed action includes the removal of invading conifers from grassland areas.

#### **Indicators**

Indicators for this issue include the number of key areas to be monitored, the implementation of specific noxious weed control measures, and the acres of grassland restored to non-forested condition.

## 2. ALTERNATIVES

### 2.1 INTRODUCTION

This chapter describes and compares the alternatives considered by the USFS for the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization project. This section includes a description of the alternatives considered in detail, a comparison of the alternatives by issue and those alternatives eliminated from detailed analysis. Chapter 2 also includes a summary comparison of the predicted effects of the three considered alternatives on the human environment, which sharply defines the issues and provides a clear basis for choice by the decision-maker and the public. A more-detailed analysis of the effects of the alternatives by issue and other environmental considerations is presented in Chapter 3.

### 2.2 ALTERNATIVES CONSIDERED FOR DETAILED ANALYSIS

A range of reasonable alternatives was considered for the Swan Lake, Quartz, and Trout Creek project. Alternatives (potential actions) were formulated as a result of the public involvement process and USFS interdisciplinary review. The no-action alternative (continuation of current management) is represented by Alternative 1. The following is a general description of the alternatives that were considered for detailed analysis. Table 2-1 provides an overview of the key elements of the three alternatives considered for this project.

**Table 2-1. Activities and Outputs in the Project Area by Alternative**

Issue	Alternative 1 Current Management	Alternative 2 Proposed Action	Alternative 3 No Grazing
Key area utilization levels (upland forage/riparian shrub)	45-70% Grass	45% Grass/40% Shrubs	0%
Noxious weed control: Use weed free hay or straw Vehicle check Remove seed from livestock	Yes Yes Yes	Yes Yes Yes	Yes Yes N/A
End of seasonal use	31 October (15 October in Quartz AMP and Trout Creek)	15 October	N/A
Miles of new fence construction	0	Swan Lake – 0.0 Quartz – ~2.25 Trout Creek – ~1.0	0
Number of new water developments	0	Swan Lake – 0 Quartz – 1 Trout Creek – 2	0
[Additional] acres of riparian or wetland areas fenced out of pastures	0	Swan Lake – 0.0 Quartz – 1.5 Trout Creek – 1.0	0
Miles of Snow Peak trail from which cattle are excluded	0	~0.5	NA

**Table 2-1. Activities and Outputs by Alternative (continued)**

<b>Issue</b>	<b>Alternative 1 Current Management</b>	<b>Alternative 2 Proposed Action</b>	<b>Alternative 3 No Grazing</b>
Economics – costs of the following:			
New fence construction	\$ 0	\$31,680	\$ 0
New water developments	\$ 0	\$5,400	\$ 0
Riparian Exclosures	\$ 0	\$1,600	\$ 0
Conifer removal	\$ 0	\$4,500	\$ 0
Fence removal	\$ 0	\$1,500	\$ 0
AUMs Allocated:			
Swan Lake	855	754	0
Quartz	2,099	1,889	0
Trout Creek	627	627	0
Livestock Authorized:			
Swan Lake	127	127	0
Quartz	318	318	0
Trout Creek	104	104	0
Number of pastures rotated in the following areas:			
Swan Lake	3	3	N/A
Quartz	3	3	N/A
Trout Creek	3	2	N/A

### **2.2.1 Alternative 1 - No Action (Current Management)**

Continued livestock grazing on the Swan Lake, Quartz, and Trout Creek Allotments would be authorized under the terms and conditions in the current allotment management plans:

- Maintain grass and grass-like forage utilization levels at a maximum of 50 percent in upland designated key areas in the Swan Lake and Trout Creek Allotments, with no more than 70 percent utilization of bluegrass in designated key areas. Maintain grass and grass-like forage utilization levels at a maximum of 45 percent in Unit 1, 50 percent in Unit 2, and 55 percent in Unit 3 in upland designated key areas in the Quartz Allotment. Moves between pastures would be regulated by water and forage availability, as well as utilization levels. Annual operating instructions would be used to ensure that pastures are not grazed during the growing season in consecutive years.
- Maintain season of use on Swan Lake Allotment at 1 June to 31 October and Quartz and Trout Creek Allotments at 1 June to 15 October.

### **2.2.2 Alternative 2 – Proposed Action**

Continued livestock grazing on the Swan Lake, Quartz, and Trout Creek Allotments would be authorized under the following terms and conditions:

- Maintain grass and grass-like forage utilization levels at a maximum of 45 percent in upland designated key areas, with no more than 40 percent utilization of riparian shrubs in designated key areas. Establish and monitor key areas to determine use levels in both the uplands and riparian areas. In deer winter range, establish key areas, and monitor them 1 out of every 2 years to determine use by both deer and livestock. Regulate moves between pastures by water and

forage availability, as well as utilization levels. Use annual operating instructions to ensure that pastures are not grazed during the same portion of the growing season in consecutive years.

- Prevent the introduction and establishment of newly invading noxious weeds by using weed-free hay or straw in allotment management on National Forest System lands, keeping vehicles free of noxious weeds and solid material that may contain noxious weeds, and removing noxious weed seed such as houndstongue from livestock before entering an allotment. Reduce and prevent the spread of existing populations of noxious weeds following USFS noxious weed prevention guidelines (USDA Forest Service 1999). Treat existing populations of noxious weeds within guidelines in the Forest's current Noxious Weed Environmental Assessment. Inventory and report noxious weed populations to District noxious weed treatment coordinator.
- Include conditions in the grazing permits that will allow for annual variations in forage production on the allotments, allow forage plant recovery, and mitigate adverse impacts that occur when unforeseen conditions result in utilization levels that do not meet Forest Plan standards and guidelines. All pasture units within the allotment will have deer winter range and rangelands delineated. If qualitative use studies determine that utilization of key forage species in these areas is not meeting Forest Plan standards and guidelines, the following year's scheduled use will be adjusted through the annual operating plan. Range delineations, values for the amount of area not meeting standards, and the resultant adjustments to scheduled use would be determined in the AMPs.
- Reduce the season of use to end no later than 15 October. This would mitigate mule deer winter range forage conflicts with use of browse.

For the Quartz Allotment, site-specific mitigation measures, in addition to the terms and conditions listed above, would include the following:

- Build 1.25 miles of drift fence along Ninemile Creek. Exclude the dispersed recreation sites from being fenced into the riparian area. This would mitigate grazing impacts in the riparian area.
- Build 0.75 mile of fence to exclude the riparian area in the north tributary of the South Fork O'Brien Creek. Include a water development to provide stock water in a hardened, low-impact area. This would mitigate grazing impacts in the riparian area.
- Build 1 mile of fence and exclude the Snow Peak Trailhead and new portion of the trail. This would mitigate recreation damage to the Snow Peak Trailhead facility.
- Maintain shrub forage utilization levels at a maximum of 35 percent in upland key areas identified as being in unsatisfactory condition until use can be maintained with no more than 40 percent utilization. This would mitigate shrub use in mule deer winter range.

For the Trout Creek Allotment, site-specific mitigation measures in addition to the terms and conditions listed above would include the following:

- Build 0.75 mile of fence to exclude wetlands in Bowe Meadows. This would mitigate grazing impacts in the riparian area and eliminate future conflicts as the restoration of the meadow occurs.
- Enlarge the spring enclosure and barricade more riparian areas around Culvert and Seven Dollar #2 water developments. This would mitigate grazing impacts in the riparian area.
- Remove invading conifers from grassland areas by cutting noncommercial trees by hand. This would mitigate loss of grasslands due to encroaching conifers.
- Remove old fences not needed for management of the allotment.

- Eliminate Unit 2 as a pasture for grazing and remove Storm King water developments (two).
- Construct two water developments in Unit 3. This would mitigate lack of use of this area of the pasture.

No additional site-specific mitigation measures would be included for the Swan Lake Allotment beyond the terms and conditions identified above.

### 2.2.3 Alternative 3 – No Grazing

Under this alternative, no grazing would occur in the three allotments. All grazing permits would be canceled upon implementation of the decision and resolution of the appeals process. No new permits would be issued for any of the three allotments. All existing improvements would not be maintained. Exterior fences would be assigned to adjacent permittees for continued maintenance. Noxious weed treatments would continue under existing budgets, environmental documents, and approved future projects.

## 2.3 MITIGATION MEASURES

The USFS uses additional mitigation and preventive measures in its planning and implementation of land management activities. The application of these measures begins during the planning and design phases of a project. These measures come from or tier to the Forest Plan and recommendations from USFS and specialists. They continue through all phases of subsequent management related to the project.

Mitigation effectiveness is rated as follows:

- **High:** The mitigation is highly effective (estimated at greater than 90 percent) at meeting the objective, and research, literature, administrative studies, experience, or facts (evident by logic or reason) are available.
- **Moderate:** The mitigation is moderately effective (estimated at 60 to 90 percent), and its effectiveness is supported by either evidence or logic. Implementation of this mitigation needs to be monitored, and the mitigation may be modified, if needed, to achieve its objective.
- **Low:** The mitigation is somewhat effective (estimated at less than 60 percent), but its effectiveness is not supported by substantial evidence or professional judgment indicates limited success in implementing or meeting objectives. Implementation of this mitigation must be monitored, and the mitigation may be modified, if needed, to achieve its objective.
- **Unknown:** Effectiveness is unknown or unverified; there is little or no documentation, or applied logic is uncertain. The mitigation needs both effectiveness and validation monitoring to determine success in meeting objectives.

Mitigation measures are described below. Following each description is a brief assessment of the measure's anticipated effectiveness, based on logic, experience, or other criteria.

- Best management practices (BMPs) (FSH 2509.22) would be used in all alternatives where ground-disturbing activities occur. BMPs and other mitigation measures would be applied to protect soil, water, and vegetation resources where construction (e.g., new fencing or water developments) activities would occur in sensitive areas. The BMPs would be described for site-specific conditions within the erosion and drainage control plan developed prior to project construction and in consultation with permitting agencies. [High: Experience, Logic. BMPs have

been developed to protect water quality, to comply with the Clean Water Act of 1972, and to meet or exceed Washington State standards. These BMPs have been used since 1988.]

- In Unit 2 (Thirteenmile Area only) of the Quartz Allotment, the season of use would be reduced in length and end no later than October 1. [High: Logic. The unit is separated by an existing fence and cattleguard.]
- Prevent the introduction and establishment of newly invading noxious weeds by using weed-free hay or straw in allotment management on National Forest System lands. [High: Logic. The use of hay is limited chiefly to luring livestock in fall gathering and is generally limited to corrals, main roads with gates, and some campsites.]
- Keep vehicles free of noxious weeds and solid material that may contain noxious weeds. [Moderate: Evidence. When people check and clean vehicles, including off-highway vehicles, reduction in the spread of noxious weeds is effective. Similar provisions are currently being used in timber sale contracts.]
- Remove noxious weed seed such as houndstongue from livestock before entering allotment. [Low: Professional Judgment. Using separate pastures on private land where noxious weeds are easier to treat, prior to moving livestock onto the allotment, has had limited success.]
- Reduce and prevent the spread of existing populations of noxious weeds following USFS noxious weed prevention guidelines (1999). [High: Logic. Will be included in annual operating instructions.]
- Treat existing populations of noxious weeds within guidelines in the Forest's current Noxious Weed Environmental Assessment. [High: Experience. The district treats Class B designate noxious weeds and vehicle corridors annually.]
- Inventory and report noxious weed populations to District noxious weed treatment coordinator. [High: Experience. The permittees have often been the first to notify personnel of weed infestations.]
- Fence or barricade riparian areas around beaver ponds in Ninemile Creek, in tributary of South Fork O'Brien Creek, around Hougland Meadows (Bowe Meadows), and around Culvert and Seven Dollar #2 water developments that do not meet standards for stream channel and riparian conditions in the Forest Plan. [High: Logic, Experience.]
- Fence Snow Peak Trailhead and trail (new portion) during grazing activities. [Moderate: Evidence. Gates can be left open by recreationists which may result in similar damage without the fence.]
- Reduce the length of the season of use so that it ends no later than October 15th. [High: Experience. At the end of the season when most grass forage is used or dry, increased browse on shrubs, especially in riparian areas is evident.]
- Use Hougland Meadows (Bowe Meadows) as a holding and gathering area with use to be no greater than 10 to 14 days when turning livestock onto the allotment and 7 to 10 days in the fall when removing livestock from the allotment. [High: Logic. The gathering area is separated by an existing fence and cattleguard.]

## **2.4 ALTERNATIVES ELIMINATED FROM DETAILED ANALYSIS**

The interdisciplinary team (IDT) eliminated one alternative from detailed study during this analysis: adding the additional lands acquired from Seattle City Light in the West Fork Trout Creek in Unit 2 to

make a larger, more logical pasture unit. Although this alternative contributed to the reasonable range of alternatives, it was eliminated because there was no fencing or other barriers on the Forest Boundary to keep livestock on the allotment. Forest boundary fences are not the responsibility of the Colville National Forest and would become the responsibility of the adjacent landowner(s) (unless a county restricted area was put in place) to install if livestock were not desired on private property.

## 2.5 COMPARISON OF ENVIRONMENTAL CONSEQUENCES

Table 2-2 provides a comparison of the potential environmental consequences of the three alternatives within the project area and the area of impact.

**Table 2-2. Comparison of Alternatives and Potential Environmental Consequences within the Project Area**

Issue	Alternative 1 – Current Management	Alternative 2 – Proposed Action	Alternative 3 – No Grazing
<b>Issue 1: Mitigation</b>			
Number of mitigation measures with low effectiveness	NA	1	NA
<b>Issue 2: Recreation</b>			
Miles of trail from which cattle are excluded	0	0.5	NA
Dispersed recreation sites fenced into riparian areas	0	0	0
<b>Issue 3: Riparian/Water Quality</b>			
Miles of stream identified as not meeting Forest Plan standards and guidelines, where grazing is allowed	1.75	0	0
Acres of wetland habitat identified as not meeting Forest Plan standards and guidelines, where grazing is allowed	0.5	0	0
<b>Issue 4: Economics</b>			
Implementation costs	Swan Lake - \$0.00	\$0.00	\$0.00
	Quartz - \$0.00	\$25,560	
	Trout Creek - \$0.00	\$17,140	
AUMs available to be permitted	Swan Lake - 855	754	0
	Quartz – 2,099	1,889	
	Trout Creek - 627	627	
Permittee costs/AUM	Swan Lake - \$5.48	\$6.02	NA
	Quartz - \$4.16	\$4.60	
	Trout Creek - \$7.14	\$7.33	

**Table 2-2. Comparison of Alternatives and Potential Environmental Consequences within the Project Area (continued)**

<b>Issue</b>	<b>Alternative 1 – Current Management</b>	<b>Alternative 2 – Proposed Action</b>	<b>Alternative 3 – No Grazing</b>
<b>Issue 5: Wildlife</b>			
Acres of inventoried winter range that do not currently meet Forest Plan browse utilization standards, where grazing is permitted beyond September 30	2,098	0	0
<b>Issue 6: Vegetation</b>			
Number of key areas monitored	8 (existing riparian monitoring sites)	10 (1 site/deer winter range area/pasture) 8 (existing riparian monitoring sites) 8 (1 site/rangeland area/pasture)	NA
Inclusion of noxious weed control measures in AMPs	No	Yes	NA
Acres of grassland restored to non-forested condition	0	50	0

## **2.5.1 Issue Discussion**

### **2.5.1.1 Issue 1: Feasibility and Effectiveness of Mitigation Measures**

Most of the mitigation proposed under Alternative 2 are rated either high or moderate in effectiveness. Preventing noxious weed seed dispersal by removing the seeds from livestock is rated low in effectiveness. Mitigation measures are feasible.

### **2.5.1.2 Issue 2: Recreation**

Under Alternative 1 (No Action), cattle would continue to cause damage to the Snow Peak trail and trailhead facility. Such damage would not occur under Alternative 2 (Proposed Action), because cattle would be excluded from that portion of the Quartz Allotment. By eliminating cattle from the allotments altogether, Alternative 3 would also remove the potential for damage to the trail and trailhead.

### **2.5.1.3 Issue 3: Riparian/Water Quality**

Under Alternative 1 (No Action), continued livestock grazing on the allotments would maintain the amount of detrimental compaction and soil displacement around creeks. Bare soil in riparian areas would likely result in soil loss and stream sedimentation. Roads in the riparian habitat conservation areas would continue to be sites of surface erosion within the riparian areas. The Ninemile Creek and North Fork of O'Brien Creek riparian areas would probably continue to not meet Forest Plan standards and guidelines for riparian areas on a regular basis. The meadow area adjacent to Bowe Meadows would continue to decrease in size and quality as conifer encroachment continues. The number of livestock on the allotment may decline over time because of decreased available transitory range forage, thereby leading to a reduced impacts on stream and riparian habitats.

Alternative 2 (Proposed Action) would address site-specific concerns by the construction of fencing to exclude cattle from these specified riparian areas. Proposed fencing, reduced utilization levels in key

areas, an enlarged spring enclosure, two new water developments, and removal of unused fencing would decrease soil compaction, surface erosion, and sedimentation. These measures would be expected to have a small positive influence on vegetation recovery and water quality in the allotments.

The exclusion of livestock from riparian areas would expand the meadow area adjacent to Bowe Meadows on the Trout Creek Allotment, mitigate grazing impacts in the riparian area, and eliminate future conflicts as the restoration of the meadow occurs. Fencing 1.25 mile of Ninemile Creek and 0.75 mile of South Fork O’Brien Creek would mitigate grazing impacts in those riparian areas; however, this would not eliminate potential grazing impacts in other areas.

Under Alternative 3 (No Grazing), removing livestock from the allotments would decrease the amount of detrimental soil compaction and displacement in the allotments. Removing livestock from the allotments would also eliminate most of the soil loss around water developments and stock trails as these areas increase in vegetation cover. Some erosion would continue to occur on major stock trails because they would continue to be used by people and wildlife. Vegetation would reestablish itself in the bare soil in riparian areas, reducing soil loss and stream sedimentation. Vegetation litter would increase with the removal of livestock and provide a greater source of soil nutrients, organic matter, and protection from erosion, thereby increasing water quality.

All areas currently impacted by livestock grazing would have the opportunity to revegetate. This would eliminate cattle-caused streambank damage and subsequent sedimentation. There would be no effect on the amount of large woody debris (LWD) or the number of pools in any of the creeks. Therefore, LWD recruitment potential would continue to improve over time as riparian vegetation matured. Removal of livestock would allow more streambank vegetation to grow, which would provide additional riparian functionality (e.g., improved stream shading, nutrient input, channel stability, and instream habitat formation). Improvement of habitat conditions would be most evident in those areas experiencing the greatest grazing impacts, for instance, along West Fork Trout Creek, South Fork O’Brien Creek, and Ninemile Creek.

#### 2.5.1.4 Issue 4: Economics

Table 2-3 summarizes the anticipated costs and revenues associated with each allotment for the three alternatives. The additional costs on the Trout Creek Allotment may make operations marginal compared to the value of forage in the No Action and Proposed Action alternatives. The No Action alternative for the Swan Lake and Quartz Allotments would provide a greater margin for economic operations. The Proposed Action would lessen the margin for economic operations on the Swan Lake and Quartz Allotments. The No Grazing alternative would eliminate all operations on the allotments.

**Table 2-3. Summary of Economic Effects of the Alternatives**

	No Action (Current Management)	Proposed Action	No Grazing
<b>Swan Lake Allotment</b>			
Capital Improvement Costs:	\$0.00	\$0.00	\$ 0.00
Permittee Administration and Maintenance Costs	-\$41,471.50	-\$41,551.46	\$ 0.00
Forest Service Operations and Administration costs	-\$33,287.12	-\$29,354.95	\$ 0.00
Forest Service Revenues	\$7,411.49	\$6,622.79	\$ 0.00
RPA Forage Value	\$62,343.99	\$54,979.38	\$ 0.00
<b>Quartz Allotment</b>			

**Table 2-3. Summary of Economic Effects of the Alternatives (continued)**

	<b>No Action (Current Management)</b>	<b>Proposed Action</b>	<b>No Grazing</b>
Capital Improvement Costs:	\$0.00	-\$25,560.00	\$ 0.00
Permittee Administration and Maintenance Costs	-\$68,798.24	-\$71,894.13	\$ 0.00
Forest Service Operations and Administration costs	-\$81,718.90	-\$73,543.11	\$ 0.00
Forest Service Revenues	\$18,093.79	\$16,597.57	\$ 0.00
RPA Forage Value	\$153,052.68	\$137,740.12	\$ 0.00
<b>Trout Creek Allotment</b>			
Capital Improvement Costs:	\$0.00	-\$17,140.00	\$ 0.00
Permittee Administration and Maintenance Costs	-\$42,983.90	-\$44,414.19	\$ 0.00
Forest Service Operations and Administration costs	-\$24,410.55	-\$24,410.55	\$ 0.00
Forest Service Revenues	\$5,509.33	\$5,509.33	\$ 0.00
RPA Forage Value	\$45,718.93	\$45,718.93	\$ 0.00
<b>Total</b>			
Capital Improvement Costs:	\$0.00	-\$42,700.00	\$ 0.00
Permittee Administration and Maintenance Costs	-\$153,253.64	-\$157,859.78	\$ 0.00
Forest Service Operations and Administration costs	-\$139,416.57	-\$127,308.61	\$ 0.00
Forest Service Revenues	\$31,014.61	\$28,729.69	\$ 0.00
RPA Forage Value	\$261,115.60	\$238,438.43	\$ 0.00

### **2.5.1.5 Issue 5: Wildlife (Big Game)**

Under Alternative 1 (No Action), continued livestock grazing within the three allotments would entail the continued competition between livestock and mule deer for the available forage resources within the project area. As the cumulative result of past livestock grazing practices and other management activities that have occurred within the allotments, Alternative 1 (No Action) would be expected to result in the maintenance of existing conditions. Noxious weeds would be expected to persist and spread, displacing native forage resources. To account for this gradual loss of forage resources, adjustments to grazing use of the allotments—including reductions in livestock use and densities—may eventually be necessary to maintain the proper balance between the needs of big game and livestock.

Under Alternative 2 (Proposed Action), a net improvement in mule deer habitat conditions would be expected due to implementation of the following changes:

- The livestock grazing season would be shortened for all three allotments, with grazing terminating on October 15 instead of October 31. During this period of the year, cattle increase their utilization of shrubs, which are important to mule deer in the autumn and winter. By shortening the grazing season at this time, additional shrub resources would be available for mule deer and other wildlife.
- In areas of the Quartz Allotment that provide big game winter range, shrub forage utilization levels would be maintained at a maximum of 35 percent in upland key areas identified in unsatisfactory condition until use could be maintained with no more than 40 percent utilization. In addition, the Thirteenmile area of Pasture Unit 2 would not be used after 30 September, to reduce impacts on heavily used big game winter range.

- Several riparian area and spring improvements (fencing, spring redevelopment, and additional water developments) would contribute to improved riparian habitat conditions in the Quartz and Trout Creek Allotments by moving cattle out of these sensitive areas. This would provide for improved cover and less disturbance to mule deer using these areas, especially during fawning season.
- Unit 2 of the Trout Creek Allotment would be eliminated as a pasture for grazing, reducing the potential for competition between cattle and deer in that area.
- Several noxious weed control measures would be incorporated into the AMPs, including requiring the use of weed-free hay or straw in allotment management in the project area, keeping vehicles free of noxious weeds, and removing weed seed from livestock. These measures would be expected to reduce the spread of noxious weeds, as well as the corresponding loss of native forage resources.
- Invading conifers would be removed from grassland areas in the Trout Creek Allotment, increasing the amount of available forage habitat.

Under Alternative 3 (No Grazing), removing livestock from the Swan Lake, Quartz, and Trout Creek Allotments would not be expected to affect the condition or amount of snow-intercept, thermal, or hiding cover within designated winter range areas, nor would it likely affect the overall forage:cover ratio over the short term (i.e., the next several years). However, removing livestock from this area would have an immediate effect on the quantity and quality of food available within the existing forage areas. Without livestock, more food would be available year-round. This would be especially important in the winter and early spring months, when food availability is limited. Additional food may result in more deer occupying the area and/or better survival rates which, in turn, could lead to an improved population trend.

The elimination of livestock grazing within the project area would also negate the need and funding to conduct the range improvement activities identified as part of the proposed action. Under the No Grazing alternative, the proposed water developments would not be created, and the damaged riparian areas adjacent to streams and springs would be allowed to undergo natural healing. The net result over time would be improved riparian habitat conditions, which would improve overall forage quality and quantity and result in better mule deer fawning habitat.

### **2.5.1.6 Issue 6: Vegetation**

Under Alternative 1 (No Action), transitory range would continue to decline with increasing tree crown closure in old harvest units. Transitory range could not be relied on to provide the forage necessary to maintain the numbers of livestock currently authorized. The numbers of livestock may decline because of decreased availability of forage in transitory range.

Existing species composition would continue to approximate native plant communities in most areas. Some non-native plants such as cheatgrass, orchardgrass, and mullein would continue to occur on some sites. The abundance of non-native plants is less than 5 percent of all species, according to USFS data. This would not be expected to change under Alternative 1.

Forage condition would continue to be fair to good, with no expected declining trends except for transitory range. The turn-out dates would meet range readiness during most years.

Moderate to heavy utilization would continue in the immediate vicinity of some water developments. Heavy utilization may continue on roads, landings, and skid trails where introduced palatable grasses such as Kentucky bluegrass, orchardgrass, and timothy have been seeded.

Some areas would, on occasion, not meet the standards and guidelines for forage utilization. Livestock grazing may continue to contribute to utilization levels that exceed Forest Plan standards and guidelines on a few limited areas that are also heavily utilized by wildlife during the winter.

Under Alternative 2 (Proposed Action), most of the effects on upland vegetation described for the No Action alternative would also occur. However, the grazing restriction on 312 acres of deer winter range would result in a beneficial effect to browse species. The meadow areas adjacent to Bowe Meadows on the Trout Creek Allotment would be expanded. Riparian vegetation along 1.75 mile of stream within the Quartz Allotment would begin to fully meet Forest Plan standards and guidelines.

Under Alternative 3 (No Grazing), all grazing permits would be terminated in all allotments. Most water developments and fences would be allowed to deteriorate in the project area. Most stock driveways or trails would no longer be maintained and would revegetate with grasses, forbs, and trees. Throughout forested landscapes of the interior west, grazing—by reducing the cover of grass, forb, and shrub species that compete with conifer seedlings and carry low-intensity fires through forests—has contributed to a shift in forest composition and structure (Belsky and Blumenthal 1997). This shift is described as a transition from widely spaced, fire-tolerant trees underlain by dense grass swards, to dense stands consisting of more fire-sensitive and disease-susceptible species (Mutch et al. 1993). Absent the reintroduction of fire into these ecosystems, however, the elimination of grazing would not be expected to result in a significant shift toward presettlement conditions.

Cattle grazing, and the associated vehicle and/or horseback use required to move and manage those cattle, can also be a factor in the introduction and spread of noxious weeds. Even under the No Grazing alternative, which would remove the impacts of cattle, these weeds would continue to spread and displace native forage resources, because vehicles and other human uses of the area are probably a bigger factor in the introduction and spread of noxious weeds than livestock grazing. It is assumed that existing noxious weed control and monitoring programs would continue.

## **2.5.2 Monitoring**

The National Forest Management Act requires that national forests monitor and evaluate their forest plans (36 CFR 219-11). The Colville National Forest Plan includes the monitoring and evaluation activities to be conducted as part of Forest Plan implementation. At established intervals, implementation of Forest Plan standards and guidelines is evaluated to determine how well objectives have been met, the accuracy of effects and cost projections, and how closely management standards and guidelines have been applied. Monitoring requirements for the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization project are presented in Table 2-4.

Monitoring and evaluation provide information to help determine whether the following are occurring:

- Management prescriptions are producing predicted environmental effects.
- Management prescriptions are being followed as directed.
- Implementation is responsive to the issues and concerns.
- Costs of implementing the Forest Plan are as projected.

- Management practices on adjacent or intermingled non-National Forest System lands are affecting the realization of Forest Plan goals and objectives.
- Implementation of the Forest Plan is precluding other land management agencies from realizing their stated objectives.

Effectiveness and validation monitoring typically are not done as part of the project implementation. However, implementation monitoring and any project-specific monitoring are important aspects of the project.

**Table 2-4. Monitoring Requirements**

<b>Resource</b>	<b>Item</b>	<b>Priority</b>	<b>Timing</b>	<b>Personnel</b>	<b>Type</b>
Range/Wildlife	Key area utilization monitoring	High	At least once annually while livestock are in a particular unit	Rangeland Management Specialist or Technician and Wildlife Biologist	Implementation
Range	Riparian utilization/stubble height monitoring	High	As pasture units are selected forestwide	Rangeland Technician	Implementation
Watershed	Streambank stability, wetland protection	High	First field season and every 3 years thereafter, or as needed	Hydrologist, Fish Biologist	Effectiveness
Recreation	Trailheads/trails	High	Annually	Rangeland Technician and Recreation Technician	Effectiveness

## 3. ENVIRONMENTAL CONSEQUENCES

### 3.1 INTRODUCTION

This chapter is arranged by resource, each section describing the existing condition of the resource and disclosing the effects associated with each alternative. The resources described in this section are directly linked to the issues listed in Chapter 1, which have directed the environmental analysis. In this chapter, direct effects include those effects that are caused by the action and occur at the same time and place as the action. Indirect effects include those that are caused by the action and that are later in time but still reasonably foreseeable. Cumulative effects are those impacts on the environment that result from the incremental impact of the action when added to past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions.

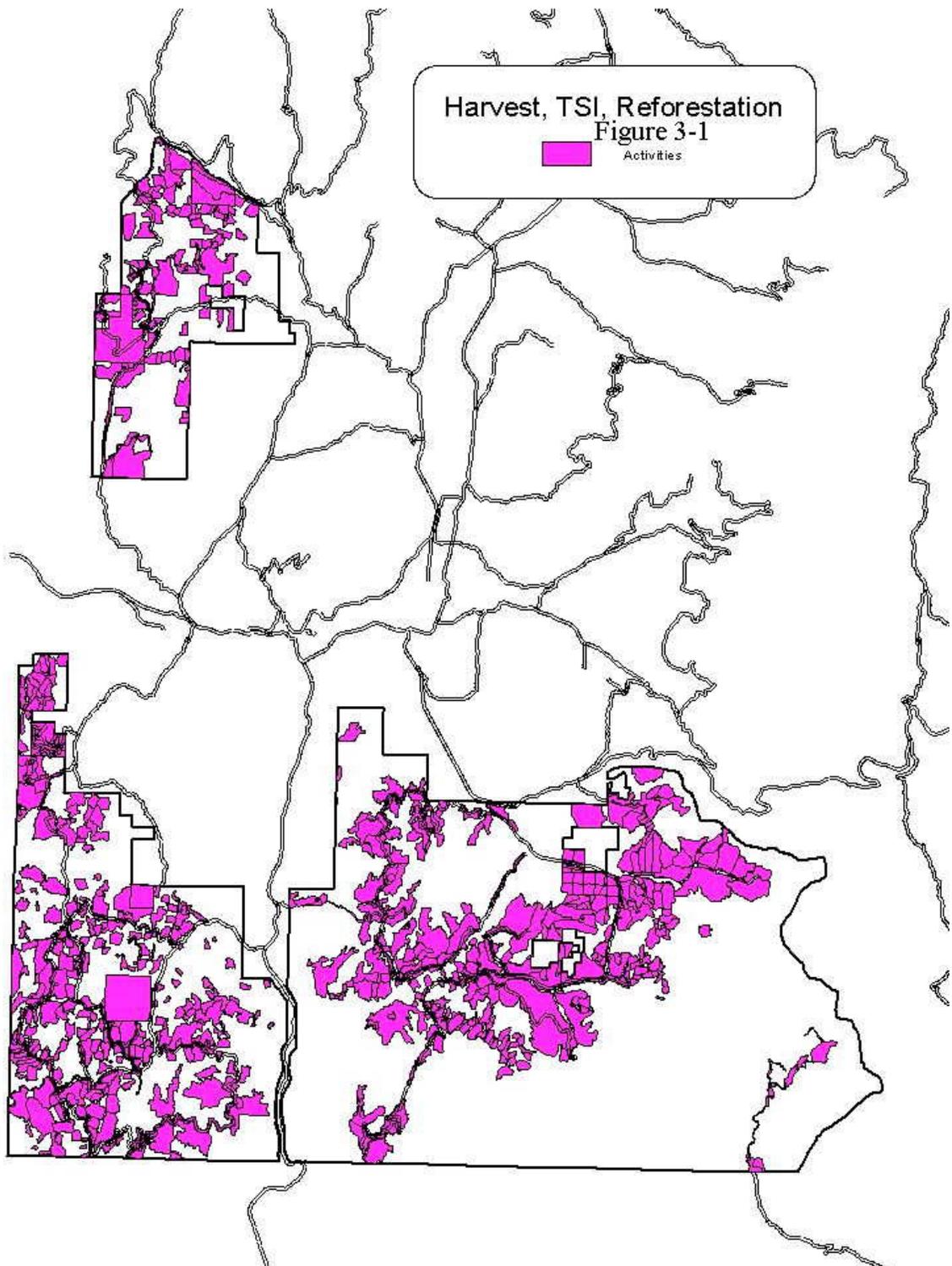
The past, present, and future activities proposed for the Swan Lake, Quartz, and Trout Creek Allotments project area are summarized below:

**Timber harvest activities:** From 1955 to 1997, there have been 153 timber sales, 1 seed orchard, 3 borrow sites (rock pits), and a powerline within the project area. About 26,480 acres have been treated, with 4,378 acres of this receiving more than one treatment. Treatment area locations are displayed in Figure 3-1. Table 3-1 lists the total acreage of timber harvest by logging type.

**Table 3-1. Timber Harvest Activities in the Swan Lake, Quartz, and Trout Creek Grazing Allotments, 1955-1997**

Harvest Method	Acres
Clearcut	2,187
Clearcut with reserve trees	3,213
Final harvest	2,895
Overstory removal	205
Partial removal	1,677
Salvage	1,171
Sanitation	3,798
Selection	458
Shelterwood	7,184
Commercial thinning	1,483
Unknown methods <sup>a/</sup>	2,209
<b>Total</b>	<b>26,480</b>

<sup>a</sup> Most of this took place in the late 1950s and 1960s. Some of the units harvested during the 1960s were subject to precommercial thinning or land exchange with Boise and DNR



Other timber harvest projects currently occurring or planned in the project area include the following:

- Whitespot Timber Sale (ongoing; 1997 to 2006)
- Swansong Timber Sale (ongoing; 2003 to 2005)
- Trout Ecosystem Management Projects (planned)

There have been 2,918 acres of timber stand improvement (precommercial thinning) and 2,207 acres of reforestation.

In 2001, the private land within the project area along West Fork Trout Creek was logged. Several remaining slash piles are expected to be burned in the next year or so.

The Maple Timber Sale area on the Tonasket Ranger District is near the southwest corner of the project area. It was within the Granite Creek, sixth field watershed. This sale was harvested in 1983 as an overstory removal.

The Washington State Department of Natural Resources has planned and will soon be advertising a timber sale south of Sheridan Mines in Township 38N, R31E, Section 36.

**Wildfires:** There have been large wildfires in the project area in the last 100 years. There is evidence of large fires within the Swan Lake and Quartz Allotments. There were 5,698 acres burned within the Swan Lake Allotment and 32,516 acres burned within the Quartz Allotment from 1910 to 1988. Lightning is very common in the project area, especially in the Kettle Crest area, and wildfires are expected to continue.

**Prescribed Fires:** There have been prescribed burns in the project area, and additional burns are planned. The Quartz Allotment had 9,639 acres of prescribed burning and expects to complete 12,583 acres. Scatter Ecosystem Management Projects expects to complete 3,989 acres of burning. These are in addition to fuels treatment within units described under timber harvest activities.

**Fuels Reduction:** Since 2000, the private lands along the east boundary south of the West Fork Trout Creek Road and the north boundary of Swan Lake Allotment have been treated to reduce the accumulation of fuels. Most of the material on the forest floor (brush and downed limbs and trees) and ladder fuels was removed. Fuels reduction also occurred on the private land along the south boundary along USFS Road 2086 (T37N, R32E, Section 19). This fuel reduction was not as heavy as the one previously described. The District has planned the Storm King Fuels Reduction project to address fuels along the remainder of the southern border of the Trout Creek Allotment. This project decision was signed in 2001 and includes the mechanical reduction of fuels on a strip of land approximately 300 feet in from the forest boundary.

**Noxious Weed Management:** Implementation of the Colville National Forest 1998 EA for Integrated Noxious Weed Treatment will continue. Noxious weed control involving a variety of methods (e.g., chemical, mechanical, manual, cultural, and biological) will be used on noxious weed populations on non-National Forest System Lands.

**Erosion Control:** Approximately 1.5 mile of roads in the North Fork of Trout Creek and 0.9 mile of road in Ninemile Creek were decommissioned in the mid 1990s. This was done through a combination of recontouring some sections of road, ripping and seeding some areas, and blocking access in other

sections. Colville National Forest Revegetation Guidelines will continue to be implemented. There are no specific projects planned for erosion control.

**Livestock Grazing:** Livestock grazing has occurred in the project area since the area was settled in the late 1800s. It is expected that livestock grazing will continue on the Forest and adjacent private lands at levels similar to what they are today.

**Recreation:** There are developed recreation sites in the Swan Lake/Ferry Lake area and scattered throughout the project area. The area is popular for general recreation activities in the summer (e.g., sightseeing and picnicking) and is a popular hunting area in the fall. There is one trail in the Clackamas Roadless Area and several trails in the Kettle Crest, Thirteenmile Mountain, Tenmile, and Ninemile areas. There are no plans to develop recreation sites in the project area. It is expected that use will continue at a level similar to the current level.

**Mining:** There are no current or proposed mining activities in the project, although there are numerous claims. The only past activity has been minor prospecting, and this is the only expected future activity.

## **3.2 WATERSHEDS AND FISHERIES**

This EA incorporates the Watershed and Fish Specialists' reports in the Project Record by reference (40 CFR 1502.21). The specialists' reports contain the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation on which the specialists relied to reach the conclusions in this EA.

### *Issue Statement 3*

Grazing in riparian areas may impact riparian habitats, water quality, and overall watershed health.

#### **3.2.1 Water Quality**

##### **3.2.1.1 Existing Conditions**

The range allotments are located in the Sanpoil and Kettle River basins in Ferry County. The climate in northern Ferry County is dominated in the summer by the Pacific Ocean's maritime influence and in the winter by Canada's arctic influence. Annual precipitation ranges from 10 inches at the Sanpoil River to 22 inches on Hardscrabble Mountain. Average air temperature ranges from 40 to 80 degrees Fahrenheit (°F) in the summer and from 10 to 32°F in the winter. Average snow depth at the top of the watershed on April 1 is about 3 feet. The stream flow runoff regime for the project area is primarily snowpack-dominated, with spring runoff causing the peak flows. Occasionally, some minor mid-winter rain-on-snow events may occur in the lower elevations. Peak flows usually occur during warm rains associated with spring snowmelt and are short-lived.

Cattle walking or loafing in or along the stream banks influence water quality and overall riparian conditions, thereby causing soils compaction. Surface runoff from these disturbed areas delivers sediment to the creeks. Loss or reduction of vegetation from grazing also influences the surface runoff conditions, thereby increasing potential for erosion from stream banks or upland areas that is delivered to the creeks or wetlands.

Specific water quality issues are turbidity, total suspended solids, and water temperature. Trampling and grazing in and along the creeks and erosion of exposed soils that delivers runoff to the creeks can increase

turbidity and total suspended solids. The accompanying loss of riparian vegetation can reduce shade, thereby increasing summer water temperatures and reducing winter water temperatures.

In accordance with the Clean Water Act and the Forest Plan, the USFS is required to meet or exceed the water quality standards for the Washington Administrative Code (WAC 173-201A). Riparian areas have to meet the INFISH guidelines for providing fish habitat.

The beneficial uses of the water flowing from this area are primarily for fish and wildlife habitat and to a lesser extent for livestock watering and dispersed recreation. Offsite, the water drains into the Sanpoil, Kettle, and Columbia Rivers, where it is used to produce hydropower at the various dams downstream to the Pacific Ocean.

The water quality criteria for surface waters of the State of Washington (WAC 173-201A) Class AA and lake class apply. Even though Trout Creek was listed as impaired for fecal coliforms in the 1998 303(d) list, the beneficial uses listed do not appear to be negatively affected.

Forest Plan standards and guidelines (page 4-44) for water quality are outdated. See WAC 173-201A dated November 18, 1997, and WAC 173-204 dated December 29, 1995, for current water quality standards. Water quality has been assessed from records of grab samples and thermographs taken at various intervals from 1974 to 2003.

### **Swan Lake Allotment**

The Ferry County Conservation District collected samples from Scatter Creek from 1991 through 1993 and all data met the water quality criteria. On two occasions (May 1990 and November 1991), there was elevated turbidity with no apparent explanation. Also, a recording thermograph was installed in 1999 near the Forest boundary, and the highest recorded temperature was within the state criteria. Golden Harvest, Tenmile, and Sunset Creeks met water quality criteria.

A landslide site (1994) on Sunset Creek from USFS Road 5320-150 continues to contribute some sediment to the stream. Livestock are not retarding attainment of RMOs in this landslide area.

### **Quartz Allotment**

A flood in 1998 washed out three roads at the stream crossings. The crossings at USFS Roads 2050 and 2053 were restored in 1999. One stream crossing on the Refrigerator Canyon Road continues to deliver sediment to the stream. Livestock are not impacting this area.

South Fork O'Brien Creek has generally met water quality criteria. There were two elevated pH readings (8.7 units in January 9, 1990, and 8.76 units in July 16, 1992).

Thirteenmile, Hall, Ninemile, and McMann Creeks met water quality criteria. There are no measurements on Camel Creek.

### **Trout Creek Allotment**

North Fork Trout Creek is listed on the 1998 303(d) listing for impaired water bodies. Fecal coliform bacteria levels exceeded the criteria in 1992, which caused the 303(d) listing. There is currently no water cleanup plan, and no total maximum daily loads (TMDL) have been established for this stream. Even though the stream is within the Trout Creek Allotment, changes in the management of the Tonata

Allotment have reduced levels of fecal coliform; between 1993 and 2003, there were two elevated measurements.

West Fork Trout Creek met water quality criteria. There are no measurements on Trout Creek or Granite Creek.

### **3.2.1.2 Environmental Effects on Water Quality**

#### **Alternative 1 (No Action)**

##### Direct and Indirect Effects

Continued livestock grazing on the allotments would maintain the amount of detrimental compaction and soil displacement around creeks. Bare soil in riparian areas would likely result in soil loss and stream sedimentation. Roads in the riparian habitat conservation areas would continue to be sites of surface erosion within the riparian areas.

##### Cumulative Effects

When combined with other past and anticipated future management actions within this area, the No Action alternative would maintain existing conditions and have no additional cumulative effects on water quality in the project area.

#### **Alternative 2 (Proposed Action)**

##### Direct and Indirect Effects

Site-specific concerns associated with water quality include increased sedimentation and stream widening in Ninemile Creek, the north tributary to South Fork O'Brien Creek, and the wetland in West Fork Trout Creek. The Proposed Action alternative would address these concerns by the construction of fencing to exclude cattle from these specified riparian areas.

Proposed fencing, reduced utilization levels in key areas, an enlarged spring enclosure, two new water developments, and removal of unused fencing would decrease soil compaction, surface erosion, and sedimentation. These measures would be expected to have a small positive influence on vegetation recovery and water quality in the allotments.

##### Cumulative Effects

When combined with other past and anticipated future management actions within this area, the cumulative effect of the Proposed Action alternative would reduce detrimental soil compaction, displacement, and erosion that would provide a small increase in water quality.

#### **Alternative 3 (No Grazing)**

##### Direct and Indirect Effects

Removing livestock from allotments in the project area would decrease the amount of detrimental soil compaction and displacement in the allotments. Removing livestock from the allotments would also eliminate most of the soil loss around water developments and stock trails as these areas increase in vegetation cover. Some erosion would continue to occur on major stock trails because they would

continue to be used by people and wildlife. Vegetation would reestablish itself in the bare soil in riparian areas, reducing soil loss and stream sedimentation. Vegetation litter would increase with the removal of livestock and provide a greater source of soil nutrients, organic matter, and protection from erosion, thereby increasing water quality.

### Cumulative Effects

When combined with other past and anticipated future management actions within the project area, the cumulative effects of the No Grazing alternative would provide improved water quality conditions over time. Vegetation would reoccupy most of the disturbed areas that deliver sediment to the creeks.

## **3.2.2 Stream Channel and Riparian Area Condition**

Forest Plan Standards and Guidelines (pages 4-44, 4-45, 4-53, and 4-54) for stream channel and riparian condition give direction for riparian area protection. INFISH was adopted in 1995 and provides direction for management of riparian areas to protect habitat and populations of resident native fish. The strategy included RMOs for watersheds. The RMOs relate to the number of pools in a stream, the water temperature, and width-to-depth ratio for all systems; the amount of LWD for forested systems; and the amount of bank stability and lower bank angle in non-forested systems. All the streams in the project area are considered forested ecosystems.

### **3.2.2.1 Existing Conditions**

Overall, riparian and stream habitat conditions throughout the project area are good. Of 54.2 miles of fish-bearing habitat in the allotments, 51.7 miles have been surveyed. Of this surveyed stream length, only a few reaches have been directly impacted by cattle, due to bank trampling and overgrazing of riparian vegetation, particularly at stream road crossings. Most of the impacts within the allotments are found in West Fork Trout, South Fork O'Brien, and Ninemile Creeks. Localized areas of cattle trampling in homestead meadows and some open forested areas have degraded stream channel and riparian conditions in the following areas: Houglund (Bowe) Meadows and some areas around Ninemile Creek, a tributary of South Fork O'Brien Creek, and the Culvert and Seven Dollar #2 water developments.

### **Swan Lake Allotment**

Surveyed streams in the Swan Lake Allotment include Scatter, Golden Harvest, Sunset, Tenmile, and Sheep Creeks, as well as an unnamed tributary to Scatter Creek. In general, evidence of cattle in the Swan Lake Allotment is seen only at stream road crossings. In most surveyed stream reaches, LWD exceeds 20 pieces per mile, with some reaches in the range of 50 to 100 pieces per mile, and existing riparian vegetation appears to be an adequate source of future LWD recruitment.

Stream banks are 70 to 90 percent vegetated throughout the Swan Lake Allotment with little to no evidence of mass wasting. Pool densities in Scatter and Sheep Creeks are about 45 per mile, which is somewhat less than the expected number for streams of similar size. The amount of fine sediment (fines) varies by stream and reach, but generally ranges from 1 to 20 percent fines—with some reaches of Sheep Creek and an unnamed tributary to Scatter Creek having as much as 65 percent fines.

### Scatter Creek

Scatter Creek is currently fenced out of all pasture units in the Swan Lake Allotment. Surveys in 1998 show that standards and guidelines have been met.

Surveys in 2002 show that standards and guidelines were met on a tributary of Scatter Creek north of Sheep Mountain, commonly referred to as Sheep Creek. More than 90 percent of the stream banks on this reach are covered by vegetation with no evidence of mass wasting. Livestock access is limited but there is evidence of access at the road crossings and old harvest units. Some riparian areas have been clearcut harvested and are currently revegetating (Annabelle Timber Sale). Within these clearcut areas, LWD has been removed, and there is little shade on the creek. Riparian vegetation is very sparse. These areas were restored in 2003 and will continue to be monitored.

### Golden Harvest Creek

Surveys in 1999 show that a tributary of Golden Harvest Creek had a road and stream crossing where livestock impacted the stream channel. The site was restored in 2003 and will continue to be monitored. Much of the rest of Golden Harvest Creek is inaccessible to livestock and meets standards and guidelines.

### Tenmile Creek

Surveys in 1998 show that standards and guidelines were met on Tenmile Creek. Although past harvests have removed some of the largest components of the riparian stands along Tenmile Creek, the remaining vegetation is primarily composed of species expected to occur in the native riparian community. The riparian areas are fairly continuous, with a few road crossings in the riparian habitat conservation area. The riparian areas are considered to be functioning because they provide the components for quality instream habitat.

### Sunset Creek

Surveys in 1992 show one mass failure between USFS Road 5320-150 and the stream in Section 13. This failure was not livestock-related. Access to the stream is generally limited to road and stream crossings, due to steep terrain. Sunset Creek currently meets standards and guidelines.

## **Quartz Allotment**

Surveyed streams in the Quartz Allotment include South Fork O'Brien, Ninemile, Thirteenmile, and North Fork Hall Creeks. As is typically observed, most evidence of cattle impacts is seen at stream road crossings, causing extensive trampling of stream banks in some reaches. Cattle access South Fork O'Brien Creek at a road crossing; in addition, road construction and riparian harvest have facilitated livestock access to this stream. Degrading stream bank stability and increasing channel downcutting caused by livestock grazing have resulted in riparian conditions that do not meet Forest Plan standards and guidelines. Additionally, the beaver pond riparian area in Ninemile Creek shows a change in riparian vegetation from its potential plant community, partly in response to cattle grazing. Other localized areas of cattle damage are found in open areas and meadows along all creeks, including the upper reaches of Ninemile Creek and North Fork Hall Creek, where cattle are reducing vegetation on the stream bank and causing problems to the bank stability.

In most surveyed stream reaches, LWD exceeds 20 pieces per mile, and riparian areas appear to be adequate sources of future instream wood recruitment. Wood recruitment potential is limited in the upper portion of Ninemile Creek. Future recruitment potential is lacking in certain areas due to overgrazing, riparian harvest, and reduction of riparian vegetation by the present road system.

The percentage of vegetated stream bank length within the Quartz Allotment ranged from less than 50 to 100 percent, depending on the reach and stream surveyed. Many surveyed reaches have moderate to frequent and/or large existing mass-wasting sites. In addition, South Fork O'Brien Creek experienced a

major flood episode in the spring of 1998 that likely contributed to the current bank conditions. The open condition found along many stream reaches in this allotment is caused by many factors, including livestock grazing in specific areas, road maintenance, and riparian harvest.

Pool densities ranged from 20 to 56 per mile in South Fork O'Brien Creek, and from 2 to 21 per mile in North Fork Hall Creek. Highly variable densities were found in Ninemile Creek (24 to 207 per mile) and Thirteenmile Creek (10 to 511 per mile), but densities were generally greater than those expected for streams of similar size. Fines composed roughly 10 to 20 percent of the substrate in Quartz Allotment streams with the exception of North Fork Hall Creek, where fines ranged from 40 to 50 percent of the substrate.

### South Fork O'Brien Creek

All reaches, except the uppermost reach of South Fork O'Brien Creek, have frequent and/or large existing mass-wasting sites. The uppermost reach has sites of moderate mass wasting. Surveys in 1998 indicate cattle causing extensive trampling on banks in the upper end of the creek where USFS Road 2050-180 crosses the stream and USFS Road 2050-155 parallels the stream. There is also a road in this reach that allows cattle to access the creek.

A survey in 2002 shows one tributary of the stream exceeding standards and guidelines for stream bank trampling as well as bare soil and vegetation reestablishment. Several segments, approximately 0.3 mile total, have trampled banks and disturbed beds as a result of intense livestock use following timber harvest, prescribed fire, and a 1988 wildfire. Reestablishment of vegetation has been inhibited by the disturbance.

### Ninemile Creek

Much of Ninemile Creek is inaccessible to livestock and meets standards and guidelines. In the upper reaches paralleling the USFS Road 2053, livestock have impacted stream banks and vegetation in the riparian habitat conservation area. Wildfires, road building, and past harvest have removed some of the largest components of the riparian stands along the upper reaches of Ninemile Creek. The remaining vegetation is primarily composed of species expected to occur in the native riparian community. Exceptions occur where road fill and overgrazing have replaced the native vegetation with introduced species. The riparian areas are fairly continuous, with a few road crossings in the riparian habitat conservation areas in the lowest 5.5 miles downstream of the falls. The exceptions are where past harvest, a main road paralleling the stream, and overutilization of shrubs have eliminated or reduced the ability of the riparian area to provide adequate shade or vegetative buffer for the portion of the stream system upstream of the falls.

### Thirteenmile Creek

Of the 9.8 miles of Thirteenmile Creek, approximately 7 miles are within the National Forest boundary; of these, 0.75 mile is accessible to livestock. The only easily accessible portion of the stream is at the end of USFS Road 2054 where harvest from the 1970s created access to livestock. Standards and guidelines are being met, and livestock are not retarding attainment of the RMOs.

A survey done in 2002 indicates gullying in a tributary of Thirteenmile Creek near the Thirteenmile Trail. Livestock were not contributing to the gullying. Past harvest and a parallel road have increased surface runoff, and the trail itself contributes to accelerated runoff. A restoration project is planned for 2005.

### North Fork Hall Creek

North Fork Hall Creek is currently fenced out of all pasture units in the allotment. Surveys show that standards and guidelines have been met.

### McMann Creek/Camel Creek

McMann Creek parallels USFS Road 2100-500 for nearly its entire length. Three stream crossings provide easy access to livestock. Camel Creek has had restoration projects in riparian areas where there were old log landings and roads. Livestock are not retarding the attainment of the RMOs in McMann and Camel Creeks.

## **Trout Creek Allotment**

Surveyed streams in the Trout Creek Allotment include North Fork Trout, Trout, and West Fork Trout Creeks, though there is little information for Trout Creek. In general, impacts from grazing are few with the exception of some local areas such as Bowe Meadows, where cattle are straying into a pasture near the creek. The fence around Bowe Meadows does not meet standards, and the meadow has been drained by a ditch along its southern edge. The meadow is believed to have been more of a wetland at one time. Trout Ecosystem Management Projects is proposing to eliminate the ditch and restore the meadow to more of a wetland. As the water table rises, further fence construction will be needed to enclose more of the wetlands. In addition, stream channel and riparian conditions around Culvert and Seven Dollar #2 water developments are not meeting Forest Plan standards.

LWD ranged from 3 to 19 pieces per mile (depending on surveyed reach) in West Fork Trout Creek and as high as 88 per mile in Trout Creek. Riparian areas appear to be adequate sources of future instream wood recruitment within the allotment, and stream banks are generally greater than 90 percent vegetated, with few exceptions. There was little evidence of past or potential for future mass wasting events. However, the percentage of fines is high relative to the streams in the other allotments. Fines composed 20 to 50 percent of the substrate in the North and West Forks of Trout Creek. Pool densities ranged from 5 to 23 per mile in the North Fork Trout Creek and were higher in West Fork Trout Creek, ranging from 39 to 43 per mile.

### North Fork Trout Creek

In a 2002 survey done on North Fork Trout Creek, there was mention of cattle trampling the banks, but this area is outside of the allotment. Standards and guidelines for this creek are being met.

### Trout Creek

The headwaters of Trout Creek have had mass-wasting areas created by past harvest and road construction parallel to the stream. Restoration projects, including stabilization, vegetation establishment, and road obliteration, have occurred since 1996. Surveys in 2001 indicate that livestock are not inhibiting the attainment of the RMOs.

### West Fork Trout Creek

Surveys in 1999 indicated that cattle had not extensively grazed or trampled the stream banks in Reach 2. The restriction of grazing to a single pasture (Bowe Meadows), however, has resulted in stream conditions within the meadow that do not meet standards and guidelines most of the time. The stream banks are protected by willows and alders in some places, but excessive stream bank damage is present.

The USFS acquired Hougland (Bowe) Meadows in a land exchange with Seattle City Light in 1999. At that time the meadow was not managed as a separate pasture or unit. In 2000, the permittee put up the fencing and has since used it 1 to 2 weeks in the spring and to gather back stock in the fall. Mountain alder, willow, sedges, and quaking aspen have since been able to establish new growth. Several small, unfenced wetland areas in the meadow have also been impacted by livestock grazing.

### Granite Creek

No R6SSP or R1 Channel Stability Index surveys have been conducted on Granite Creek. Field observation in 2003 indicated two locations of livestock impact to the stream. One is off of an unnumbered spur road and dispersed site in Section 7 and the Maple Mountain Trail in Section 18. There are several wetlands in the drainage, and livestock are not retarding attainment of RMOs.

### **3.2.2.2 Environmental Effects on Stream Channel and Riparian Area Condition**

The primary impact of livestock to streams is on riparian vegetation and stream bank stability. If cattle are grazing the riparian vegetation too heavily, this may impair development or retention of riparian vegetation. Cattle may also trample the stream banks, resulting in unstable banks and sedimentation of the stream. RMO components that may be affected by grazing livestock in forested ecosystems include the width-to-depth ratio (if livestock damage the banks and cause the stream to widen in sections). Cattle may also affect the water temperature by eating stream bank vegetation, limiting the amount of shade on the stream. Cattle do not affect the amount of LWD in a channel nor the number of pools in a stream.

### **Alternative 1 (No Action)**

#### Direct and Indirect Effects

Areas currently grazed would continue to be grazed according to Forest Plan standards and guidelines. All water developments, fences, and stock driveways would continue to be maintained. Any sites currently impacted by livestock would continue to be impacted, and the potential would remain for additional sites to be impacted. The Ninemile Creek and North Fork of O'Brien Creek riparian areas would probably continue to not meet Forest Plan standards and guidelines for riparian areas on a regular basis. The meadow area adjacent to Bowe Meadows would continue to decrease in size and quality as conifer encroachment continues.

Localized sedimentation resulting from bank impacts and livestock walking to the channel would still occur. However, the numbers of livestock on the allotment would potentially decline over time because of decreased available transitory range forage, thereby leading to a decrease in impacts on stream and riparian habitats.

#### Cumulative Effects

Under this alternative, grazing would continue on federal lands and is expected to continue on state and private lands as well. Impacts to riparian vegetation and stream habitats would continue where they currently occur, but there would be potential for additional areas of impact.

## **Alternative 2 (Proposed Action)**

### Direct and Indirect Effects

Many of the effects described for the No Action alternative would also occur under the Proposed Action alternative; however, areas of relatively high impacts would be mitigated by the construction of fencing to exclude cattle from specified riparian areas. The exclusion of livestock from riparian areas would expand the meadow area adjacent to Bowe Meadows on the Trout Creek Allotment, mitigate grazing impacts in the riparian area, and eliminate future conflicts as the restoration of the meadow occurs. Fencing 1.25 miles of Ninemile Creek and 0.75 mile of South Fork O'Brien Creek would mitigate grazing impacts in those riparian areas; however, this would not eliminate potential grazing impacts in other areas.

### Cumulative Effects

Under this alternative, grazing would continue on federal lands and would be expected to continue on state and private lands as well. Generally, no significant effects on riparian or stream habitat would be anticipated beyond the levels currently observed, and stream conditions would likely improve in areas of newly proposed livestock exclusion. Impacts on state and private lands would continue to degrade conditions in National Forest stream reaches downstream. In particular, sedimentation and water quality impacts are most likely to be transmitted downstream. However, effects on riparian and instream physical habitat would most likely be localized.

Conversely, mitigation of stream habitat on federal lands could improve some habitat features on state and private lands. For example, improved LWD recruitment may serve to retain more sediment upstream of state or private parcels, thereby improving substrate conditions in those reaches. In general, though, the cumulative effects would decrease the levels of stream habitat degradation within the allotments.

## **Alternative 3 (No Grazing)**

### Direct and Indirect Effects

If the allotments were not grazed, the miles of stream and riparian corridor accessible to cattle would be eliminated, and all areas currently impacted by livestock grazing would have the opportunity to revegetate. This would eliminate cattle-caused stream bank damage and subsequent sedimentation. There would be no effect on the amount of LWD or the number of pools in any of the creeks. Therefore, LWD recruitment potential would continue to improve over time as riparian vegetation matured. Removal of livestock would allow more stream bank vegetation to grow, which would provide additional riparian functionality (e.g., improved stream shading, nutrient input, channel stability, and instream habitat formation). Improvement of habitat conditions would be most evident in those areas experiencing the greatest grazing impacts such as along West Fork Trout, South Fork O'Brien, and Ninemile Creeks.

### Cumulative Effects

Impacts due to grazing on National Forest lands would be eliminated over time as the currently impacted areas recovered, but such impacts would continue on adjacent state and private lands. As described under the cumulative effects section of the Proposed Action alternative, impacts on state and private lands will continue to degrade conditions in National Forest stream reaches that are located downstream of the impacts. However, improved conditions on National Forest lands may help improve conditions on state or private lands.

### 3.2.3 Fisheries

#### 3.2.3.1 Existing Conditions

Salmonid fish species currently known to inhabit the project area include eastern brook trout (*Salvelinus fontinalis*), redband trout (*Oncorhynchus mykiss gairdneri*), rainbow trout hybrids, and a rainbow trout subspecies with unknown genetics (*O. mykiss*). Bull trout (*Salvelinus confluentus*), westslope cutthroat trout (*O. clarki lewisi*), and pygmy whitefish (*Prosopium coulteri*) are not known to inhabit any of the watersheds.

Within the project area on the allotments, trout species are found in about 54.2 miles of the fish-bearing streams. Eastern brook trout are the dominant species and are found in about 46.8 miles of the fish-bearing streams. Redband trout are also found in about 10.1 miles of fish-bearing streams. Rainbow hybrids are found in about 9.8 miles of the fish-bearing streams. The unknown rainbow subspecies is found in about 0.2 mile of fish-bearing streams. The genetics of these populations tend to indicate that they were stocked throughout the project area. Fisheries populations in the project area are affected by introduced species (eastern brook trout) in the watersheds, but redband trout are still maintaining populations throughout the project area. The following sections provide a more detailed discussion of the current status of Federal Endangered Species Act (ESA)-listed and Colville National Forest sensitive fish species.

#### **Bull Trout**

Bull trout are listed as threatened under the ESA (Federal Register 64: 58909-58933) and are under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS). Critical habitat listing has been proposed for bull trout, but has not yet been designated (Federal Register 67: 71235-71438). Bull trout inhabiting systems draining into the Columbia are considered part of the Columbia River Distinct Population Segment (DPS). Identified risks to bull trout populations include harvest, habitat disruption, introduction of species (particularly brook trout), and population fragmentation (Lee et al. 1997).

The Swan Lake, Quartz, and Trout Creek Allotments are not within the proposed designated critical habitat for bull trout. Creeks found within the allotments are tributaries to the Kettle River. Presently no known reproduction of bull trout is occurring within the Kettle River or its tributaries, and bull trout are not known to inhabit any of the creeks within the allotments. The USFS conducted population surveys of allotment creeks in 1989, 1992, 1993, 1995, 1998, 1999, and 2002, and no bull trout were found. However, salmonid habitat within the allotments is protected by INFISH standards and guidelines (INFISH 1997), which are consistent with protection of bull trout habitat.

#### **Westslope Cutthroat Trout**

Listing of westslope cutthroat trout as a threatened species under the ESA was determined to be unwarranted at this time (Federal Register, Vol. 68, No. 152). This species has since been repeteditioned for listing as a threatened species based on a court finding that the current listing determination did not reflect a reasoned assessment of the ESA's statutory listing factors on the basis of the best available science regarding the threat of hybridization (Federal Register Vol. 67, No. 170). Currently, westslope cutthroat trout are considered a sensitive species within the Colville National Forest. Identified risks to westslope cutthroat trout populations include harvest, habitat disruption, and competition and hybridization with introduced species (Lee et al. 1997).

Presently no known populations of westslope cutthroat trout occur within the Swan Lake, Quartz, and Trout Creek Allotments. Numerous population surveys of allotment creeks conducted by the USFS from

1989 to 2002 found no occurrences of westslope cutthroat trout. However, salmonid habitat within the allotments is protected by following INFISH standards and guidelines (INFISH 1997), which are consistent with protection of westslope cutthroat trout habitat.

### **Columbia River Interior Redband Trout**

Interior Columbia River redband trout are not listed under the ESA, but are considered a sensitive species in the Colville National Forest. Historically, redband trout were widely distributed in freshwaters west of the Rocky Mountains from northern California to northern British Columbia, including habitats ranging from desert basins to high mountain coniferous forests (Behnke 1992). Interior Columbia River redband trout are native to the upper Klamath River Basin, isolated interior basins of Oregon, and the Fraser and Columbia River drainages east of the Cascade Mountains, extending upstream to barrier falls on the Pend Oreille, Spokane, and Snake Rivers (Behnke 1992).

No genetically pure strains of redband trout have been found in the Swan Lake Allotment. However rainbow trout hybrids occur throughout the mainstem of Scatter Creek, and a single rainbow trout of unknown genetics was sampled in 1995 near the mouth of Tennile Creek. Within the Quartz Allotment, redband trout are known to occur sympatrically with brook trout in the 3 miles of North Fork Hall Creek upstream of the USFS boundary. Within the Trout Creek Allotment, redband trout are found in about 7.1 miles of stream. They occur sympatrically with brook trout in the North Fork Trout Creek and are the only known salmonid species occurring in Trout Creek and West Fork Trout Creek.

### **Pygmy Whitefish**

The pygmy whitefish is a designated sensitive species found within the Colville National Forest. Pygmy Whitefish are not known to inhabit the analysis area. Known populations occur in Bead Lake and Sullivan Lake in the Pend Oreille Valley.

### **3.2.3.2 Environmental Effects on Fisheries**

#### **Alternative 1 (No Action)**

##### Direct and Indirect Effects

With no changes in grazing management, current fish population characteristics (species composition, abundance, and range) and trends would be expected to continue. There would be no impacts to bull trout, westslope cutthroat trout, or pygmy whitefish because those species are not found within the three allotments. However, mitigation in the allotments would improve conditions for other fish species such as brook trout and rainbow trout. Continued degradation of habitat conditions in the Trout Creek Allotment streams would continue to impact redband trout populations and habitat conditions.

##### Cumulative Effects

Any effects of grazing and land-use practices on state and private lands would contribute to the continued impacts on salmonid populations originating from National Forest System lands. Of particular concern are probable impacts to redband trout in the Trout Creek Allotment.

## **Alternative 2 (Proposed Action)**

### Direct and Indirect Effects

Mitigation of grazing impacts as proposed would benefit local fish habitat and fish populations. Some benefits to downstream habitats may also be attained through the reduction of sediment and the improvement of water quality. Of the listed or sensitive species addressed in this EA, only redband trout (found in the Trout Creek Allotment) would benefit from the proposed action because no other listed or sensitive fish species occur within the project allotments.

### Cumulative Effects

As under Alternative 1, additional effects of grazing and land-use practices on state and private lands would also contribute to impacts on salmonid populations. Of particular concern would be any such state and private actions within the Trout Creek Allotment where redband trout occur.

## **Alternative 3 (No Grazing)**

### Direct and Indirect Effects

As described under the Direct and Indirect Effects section for stream habitat, if the proposed allotments were not grazed, the miles of stream and riparian corridor accessible to cattle would be eliminated, and all areas currently impacted by livestock grazing on National Forest System lands would have the opportunity to revegetate. The main benefit would be the elimination of cattle-caused stream bank damage and subsequent sedimentation, which, in turn, would improve fish habitat conditions both within the allotments and perhaps within downstream state and private lands as well.

### Cumulative Effects

The elimination of grazing on National Forest System lands in the project area would eliminate the impacts this grazing has on state and private lands. However, grazing would continue on state and private lands, potentially continuing to impact fish populations and habitat on downstream National Forest System lands.

## **3.3 VEGETATION**

This EA incorporates by reference the Rangeland Specialist's report in the Project Record (40 CFR 1502.21). The specialist report contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the specialist relied upon to reach the conclusions in this environmental assessment.

### *Issue Statement 3*

Grazing in riparian areas may impact riparian habitats, water quality, and overall watershed health.

### *Issue Statement 6*

Grazing may impact native plant communities by altering the distribution and abundance of plant species and by introducing and spreading noxious weeds.

The vegetation resources discussed in this chapter include upland range; riparian; threatened, endangered, and sensitive plants; and noxious weeds.

### 3.3.1 Rangeland Vegetation

#### 3.3.1.1 Existing Conditions

The allotment management plans are summarized in Table 3-2. This table indicates that the Swan Lake Allotment meets the plan standards and guidelines. The Trout Creek and Quartz Allotments were permitted in 2003 at lower stocking rates than were allowed in the Allotment Management Plans. The season of use extends from June 1 to either October 15 or October 31.

**Table 3-2. Summary of Existing Allotment Management Plans in the Project Area**

Item	Swan Lake	Quartz	Trout Creek	Total
Date of most recent Allotment Management Plan	1976 (Revised 1996)	1982	1976	N/A
Season of use – Plan	6/1-10/31	6/1-10/15	6/1-10/31	N/A
Season of use – Permitted	6/1-10/31	6/1-10/31	6/1-10/15	N/A
Allowed head – Plan	127	350	150	627
Permitted head – 2003	127	318	104	549
Allowed AUMs – Plan	855	2,310	990	4,155
Permitted AUMs – 2003	855	2,099	627	3,581
Actual use 2001 AUMs	855	2,165	627	3,020
Actual use 2002 AUMs	855	2,165	0	3,020
Actual use 2003 AUMs	855	2,099	0	2,954

#### Allotment History of Use

The present-day boundaries of the three allotments were designated in 1938. Until that time, grazing was managed by the USFS over wide areas; ranchers were charged for use, but were generally not given a specific area to graze in. Most areas that ranchers used were adjacent to their private property and were considered summer livestock range. The extensive history of use of the three grazing allotments indicates that grazing is part of the customs and culture of the project area.

##### Swan Lake Allotment

Sheep grazing was prevalent from approximately 1912 to 1940. Actual grazing data only go back to the 1940s. The number of cattle grazed in the 1940s ranged from 36 head (1944) to 90 head (1945). The allotment had four permittees during that period: Citi, Dayton, Tratnik, and Stevens. There was an average of 85 head in the 1960s. The average in the 1970s through the mid-1990s was 105, with a high of 127 head in 1996. In 1996, the permittees petitioned the USFS to increase their permitted numbers, which were based on the 1976 Allotment Management Plan. Since all the planned improvements had been constructed and there was forage available, an additional 17 head were permitted. This allotment has been well managed, and the permittee has been carrying out his Annual Plan of Instructions in a timely fashion.

### Quartz Allotment

The Quartz Allotment is the largest grazing allotment on the Republic Ranger District; over the years, the allotment's boundaries have changed many times due to its great size. No records remain of the early changes, however. Sometime in the early 1940s, the Iron Mountain and the Camel Back Allotments were added to the Quartz Allotment. In 1946, portions of the Thirteenmile and Ninemile Creek sheep allotments were added. In 1968, the portion of the Thirteenmile sheep allotment east of the Sanpoil Highway (known as the Sanpoil Breaks) was absorbed into the Quartz Allotment.

The earliest actual use records (1945) show nine permittees, two of whom were taking non-use, for a total of 267 head of cattle. In 1949, records show 305 head of cattle, still under nine permittees. Cattle numbers stayed between 250 and 304 until 1975, when 350 head of cattle were run by five permittees. From 1920 through 1962, sheep were continually grazed in the Sanpoil Breaks.

In 1956, Ray Ferguson, a Native American, obtained a permit to graze cattle on the Quartz Allotment. Ray also had a permit to graze cattle on the Colville Indian Reservation. He managed to build his numbers up to 176 head on this allotment. In the late 1990s, he turned his portion of the permit over to his children, who have increased the permit to 276 head and still actively work at maintaining it. The other entity on this allotment is K Diamond K Corporation. K Diamond K runs 40 head of cattle with Gothams each year from June 1 to October 31.

These grazing allotments are presently managed through the implementation of the 1982 Quartz Allotment Management Plan.

### Trout Creek Allotment

Grazing records show that the Trout Creek Allotment included Bald Peak until the 1960s, when the allotment boundary was revised. Over its history of recorded use, the allotment has switched several times between use by cattle and horses, or sheep and goats (Table 3-3).

**Table 3-3. Grazing History of the Trout Creek Allotment, 1916 - 1970**

Time Period	Grazing Type	Number of Animals
[unknown] – 1916	Cattle and Horse	No data
1917 – 1921	Sheep and Goat	No data
1922 – 1926	Cattle and Horse	No data
1927 – 1930	No records	
1931 – 1939	Sheep and Goat	1,100 sheep
1940 – 1942	No records	
1943	Sheep and Goat	1,000 sheep
1944 – 1946	Cattle and Horse	75 cattle
1947 – 1948	No records	
1949 – 1970	Cattle and Horse	75 – 90 cattle

From 1938 until 1990, range improvements in the Trout Creek Allotment basically stayed the same. An approximately 30-acre meadow was fenced out of the allotment, along with several hundred acres elsewhere. This meadow area was known as the Houglund Meadows and was purchased by the City of Seattle in the 1970s. The 7-Dollar Spring water development was built in 1963 and remained the only

water development in the main allotment until 1990. In 1963, 100 head of cattle were allowed from May 21 through October 31. In approximately 1990, the 1976 allotment management plan was implemented. This called for 7 miles of interior fence, ten water developments, and two cattle guards. The allotment was vacated in 1986 with a change in permittees. The new permittee was able to cooperate with the USFS in installing the improvements and then was allowed to graze 104 head of cattle. The new management and grazing system greatly improved water quality and the vigor of the vegetation.

## **Upland Range Forage Condition and Trend**

### *Forage Condition*

Extensive surveys have been conducted since 1934 to determine the condition of range forage and rangeland soils. Major livestock allotment planning efforts on the Republic Ranger District occurred in 1957, 1966 to 1968, 1976, and 1982. During the development of these plans, areas of unsatisfactory range forage and soil condition were identified. A plan was created to improve the unsatisfactory areas. In the last 10 to 20 years, a combination of improved management, implementation of Forest Plan standards and guidelines, and adjustments in permitted livestock numbers have resulted in an overall improvement of rangeland forage and soil conditions in all three allotments. Recent qualitative and quantitative surveys have not documented any areas of unsatisfactory forage condition as defined in FSH 2209.21-R-6.

### *Forage Trend*

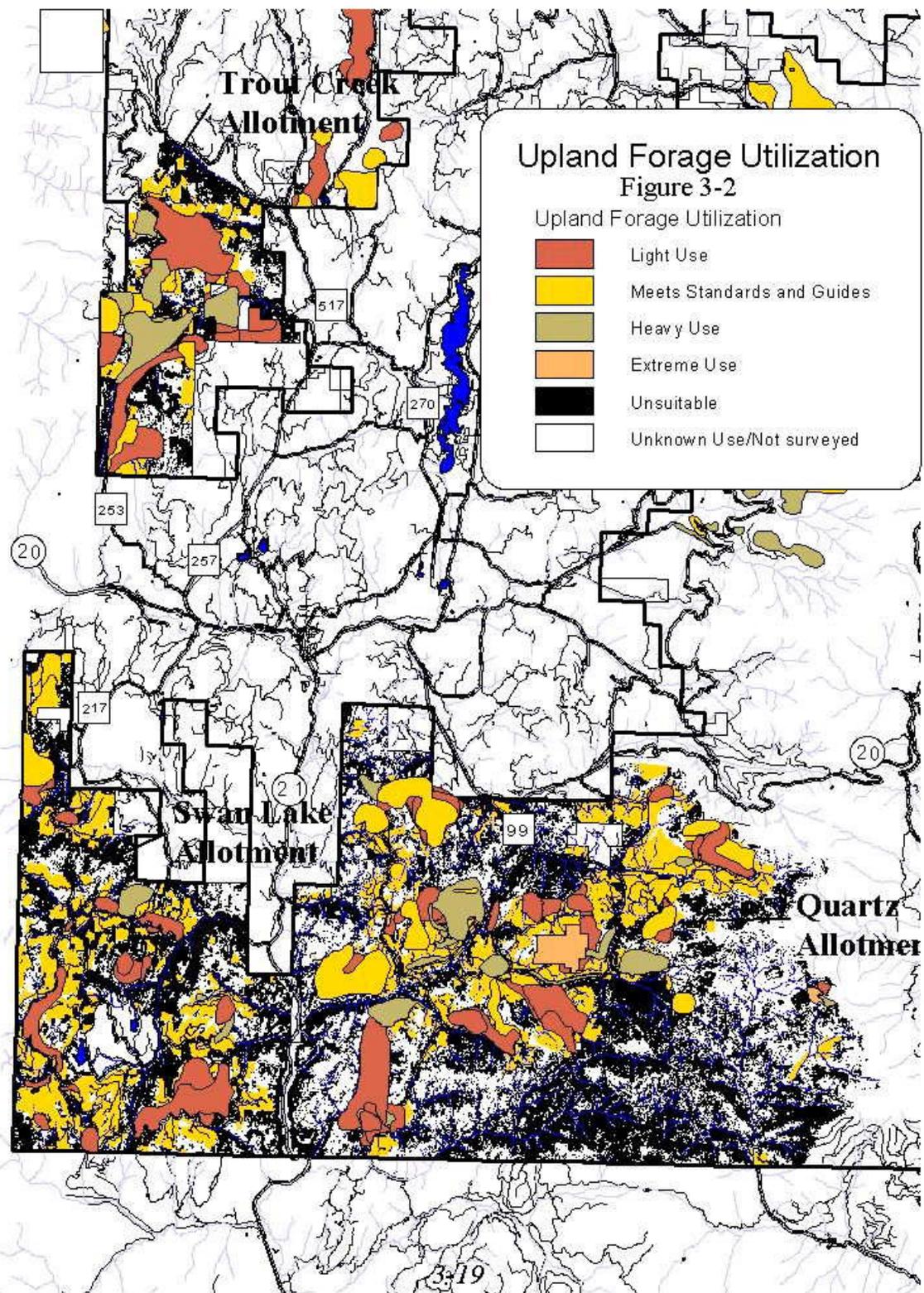
Recent surveys of permanent grassland and meadow vegetation types within the three allotments have found all sites to have a static or improving forage trend.

Within the forested vegetation types, much of the available forage historically utilized on these allotments occurred as transitory range. Transitory range is created when wildfires burn forested areas or logging activity removes enough trees to allow an increase of grasses and forbs as an herbaceous understory. In recent years, forest management practices have changed from an emphasis on clearcuts to silvicultural practices that retain a relatively high number of trees. This has resulted in a more-shaded understory and less herbaceous forage. Many areas, such as Unit 2 of the Trout Creek Allotment, once provided considerable forage, but are now dominated by coniferous trees with very little transitory forage available. A decreasing trend in the availability of transitory forage is expected, as current and foreseeable silvicultural activities within the next 10 years are not expected to produce an appreciable amount of new forage areas. A major wildfire within any of the allotments could create additional transitory range, which would be evaluated for potential livestock use at that time.

Without periodic fires or mechanical treatment, some meadow areas will become forested sites. A large meadow area adjacent to Hougland Meadows (Bowe Meadows), in particular, is being encroached by conifers.

## **Range Forage Utilization**

The utilization of forage directly impacts key forage species and can adversely impact soils and wildlife values. For upland areas in satisfactory condition, the Forest Plan established the allowable level of use for key forage species at 45 percent. Qualitative assessments of forage utilization have been conducted on all three allotments since 1990 (Figure 3-2, Table 3-4). Areas selected for assessment are typically those in which cattle spend the most time. In most years, more than 80 percent of surveyed areas on the allotments met utilization standards. The exception was in 2001, when drought conditions contributed to heavy use at up to 77 percent of the sites surveyed in the Trout Creek Allotment; the other two allotments showed lower, but still elevated, amounts of heavy use.



**Table 3-4. Acres and Percent of Surveyed Area in Different Utilization Classes <sup>a</sup> on the Swan Lake, Quartz, and Trout Creek Allotments, 1990 – 2001**

Year	Swan Lake Allotment			Quartz Allotment			Trout Creek Allotment		
	Satisfactory Light Use	Satisfactory Moderate Use	Unsatisfactory Heavy Use	Satisfactory Light Use	Satisfactory Moderate Use	Unsatisfactory Heavy Use	Satisfactory Light Use	Satisfactory Moderate Use	Unsatisfactory Heavy Use
2001	0	340 (59%)	236 (41%)	0	2,843 (67%)	1,392 (33%)	0	442 (23%)	1,489 (77%)
2000	No Data			1,052 (82%)	117 (9%)	116 (9%)	2,855 (80%)	380 (11%)	347 (10%)
1999	38 (100%)	0	0	207 (100%)	0	0	0	63 (100%)	0
1998	798 (91%)	81 (9%)	0	939 (90%)	0	110 (10%)	No Data		
1997	No Data			1,059 (84%)	25 (2%)	172 (14%)	No Data		
1996	1,148 (97%)	0	31 (3%)	1,009 (82%)	0	222 (18%)	No Data		
1995	180 (100%)	0	0	2,889 (92%)	133 (4%)	114 (4%)	190 (100%)	0	0
1994	340 (100%)	0	0	1,468 (95%)	0	71 (5%)	235 (100%)	0	0
1993	No Data			3,314 (100%)	0	0	No Data		
1992	No Data			1,088 (80%)	0	272 (20%)	207 (100%)	0	0
1991	0	765 (85%)	133 (15%)	2,608 (96%)	0	112 (4%)	627 (85%)	0	113 (15%)
1990	74 (100%)	0	0	506 (46%)	209 (19%)	393 (35%)	94 (98%)	0	2 (2%)
<b>Average</b>	<b>322 (62%)</b>	<b>148 (28%)</b>	<b>50 (10%)</b>	<b>1,345 (720%)</b>	<b>277 (15%)</b>	<b>248 (13%)</b>	<b>526 (60%)</b>	<b>111 (13%)</b>	<b>244 (28%)</b>

<sup>a</sup> Utilization classes are defined as follows:

Satisfactory – Light Use: Key forage plants lightly to moderately used. Practically no use of low-value forage plants

Satisfactory – Moderate Use: Key forage plants used to allowable levels. Some use of low-value forage plants

Unsatisfactory – Heavy Use: Key forage plants used over allowable levels. Low-value forage plants generally being grazed. Grazing objectives not being met.

### Swan Lake Allotment

The Swan Lake Allotment has shown a high rate of compliance with Forest Plan standards and guidelines (Figure 3-2, Table 3-4). In most of the years when surveys were conducted, all areas met the standards and guidelines. In 1991 and 1996, utilization rates exceeded Forest Plan standards and guidelines at 15 percent and 3 percent of sampled areas, respectively. In 2001, the two areas of unsatisfactory use were a small watering area near the main road and the trailing along the fence near the junction of USFS Roads 53 and 5320.

### Quartz Allotment

In most years, some areas of the Quartz Allotment (generally less than 20 percent of the areas surveyed) have exceeded Forest Plan standards and guidelines for forage use. Several of the problem use areas have been associated with riparian area vegetation, which is discussed separately below. Most areas receiving heavy use consisted of Kentucky bluegrass. These vegetation types can generally be grazed heavily, up to 80 percent, without permanent damage to the resource. Caged plot clipping studies conducted from 1990 to 1994 showed a reduction in use from values determined for the same sites from 1978 to 1983.

### Trout Creek Allotment

Forage utilization in the Trout Creek Allotment met Forest Plan standards and guidelines at more than 80 percent of sites surveyed, except during 2001. Figure 3-1 shows periodic heavy use to be located in a Unit 2 transitory range type that included designated winter range area and in a transitory range type in the west-central portion of Unit 1. This suggests that heavy use was a result of combined grazing by cattle and wildlife.

## **Riparian Vegetation Condition**

Riparian areas attract livestock by providing water, shade, and forage. Extensive use has historically caused adverse impacts to the riparian ecosystem. The use of physical structures, reducing livestock numbers, and adjusting the season of use have reduced many of the historic riparian problems.

The three allotments contain approximately 54 miles of fish-bearing streams with associated riparian vegetation. Of this mileage, approximately 1.75 miles were found to fall substantially below standards and guidelines for riparian condition. In addition, two spring areas were identified that did not meet riparian vegetation use standards and guidelines.

### Swan Lake Allotment

Swan and Ferry Lakes occur within the Swan Lake Allotment. The riparian vegetation adjacent to both of these lakes is currently protected from livestock use. The lakes are within a management unit that does not permit livestock grazing, although periodic, minor, incidental use can occur when gates are left open or fences are broken.

The Swan Lake Allotment area was part of the Scatter Watershed Analysis (USDA Forest Service 2000a), which identified several areas that did not meet Forest Plan standards and guidelines for riparian or water quality. Projects were implemented to mitigate livestock use and other impacts to meet the Forest Plan standards and guidelines for riparian use by livestock. There are currently no riparian areas inventoried as failing to meet Forest Plan standards and guidelines for riparian condition within the Swan Lake Allotment.

### Quartz Allotment

The Quartz Allotment is a large allotment with extensive perennial streams and associated riparian zones. Most riparian areas are not accessible to livestock because they are either too steep or contain dense vegetation. Two large riparian areas adjacent to roads were identified as consistently failing to meet Forest Plan standards and guidelines for riparian condition due to excessive livestock use of forage or stream bank trampling. The areas identified are a 1.25-mile segment of Ninemile Creek and a 0.5-mile segment of North Fork O'Brien Creek.

### Trout Creek Allotment

Houglan Meadows (Bowe Meadows) at one time was a wetland area before being ditched to allow increased forage production for livestock. An area adjacent to Houglan Meadows (Bowe Meadows) is being encroached upon by conifers. Wetlands and wet meadows are not common in this allotment. Livestock foraging of riparian vegetation and stream bank trampling around two spring developments has resulted in the springs not meeting Forest Plan standards and guidelines for riparian condition. Riparian vegetation adjacent to most streams was found to be in good condition and fully met Forest Plan standards and guidelines for riparian areas.

## **3.3.1.2 Environmental Effects on Rangeland Vegetation**

### **Alternative 1 (No Action)**

#### Direct/Indirect Effects

Areas currently grazed would continue to be grazed according to Forest Plan standards and guidelines. All water developments, fences, and stock driveways would continue to be maintained. Salting in uplands would continue on the allotment.

Numbers of livestock would not exceed the forage capability of primary and secondary range. Transitory range would continue to decline with increasing tree crown closure in old harvest units. Transitory range could not be relied on to provide forage necessary to maintain the numbers of livestock currently authorized. The numbers of livestock may decline because of decreased availability of forage in transitory range.

Existing species composition would continue to approximate native plant communities in most areas. Some non-native plants such as cheatgrass, orchardgrass, and mullein would continue to occur on some sites. The abundance of non-native plants is less than 5 percent of all species, according to USFS data. This would not be expected to change under Alternative 1.

Forage condition would continue to be fair to good with no expected declining trends except for transitory range. The turn-out dates would meet range readiness most years.

Moderate to heavy utilization would continue in the immediate vicinity of some water developments. Heavy utilization may continue on roads, landings, and skid trails, where introduced palatable grasses such as Kentucky bluegrass, orchardgrass, and timothy have been seeded.

Some areas would, on occasion, not meet the standards and guidelines for forage utilization. Livestock grazing may continue to contribute to utilization levels that exceed Forest Plan standards and guidelines on a few limited areas that are also heavily utilized by wildlife as winter range.

The Ninemile Creek and North Fork O'Brien Creek riparian areas would probably continue not to meet Forest Plan standards and guidelines for riparian areas on a regular basis.

The meadow area adjacent to Bowe Meadows would continue to decrease in size and quality as conifer encroachment continues.

#### Cumulative Effects

Under this alternative, grazing would continue on federal lands and would be expected to continue on state and private lands as well. No significant effect to upland vegetation vigor or species composition is anticipated.

### **Alternative 2 (Proposed Action)**

#### Direct/Indirect Effects

Most of the effects on upland vegetation described for Alternative 1 (No Action – Current Management) would also occur under the Proposed Action alternative. However, the grazing restriction on 312 acres of deer winter range would result in a beneficial effect to browse species. The meadow areas adjacent to Bowe Meadows on the Trout Creek Allotment would be expanded. Riparian vegetation along 1.75 miles of stream within the Quartz Allotment would begin to fully meet standards and guidelines.

#### Cumulative Effects

Under this alternative, grazing would continue on federal lands and would be expected to continue on state and private lands as well. Generally, no significant effect on upland vegetation vigor or species composition would be anticipated. Deer winter range would be improved. Wetland and meadow vegetation would slightly expand. Riparian vegetation would fully meet Forest Plan standards and guidelines for use by livestock.

### **Alternative 3 (No Grazing)**

#### Direct/Indirect Effects

Grazing permits would be terminated in all three allotments. Most water developments and fences would be allowed to deteriorate on National Forest System lands. Most stock driveways or trails would no longer be maintained and would revegetate with grasses, forbs, and trees.

Throughout forested landscapes of the interior west, grazing—by reducing the cover of grass, forb, and shrub species that compete with conifer seedlings and carry low-intensity fires through forests—has contributed to a shift in forest composition and structure (Belsky and Blumenthal 1997). This shift is described as a transition from widely spaced, fire-tolerant trees underlain by dense grass swards, to dense stands consisting of more fire-sensitive and disease-susceptible species (Mutch et al. 1993). Absent the reintroduction of fire into these ecosystems, however, the elimination of grazing would not be expected to result in a significant shift toward presettlement conditions.

#### Cumulative Effects

Under this alternative, no grazing would be permitted on the National Forest System lands in the project area. Improvements would be abandoned, but not removed, so wildlife would be expected to use these

developments as long as the developments were functional. Grazing would be expected to continue on adjacent state and private lands.

Without livestock grazing, additional forage would be available for wildlife.

Vegetation composition would gradually develop more late seral perennial grass, forb, and shrub species and fewer annual flowering forbs, small-stature perennial forbs, and noxious weeds.

### 3.3.2 Threatened, Endangered, and Sensitive Plants

The following information is summarized from the *Swan Lake, Quartz, and Trout Creek Grazing Allotments Biological Assessment/Biological Evaluation for Fish, Wildlife, and Plants* (Parametrix 2004). Reports are included in the analysis file.

#### 3.3.2.1 Existing Conditions

No federally listed threatened or endangered plants or plants proposed for federal listing are known to occur in the project area (USFWS 1999 and 2001). However, six Region 6 sensitive plant species have been documented in the project area: *Carex rostrata*, *Cypripedium parviflorum*, *Eriophorum viridicarinatum*, *Sisyrinchium septentrionale*, *Phemeranthus sediformis*, and *Viola renifolia* (Table 3-5). Thirty-two populations are known to occur in the three allotments. An additional 21 sensitive plant species are suspected to occur in the project area.

**Table 3-5. Number of Sensitive Plant Species Populations in Each Allotment**

Species	Allotment			Habitat Association
	Swan Lake	Quartz	Trout Creek	
<i>Carex rostrata</i>	0	1	0	Wetlands/wet meadows
<i>Cypripedium parviflorum</i>	1	0	0	Forested riparian areas
<i>Eriophorum viridicarinatum</i>	0	1	0	Wetlands/wet meadows
<i>Phemeranthus sediformis</i>	6	16	0	Rocky areas and outcrops
<i>Sisyrinchium septentrionale</i>	1	0	1	Wet meadows
<i>Viola renifolia</i>	1	0	4	Forested riparian areas

#### 3.3.2.2 Environmental Effects on Threatened, Endangered, and Sensitive Plants

None of the alternatives is anticipated to affect any federally listed threatened or endangered plants, or any plant species proposed for federal listing. Effects on documented sensitive species are described below.

#### Alternatives 1 – (No Action) and 2 (Proposed Action)

##### Direct and Indirect Effects

##### *Forested riparian habitat species*

Livestock tend to concentrate around riparian areas (Smith et al. 1992, Wallis de Vries and Schippers 1994). Thus, under both Alternative 1 and Alternative 2, riparian and aquatic habitats that are accessible

to cattle would likely be impacted by trampling and grazing. In many parts of the allotments, steep V-shaped channels and spanning logs discourage cattle from using riparian habitats. Nevertheless, some areas are impacted by cattle; any new or undocumented populations of sensitive plants in these areas may be grazed or trampled.

The documented *Cypripedium parviflorum* population was first identified in 1995 and has been regularly monitored since then, most recently revisited in 2003. Observations indicate plant population numbers and habitat conditions have generally remained stable since the initial sighting. Impacts from cattle appear minimal as livestock use is likely incidental. The documented populations of *Viola renifolia* are in areas currently used by cattle. Continued cattle use in these areas is expected to have minimal impact as livestock utilization is likely incidental. Therefore, neither alternative would be expected to affect these species.

#### *Wetland and wet meadow habitat species*

Similar to forested riparian habitat, wetland and wet or dry meadow habitats may be impacted by trampling and grazing. However, two of the three identified sensitive plant species in these habitats are not likely to be affected by the presence of livestock, and one sensitive plant species may benefit.

*Carex rostrata* and *Eriophorum viridicarinum* are both located in a fen in the Quartz Allotment. *Carex rostrata* is very palatable to horses and cattle, whereas *Eriophorum viridicarinum* is not. *Carex rostrata* is able to withstand moderate grazing, and both species are able to withstand moderate trampling. The location of these plants is generally inaccessible and historically not used by cattle. Therefore, neither alternative would be expected to affect these two species.

Two populations of *Sisyrinchium septentrionale* are located in wet meadows in the project area—one population (on the Trout Creek Allotment area) is currently fenced off as part of the site-specific mitigation already in place for Hougland (Bowe) Meadows, and one population (on the Swan Lake Allotment area) occurs primarily on adjacent grazed private land. Grazing has been used to enhance populations of rare iris species similar to *Sisyrinchium septentrionale*, because livestock tend to graze on competing grasses and sedges. Thus, grazing may help to maintain the open habitat required by this species, although overgrazing or excessive trampling may pose a threat (Washington Natural Heritage Program [WNHP] 2004). Neither problem has been documented in the vicinity of the population that is accessible to cattle. Therefore, neither alternative would be expected to affect this species.

#### *Open dry forest and/or rocky outcrop habitat species*

*Phemeranthus sediformis* primarily grows on rocky areas and outcrops. Although cattle are not typically attracted to such areas, they are still able to gain access. Observations in the field and from WNHP (2004) indicate that cattle have a history of occurring at many of these areas, but have little to no impact on this plant species. Therefore, neither alternative would be expected to affect this species.

### **Alternative 3 (No Grazing)**

#### *Direct and Indirect Effects*

##### *Forested riparian habitat species*

In the absence of cattle, sensitive plant habitat, such as forested riparian areas, would not be impacted by grazing or trampling on National Forest System lands. The cessation of livestock use may allow an increase in the number of individuals in existing populations and establishment of new populations of *Cypripedium parviflorum*, and *Viola renifolia*.

### *Wetland and wet meadow habitat species*

Similar to forested riparian habitat, sensitive plant habitat in wetland and wet or dry meadows would not be impacted by grazing or trampling on National Forest System lands. However, the known populations of *Carex rostrata* and *Eriophorum viridicarinatum* are located in an area currently inaccessible by cattle. Therefore, the No Grazing alternative would have no effect on these species.

Removing livestock from all *Sisyrinchium septentrionale* populations in the project area would reduce the potential impacts from trampling, while simultaneously allowing competition with associated meadow species, since these other species would no longer be grazed. However, sensitive plant habitat on private land would continue to be grazed at the Swan Lake Allotment population. Livestock on state and private land would likely create trails next to new fences constructed at the boundary between private and federal lands, potentially increasing trampling and grazing of habitat in these areas. Excessive grazing and trampling is the greatest threat to this species (WNHP 2004).

### *Open dry forest and/or rocky outcrop habitat species*

In the absence of cattle, open dry forest and/or rocky outcrop habitat species would not be impacted by grazing or trampling on National Forest System lands. *Phemeranthus sediformis* primarily grows on rocky areas and outcrops that are typically not grazed by cattle. Therefore, the No Grazing alternative would have no effect on this species.

## **Cumulative Effects**

In the project area, attempts are being made to stop the spread of noxious weeds and potentially eliminate them. Noxious weeds can occupy habitat used by sensitive species and out-compete sensitive plants. Measures designed to control the establishment and spread of noxious weeds may contribute to the persistence of threatened, endangered, and sensitive plant populations.

Years of fire suppression have allowed young trees to grow and increase (Williams et al. 1995). More trees lead to more shade on the ground, which may make the habitat less suitable for species requiring sunlight, while improving habitat for shade tolerant species. Removal of livestock might allow more grass and forbs to grow, providing additional shade at the ground level, perhaps affecting low-growing plants.

The continuation of cattle grazing under a well-monitored, adaptive management strategy should maintain habitat conditions for sensitive plant species within Forest Plan standards and guidelines. No cumulative effects would be anticipated under Alternative 1 or 2, other than those described for individual species.

The cessation of cattle grazing would be anticipated to generally maintain or improve habitat conditions for sensitive plant species, except for *Sisyrinchium septentrionale* as described under each alternative. The removal of livestock should allow more native vegetation to grow and better compete with weeds, thus providing some benefit to sensitive plants. However, if noxious weed control is effective, competition by weeds will not be a limiting factor.

### **3.3.3 Noxious Weeds**

This EA incorporates by reference the Rangeland Specialist's report in the Project Record (40 CFR 1502.21). The specialist report contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the specialist relied upon to reach the conclusions in this environmental assessment.

**Desired Future Condition:** The desired future condition as stated in the Forest Plan is that “The occurrence and spread of noxious weeds will be reduced as a result of integrated pest management” (pages 4-64).

**Forest Plan Standards and Guidelines:** Forest-wide standards and guidelines for noxious weeds, as stated in the Forest Plan, are that “Emphasis will be given to the control and reduction of noxious weed infestations” (page 4-60).

The Colville National Forest has implemented a seeding policy (*A Guide to Seeding and Planting Vegetation*, USDA Forest Service 2000b) and a noxious weed prevention policy (*Noxious Weed Prevention Guide*, USDA Forest Service 1999) with vegetation management objectives that include prevention or reduction of noxious weeds.

All integrated weed management activities are controlled by the Region 6 FEIS for Managing Competing and Unwanted Vegetation (USDA Forest Service 1988c), as supplemented by the Mediated Agreement (Northwest Coalition for Alternatives to Pesticides, et al. v. Clayton Yeutter 1989). The agreement directs the USFS to utilize an integrated weed management approach to vegetation management. While the Record of Decision (ROD) allows the USFS to use all available methods to control noxious weeds, it emphasizes the need to do environmental and biological assessment site work, develop herbicide information profiles, and work toward reducing reliance on herbicides.

### **3.3.3.1 Existing Conditions**

There has been an increasing trend in the introduction of noxious weeds on the allotments since the 1950s, starting with St. Johnswort and then later with diffuse knapweed. During the 1960s, 1970s, and 1980s, a major increase in road construction and timber harvest created opportunity for the establishment of diffuse knapweed, as well as many other newly introduced noxious weeds. Despite stable or declining cattle numbers during this time, noxious weeds spread with increased disturbance and access. In the mid-1980s, increases in the number of weed species present and the amount of area affected went generally unabated, except for some minor mechanical treatment until the early 1990s. More recently, biological agents have been introduced to control the spread of St. Johnswort and diffuse knapweed in northeastern and north-central Washington State. During the 1990s, one new noxious weed species, orange hawkweed, was found on the allotments. Currently, the allotments contain known populations of five species listed as Class B designate (control required) weeds by the Ferry County Weed Board (Table 3-6). Several of these populations have been found and reported by grazing permittees. Class B non-designate (control required on road corridors) weeds on the allotments include musk thistle, diffuse knapweed, dalmatian toadflax, and hoary alyssum. Class C (control encouraged) weeds include St. Johnswort (goatweed), houndstongue, Canada thistle, and absinth wormwood. Other weeds are bull thistle and common mullein. Most infestation sites are associated with roadways, old logging landings, and salt grounds.

**Table 3-6. Occurrence of Class B Designate Weeds Known on the Swan Lake, Quartz, and Trout Creek Allotments**

<b>Species</b>	<b>Swan Lake</b>	<b>Quartz</b>	<b>Trout Creek</b>
Common Bugloss			X
Orange Hawkweed	X	X	X
Yellow Hawkweed	X	X	X
Spotted Knapweed	X		
Plumeless Thistle	X		

X indicates occurrence

### **3.3.3.2 Effects on Noxious Weeds**

Musk thistle, plumeless thistle, yellow hawkweed, and orange hawkweed are primarily spread by airborne seed. Common bugloss and spotted knapweed produce harder, heavier seeds than the thistles and hawkweeds; these species spread gradually and systematically, as seeds fall to the ground and germinate. Neither the continuation nor the elimination of livestock grazing from the allotments would be expected to affect the spread of these six weed species.

#### **Alternative 1 (No Action)**

The presence of livestock would contribute to the spread of noxious weed seeds such as houndstongue and diffuse knapweed within the allotments. Continued livestock grazing would not be expected to appreciably alter the rate of spread of diffuse knapweed; this species may be expected to decrease in response to the introduction of biological control agents. The spread of houndstongue by livestock would be expected to increase because the seeds stick to the animals' hair and are later rubbed or scraped off. This comparatively random spread mechanism would likely result in delayed detection of new weed infestations.

Livestock trails, stock driveways, and areas around range improvements would continue to be susceptible to noxious weed introduction.

The permittees would continue to inform the District of new populations of noxious weeds, allowing timely detection and control of some new infestations.

#### **Alternative 2 (Proposed Action)**

In most areas, the Proposed Action would have the same potential for noxious weed spread and invasion as the No Action alternative. Exclusion of livestock from certain riparian areas and portions of the Snow Peak trail, however, would reduce the potential for establishment of houndstongue and diffuse knapweed in those areas.

In addition, several noxious weed control measures would be incorporated into the Allotment Management Plans, including the use of weed-free hay or straw in allotment management on National Forest System lands, keeping vehicles free of noxious weeds, and removing weed seed from livestock. These measures would be expected to reduce the spread of certain noxious weed species, such as houndstongue.

### **Alternative 3 (No Grazing)**

The absence of livestock would slightly reduce the rate of spread of noxious weeds such as houndstongue and diffuse knapweed within the allotments. As cattle are removed from livestock trails, stock driveways, and areas around range improvements, and these areas begin to revegetate, the amount of area susceptible to noxious weed introduction would be reduced.

Currently, permittees inform the District of new populations of noxious weeds. Without this information, some new infestations would go undiscovered by District personnel.

### **Cumulative Effects**

The cumulative effects on noxious weed populations and sites within the allotment boundaries depend on many activities, including livestock grazing.

Under all three alternatives, road maintenance activities (such as road blading and maintenance of ditches and cross drains) are expected to continue annually throughout the allotments. These activities would affect soil and existing vegetation, providing potential sites for the introduction of noxious weeds.

Past timber harvest activities have contributed to disturbed sites that are available for noxious weed infestation. As these areas revegetate and noxious weed control measures continue, there would be little additional effect to noxious weed introduction and infestation.

Ongoing and future timber harvest activities, including the Whitespot, Swansong, and Trout timber sales and fuels reduction projects in the Scatter, Eagle Rock, and Trout project areas, would contribute to additional noxious weed infestation. These projects have noxious weed mitigation measures that reduce areas of site disturbance, decreasing the area that noxious weeds would occur.

Livestock grazing outside the allotments in areas infested with houndstongue would increase the spread onto National Forest System lands by wildlife, humans, and vehicles.

Recreation users, especially off-highway vehicle operators, would also continue to contribute to the spread of noxious weeds.

Other activities, including limited mineral exploration and small erosion control or restoration projects, would not be expected to increase noxious weed infestations appreciably.

Under the No Action and Proposed Action alternatives, noxious weeds would be expected to remain stable or decline slightly with continued control. Additional noxious weed control measures under the Proposed Action alternative would be expected to result in greater declines than those of the No Action alternative.

Under the No Grazing alternative, the spread of noxious weeds would be expected to stabilize over the long term, as disturbed sites are reoccupied by desirable vegetation. With continued control, noxious weeds would be expected to decline slightly.

## **3.4 WILDLIFE**

This EA incorporates by reference the Wildlife Specialist's report in the Project Record (40 CFR 1502.21). The specialist report contains the detailed data, methodologies, analyses, conclusions, maps,

references, and technical documentation that the specialist relied upon to reach the conclusions in this environmental assessment.

**Issue Statement 5**

Mule deer winter range forage habitat may be altered by livestock grazing.

**3.4.1 Management Indicator Species**

Current information indicates that approximately 324 species of vertebrate wildlife occur within this portion of northeast Washington, including more than 230 species of birds, 75 mammals, 8 amphibians, and 11 reptiles. To address this wide variety of species, and their often conflicting habitat needs, Management Indicator Species (MIS) were selected during the development of the Colville Forest Plan to address habitat needs of all vertebrate species, to focus monitoring on selected habitats that could become limiting to some species through forest management activities, and to provide sufficient populations of selected species to meet demands for wildlife-related recreation. Effects on each MIS or species group are evaluated during the environmental analysis process and are used to represent effects on a broader array of wildlife species requiring similar habitat conditions and components. The MIS selected for the Colville National Forest are shown below in Table 3-7. The rationale behind the selection of each MIS can be found in the Forest Plan.

The project area provides suitable habitat conditions for 11 of the 13 terrestrial MIS. Effects on grizzly bear are discussed in Section 3.4.2 (Threatened, Endangered, and Sensitive Species).

**Table 3-7. Presence of Suitable Habitat for Colville National Forest Management Indicator Species in the Swan Lake, Quartz, and Trout Creek Grazing Allotments**

Species (or Species Group)	Habitat Present?
Wintering Big Game (Mule Deer, White-tailed Deer, Elk)	yes
Pileated Woodpecker	yes
Northern Three-toed Woodpecker	no
Other Woodpeckers	yes
Blue Grouse	yes
Franklin's (Spruce) Grouse	yes
Barred Owl	yes
Marten	yes
Beaver	yes
Large Raptors/Great Blue Heron	yes
Northern Bog Lemming	yes
Grizzly Bear	yes
Caribou	no

**3.4.1.1 Big Game (Deer, Elk, and Moose)**

Primary big game species on the Colville National Forest are mule deer, white-tailed deer, and elk. Moose are also present in small but growing numbers. The Forest Plan (page 4-105) states that populations of these species are generally limited by the amount and condition of available winter range.

West of the Columbia River, mule deer are the primary focus for big game winter range management (Forest Plan, page 4-62). The Swan Lake, Quartz, and Trout Creek Allotments are all west of the Columbia River.

There are two major concerns regarding mule deer habitat within this allotment. The first is the condition of winter range, because it is the most limiting habitat component. All references to winter range in this discussion include the early spring timeframe and the habitats that are critically important to deer, especially pregnant females, who need good sources of high-quality forage during that time of the year. The creation and maintenance of an adequate quality, quantity, and distribution of forage and browse are essential parts of meeting Forest Plan objectives for big game winter range on the Colville National Forest. Competition for food (condition and availability of winter/early spring forage for mule deer and/or other big game species) is the greatest concern. The second concern relates to the condition of riparian habitats, which are key areas for fawning and calving by deer, elk, and moose. The availability and condition of quality riparian habitats can greatly influence fawn/calf survival rates.

Forage/browse availability in summer range areas is not considered to be a limiting factor and is, therefore, not a concern. Because there is no winter grazing on National Forest System lands, direct competition for cover and space between wintering big game and cattle is also not a concern.

### Existing Conditions

Approximately one quarter (22.4 percent) of the 96,197 acres of National Forest System land within the three allotments is classified as either Management Area 6 (1.9 percent) or Management Area 8 (20.4 percent), which are the Colville National Forest Plan designations for big game winter range (Table 3-8). In addition to the designated winter range areas, aggregations of mule deer have also been documented using range beyond the bounds of the designated winter ranges during recent winter seasons. Aggregations have been noted particularly in the Thirteenmile Creek and Cougar Mountain drainages of the Quartz Allotment.

**Table 3-8. Acres of Big Game (Mule Deer) Winter Range Management Area Designations in the Swan Lake, Quartz, and Trout Creek Allotments**

Allotment	Acres (Total)	Management Area Designation					
		06		08		TOTAL	
		Acres	%	Acres	%	Acres	%
Swan Lake	25,106	653	2.6	12,102	48.2	12,755	50.8
Quartz	59,187	1,042	1.8	7,054	11.9	8,096	13.7
Trout Creek	11,904	171	1.4	486	4.1	657	5.5
<b>TOTAL</b>	<b>96,197</b>	<b>1,866</b>	<b>1.9</b>	<b>19,642</b>	<b>20.4</b>	<b>21,508</b>	<b>22.4</b>

The creation and maintenance of an adequate quality, quantity, and distribution of forage and browse is an essential part of meeting Forest Plan objectives for big game winter range on the Colville National Forest. Management of conditions favorable to mule deer are emphasized on National Forest System lands in the designated big game winter range areas (Forest Plan, pages 4-98 and 4-106). Forest Plan standards and guidelines (Forest Plan, pages 4-99 and 4-107) potentially affected by livestock grazing include the following:

- Manage for 50:50 forage:cover ratio.
- Stimulate production of browse and other forage.
- Develop livestock grazing systems compatible with big game winter range needs.
- Emphasize wildlife needs in the design and location of range improvements, and modify, relocate, or eliminate those improvements that are detrimental to wildlife.

Serviceberry, one of the most preferred browse species, is found throughout the project area, but seldom is the dominant shrub species at any particular site. Other preferred browse species found in the project area include Douglas maple, willow, and rose. The most common shrub species are ninebark and snowberry, neither of which is especially palatable to deer. Several species of noxious weeds are already established within the project area and have reduced the amount of potential forage available in this allotment for big game.

Habitat assessment surveys on the Quartz Allotment during the summer of 2003 found that 73 percent of the serviceberry had evidence of being browsed, and 10 percent of the plots had evidence of being severely browsed. Whether this browsing was by cattle or deer (or other species) is not known; however, cattle sign in the form of manure piles was found to be greater than 50 percent more abundant on the sites than pellets and pellet groups of deer. Partially complete surveys in the Swan Lake Allotment found a similar rate of browsing, but none of the serviceberry on the examined sites was considered to have been severely browsed. Deer pellet groups and cattle manure piles were present in approximately equal abundance on the Swan Lake Allotment. Comparable data are not available for the Trout Creek Allotment.

Aspen communities provide one of the major preferred forage species for mule deer, as well as important thermo-regulatory, hiding, fawning, and fawn-rearing habitat. Aspen communities are also vulnerable to damage by cattle. The amount of area dominated by aspen within the three allotments is relatively small, but such areas receive a disproportionate level of use by cattle and/or deer. Aspen was found in only 4 to 5 percent of the sites examined during the habitat surveys within the Quartz and Swan Lake Allotments in the summer of 2003, and it accounted for less than 5 percent of the ground cover. However, when found, from 90 to 100 percent of the growth had evidence of having been browsed.

Mule deer are adapted to open terrain, and visibility of potential predators is important in their strategy for survival. An estimated 75 percent of the sites examined in the Quartz Allotment had horizontal visibility distances greater than 164 feet, 34 percent had visibility greater than 328 feet, and visibility in 5 percent was considered “unlimited.” These numbers are in contrast to the Swan Lake Allotment, where 57 percent of the sites examined had horizontal visibility distances greater than 164 feet, and none was unlimited.

Harvest and survey data collected by the Washington Department of Fish and Wildlife indicate that mule deer populations within the planning area, as elsewhere in Ferry County, continue to be in a declining trend. In addition, white-tailed deer continue to increase in proportion to mule deer in the overall herd composition. This is not just a short-term situation brought about by severe weather or recent changes in hunting regulations, but a trend that has been occurring over several years (S. Zender, biologist, WDFW personal communication). No firm evidence yet exists to suggest cattle are currently having a measurable direct negative impact upon the growth and productivity of mule deer in any of the allotments.

## Environmental Effects on Big Game

For each alternative, impacts to mule deer habitat from project implementation were assessed based on the potential to affect the quality, quantity, and distribution of cover and forage and to impact riparian habitat conditions. The overall effect of livestock grazing on big game winter range conditions is influenced by a variety of factors, including range condition and trend, seasons and patterns of livestock use, presence and spread rate of noxious weeds, location and design of range improvements, and environmental factors such as slope, aspect, and soil type. If improperly stocked or managed, livestock grazing during the spring, summer, and early fall can leave winter/early spring range areas with insufficient forage reserves to carry the desired numbers of big game through the critical winter/early spring period. Improper management in riparian areas reduces cover values for big game fawning/calving use. The timing of livestock grazing is also a factor. Early or late season grazing, and the associated human use involved in moving livestock on or off the allotment, could conflict with deer use of winter/early spring range areas. Forage and cover areas are defined primarily by overstory density, and cattle grazing seldom alters overstory condition once it is established. Therefore, livestock grazing does not negatively impact mule deer snow intercept cover, winter thermal cover, or hiding cover.

Cattle and mule deer compete in varying degrees for the same forage resources. The nature of this competition on the winter ranges is influenced by a variety of ecological factors including range condition and trend; seasonality and patterns of range use by livestock; location and design for range improvements; invasion and prevalence of noxious weeds; and physical factors, such as slope, aspect, and soil types. This competition has the potential to suppress the availability and palatability of preferential browse and forage species for mule deer which, in consequence, would be reflected in reducing mule deer reproductive and physiological productivity. As noted above, no such negative effects have yet been documented on the Swan Lake, Quartz, or Trout Creek Allotments. Based on evidence of heavy use by cattle, as well as severe browsing of serviceberry, however, the Quartz Allotment warrants careful monitoring.

The Forest Plan (pages 4-46 and 4-47) presents tables outlining allowable forage use levels in riparian and upland areas. These calculations present the total allowable use, which includes both livestock and wildlife. To determine how much livestock grazing may be permitted within an area, it is necessary to estimate how much forage would be required to meet the needs of wildlife.

Specific mule deer and big game population objectives have not been developed for the three allotments; therefore, specific big game forage objectives are not available. In the absence of specific objectives, the following general objectives are presented as guidelines to help assess the wildlife forage requirements in these allotments. These numbers should be refined as monitoring data or other information becomes available.

- The estimated 1980 deer population on the Colville National Forest was 18,500 deer (Forest Plan FEIS [USDA Forest Service 1988b], page IV-54).
- The Forest Plan objective (Forest Plan, page 4-13) is to provide for 120 percent of the 1980 level or 22,200 deer (18,500 x 120 percent).
- Winter range (Management Areas 6 and 8) accounts for 201,088 acres on the Forest (Forest Plan, page 4-67). Therefore, the Forest Plan objective for average winter deer density on big game winter ranges is approximately 71 deer per square mile (22,200 deer per 201,088 acres of winter range x 640 acres per square mile = 70.66 deer per square mile).

- The Swan Lake, Quartz, and Trout Creek Allotments contain 21,508 acres (33.6 square miles) of designated winter range. The Forest Plan objective for average winter deer density suggests these allotments may be expected to support an estimated minimum of 2,374 deer (70.66 deer per square mile x 33.6 square miles = 2,374 deer).
- On average, each deer needs 675 pounds of forage to sustain it over the 150-day (5-month) winter period (FEIS Appendix B-56), or 135 pounds of forage per month.
- The Forest Plan (page 2-12) reports that a livestock AUM is 780 pounds of forage. Using the conversion factor in FSH 2209.21, a cow/calf AUM is calculated to be 1,030 pounds of forage. Therefore one deer AUM equals 0.13 cow/calf AUM (135/1030 = 0.13).
- The estimated winter range requirement for mule deer (big game) forage in the three allotments is 11,870 deer AUMs (2,374 deer x 5 months) or 1,543 cow/calf AUMs (11,870 x 0.13). If the allowable livestock grazing levels in winter range areas can be determined while still ensuring this minimum level of wildlife use, then the impacts upon mule deer and other big game will approximate Forest Plan expectations. This estimate should be considered a minimum level until better, more site-specific deer population objectives are developed.

Alternative 1 (No Action)

*Direct and Indirect Effects*

The continuation of livestock grazing within the three allotments would entail the continued competition between livestock and mule deer for the available forage resources within the area. As the cumulative result of past livestock grazing practices and other management activities that have occurred within the allotments, the No Action alternative would be expected to result in the maintenance of the existing conditions described above. Noxious weeds would be expected to persist and spread, displacing native forage resources. To account for this gradual loss of forage resources, adjustments to grazing use of the allotments—including reductions in livestock use and densities—may eventually be necessary to maintain the proper balance between the needs of big game and livestock.

Alternative 2 (Proposed Action)

*Direct and Indirect Effects*

In general, current conditions would be expected to persist under Alternative 2 (Proposed Action) alternative, similar to Alternative 1 (No Action – Current Management). However, a net improvement in mule deer habitat conditions would be expected due to implementation of the following changes:

- The livestock grazing season would be shortened for all three allotments, with grazing terminating on October 15 instead of October 31. During this period of the year, cattle increase their utilization of shrubs that are important to mule deer in the autumn and winter. By shortening the grazing season at this time, additional shrub resources would be available for mule deer and other wildlife.
- In areas of the Quartz Allotment that provide big game winter range, shrub forage utilization levels would be maintained at a maximum of 35 percent in upland key areas identified in unsatisfactory condition until use could be maintained with no more than 40 percent utilization.

In addition, the Thirteenmile area of Pasture Unit 2 in the Quartz Allotment would not be used after 30 September, to reduce impacts on heavily used big game winter range.

- Several riparian area and spring improvements (fencing, spring redevelopment, and additional water developments) would contribute to improved riparian habitat conditions in the Quartz and Trout Creek Allotments by moving cattle out of these sensitive areas. This would provide for improved cover and less disturbance to mule deer using these areas, especially during fawning season.
- Unit 2 of the Trout Creek Allotment would be eliminated as a pasture for grazing, reducing the potential for competition between cattle and deer in that area.
- Several noxious weed control measures would be incorporated into the Allotment Management Plans, including the use of weed-free hay or straw in allotment management on National Forest System lands, keeping vehicles free of noxious weeds, and removing weed seed from livestock. These measures would be expected to reduce the spread of noxious weeds, as well as the corresponding loss of native forage resources.
- Invading conifers would be removed from grassland areas in the Trout Creek Allotment, increasing the amount of available forage habitat.

### Alternative 3 (No Grazing)

#### *Direct and Indirect Effects*

Over the short term (i.e., the next several years), removing livestock from the Swan Lake, Quartz, and Trout Creek Allotments would not be expected to affect the condition or amount of snow-intercept, thermal, or hiding cover within designated winter range areas, nor would it likely affect the overall forage:cover ratio. However, removing livestock from this area would have an immediate effect on the quantity and quality of food available within the existing forage areas. Without livestock, more food would be available year-round. This would be especially important in the winter and early spring months, when food availability is limiting. Additional food may result in more deer occupying the area and/or better survival rates which, in turn, could lead to an improved population trend.

The elimination of livestock grazing within the planning area would also negate the need for and the funding to conduct the range improvement activities identified as part of the proposed action. Under the No Grazing alternative, the proposed water developments would not be created, and the damaged riparian areas adjacent to streams and springs would be allowed to undergo natural healing. The net result over time would be improved riparian habitat conditions, which would improve overall forage quality and quantity and provide better fawning habitat.

Cattle grazing, and the associated vehicle and/or horseback use required to move and manage those cattle, can also be a factor in the introduction and spread of noxious weeds. Even under the No Grazing alternative, which would remove the impacts of cattle, these weeds would continue to spread and displace native forage resources, because vehicles and other human uses of the area are probably a bigger factor in the introduction and spread of noxious weeds than livestock grazing. It is assumed that existing noxious weed control and monitoring programs would continue.

### **3.4.1.2 Forest Grouse**

#### **Existing Conditions**

The Swan Lake, Quartz, and Trout Creek Grazing Allotments contain habitats for blue, ruffed, and Franklin's (spruce) grouse. Blue grouse winter habitats are located along major ridges, while summer and brood rearing habitat are located on lower slopes and elevations, along water courses, and near springs. Ruffed grouse habitats are closely associated with riparian areas and hardwood (aspen) stands or inclusions. Year-round habitat for Franklin's grouse is located at higher elevations.

The Forest Plan (page 4-40) requires that hiding cover be maintained around at least 50 percent of each spring or other water source, with no break in cover exceeding 600 lineal feet along the water's edge. Hiding cover (for grouse broods) is defined as grasses and forbs with an effective height of 8 inches from May through August. Bare ground should be less than 11 percent (Ware 1991). Site examinations on the Quartz and Swan Lake Allotments suggest these standards are currently being met. No such data are available for the Trout Creek Allotment; however, few to no cattle have been using the allotment during the past few years.

#### **Environmental Effects on Forest Grouse**

Potential interactions between grouse and cattle within the three allotments include competition for herbaceous vegetation within riparian areas (food for cattle, hiding cover for grouse broods) and trampling of nests. Distribution and condition of aspen and other riparian vegetation for ruffed grouse may also be affected by cattle. The presence of cattle within the allotments is not considered a factor in creating or maintaining desired conditions for wintering blue grouse may also be affected by cattle. Interactions within Franklin's grouse habitat relate primarily to any effect cattle have on maintaining suitable lodgepole pine and other tree regeneration at higher elevations.

#### *Alternatives 1 (No Action) and 2 (Proposed Action)*

The extent of riparian impacts associated with grazing would be determined by how effective the Forest is in monitoring and enforcing Forest Plan requirements and other prescribed mitigation measures. Under either of these alternatives, limitations on the access of cattle to riparian areas could potentially allow vegetation in those areas to develop and be used by blue and ruffed grouse. Alternative 2 (Proposed Action) contains more provisions than Alternative 1 (No Action) for reducing the use and impact by cattle on riparian areas and would, thus, be expected to result in fewer adverse effects on grouse and grouse habitat.

#### *Alternative 3 (No Grazing)*

Under the No Grazing alternative, grouse habitats on National Forest System lands within Swan Lake, Quartz, and Trout Creek Grazing Allotments would be expected to improve over the long term. Elimination of livestock grazing would resolve potential conflicts with blue grouse broods along streams and adjacent to springs, allowing herbaceous vegetation in these areas to reach its full height and potential as brood cover. The potential for trampling nests would not exist. Potential conflicts between ruffed grouse and cattle within riparian and aspen and other deciduous habitats would also be eliminated.

Within Franklin's grouse habitats, cattle have the potential to cause mechanical damage to lodgepole pine and other seedlings within regenerating timber harvest areas and other created openings. If grazing were eliminated, this potential conflict may be eliminated. Grazing may, however, promote conifer regeneration in some areas by reducing competition from grasses, forbs, and shrubs (Belsky and

Blumenthal 1997). Thus, the potential negative effects of mechanical damage to Franklin's grouse habitat may be offset by increased regeneration. The studies cited by Belsky and Blumenthal (1997) focus on ponderosa pine and mixed conifer forest types, rather than the lodgepole pine habitats favored by Franklin's grouse.

### **3.4.1.3 Woodpeckers**

#### **Existing Conditions**

Several woodpecker species are used as MIS because of their dependence on habitat conditions containing dead and downed woody material. Most of the woodpecker species, and the secondary cavity nesters that depend upon them, found on the Colville National Forest use dead and downed coniferous trees, but a few (e.g., common flicker) also show a strong dependency on live hardwoods (cottonwood and/or aspen) as nest sites.

Areas identified as providing hardwood habitats important to woodpeckers include the aspen-parkland meadows near the terminus of USFS Road 2054-200-210 at the north base of Cougar Mountain (Quartz Allotment) and hardwood-riparian areas along USFS Road 2054 near Thirteenmile Creek. No conflicts between cattle use and riparian habitat conditions have been identified in either area.

#### **Environmental Effects on Woodpeckers**

Potential interactions between cattle and the woodpecker species within the Swan Lake, Quartz, and Trout Creek Grazing Allotments are related primarily to impacts of cattle on hardwood regeneration in riparian areas, which influences the long-term suitability of such areas for some cavity-nesting species. Cattle use and foraging have the potential to reduce regeneration and maintenance of deciduous hardwood species. Neither continuation nor cessation of grazing on the allotments would be expected to affect the abundance or distribution of dead and down coniferous trees.

#### *Alternatives 1 (No Action) and 2 (Proposed Action)*

The continued presence of cattle within the allotments could become a factor in maintaining suitable levels of hardwood regeneration. Continuation of livestock grazing within riparian areas would allow the potential for livestock to damage regenerating hardwood trees. Strict control and monitoring of livestock use within riparian areas would be necessary to insure that riparian area objectives are maintained. If properly monitored and controlled, neither alternative would have any direct or indirect effects on the allotments' current suitability for woodpeckers. Both alternatives would comply with the applicable Forest Plan direction and habitat capability objectives.

By reducing the amount of riparian area accessible to cattle, as well as the duration of the grazing season, the Proposed Action alternative would provide for improved riparian habitat conditions over the long term, as compared to the No Action alternative.

#### *Alternative 3 (No Grazing)*

By eliminating the potential for cattle to impact riparian hardwood maintenance and regeneration, the No Grazing alternative would be expected to result in fewer negative impacts to woodpeckers than Alternatives 1 and 2.

#### **3.4.1.4 Barred Owl and American Marten**

Barred owls and American marten are the MIS representing species dependent on mature and old-growth forest conditions. Neither continuation nor cessation of grazing within the Swan Lake, Quartz, and Trout Creek Grazing Allotments would be expected to affect the Forest's ability to maintain desired levels of habitat for barred owls or marten. None of the alternatives would affect the area's suitability for these species, and all alternatives would comply with Forest Plan direction.

#### **3.4.1.5 Beaver**

##### **Existing Conditions**

No formal surveys for active beaver colonies have been conducted in the project area. The area does contain suitable beaver habitat, however, and beavers and evidence of beaver activity have been documented within the allotments.

##### **Environmental Effects on Beaver**

Potential interactions between cattle and beaver within this area are primarily related to the impacts of cattle on hardwood regeneration. In addition, livestock grazing may affect overall riparian conditions adjacent to wetlands and within stream reaches capable of supporting beaver activity.

##### Alternatives 1 (No Action) and 2 (Proposed Action)

Any grazing or use by livestock potentially threatens the integrity of riparian habitats used by beaver. The concern is primarily focused on the conservation and regeneration of aspen and the deciduous hardwood tree species that are most favorable for beaver foraging and dam building. Strict control and monitoring of livestock use within hardwood-riparian areas would be necessary to ensure that beaver habitat objectives are maintained. If properly monitored and controlled, neither alternative would substantially affect (in any easily measured manner) the area's suitability for beaver use.

By reducing the amount of riparian area accessible to cattle, as well as the duration of the grazing season, the Proposed Action alternative would provide for improved riparian habitat conditions over the long term, compared to Alternative 1.

##### Alternative 3 (No Grazing)

The No Grazing alternative would have the least potential for interactions between cattle and beavers or beaver habitat within the three allotments. As such, Alternative 3 would be expected to have the fewest negative effects on beaver.

#### **3.4.1.6 Large Raptors and Great Blue Heron**

##### **Existing Conditions**

The Forest Plan requires that large raptor and heron nest sites, as well as the surrounding areas, be managed to ensure the continued usefulness of the sites and areas by the respective species. No heron nests or nesting colonies have been reported within any of the allotments. Individual herons have been observed within the Ferry, Swan, and Long Lakes area of the Swan Lake Allotment; this area is, however, fenced off from the rest of the allotment.

Three golden eagle nesting home ranges have been documented within the allotments. Two are found on the Swan Lake Allotment: one is located on a cliff edge near the confluence of the Scatter Creek and the Sanpoil River canyons, overlooking USFS Road 53; the other is located on a cliff edge near the boundary between the Colville National Forest and the Colville Indian Reservation, overlooking the Sanpoil River and State Highway 21. The third nesting home range and the nest are on the edge of a cliff face of Iron Mountain, overlooking Refrigerator Canyon in the Quartz Allotment.

Red-tailed hawks are commonly observed circling over or defense-screaming in all three allotments; no nest sites have been documented, however. During site examinations on the Quartz Allotment in 2003, eight red-tailed hawks and three northern goshawks were observed. In the Swan Range Allotment, four observations of red-tailed hawks were recorded. It is quite likely that red-tailed hawks have been attracted by forested openings created by logging and other silvicultural actions.

### **Environmental Effects on Large Raptors and Great Blue Heron**

Potential interactions between cattle and these species are related primarily to impacts on hardwood regeneration in riparian areas and on overall upland and riparian habitat condition. Impacts to hardwood regeneration influence the ability of riparian areas to provide suitable habitat for great blue herons over the long term, while overall upland and riparian habitat conditions may affect the availability of prey for raptors. Potential effects of grazing on raptors would largely be indirect, resulting from changes in the availability and quality of habitat for preferential prey such as snowshoe hares, red squirrels, grouse, and small birds.

#### *Alternatives 1 (No Action) and 2 (Proposed Action)*

The continued livestock use of the area under either alternative would not likely be an important factor in providing or maintaining the desired levels of habitat for raptors and/or great blue herons on the Colville National Forest. Cattle grazing may result in decreases in numbers of ground-dwelling prey species, but grazing under limited conditions would not be expected, per se, to cause a measurable negative direct impact to raptors. Properly monitored and controlled grazing would not be expected to have any direct or indirect effects on the allotments' suitability for great blue herons, should any great blue heron nesting colonies be found. Wetland protection measures under the Proposed Action alternative may contribute to improved habitat conditions for any great blue herons that may occur in the Trout Creek Allotment.

#### *Alternative 3 (No Grazing)*

The elimination of livestock grazing from the allotments could lead to habitat improvements for prey species and associated increases in foraging opportunities for raptors. In addition, the No Grazing alternative would have the least potential cattle to affect wetland and riparian habitat for great blue herons within the three allotments. As such, this alternative would be expected to have the fewest negative effects on raptors and great blue herons.

### **3.4.1.7 Northern Bog Lemming**

#### **Existing Conditions**

This MIS occupies very restricted habitats within wetlands and along stream banks. The Forest Plan standard is to maintain habitat capability as it existed in 1980. No sightings of lemmings have been documented within the allotments. This species occurs in high-elevation bogs, meadows, and riparian areas, particularly in spruce-fir communities. Washington Department of Fish and Wildlife Gap Analysis data indicate no bog lemming sightings or habitat within 40 miles of Republic.

## **Environmental Effects on Northern Bog Lemming**

Potential interactions between cattle and this species are related to cattle impacts within wetland and riparian habitats. Areas with the greatest potential for supporting northern bog lemmings have been fenced off to prevent or interfere with use by livestock.

### Alternatives 1 (No Action) and 2 (Proposed Action)

Based on the lack of known or suspected occurrences of the species within the allotments, neither alternative would be expected to have a measurably significant effect on the suitability of the area for northern bog lemmings. The additional riparian habitat protection measures included in the Proposed Action alternative would be expected to result in improved habitat capability, compared to 1980 conditions.

### Alternative 3 (No Grazing)

As noted above, northern bog lemmings are not known or suspected to occur in the project area. Thus, the elimination of livestock grazing from the three allotments would not be expected to result in any appreciable effects on this species. Over time, riparian habitat conditions throughout the allotments would be expected to improve, resulting in improved habitat capability compared to 1980 conditions.

## **3.4.2 Threatened, Endangered, and Sensitive Species**

Section 7 of the Endangered Species Act of 1973, as amended, requires federal agencies to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of endangered, threatened, or proposed species or result in the destruction or adverse modification of their critical habitats. Also, the USFS has established direction (Forest Service Manual [FSM] 2670) to guide habitat management for endangered, threatened, proposed, and sensitive species to ensure that these species receive full consideration during the decision making process. Listed species addressed in this section include the gray wolf, grizzly bear, Canada lynx, and bald eagle. Woodland caribou, an endangered species, is not expected to occur in the project area, because the area does not contain suitable habitat. In addition, the project area is located approximately 70 miles from the woodland caribou recovery area. Thus, this species will not be further discussed in this analysis.

Each USFS Region maintains a list of sensitive species that must be addressed during project analysis. The discussion below addresses Region 6 Sensitive animals, as identified by the Regional Forester in late 2000, that are known or suspected to occur on the Colville National Forest. Sensitive species are those for which population viability is a concern because of significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. Of 33 terrestrial wildlife species listed as sensitive for National Forests in Washington, 7 are known or suspected to occur in the vicinity of the Swan Lake, Quartz, and Trout Creek Grazing Allotments because (1) suitable habitat conditions are present and (2) the project area is within the known range of the species. These species are the California wolverine, Pacific fisher, Pacific western big-eared bat, common loon, greater sandhill crane, great gray owl, and peregrine falcon. None of the other 26 species would be affected by any of the alternatives.

The following subsections are organized first by regulatory status, then by taxonomic order. Sections 3.4.2.1 through 3.4.2.4 address threatened and endangered species; the remaining subsections address USFS sensitive species. Within each group, mammals are addressed first, followed by birds.

### **3.4.2.1 Gray Wolf**

#### **Existing Conditions**

At present, there are no known wolf dens or rendezvous sites on the Colville National Forest, and there is little evidence suggesting any wolf pack activity or breeding. Within the last few years, several wolf sightings have been reported on the Republic Ranger District, primarily in the Kettle Range. Most reported sightings are of single wolves, and no confirmed sightings of wolves have been recently documented on the Okanogan Highlands or the project area. Attempts to survey for wolves (howling surveys) have been conducted on the Colville National Forest in the past, but the results of these surveys have been inconclusive. Wolf howling surveys conducted from 1991 to 1993 failed to detect any wolves on the Republic Ranger District. For purposes of this analysis, it is assumed that single, transient wolves could potentially use any of the National Forest System lands within the project area. Specific surveys to determine presence of wolves were not considered necessary for this analysis.

The Northern Rocky Mountain Wolf Recovery Plan identifies key components of wolf habitat as follows:

1. A sufficient year-round prey base of ungulates and alternate prey
2. Suitable and somewhat secluded denning and rendezvous sites
3. Sufficient space with minimal exposure to humans (i.e., seclusion habitat)

These components are present in the project area, as described below.

Wolves prey upon a variety of food resources, but ungulates (e.g., deer, elk, and moose) are the principal prey, particularly during the winter months and during fawning/calving periods. In some areas, wolves also prey upon beaver during ice-free times. Throughout the Republic Ranger District, including the project area, mule and white-tailed deer comprise the bulk of the available ungulate prey base. Fawning areas and year-round habitat for deer are present, providing opportunities for wolves to hunt throughout the year. Elk and moose may also occasionally use the project area. Beaver may also be present, as the project area contains suitable potential beaver habitat and sign of beaver activity. There are no known active beaver populations present in the project area (verified during a site visit by the District wildlife biologist July, 2004), but other wildlife species may provide alternative prey.

The Swan Lake, Quartz, and Trout Creek Grazing Allotments also contain areas that fit the general description of habitats selected by wolves for denning or as rendezvous sites.

Potential seclusion habitat occurs in several locations within the project area, especially in the Ninemile Creek and Thirteenmile Creek portions of the Quartz Allotment.

#### **Environmental Effects on Gray Wolf**

Direct interactions between wolves and cattle have not been reported on the Colville National Forest. The potential effects of livestock grazing on wolf habitat are considered to be related to the effects of grazing on the three habitat components shown above. Within the project area, year-round habitat for big game (mule deer, white-tailed deer, elk, and/or moose) provides the main potential prey base for wolves. The presence of livestock is not considered to have much influence on denning and rendezvous site conditions or the seclusion/security needs of wolves.

### Alternative 1 - (No Action)

As discussed above in Section 3.4.1.1 (Big Game), the No Action alternative represents the existing condition with respect to mule deer habitat, and no changes to the existing condition would be anticipated. In addition, no changes to the existing situation would be expected under this alternative with regard to denning/rendezvous habitat or seclusion opportunities. Activities associated with livestock grazing (vehicle traffic, protection of livestock from predators, etc.) do have the potential to impact wolves, but the likelihood of this occurring in the project area is very slight because the area is not believed to be occupied by wolves. Livestock grazing can have an effect on deer habitat conditions in winter range areas, if grazing during the spring, summer, and early fall reduces the forage reserves available to deer during winter and early spring. Livestock grazing within these allotments is not considered to be a factor in summer range areas. Under this alternative, existing prey availability should continue if livestock grazing systems are designed to provide sufficient levels of winter forage. There could be a small reduction in seclusion levels, resulting from the traffic and other human use associated with grazing management. Because no additional roads would be constructed, the effect of this increase use should be minimal.

### Alternative 2 (Proposed Action)

The risks associated with livestock grazing discussed under the No Action alternative would persist under the Proposed Action alternative. This alternative, however, would offer more opportunities to improve wolf habitat conditions through better mule deer foraging habitat, more opportunities for alternate prey species, and a slight improvement in seclusion opportunities due to the closure of Unit 2 in the Trout Creek Allotment.

### Alternative 3 (No Grazing)

The elimination of livestock grazing on National Forest System lands within the Swan Lake, Quartz, and Trout Creek Allotments would lead to improved foraging conditions for mule deer, but the net effect on actual deer population levels cannot be predicted. Improved forage does not necessarily produce an increase in deer population levels. Elimination of grazing would not change current conditions regarding denning/rendezvous habitat or seclusion opportunities.

## **3.4.2.2 Grizzly Bear**

### **Existing Conditions**

In accordance with the Colville Forest Plan, the Swan Lake, Quartz, and Trout Creek Grazing Allotments fall under Management Situation #5 and are not managed as grizzly bear habitat. Although the area does contain habitats that could potentially be occupied by grizzly bear, no verifiable occurrences have been reported. The potential for grizzly bear activity in the area is considered very low.

### **Environmental Effects on Grizzly Bear**

Impacts to grizzly bear associated with livestock grazing include direct and indirect competition for forage and the potential for disturbance and/or mortality when grizzly bears come into contact with people.

### Alternatives 1 (No Action) and 2 (Proposed Action)

Continued livestock grazing on the three allotments would not be expected to affect existing grizzly bear habitat and/or distribution on the Colville National Forest. With respect to potential habitat conditions and possible future occupancy of this area by grizzly bear, neither of these alternatives would be expected to result in foraging conditions that would preclude use by grizzly bears. However, grizzly bear are extremely sensitive to human disturbances, and the human presence required to manage livestock in this allotment could affect potential use of this area by grizzly bear.

### Alternative 3 (No Grazing)

Elimination of livestock grazing would end the potential for direct or indirect competition for forage between cattle and grizzly bears. This alternative would reduce, but would not eliminate, the potential for interactions between grizzly bears and people.

### **3.4.2.3 Canada Lynx**

#### **Existing Conditions**

Lynx distribution in northeastern Washington has been monitored by the Washington Department of Fish and Wildlife through documentation of winter track sightings, trapping records, camera stations, hair snag inventories, volunteer observations, and incidental sightings. In addition, the Bureau of Land Management conducted hair snagging surveys during three summer seasons (2001 to 2003). Documented lynx occurrence records for the Republic Ranger District and Kettle Crest have been mostly from the higher elevations of the Kettle Range. The lynx population in the Kettle Range is estimated to contain between 11 and 23 animals. Other sightings have been recorded west of the Kettle River Valley in the Vulcan Mountain Complex areas, near the Canadian border, and in the Hall Creek basin, including parts of the Quartz Allotment. All three allotments contain areas higher than 4,000 feet, which is the elevation at which lynx are considered likely to out-compete other predators such as bobcat and coyote.

Historical records from conversations with now deceased trappers suggest that relatively high numbers of lynx were once found on the Hardscrabble, Bodie, and Kelly Mountain drainages during the 1950s. Former trappers and hunters still recall having trapped and killed lynx in the headwater divide area between North Fork Hall Creek and South Fork O'Brien Creek. Portions of this area fall within the Quartz Allotment. A considerable proportion of the South Fork O'Brien Creek drainage was intensively burned by the 1988 White Mountain forest fire, and is now resucceeding into lodgepole pine habitat that is exceptionally favorable to snowshoe hare (*Lepus americanus*). This headwater divide area, therefore, likely provides foraging habitat for lynx.

Two Lynx Analysis Units (LAUs) overlap portions of the Quartz Allotment. The West Sherman LAU (16,826 acres), has approximately 75 percent of its total area within the allotment. Throughout the LAU, nearly all forested stands within the plant association groups identified as primary lynx habitat support snowshoe hares and/or alternate prey species at various densities. This amounts to approximately 4,936 acres (29 percent of the total LAU, as determined by Potential Vegetation Zone (PVZ) mapping), of which 2,780 acres (16 percent) are within the Quartz Allotment.

The Hall Creek LAU (35,566 acres) overlaps portions of the Quartz Allotment. Approximately 36 percent of the total area of this LAU falls within the allotment. Within the LAU, nearly all forested stands within the plant association groups identified as primary lynx habitat support snowshoe hares and/or alternate prey species at various densities. This amounts to approximately 11,638 acres

(33 percent of the total LAU, per PVZ mapping), of which 3,847 acres (11 percent) are within the allotment.

The Swan LAU (8,484 acres) overlaps portions of the Swan Lake Allotment. Approximately 77 percent of the total area of this LAU falls within the allotment. Within the LAU, nearly all forested stands within the plant association groups identified as primary lynx habitat support snowshoe hares and/or alternate prey species at various densities. This amounts to approximately 7,660 acres (90 percent of the total LAU), of which 5,708 acres (67 percent) are within the allotment.

The Bodie LAU (12,202 acres) overlaps portions of the Trout Creek Allotment. Approximately 31 percent of the total area of this LAU falls within the allotment. Within the LAU, nearly all forested stands within the plant association groups identified as primary lynx habitat support snowshoe hares and/or alternate prey species at various densities. This amounts to approximately 8,241 acres (68 percent of the total LAU), of which 2,477 acres (20 percent) are within the allotment.

### **Environmental Effects on Canada Lynx**

Livestock grazing is neither likely to affect denning habitat for lynx, nor to disturb denning lynx. Cattle are not considered likely to invade and substantially damage the high-elevation, relative moist, snow-covered, northerly slopes where lynx are most likely be found denning during the late spring. Winter grazing is not permitted on National Forest System lands. In addition, the preferred habitat for lynx denning (tangles of dead-fallen and wind-thrown timber) tends to deter rather than attract cattle.

While cattle grazing has the potential to negatively impact regenerating forest that provides snowshoe hare habitat (and, thus, lynx foraging habitat), the risk of negative impacts is considered relatively low. Snowshoe hares and snowshoe hare sign continue to be abundant on National Forest System lands where cattle grazing has been permitted for many preceding years. While livestock grazing has been demonstrated to affect black-tailed jackrabbit habitat, similar analytical field investigations have not been performed to demonstrate "...the effect of large herbivores on snowshoe hare productivity" (Ruedigger et al. 2000). Severe overgrazing could logically be expected to have a negative impact upon snowshoe hare productivity.

#### *Alternatives 1 (No Action) and 2 (Proposed Action)*

Livestock grazing does not present any barriers to lynx use or movement through the area. Human activities associated with livestock grazing (vehicle traffic, protection of livestock from predators, etc.) have the potential to disturb lynx foraging or traveling through the project area. Reduced amounts of grazing activity in riparian areas under the Proposed Action could result in limited improvements in foraging and travel conditions within some riparian areas.

#### *Alternative 3 (No Grazing)*

Under this alternative, there would be no grazing-related management activities within the LAU. Any potential competition or conflict between livestock grazing and the development and maintenance of lynx foraging habitat would be eliminated. Some of the potential conflicts between humans and lynx would be reduced. Existing lynx habitat conditions could improve over time, especially within riparian areas.

### **3.4.2.4 Bald Eagle**

Bald eagles have been observed in the vicinity of the project area, and suitable habitat is available, but no bald eagle nests or communal winter roost sites have been identified on the Republic Ranger District.

The closest nests to the three allotments are found along Curlew Lake and the Sanpoil River, approximately 3 miles east of the Trout Creek Allotment. The Swan Lake, Quartz, and Trout Creek Grazing Allotments support forest stands with characteristics suitable for use as winter roosts, but no forest stands within the allotments are considered high-potential roost sites due to the distance to winter food sources. Neither continuation nor cessation of grazing on the allotments would be expected to affect the potential for existing habitat to support bald eagle nesting or roosting activity. None of the alternatives would be expected to have an effect on bald eagle habitat, distribution, and/or recovery efforts on the Colville National Forest.

### **3.4.2.5 California Wolverine**

#### **Existing Conditions**

Wolverines are wide-ranging animals that utilize a variety of habitat types. Sightings are reported infrequently on the Colville National Forest. Potential interactions between wolverine and cattle are related to the effects of grazing on wolverine prey availability. Small mammal habitat and big game winter range conditions are the areas of primary importance.

#### **Environmental Effects on California Wolverine**

##### Alternatives 1 (No Action) and 2 (Proposed Action)

Under both the No Action and Proposed Action alternatives, cattle grazing would continue. The riparian enhancements and reduced stocking levels associated with the Proposed Action alternative would provide more opportunities for improving wolverine habitat conditions than would occur under the No Action alternative. Either alternative, if properly mitigated and monitored, would be expected to protect both small mammal habitat and big game winter range conditions within these allotments and to provide continued opportunities for use of the area by wolverine.

##### Alternative 3 (No Grazing)

The elimination of livestock grazing in the Swan Lake, Quartz, and Trout Creek Allotments would be expected to result in an eventual improvement in wolverine habitat conditions. Habitat conditions for both ungulates and small mammals would be expected to improve as a result of reduced competition for browse species; foraging opportunities for wolverines in both upland and riparian areas would thus be expected to increase in turn.

### **3.4.2.6 Pacific Fisher**

#### **Existing Conditions**

Fishers are solitary animals that prefer mature to old-growth coniferous forests (in the western part of their range) and occur most frequently where these forests include the fewest large non-forested openings. Fishers require a large component of dead and downed materials for resting and den sites. The project area contains potential suitable habitat for Pacific fisher. The Management Requirement areas established to provide for old-growth habitat conditions for marten and pileated woodpeckers also provide habitat suitable for fisher.

## **Environmental Effects on Pacific Fisher**

### *Alternatives 1 (No Action) and 2 (Proposed Action)*

Continued grazing of cattle within this area would not likely be a factor in providing desired habitat conditions for fisher, nor would it be expected to impair the future ability of the Colville National Forest to achieve desired habitat conditions. Either alternative would address Forest Plan direction (as amended by the Eastside Screens) to provide and maintain suitable travel corridors between old-growth management units.

### *Alternative 3 (No Grazing)*

The presence of cattle within this area is not considered to be a factor in providing desired habitat conditions for fisher. Elimination of livestock grazing would have no direct, indirect, or cumulative effects on desired habitat conditions within the designated Management Requirement areas or other mature and old-growth habitats.

### **3.4.2.7 Pacific Western Big-Eared Bat**

Big-eared bats utilize caves, old mines, and/or old buildings as roost and hibernation sites. These habitat conditions are not affected by grazing. Big-eared bats feed in or over a variety of habitats. Neither continuation nor cessation of livestock grazing in the Swan Lake, Quartz, and Trout Creek Allotments would be expected to result in significant effects on available roosting, hibernation, foraging, or feeding habitats. Therefore, no change in feeding patterns would be expected for any big-eared bats that may occur in this area.

### **3.4.2.8 Common Loon and Sandhill Crane**

The Swan Lake, Quartz, and Trout Creek Allotments do not provide any suitable nesting or other important habitat for common loons or sandhill cranes. A nesting population of common loons is slowly developing on the Swan/Ferry/Long/Fish Lake complex in the Swan Lake Allotment. The entire complex is fenced off to exclude the use of the area by livestock, however. Therefore, none of the alternatives would affect either of these species.

### **3.4.2.9 Great Gray Owl**

#### **Existing Conditions**

The great gray owl is a bird of dense, northern boreal forests. Feeding primarily on rodents, this species favors areas near bogs, forest edge, meadows, and other openings. Open mature and older forests may also be important foraging habitat, especially in winter. Nest site and prey availability appear to be limiting factors for great gray owls. Nests are most often found in mature and older forests. Preferred nest sites are the abandoned nests of other raptors, but great gray owls will nest on broken tops of trees and artificial platforms. Nesting, roosting, and foraging habitats for great gray owls are present within the project area. There is one recorded nest approximately 12 miles from the project area.

#### **Environmental Effects on Great Gray Owl**

Potential interactions between cattle and great gray owls are related primarily to cattle impacts on overall upland and riparian habitat condition, which may affect the availability of prey. Great gray owl nesting habitat is not affected by continued livestock grazing.

### Alternative 1 (No Action)

The extent of potential impacts to great gray owl habitat would be determined by the effectiveness of the USFS in monitoring and enforcing Forest Plan requirements and other prescribed mitigation measures. Assuming the applicable guidelines are followed, the No Action alternative would be expected to maintain existing habitat conditions for great gray owls.

### Alternative 2 (Proposed Action)

Removal of invading conifers from grassland areas in the Trout Creek Allotment would be expected to improve habitat conditions for prey species, thereby increasing foraging opportunities for great gray owls. Otherwise, similar to the No Action alternative, the Proposed Action would be expected to maintain existing habitat conditions for great gray owls.

### Alternative 3 (No Grazing)

The elimination of livestock grazing would be expected to lead to an eventual improvement in great gray owl foraging habitat conditions throughout the three allotments because more food sources would be available for small mammal prey species.

#### **3.4.2.10 Peregrine Falcon**

One site in Refrigerator Canyon on the Quartz Allotment is thought to be favorable for providing nesting aeries for peregrine falcons. However, the site and area have a history of being occupied by nesting golden eagles; repeated annual observations have never revealed any indications or suggestions for the presence of peregrine falcons. Neither continuation nor cessation of grazing in the Swan Lake, Quartz, and Trout Creek Allotments would be expected to result in appreciable changes in the quality or availability of nesting or foraging habitat for peregrine falcons.

#### **3.4.3 Other Wildlife Species**

Species addressed in this section include (1) waterfowl species covered by standards and guidelines within the Forest Plan and (2) migratory birds, as directed by the USDA Forest Service Landbird Strategic Plan, the Memorandum of Understanding between USDA Forest Service and USDI Fish and Wildlife Service (January 17, 2001), and Executive Order of January 10, 2001.

##### **3.4.3.1 Waterfowl**

###### **Existing Conditions**

Forest Plan direction requires the maintenance or enhancement of waterfowl habitats. Potential interactions between cattle and waterfowl species within the Swan Lake, Quartz, and Trout Creek Grazing Allotments are related to cattle impacts within wetland/riparian habitats and how these impacts influence the suitability for nesting and rearing of waterfowl broods.

###### **Environmental Effects on Waterfowl**

##### Alternatives 1 (No Action) and 2 (Proposed Action)

Both alternatives contain limitations and controls on the utilization of and access to riparian vegetation and wetland meadows. As such, either alternative would maintain, if not improve, waterfowl habitat

conditions. Additional riparian and wetland habitat protection measures under the Proposed Action would be expected to result in greater habitat improvements as compared to Alternative 1.

#### Alternative 3 (No Grazing)

The No Grazing alternative would maintain existing habitat conditions for waterfowl by eliminating any potential conflicts between cattle and waterfowl.

#### **3.4.3.2 Migratory Birds**

In September 2000, the USDA Forest Service Landbird Strategic Plan was issued. With this plan came direction to assess and disclose the effects of management action on landbirds in NEPA documents.

On January 10, 2001, President Clinton signed an executive order outlining responsibilities of federal agencies to protect migratory birds. Among the many requirements of this order were provisions directing agencies to do the following:

- Integrate bird conservation principles, measures, and practices into agency activities, and avoid or minimize, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
- Restore and enhance the habitat of migratory birds, as practicable.
- Ensure that environmental analyses evaluate the effect of actions on migratory birds, especially species of concern.

A Memorandum of Understanding between USDA Forest Service and USDI Fish and Wildlife Service (January 17, 2001) further directs that the USFS shall do the following:

- Incorporate migratory bird habitat and population management objectives and recommendations into agency planning processes.
- Strive to protect, restore, enhance, and manage habitats of migratory birds, and prevent the further loss or degradation of habitats on National Forest system lands.

#### **Existing Conditions**

The Swan Lake, Quartz, and Trout Creek Grazing Allotments support a variety of habitat types and conditions, including upland and riparian forest habitats ranging from early- to late-successional forest stands, wetlands, open water, and non-forested areas. All of these diverse habitat types provide habitat for migratory birds. The bird communities found within this project area are typical of those present throughout much of the Colville National Forest and this portion of northeast Washington, and this project area does not contain any unique bird species and/or habitats relative to this general portion of the Forest. The project area provides existing or potential habitat for approximately 160 species of birds, most of them migratory birds that either nest within the area or pass through during spring and fall migrations.

#### **Environmental Effects on Migratory Birds**

Livestock grazing has the potential to affect migratory bird habitat conditions by influencing the amount and distribution of foraging and nesting cover available to migratory birds. Impacts to migratory birds were assessed based on an alternative's effect on overall habitat conditions within the project area.

### Alternatives 1 (No Action) and 2 (Proposed Action)

Under both Alternatives 1 and 2, cattle grazing would continue. The riparian enhancements and reduced stocking levels associated with Alternative 2 would provide greater opportunity for improving migratory bird habitat conditions than would be found under Alternative 1 (No Action). The extent of grazing associated impacts to migratory bird habitat would be determined by the USFS's effectiveness in monitoring and enforcing Forest Plan requirements and other prescribed mitigation measures. Assuming the applicable Forest Plan guidelines are followed, the No Action alternative would maintain existing migratory bird habitat conditions and have no further direct, indirect, or cumulative effects. The Proposed Action would likely lead to improved migratory bird habitat conditions within the three allotments.

### Alternative 3 (No Grazing)

It is assumed that terminating livestock grazing would also eliminate any existing conflict between the vegetative conditions that result from grazing and the nesting and foraging habitat needs of migratory birds. The effect of the No Grazing alternative would be an eventual improvement in migratory bird habitat conditions throughout the three allotments. Nesting and foraging habitat conditions in both upland and riparian areas would improve over time.

## **3.4.4 Cumulative Effects on Wildlife**

### **3.4.4.1 Alternative 1 (No Action)**

If properly monitored and controlled, the No Action alternative would not be expected to have any cumulative effects impacting the area's current suitability for any of the MIS, threatened, endangered, sensitive, or other species addressed in this analysis. Fuel reduction projects are likely to result in short-term changes in habitat quality and distribution, but such changes, combined with the effects of continued livestock grazing, would not be expected to have significant adverse effects on wildlife.

### **3.4.4.2 Alternative 2 (Proposed Action)**

When combined with other past, present, and anticipated future management actions within this area, the cumulative effect of the Proposed Action would likely be an overall improvement in habitat conditions for terrestrial vertebrate wildlife species, including mule deer. Past timber harvest and prescribed burning in the area have already affected the quality and quantity of food available to mule deer. Prescribed burning and fuels reduction efforts associated with the Scatter Ecosystem Management Projects (among others) will likely further increase the amount of forage and browse available to deer. The reductions in livestock grazing and habitat improvements in riparian areas under this alternative would provide for further increases in food availability. Because deer population levels are influenced by many factors (including weather, hunter access, harvest regulations, predation, among others), it is impossible to predict the exact effect these increases in forage quality and quantity would have on the overall population level; improved food availability is conducive to population increases, however. Past livestock grazing that adversely affected riparian areas may have reduced fawning success. By providing for improved riparian conditions over time, the Proposed Action may contribute to increased success rates.

The cumulative effect of this alternative, combined with other projects designed to improve or maintain healthy riparian habitats, would likely be a net improvement in riparian habitat conditions. Such improvements would be expected to benefit many of the species addressed in this analysis, including ruffed grouse, blue grouse, beaver, great blue heron, raptors, and many species of migratory birds.

### **3.4.4.3 Alternative 3 (No Grazing)**

When combined with other past, present, and anticipated future management actions within this area, the cumulative effect of this alternative would be an overall improvement in habitat conditions for mule deer and other terrestrial wildlife species. Combined with the fuel reduction efforts noted above, the elimination of livestock grazing would provide for further increases in food availability. The exact effect of these increases on the overall population level are difficult to predict, but improved food availability is conducive to population increases. Past livestock grazing that adversely affected riparian areas may have reduced fawning success of the deer. Cessation of grazing would allow for a gradual improvement in riparian habitat conditions over time; thus, the No Grazing alternative may contribute to increased fawning success. There would be no changes in overall habitat security.

The cumulative effect of this alternative, combined with other projects designed to improve or maintain healthy riparian habitats, would likely be a net improvement in riparian habitat conditions. Such improvements would be expected to benefit many of the species addressed in this analysis, including ruffed grouse, blue grouse, beaver, great blue heron, raptors, and many species of migratory birds.

## **3.5 SOILS**

This EA incorporates by reference the Soils Specialist's report in the Project Record (40 CFR 1502.21). The specialist report contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the specialist relied upon to reach the conclusions in this environmental assessment.

### **3.5.1 Existing Conditions**

#### **3.5.1.1 Land Types**

The landscape in the three allotments falls into four general land type categories: scoured glaciated mountains, glaciated mountains, glacial moraines and deep glacial deposits, and meltwater canyons. Land types in the three allotments include glaciated mountain slopes with moderate relief, deeper glacial drift with low overall relief and rolling or hummocky slopes, and glacial meltwater canyons with locally steeper slopes.

The scoured glaciated mountain slope land type includes moderate-relief, smooth, convex ridges. Upland slopes were typically scoured leaving bedrock close to the surface. Soils are often shallow and poorly developed, but pockets of glacial till may occur along lower slopes and in draws (Davis et al. 2004). The shallower soils and higher position on the slopes tends to control the vegetation patterns on the glaciated mountain slopes. A surface soil horizon of volcanic ash or loess is common. Common soils include the following: Pepoon and Texas, lithic soils; Ozerine and Bamber, moderately deep soils; Growden and Togo, deep soils; and Nevine, a deep soil formed on glacial till. Rocklands and rockland complexes are also common in these land types. Scoured glaciated mountain slope land types are often open and include large areas of grasslands and brushlands. These land types often contain considerable forage in both open and lightly forested settings.

The glacial moraines and deep glacial deposits are characterized by low overall relief and rolling or hummocky slopes. Glacial deposition was the most common land-forming process and commonly includes marginal and pro-glacial deposits such as outwash terraces and eskers. Glacial till and outwash is generally very deep, but rocky knobs sometimes protrude. This land type often fills the lower reaches of large streams. Seeps, springs, and ponding are more common in this land type than in the others.

Common soils include both those formed on deep glacial till, such as Nevine and Manley, and soils formed in outwash material, such as Torboy, Wapal, and Gahee.

On the glaciated mountain slope land type, the ridges are typically smooth, moderately broad and convex, and mantled with glacial deposits. Common soils are deep glacial soils such as Nevine, Manley, and Merkel—often occurring in rockland complexes, or in complex with residual soils such as Vallan, Oxerine and Bamber. These areas include both lightly forested stands on southern aspects and associated with rocklands and closed canopy stands on northern aspects and deeper soils.

The glacially formed meltwater canyon land type occurs on steep rocky mountain sideslopes bordering flat valley bottoms. This land type occurs in the Swan Lake and Quartz Allotments along the border with private lowlands. Slope gradients frequently exceed 60 percent. This land type typically is not used by livestock, and it is often a barrier to livestock movement. Common soils are shallow residual soils such as Tenas, Vallan, and rockland.

### **3.5.1.2 Soil Types**

Most soils in these allotments have a layer of volcanic ash 7 to 14 inches thick at the soil surface. Water percolates through this material quickly and easily. It does not tend to become muddy. However, these surface soils typically have few coarse rock fragments, and a silt or loam texture—they become dusty on heavily used livestock trails. On steeper slopes these dusty trails are subject to erosion. Soils descriptions for the main soil units follow.

**Aits** is a well-drained soil formed in volcanic ash over glacial till. The surface soil is a stony ashy loam. The subsoil is a gravelly loam or gravelly clay loam. Permeability is moderate above a depth of about 45 inches and slow below that depth. The particle-size control section averages 5 to 35 percent rock fragments. Sometimes the soil is stony in the surface foot. *Problems: muddy in the spring.*

**Anglen** is a moderately well-drained soil formed in volcanic ash over glacial lake sediments. The surface soil is an ashy silt loam. Subsoil is an ashy clay loam. The particle-size control section averages 0 to 5 percent rock fragments. *Problems: slow infiltration, muddy in the spring.*

**Bamber** is a well-drained soil formed in volcanic ash over andesite. The surface texture is ashy loam and typically has few coarse fragments. Overall, the particle-size control section averages greater than 35 percent rock fragments. *Problems: dusty.*

**Edds** is a well-drained soil formed from volcanic ash overlying glacial till. The surface soil is an ashy loam. The subsoil is a coarse loamy sand. The particle-size control section averages 5 to 35 percent rock fragments. *Problems: dusty.*

**Growden** is a well-drained soil formed from volcanic ash and loess over residuum and colluvium of granitic rocks. The surface soil is an ashy fine sand or fine sandy loam. The subsoil is stony sandy loam. The particle-size control section averages 35 percent rock fragments. *Problems: dusty.*

**Inkler** is a well-drained soil formed in a glacial till over colluvium or residuum with a component of volcanic ash in the surface horizons. The surface soil is a gravelly silt loam. The subsoil is a very gravelly loam or cobbly loam. The particle-size control section averages 35 to 60 percent rock fragments. *Problems: none.*

**Leonardo** is a well-drained soil formed in glacial till, the upper part of which is mixed with volcanic ash. The upper 16 inches are typically more than 60 percent pyroclastic material. The surface soil is an ashy

fine sandy loam. The subsoil is an extremely stony sandy loam. The particle-size control section averages greater than 35 percent rock fragments. *Problems: may be dusty.*

**Manley** is a well-drained soil formed in volcanic ash over glacial till. The surface soil is ashy loam and ashy silt loam. The subsoil is a very gravelly sandy loam. The particle-size control section averages over than 35 percent rock fragments—not a lot at the surface and much more below about 20 inches. *Problems: muddy in the spring, dusty.*

**Merkel** is a well-drained soil formed in a mixture of volcanic ash over granitic glacial till. The surface soil is sandy loam, but it can be stony or bouldery. The subsoil is a very cobbly sandy loam. Merkel sometimes has a densic horizon at about 40 inches. The particle-size control section averages 35 to 60 percent rock fragments. The solum is 40 inches; glacial till extends more than 60 inches. *Problems: sometimes dusty.*

**Nevine** is a well-drained soil formed on volcanic ash over glacial till. The surface soil is an ashy loam or silt loam. The subsoil is very gravelly loam or sandy loam. The particle-size control section averages 5 to 25 percent rock fragments. Nevine has a densic horizon at about 30 inches. *Problems: muddy in the spring, dusty.*

**Scar** is a well-drained soil formed on glacial till with some admix of volcanic ash. The surface is an ashy very fine, sandy loam. The subsoil is loamy sand. The particle-size control section has 5 to 35 percent fragments. *Problems: erosion on steep slopes, sometimes dusty.*

**Tenas** is a well-drained soil formed on volcanic ash over andesite residuum. The surface soil is ashy loam. The subsoil is gravelly clay loam. The particle-size control section averages 15 to 35 percent rock fragments. This soil is seldom forested. Tenas is often found in a complex with Vallan. *Problems: none.*

**Torboy** is a well-drained soil formed in glacial outwash with a mix of volcanic ash and loess in the upper part. The surface soil is sandy loam. The subsoil is gravelly sand. The particle-size control section has 10 to 35 percent coarse fragments. *Problems: occasionally dusty.*

**Vallan** is a well-drained soil formed on a mixture of glacial till and colluvium/residuum of the underlying rock, often andesite. The surface soil is loam. The subsoil is a heavy loam. The particle-size control section averages 5 to 25 percent rock fragments. *Problems: none.*

**Wapal** is a well-drained soil formed on glacial outwash mixed with minor amounts of volcanic ash and loess in the upper part. The surface soil is an ashy sandy loam. The subsoil is coarse sandy loam and very gravelly sand. The particle control section averages 35–70 percent coarse fragments. *Problems: occasionally dusty.*

### **3.5.1.3 Activities that Impact Soils within the Project Area**

Sites of detrimental compaction, displacement, and erosion related to grazing within the allotment boundaries consist of roads and areas of concentrated use, including salting areas, areas around watering troughs, stock trails, and dispersed camping sites.

There are 158 miles of roads in the Swan Allotment, and 12 watering sites. Assuming an average road width of 35 feet and about 1 acre of trampled ground for each water site, this adds up to approximately 680 acres of ground compaction associated with grazing, or about 700 acres, assuming some additional paths. This amounts to approximately 3 percent of the allotment area. The Quartz Allotment contains 168 miles of road and 27 watering sites for an estimated 750 acres of disturbed area related to grazing, or

about 1 percent of the allotment area. The Trout Allotment has about 52 miles of roads and 10 watering areas for approximately 250 acres or about 2 percent of the allotment with disturbed soils related to grazing.

These disturbed soil area estimates are consistent with other estimates of detrimental compaction, displacement, and erosion determined for other planning areas (Scatter Ecosystem Management Projects EA, 2002). These estimates are well below the forest guideline of less than 20 percent disturbance area.

### **Detrimental Compaction/Displacement**

Soil compaction reduces porosity, water infiltration and holding capacity, and soil particle sizes. It also inhibits the movement of minerals and organisms through the soil column. Minimizing compaction and displacement maintains site productivity. Detrimental compaction is considered an increase of 15 to 20 percent in the bulk density and generally occurs when the soils are wet. Detrimental displacement is the removal and horizontal movement of soil from one place to another by mechanical forces in an area exceeding 100 square feet, which is at least 5 feet in width. Forest Plan standards and guidelines for soils (page 4-50) are intended to prevent permanent impairment of land productivity. Detrimental soil conditions should not exceed 20 percent of any given action area. For livestock grazing, detrimental compaction and displacement usually occur in areas of concentrated use such as salting areas, around water developments, corrals, or on trails.

In 2002 and 2003, resource specialists visited 10 water developments and 0.5 mile of stock trail to developments in Swan Lake Allotment, 12 water developments in Trout Creek Allotment, and 25 water developments and 2.4 miles of stock trail to developments in Quartz Allotment. Conditions around the developments were documented by photographs, and some had additional documentation with watershed condition inventories (Culvert and Seven Dollar #2). Livestock trails to water developments and salting areas were noted during water development inventories. Overall detrimental compaction and/or displacement caused by livestock grazing in each allotment are less than 1 percent of the area (Table 3-9).

**Table 3-9. Areas of Detrimental Compaction and Displacement Associated with Grazing Activities on the Swan Lake, Quartz, and Trout Creek Allotments**

<b>Allotment (and total area)</b>	<b>Number of Sites (including trails)</b>	<b>Acres</b>	<b>Percent of Allotment Area</b>
Swan Lake (26,713 acres)	10	10	0.04
Quartz (59,195 acres)	25	25	0.04
Trout Creek (11,912 acres)	12	12	0.10

### **Erosion**

The process of erosion increases when soil is exposed through the elimination vegetation and/or the reduction of organic material that would protect the soil. Minimizing erosion maintains site productivity. Maintaining riparian areas in satisfactory condition is important for habitat requirements, as well as guarding against soil loss and water quality. Minimizing bare soil within the riparian areas contributes less sediment to streams. Access to streams by livestock is generally limited by heavy tree and shrub cover, steep slopes, downed woody debris, and fencing. Past timber harvest units and road crossings are the primary areas where livestock access the streams in the allotments. Roads that closely parallel streams contribute to the ease of access by livestock to streams. There is often loss of soil at road crossings and in some places by trails that lead into the stream.

## Site Productivity

Maintaining organic matter in soil is important for site productivity. Organic matter binds soil particles together, which improves porosity, infiltration, and root penetration. Organic matter also enhances soil fertility by improving storage capacity of water, nutrients, and air. Last, organic matter provides habitat and food for soil organisms and protects the site from erosion.

### 3.5.2 Environmental Effects on Soils

#### Alternative 1 (No Action)

##### Direct and Indirect Effects

Erosion from roads near to the streams would continue to occur. Where access to streams at road crossings is available, sedimentation would continue to occur. Bare soil in riparian areas would likely continue to result in soil loss and stream sedimentation. Roads in the riparian habitat conservation areas would continue to provide a site of surface erosion to the creeks. Vegetation litter would be maintained within the existing utilization standards and would provide a source of soil nutrients, organic matter, and protection from erosion.

##### Cumulative Effects

Table 3-10 presents the amount of each allotment with detrimental soil compaction and/or displacement resulting from past, present, and reasonably foreseeable future activities. These disturbed soil area estimates are consistent with other estimates of detrimental compaction, displacement, and erosion determined for other planning areas (Scatter Ecosystem Management Projects EA, 2002). These estimates are well below the forest guideline of less than 20 percent disturbance area. When combined with other past and anticipated future management actions within this area, the No Action alternative would maintain existing conditions, including 8.5 percent detrimental compaction/displacement, and would have no further cumulative effect.

**Table 3-10. Acres and Detrimental Soil Conditions on the Swan Lake, Quartz, and Trout Creek Allotments**

Activity	Swan Lake	Quartz	Trout Creek	Total
Roads <sup>a/</sup>	670	713	221	1,604
Past and Reasonably Foreseeable Timber Harvest	2,642	3,248	793	6,683
Prescribed Burning	0	0	0	0
Developed Sites <sup>b</sup>	5	0	0	5
Recreation Trails <sup>c</sup>	2	14	0	16
Wildland Fire	0	0	0	0
<b>Total acres disturbed</b>	<b>3,319</b>	<b>3,974</b>	<b>1,014</b>	<b>8,308</b>
Total Allotment Area	26,713	59,195	11,912	97,820
Percent of area	12.4%	6.7%	8.5%	8.5%

<sup>a</sup> The acreage of detrimental soil conditions associated with roads was calculated using an estimate of 4.24 acres per road mile.

<sup>b</sup> The acreage of detrimental soil conditions associated with developed sites was calculated using an estimate of 1 acre per site.

<sup>c</sup> The acreage of detrimental soil conditions associated with trails was calculated using an estimate of 0.36 acre per trail mile.

## **Alternative 2 (Proposed Action)**

### *Direct and Indirect Effects*

Proposed fencing, reduced utilization levels in key areas, an enlarged spring enclosure, two new water developments, and removal of unused fencing would slightly decrease compaction, surface erosion, and sedimentation and have a positive impact on vegetation recovery in the allotments. Vegetation litter would be maintained within the existing utilization standards and would provide a source of soil nutrients, organic matter, and protection from erosion.

### *Cumulative Effects*

The installation of one additional water development on the Quartz Allotment and two additional water developments in the Trout Creek Allotment would result in an additional 3 acres of detrimental soil conditions, compared to the conditions described for the cumulative effects of Alternative 1 (No Action), above. Any negative effects associated with this would likely be offset by improved conditions resulting from the mitigation measures described above. When combined with other past and anticipated future management actions within this area, the cumulative effect of the Proposed Action would be a slight reduction in detrimental compaction, soil displacement, and erosion.

## **Alternative 3 (No Grazing)**

### *Direct and Indirect Effects*

Removing livestock from the allotments would decrease the amount of detrimental compaction and soil displacement in the allotments. Removing livestock from the allotments would eliminate most of the soil loss around water developments and stock trails as these areas increase in vegetation cover. Some erosion may continue to occur on some major stock trails because of their continued use by people and wildlife. Bare soil in riparian areas would likely be reoccupied by vegetation, and soil loss and stream sedimentation would be reduced.

Vegetation litter would increase with the removal of livestock and provide a greater source of soil nutrients, organic matter, and protection from erosion. This would occur as long as plants remained vigorous.

### *Cumulative Effects*

When combined with other past, present, and anticipated future management actions within the three allotments, the cumulative effect of Alternative 3 (No Grazing) would be improved soil conditions over time. Vegetation would reoccupy most of the stock trails, salting areas, and riparian areas. There would be an improvement in site productivity and a decrease in compaction, soil displacement, and erosion.

## **3.6 HERITAGE RESOURCES**

This EA incorporates by reference the Cultural Resource Specialist's Report in the Project Record (40 CFR 1502.21). The specialist report contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the specialist relied upon to reach the conclusions in this environmental assessment.

### **3.6.1 Existing Conditions**

There are 66 identified historic properties within the Swan Lake, Quartz, and Trout Creek Allotments. None of these has been evaluated for eligibility to the National Register of Historic Places.

Grazing has the potential to affect these historic properties through concentrated use at water sources, along stockways, and near historic properties. Because of this potential, field monitoring of historic properties was performed to assess effects. Field monitoring indicates current grazing practices have had no effect on historic properties within the three allotments.

### **3.6.2 Environmental Effects on Heritage Resources**

#### **3.6.2.1 Alternative 1 (No Action)**

##### **Direct and Indirect Effects**

There would be no change from the current condition. Historic properties would continue to gradually deteriorate over time, subject primarily to natural forces. This alternative would constitute a No Effect undertaking.

#### **3.6.2.2 Alternative 2 (Proposed Action)**

##### **Direct and Indirect Effects**

Fence construction and other protection measures proposed under this alternative would have the potential to affect historic properties. Proposed improvements would be identified for implementation during the term of the license; therefore, each improvement would be assessed on a case-by-case basis for potential effects on historic properties. Excluding these improvements, this alternative would constitute a No Effect undertaking.

#### **3.6.2.3 Alternative 3 (No Grazing)**

##### **Direct and Indirect Effects**

Under this alternative, historic properties would not be affected. Properties would continue to gradually deteriorate over time, subject primarily to natural forces. This alternative would constitute a No Effect undertaking.

## **3.7 ECONOMICS**

This environmental assessment incorporates by reference the Economics Specialist's Report in the Project Record (per 40 CFR 1502.21). The specialist report contains detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the resource specialist relied upon to reach the conclusions in this environmental assessment.

#### **Issue Statement 4**

*The proposed mitigation measures may impact the local economy.*

## Indicators

Indicators used to compare the alternatives included the following: costs to the permittees (per AUM) for administering and maintaining improvements on the allotments, the number of AUMs available to be permitted, and the estimated cost of implementing mitigation measures. These indicators are evaluated and compared by alternative to determine whether the cost of the proposed mitigation measures would negatively affect the local economy.

### 3.7.1 Existing Conditions

Demand for grazing use on the Forest exceeds the Forest's ability to supply forage (FEIS, USDA Forest Service 1988b). The farming and ranching industry has been a major part of the economic base for Ferry County since the beginning of the twentieth century. Grazing permits have been in existence on the Republic Ranger District since 1908. Current permittees have been earning their livelihood on the Swan Lake Allotment since 1978, on the Quartz Allotment since 1974 (Konz) and 1986 (Ferguson/Gotham), and on the Trout Creek Allotment since 1999.

#### 3.7.1.1 Permittee Costs and Revenue

Table 3-11 displays the existing permittees' costs for administration of their grazing permits. Administrative costs include moving and gathering livestock, annual meetings, forms and reports, and monitoring/utilization assessments. These costs were based on the total area suitable for grazing in each allotment, assuming 4 days of labor per 1,000 suitable acres, not to exceed 16 days per 10,000 acres. Labor and expenses were calculated as 8 hours per day, at \$15 per hour, plus miscellaneous expenses of \$200 per allotment. Cost calculations do not include taxes.

**Table 3-11. Annual Costs to Permittees for Administration of the Swan Lake, Quartz, and Trout Creek Grazing Allotments**

Allotment	Acres Suitable for Grazing	Days to Administer Allotment	Labor and Expenses	AUMs	Allotment Administration Cost per AUM
Swan Lake	10,302	16	\$2,120	855	\$2.48
Quartz	23,518	32	\$4,040	2,099	\$1.92
Trout Creek	4,448	16	\$2,120	627	\$3.38

Table 3-12 presents the permittee's costs for maintaining improvements on the allotments. There are 44 water developments, 36.25 miles of fence, and 2 corrals that the permittees maintain on the allotments annually. The number of days required for maintenance was based on the values reported by permittees on 2003 maintenance sheets. Labor and materials were calculated as 8 hours per day, at \$15 per hour, plus \$500 for miscellaneous materials per allotment

**Table 3-12. Annual Costs to Permittees for Maintenance of Improvements on the Swan Lake, Quartz, and Trout Creek Grazing Allotments**

Allotment	Days to Maintain Improvements	Labor and Materials	AUMs	Allotment Maintenance Cost per AUM
Swan Lake	7	\$1,340	855	\$1.57
Quartz	10	\$1,700	2,099	\$0.81
Trout Creek	8	\$1,460	627	\$2.33

The permittee's economic benefit that is derived from grazing on the National Forest is the value of the forage, which is based upon ranch-livestock enterprise budgets. This value is calculated annually by the USDA Economics Research Service; the forage value for 2004 is \$8.99 per AUM. The grazing fee paid to the government is an additional cost to the permittee. Table 3-13 summarizes the net economic benefit (revenues less costs) realized annually by permittees on the three allotments.

**Table 3-13. Annual Net Economic Benefits to Permittees (per AUM)**

Allotment	AUMs	Administration Cost per AUM	Maintenance Cost per AUM	Fee to Government	Total Costs per AUM	Revenue per AUM	Net Benefit per AUM per Year
Swan Lake	855	\$2.48	\$1.57	\$1.43	\$5.48	\$8.99	\$3.51
Quartz	2,099	\$1.92	\$0.81	\$1.43	\$4.16	\$8.99	\$4.83
Trout Creek	627	\$3.38	\$2.33	\$1.43	\$7.14	\$8.99	\$1.85

### **3.7.1.2 Forest Service Costs and Revenue**

Forest Service range allotment administration costs equal \$4.80 per AUM (based on administration costs of \$58,094 for 12,092 AUMs for the Republic Ranger District in 2003). Costs are based on general administration and operations, construction and reconstruction of water developments and fences, and range and riparian monitoring. These costs are accounted for under the range administrative costs for the Colville National Forest. The grazing fee the government collects is \$1.43 per animal month (2004).

### **3.7.1.3 Non-Commodity Values**

In addition to the monetary costs and revenues described above, the three allotments also provide non-commodity values, or nonpriced outputs, such as wildlife habitat, scenic value, and water quality and quantity. The values have been described qualitatively in the various specialists' reports. These values may be positively or negatively affected by grazing. The watershed and fisheries report identified grazing impacts exceeding Forest Plan standards on portions of Ninemile Creek around the beaver ponds and the northern tributary of the South Fork O'Brien Creek. The watershed and fisheries report also identified wetland concerns around Hougland Meadows. Most of the area is available for grazing. The recreation report identified grazing impacts to the Snow Peak Trailhead and the lower portion of the trail. The wildlife report identified grazing impacts on portions of the deer winter range as having exceeded Forest Plan standards.

## **3.7.2 Environmental Effects on Economics**

### **3.7.2.1 Direct and Indirect Effects**

The number of AUMs authorized on each allotment are indicators for comparing the economic effects of the three alternatives. Alternative 2 (Proposed Action) would result in 12 percent and 10 percent reductions in the number of AUMs authorized on the Swan Lake and Quartz Allotments, respectively, and no change on the Trout Creek Allotment (Table 3-14). Under Alternative 3 (No Grazing), the number of AUMs authorized on all three allotments would be reduced to Zero.

**Table 3-14. Animal Unit Months (AUMs) Authorized on the Swan Lake, Quartz, and Trout Creek Allotments under the Proposed Alternatives**

Allotment	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 No Grazing
Swan Lake	855	754	0
Quartz	2,099	1,889	0
Trout Creek	627	627	0

The economic efficiency analysis of the three grazing allotments considered the revenues, benefits, and costs associated with each allotment. Present Net Value (PNV) was used to compare the economic effects of the alternatives. PNV is based on benefits that will be produced during the life of the allotment permit, less costs (including the cost of capital improvements). All benefits and costs are discounted at 4 percent annually to bring them into a common base year. This allows a direct comparison of benefits and costs that may occur at different times during the grazing permit period.

The cost to prepare the environmental assessment to reissue permits (approximately \$85,000) is not included in the PNV analysis. This cost is incurred prior to the implementation of any alternative and does not vary by alternative. Washington Office and Regional Office overhead costs are not included in this analysis. For capital investments that may be required, a useful life for the investment is shown. If the useful life is longer than the term of the permit, the investments will be available if the grazing permit is reissued in the future.

The estimated costs of implementing the capital improvements described Section 2.2.2 (Proposed Action) are presented in Table 3-15. These costs reflect the cost of activities supporting the proposed mitigation measures to improve pasture management. The mitigation measures apply only to Alternative 2 (Proposed Action). No improvements are proposed for the Swan Lake Allotment. The actual implementation dates for these improvements have not yet been determined; therefore, costs are shown as 2004 dollar values.

**Table 3-15. Capital Improvement Costs under Alternative 2 (Proposed Action)**

Capital Improvement	No. Units	Unit Type	USFS Unit Cost	Permittee Unit Cost	USFS Total Cost	Permittee Total Cost
<b>Quartz Allotment</b>						
Snow Peak Water Development	1	each	\$900.00	\$900.00	\$900.00	\$900.00
Ninemile Creek Fence	1.25	mile	\$3,960	\$3,960	\$4,950.00	\$4,950.00
North Trib. South Fork O'Brien Creek Fence	0.75	mile	\$7,920.00	\$0.00	\$5,940.00	\$0.00
Snow Peak Fence	1	mile	\$7,920.00	\$0.00	\$7,920.00	\$0.00
<b>Total Costs on the Quartz Allotment</b>					<b>\$19,710.00</b>	<b>\$5,850.00</b>
<b>Trout Creek Allotment</b>						
Houglan (Bowe) Meadows Fence	0.75	mile	\$3,960.00	\$3,960.0	\$2,970	\$2,970.00
Culvert Water Development	1	each	\$800.00	\$0.00	\$800.00	\$0.00
Seven Dollar #2 Water Development	1	each	\$800.00	\$0.00	\$800.00	\$0.00
Removal of Encroaching Conifers	50	acre	\$90.00	\$0.00	\$4,500.00	\$0.00
Old Fence Removal	1	mile	\$1,500.00	\$0.00	\$1,500.00	\$0.00
Trout Creek Water Developments	2	each	\$900.00	\$900.00	\$1,800.00	\$1,800.00
<b>Total Costs on the Trout Creek Allotment</b>					<b>\$12,370.00</b>	<b>\$4,770.00</b>

## Permittee Costs and Revenue

Table 3-16 displays the present (2004) costs to permittees for administration, maintenance costs, and grazing fees over the 10-year term of the grazing permits, for each alternative. The present value of administration and maintenance costs was calculated using the USFS Region 1 grazing economics database (USDA Forest Service 2002). Capital improvement cost values are based on the values in Table 3-15. Maintenance costs on the Quartz and Trout Creek Allotments under Alternative 2 include the additional labor that would be needed to maintain new improvements implemented under the proposed action. Two additional days of labor were added for the Quartz Allotment, and one day was added for the Trout Creek Allotment.

**Table 3-16. Present Value of Costs to Permittees during 10-Year Permits, under Each Alternative**

	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3 (No Grazing)
<b>Swan Lake Allotment</b>			
Capital Improvement Costs	\$ 0.00	\$ 0.00	\$ 0.00
Administration and Maintenance Costs	\$ 41,471.50	\$ 41,551.46	\$ 0.00
<i>Total Present Value of Permittee Costs</i>	<i>\$ 41,471.50</i>	<i>\$ 41,551.46</i>	<i>\$ 0.00</i>
<b>Quartz Allotment</b>			
Capital Improvement Costs	\$ 0.00	\$ 5,850.00	\$ 0.00
Administration and Maintenance Costs	\$ 68,798.24	\$ 71,894.13	\$ 0.00
<i>Total Present Value of Permittee Costs</i>	<i>\$ 68,798.24</i>	<i>\$ 77,744.13</i>	<i>\$ 0.00</i>
<b>Trout Creek Allotment</b>			
Capital Improvement Costs	\$ 0.00	\$ 4,770.00	\$ 0.00
Administration and Maintenance Costs	\$ 42,983.90	\$ 44,414.19	\$ 0.00
<i>Total Present Value of Permittee Costs</i>	<i>\$ 42,983.90</i>	<i>\$ 49,184.19</i>	<i>\$ 0.00</i>

Table 3-17 summarizes the net economic benefits (revenues less costs) that would be realized annually by permittees under Alternative 2 (Proposed Action). Net economic benefits under Alternative 1 (No Action) are presented in Table 3-13. Compared to Alternative 1, grazing reductions and capital improvement costs under Alternative 2 would result in decreases in the net economic benefits to permittees on all three allotments. These decreases would range between 9 percent (Quartz Allotment) and 15 percent (Swan Lake Allotment). Under Alternative 3, all costs and revenues would be reduced to zero.

**Table 3-17. Annual Net Economic Benefits to Permittees (per AUM) under Alternative 2 (Proposed Action)**

Allotment	AUMs	Administration Cost per AUM	Maintenance Cost per AUM	Fee to Government	Total Costs per AUM	Revenue per AUM	Net Benefit per AUM per Year
Swan Lake	754	\$2.81	\$1.78	\$1.43	\$6.02	\$8.99	\$2.97
Quartz	1,889	\$2.14	\$1.03	\$1.43	\$4.60	\$8.99	\$4.39
Trout Creek	627	\$3.38	\$2.52	\$1.43	\$7.33	\$8.99	\$1.66

## Costs to the Government

Table 3-18 displays Forest Service costs for administration of the allotments over the 10-year term of the permits. Costs are summed for all three allotments and are based upon the same cost per AUM regardless of allotment. Capital improvement cost values are based on the values in Table 3-14.

**Table 3-18. Present Value of Costs to the Government During 10-Year Permits, under Each Alternative**

	No Action	Proposed Action	No Grazing
Capital Improvement Costs	\$ 0.00	\$ 34,060.00	\$ 0.00
Operations and Administration Costs	\$ 139,416.55	\$ 108,391.30	\$ 0.00
Total	\$ 139,416.55	\$ 142,451.30	\$ 0.00

## Effects on the Local Economy

Forest Service revenues are based on congressionally established prices. These prices may be adjusted during the term of the permit. Twenty-five percent of the grazing revenues (i.e., the 25 Percent Fund) can be returned to the states as payments to counties that have National Forest System lands within their boundaries. A portion of the fee is kept for range betterment (\$0.50 per AUM), and the remainder is returned to the treasury. Potential annual contributions to the 25 Percent Fund were calculated by multiplying the number of head months in each allotment by the 2004 grazing fee of \$1.43 per AUM. It is possible that 25 Percent Fund payments may affect payment-in-lieu-of-taxes payments to the counties.

Reduced grazing on the Swan Lake and Quartz Allotments under Alternative 2 (Proposed Action) would result in a 7 percent decrease in the potential annual contribution to the 25 Percent Fund from the three allotments (Table 3-19). Under Alternative 1, no reduction would occur, while payments to the county from grazing would be eliminated under Alternative 3.

### 3.7.2.2 Cumulative Effects

Ferry County serves as the analysis area for cumulative effects on economics. When considered in combination with the effects of past, present, and reasonably foreseeable actions in the analysis area, none of the alternatives would result in any significant cumulative effects. Large wildfires, continued fuels reduction projects, timber sale projects, and noxious weed control may add additional transitory range, which would likely increase the value of forage.

**Table 3-19. Potential Annual Contributions to the 25 Percent Fund in Ferry County, and Present Net Value of Revenue from Grazing over the 10-Year Term of the Permits**

	No Action (Current Management)	Proposed Action	No Grazing
<b>Swan Lake Allotment</b>			
Number of Head Months	639	571	0
Possible Annual Contribution to 25 Percent Fund	\$ 228.44	\$ 204.13	\$ 0.00
Present Net Value of Revenue over 10 years	\$ 7,411.49	\$ 6,622.79	\$ 0.00
<b>Quartz Allotment</b>			
Number of Head Months	1,560	1,431	0
Possible Annual Contribution to 25 Percent Fund	\$ 557.70	\$ 511.58	\$ 0.00
Present Net Value of Revenue over 10 years	\$ 18,093.79	\$ 16,597.57	\$ 0.00
<b>Trout Creek Allotment</b>			
Number of Head Months	475	475	0
Possible Annual Contribution to 25 Percent Fund	\$ 169.81	\$ 169.81	\$ 0.00
Present Net Value of Revenue over 10 years	\$ 5,509.33	\$ 5,509.33	\$ 0.00
<b>Total</b>			
Number of Head Months	2,674	2,477	0
Possible Annual Contribution to 25 Percent Fund	\$ 955.95	\$ 885.52	\$ 0.00
Present Net Value of Revenue over 10 years	\$ 31,014.61	\$ 28,729.69	\$ 0.00

### 3.8 RECREATION

This EA incorporates by reference the Recreation Specialist's Report in the Project Record (40 CFR 1502.21). The specialist report contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the specialist relied upon to reach the conclusions in this environmental assessment.

#### *Issue Statement 2*

Grazing may impact recreation sites.

#### 3.8.1 Existing Conditions

The current management plan for the Quartz Allotment is not achieving desired conditions for recreation. Management is not consistent with Forest Plan standards, guidelines, goals, and objectives. More than incidental damage occurs on the Snow Peak trailhead facility and the Snow Peak Trail tread (to the old trail junction) because of livestock grazing.

The current management plan for the Swan Lake Allotment is achieving desired conditions. Management is consistent with Forest Plan standards, guidelines, goals, and objectives. Swan Lake and Ferry Lake are excluded from grazing. Periodically livestock get into the area primarily by open gates or breaches in the fence.

Recreation resources are meeting the Forest Plan standards, guidelines, goals, and objectives in the Trout Creek Allotment.

## **3.8.2 Environmental Effects on Recreation**

### **3.8.2.1 Alternative 1 (No Action)**

Continued grazing in the area of the Snow Peak trailhead facility and the Snow Peak trail tread may cause additional damage. This would not meet the Forest Plan standards and guidelines to protect these facilities during management activities (Forest Plan, page 4-37).

### **3.8.2.2 Alternative 2 (Proposed Action)**

The Snow Peak trailhead and new portion of the trail would be protected from livestock by 1 mile of new fence. This would mitigate recreation damage to the Snow Peak trailhead facility and the trail tread.

Measures designed to mitigate grazing impacts in riparian areas may impede campers' access to creeks. Drift fence construction along Ninemile Creek would be designed so that dispersed recreation sites would not be fenced into riparian areas, avoiding impediment impacts but allowing continued livestock disturbances of recreation sites.

### **3.8.2.3 Alternative 3 (No Grazing)**

Under Alternative 3, no grazing would occur in the three allotments, thus no further damage to the Snow Peak trail and trailhead facility would be expected to occur. All existing improvements would be abandoned, and exterior fences would be the responsibility of the permittees. If exterior fencing were to deteriorate as a result, stray livestock from adjacent private and state lands could impact recreation sites.

## **3.9 PROBABLE ADVERSE IMPACTS THAT CANNOT BE AVOIDED**

Grazing by any large ungulates, including deer, moose, or domestic livestock, can cause some degree of damage to forage or browse plants or to soil structure. Most, but not all, of these impacts can be mitigated for use by livestock through implementation of Forest Plan standards and guidelines. In addition, management intensification can ensure that impacts are kept to acceptable levels. Impacts to riparian areas would continue through the existence of current and past roads, harvest units, and structures in the riparian areas. These impacts would limit the recovery potentials and, in places, would hinder the attainment of desired future condition objectives.

For some recreation users, the quality of the recreation experience is diminished by encounters with cattle and other signs of livestock grazing. The Forest Plan provides for grazing by livestock where it can be accomplished in a manner compatible with established standards and guidelines. However, as with many land management activities, some conflicts are unavoidable.

## **3.10 RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY**

Forage utilization is a short-term use of resources that is permitted over 10 years, but is managed on an annual basis. The action alternatives promote long-term use and management of the range vegetation and related resources under management standards that are designed to promote long-term health of the resources.

### **3.11 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

There are no irreversible or irretrievable commitments of resources associated with implementing the alternatives that are not already identified in the FEISs for the Forest Plan.

### **3.12 POTENTIAL CONFLICTS WITH PLANS AND POLICIES OF OTHER AGENCIES**

Conflicts with plans and policies of other jurisdictions that are not already identified in the FEISs for the Forest Plans are not expected from implementing the action alternatives.

### **3.13 OTHER SPECIFICALLY REQUIRED DISCLOSURES**

#### **3.13.1 Prime Farmland, Rangeland, Wetlands, Floodplains, Wild and Scenic Rivers, Ecologically Critical Areas**

Adverse effects on prime farmland, rangeland, and wetlands are described above under the Range and Watershed/Fisheries sections. Wetlands and floodplains are minor parts of this proposal. Alternative 2 (Proposed Action) would be expected to result in improved management of these resources. Alternative 1 (No Action) would maintain existing conditions. Wild and scenic rivers and ecologically critical areas are not impacted by livestock grazing, so the No Grazing alternative does not apply.

#### **3.13.2 Energy Requirements**

There would be no unusual energy requirements from implementing the alternatives.

#### **3.13.3 Civil Rights, Environmental Justice**

Civil Rights would not be affected by any of the alternatives. Executive Order 12898 (59 Federal Register 7629, 1994) directs federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. None of the project alternatives would have any disproportionately high or adverse human health or environmental effects on minority or low-income populations.

#### **3.13.4 Air Quality**

The project would have no effect on air quality.

#### **3.13.5 Roadless Areas and Potential Wilderness Designation**

Four inventoried roadless areas (IRAs) fall partially or entirely within the boundaries of the allotments. Approximately 469 acres of the Clackamas Mountain IRA (#6003) fall within the Trout Creek Allotment. This represents the entire portion of the Clackamas Mountain IRA on the Colville National Forest. The remaining area, 14,600 acres, is on the Okanogan National Forest. Two IRAs fall entirely within the Quartz Allotment: the Cougar Mountain (#6014 – 4,735 acres) and Thirteenmile (#6008 – 12,714 acres) IRAs. In addition, 11,603 acres of the 24,383-acre Bald-Snow IRA (#6007) also fall within the Quartz Allotment.

Grazing activities do not affect the potential for a roadless area to be designated as wilderness. The Okanogan and Colville National Forest Land and Resource Management Plans, Appendix C, indicated that none of these roadless areas was suitable for designation as wilderness. Under the Forest Plans,

Clackamas Mountain IRA is not suitable because of its small size, impacts to the natural integrity and appearance of the area caused by several short drift fences and an old road, no opportunity for solitude and primitive recreation because farming activity and roads are visible from most locations within the area, and little challenge except for the many rounded bluffs.

The Forest Plan indicated that the Cougar Mountain IRA is not suitable because the size limits expansion beyond its present boundary, the natural integrity of the area is diminished by views of adjacent timber harvest and old roads, opportunities for solitude are limited by management activities (including timber management, grazing, mineral exploration, and accompanying sounds from adjacent lands both within and outside the area), and limited primitive recreational opportunities or features in the area.

The Forest Plan found that the Thirteenmile IRA cannot be expanded beyond the present boundary and maintain the roadless integrity. The adjacent Bald-Snow roadless area is separated from this area by the Hall Creek road (USFS Road 2050-600). The adjacent Cougar Mountain roadless area is separated from this area by the Cougar Mountain road (USFS Road 2054). The natural integrity of the area is diminished by views of adjacent timber harvest and roads. Opportunities for solitude are limited by management activities outside the area, including timber management, grazing, mineral exploration, and accompanying sounds from adjacent lands. The buffers from these activities are the distance and physical separation provided by the mountainous terrain and dense timber. There are no outstanding primitive recreational opportunities or features in the area.

The Forest Plan found that the Bald-Snow IRA cannot be expanded beyond the present boundary while maintaining the roadless integrity, because it is separated from the Thirteenmile roadless area by the Hall Creek road (USFS Road 2050-600) and from the Profanity roadless area by State Highway 20. The natural integrity of the area is diminished by adjacent timber harvest and roads. There are only occasional noticeable intrusions made by users of the area, such as grazing and mineral related activities; however, those that do occur detract from the natural integrity of the area.

These roadless areas are managed to provide high-quality, semi-primitive/non-motorized and semi-primitive/motorized, recreation opportunities. The primary management activities in these areas are maintenance and reconstruction of necessary trails and installation and maintenance of facilities necessary for resource protection or to maintain or enhance recreation opportunities. None of the alternatives would affect the ability of the Forest to conduct these activities, although fences would likely deteriorate under Alternative 3 (No Grazing). Livestock grazing has only minimal effects on roadless character and recreation, and effects are reversible. The presence of livestock and their droppings may be offensive to some recreational users. Recreation use of the Clackamas Mountain, Cougar Mountain, and Thirteenmile roadless areas is low, so effects on recreationists would be minimal. Effects on recreationists would be highest in the Bald-Snow roadless area on the Kettle Crest Trail from White Mountain to Barnaby Buttes and the Snow Peak Trail from the trailhead to the Snow Peak water development. All alternatives would be consistent with the interim directive concerning IRAs because none would result in road construction, road reconstruction, road decommissioning, or timber harvest.

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## 5. DISTRIBUTION

### Agencies, Organizations, and Persons Consulted by the Forest Service

#### Federal Agencies and Officials

USDI Bureau of Indian Affairs, Colville Confederated Tribes/BIA Environmental Protection Coordinator,  
Maurice Socula  
USDI Bureau of Land Management, Clifford Ligons  
USDI Bureau of Land Management, Rick McComas  
USDI Fish and Wildlife Service, Linda Hallock  
U.S. Environmental Protection Agency, Environmental Review Coordinator  
USDA Forest Service, Okanogan National Forest  
USDA Forest Service, Tonasket Ranger District  
USDA, Ferry County Extension Office, Dan Fagerlie

#### Tribal Governments

Colville Confederated Tribes  
Fish and Wildlife, Jim Priest  
Historic Preservation, Adeline Fredin

#### State Agencies and Officials

Washington Department of Ecology, Jean Parodi  
Washington Department of Wildlife, Allen Palmanteer

#### County/Local Agencies and Officials

Ferry County Commissioners  
Ferry County Conservation District, Marianne Quaade  
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Kayo Tollett Trucking	
Kettle River Cutting, Doug Rowell	

## **Organizations**

Alliance for the Wild Rockies  
Ferry County Action League, Bret A. Roberts  
Idaho Sporting Congress, Ron Mitchell  
Kettle Range Conservation Group, Tim Coleman  
Kettle River Advisory Board, Ed Watt  
Northwest Natural Resources Institute, Kristi Fountain  
Sierra Club, Oregon Chapter  
Stevens County Cattleman's Association, Tim Kunka  
The Ecology Center  
The Lands Council, Mike Petersen  
Upper Columbia Resource Council, Diana White Horse Capp  
Washington Cattlemen's Association, Inc.

## **Media**

Chris Cowbrough, The Statesman-Examiner  
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Quinney Library, Logan, Utah

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**APPENDIX A**

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**Summary of Scoping Comments Received on the  
Swan Lake, Quartz, and Trout Creek Grazing Allotments  
Reauthorization Environmental Assessment**

## APPENDIX A

### Summary of Scoping Comments Received on the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization Environmental Assessment

Comment No. <sup>a</sup>	Comment Summary	Topic	EA Issue <sup>b</sup>	Issue Statement No. <sup>c</sup>	Forest Service Response
2.11	Contents federal not private entities are responsible for treating existing populations of noxious weeds.	Mitigation/ Noxious Weeds	Yes Significant	1	The Forest Service is responsible for treatment on National Forest System lands; however, permittees have a responsibility to reduce and report noxious weed infestations.
2.8	In the Quartz Allotment, current road closures have prevented cattle movement as needed.	Mitigation/ Road Closures	Yes Significant	1	The washout of Refrigerator Canyon road (County Road) in 1998 makes movement difficult and there are no planned repairs.
2.9	Removal of noxious weed seed is not feasible by permittees.	Mitigation/ Noxious Weeds	Yes Significant	1	Livestock can be held in a private pasture where the preponderance of seed can fall off or be defecated prior to turnout.
3.7	Current location of cattle guard along the east side of the Trout Creek Allotment allows cattle to trespass onto private property.	Mitigation/ Cattle Trespass	Yes Significant	1	The cattleguard in question is in a pasture that would be eliminated from the allotment management under the proposed action. The cattleguard is a Ferry County Public Works improvement.
Forest Service Specialists	Livestock use of the Snow Peak trail and travel through the trailhead is resulting in damage to the recreation facilities.	Recreation	Yes Significant	2	The primary trail tread damage near the trailhead is cutting switchbacks, which leads to other use of the trails and increased erosion. Damage is less apparent in the trailhead itself because of rock surface on the road.
4.18	Exclude cattle from Swan Lake area to preserve its special character.	Recreation / Aesthetics	Yes Significant	2	The Swan Lake area is currently fenced out of the pastures of the allotment as discussed in the Proposed Action in Chapter 1.
Forest Service Specialists	Streambank trampling and over utilization of riparian shrubs by livestock result in increased sedimentation and stream widening.	Riparian/Water Quality	Yes Significant	3	Stream channel and riparian conditions in Ninemile Creek, tributary of South Fork O'Brien Creek, wetlands in West Fork Trout Creek, and around two water developments by livestock result in increased sedimentation and stream widening.
5.1	The proposed action and the additional mitigation measures for the Trout Creek Allotment will increase costs and create a significant financial hardship on permittees.	Mitigation/ Economics	Yes Significant	4	Costs associated with the different alternatives are addressed in Chapter 3 of the EA and summarized in Chapter 2.

## Summary of Scoping Comments Received on the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization Environmental Assessment (continued)

Comment No. <sup>a</sup>	Comment Summary	Topic	EA Issue <sup>b</sup>	Issue Statement No. <sup>c</sup>	Forest Service Response
Forest Service Specialists	Overuse of browse by livestock in mule deer winter ranges.	Wildlife	Yes Significant	5	Proposed Action was developed to reduce the utilization of browse in mule deer winter range by reducing the season of use. Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
2.12	Questioned who should pay for costs, including labor, for implementing mitigation measures.	Out of Scope	Yes Non-Significant	-	The permittees bear ½ the cost of range improvements. This is generally in the form of labor.
2.13	Questioned what effect the removal of water developments will have on wildlife.	Wildlife	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
2.16	Implementing ICBEMP science through manuals, directives, and proposed rules is threatening the economic stability, custom and culture, health and welfare of our peoples, the health of our forests and private property rights.	Out of Scope	Yes Non-Significant	-	See response to 2.6
2.2	A current 50% reduction in range use causes an adverse economic impact.	Out of Scope	Yes Non-Significant	-	None of the alternatives would result in a 50% reduction in range use.
2.4	Questioned whether annual operating instructions should be imposed by the government on private business.	Out of Scope	Yes Non-Significant	-	The annual operating instructions are part of the permit and address livestock management on the allotments, which are public, not private lands.
2.6	The Interior Columbia Basin Strategy is subject to regulatory analysis requirements at the project level, including proposed action.	Out of Scope	Yes Non-Significant	-	The only portion of the Interior Columbia Basin Management Plan (ICBMP) project to be used is any science developed by the team found to be applicable to a project. There was no science developed by the ICBMP team used for this proposed action.
3.22	Grazing permits should require water quality certification from the State.	Out of Scope	Yes Non-Significant	-	The standards and guidelines identified in the Colville National Forest Land and Resource Management plan for water quality on National Forest System lands meet State of Washington regulations.
3.28	Stated that grazing impacts include the spread of noxious weeds.	Noxious Weeds	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.

## Summary of Scoping Comments Received on the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization Environmental Assessment (continued)

Comment No. <sup>a</sup>	Comment Summary	Topic	EA Issue <sup>b</sup>	Issue Statement No. <sup>c</sup>	Forest Service Response
3.29	Stated that grazing impacts include degradation of stream banks and sedimentation of streams.	Water Quality/ Soils	Yes Non- Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.30	Stated that grazing impacts include degradation of water quality by reducing vegetation overstory, increasing water temperature, increasing sediment delivery and defecation.	Riparian/ Water Quality/ Soils	Yes Non- Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.31	Stated that grazing impacts include degradation of riparian habitat by trampling.	Riparian	Yes Non- Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.35	Stated that grazing impacts include erosion and compaction of soils.	Soils	Yes Non- Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.38	Stated that grazing impacts include adverse effects on silvicultural processes, such as regeneration.	Vegetation / Silviculture	Yes Non- Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.39	Stated that an EIS should be prepared because of significant adverse impacts from grazing.	Out of Scope	Yes Non- Significant	-	The deciding official will document any significant impacts or determine that there are not any significant impacts.
3.40	Stated that an EIS should be prepared and include significant impacts to old growth vegetation, watershed health, unstable soils, special management areas, perennial waters, public health, unique characteristics, cultural or historic resources, special status species, degree of controversy, risk, precedent setting effects, violations.	Out of Scope	Yes Non- Significant	-	See response to 3.39
4.1	Issuing the Swan Lake and Trout Creek Allotments will violate the Multiple Use Sustained Yield (MUSY) Act.	Policy/ Procedure	Yes Non- Significant	-	Grazing in these allotments has been found to be a suitable use in the Colville National Forest Land and Resource Management Plan Environmental Impact Statement and Record of Decision.

## Summary of Scoping Comments Received on the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization Environmental Assessment (continued)

Comment No. <sup>a</sup>	Comment Summary	Topic	EA Issue <sup>b</sup>	Issue Statement No. <sup>c</sup>	Forest Service Response
4.10	Questioned whether the ecological condition of the range is in an upward trend in the allotment areas.	Ecosystem Health	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.11	Questioned whether the existing stream channel contained high sediment levels from denuded banks and if reduced pool volume, frequency, size and quality were present.	Water Quality	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.12	Questioned if wider channels were present and if they increased water temperatures.	Water Quality	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.13	Questioned whether riparian areas had lost their hydrologic connectivity to the stream.	Riparian	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.14	Questioned if high levels of bank damage were widespread due to elevated peak flows.	Water Quality	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.15	Questioned if there are shade losses due to lack of streamside vegetation.	Water Quality	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.16	Questioned if large woody debris, beaver dams are present and if beavers will be returned.	Riparian	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.17	Concerned that existing utilization levels may violate PACFISH direction.	Policy/ Procedure	Yes Non-Significant	-	The Colville National Forest is subject to the standards and guides of the Colville National Forest Land and Resource Management Plan, as amended by Inland Native Fish Strategy (INFISH).
4.9	Questioned whether the Forest Service can conclude that livestock grazing is not impacting existing riparian vegetation.	Riparian	Yes Non-Significant	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
1.1	Continued grazing in the project area supports the local economy	Economics	No	-	Economic effects can be found in Chapter 3 of the environmental assessment.

## Summary of Scoping Comments Received on the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization Environmental Assessment (continued)

Comment No. <sup>a</sup>	Comment Summary	Topic	EA Issue <sup>b</sup>	Issue Statement No. <sup>c</sup>	Forest Service Response
2.1	Questioned whether the Forest Service is currently managing rangeland according to the ICBEMP at a 50% reduction rate in range use from previous standards	Out of Scope	No	-	None of the alternatives would result in a 50% reduction in range use.
2.10	Questioned how to prevent spread of noxious weed seed from movement of wildlife and hikers.	Out of Scope	No	-	Effects of the Proposed Action and alternatives are addressed in Chapter 3 of the environmental assessment. Prevention measures for noxious weed spread by livestock grazing are described in Chapter 2. Noxious weed spread prevention measures for alternatives other than the Proposed Action can be found in the Colville National Forest Weed Prevention Guide (USDA Forest Service 1999).
2.14	Questioned who identifies key areas.	Wildlife	No	-	Republic Ranger District range personnel working with the permittees.
2.15	Questioned what was meant by the statement "This will mitigate lack of use of this area of the pasture".	Proposed Action	No	-	Unit 3 of Trout Creek Allotment receives little use chiefly because of lack of water sources in the Storm King area. New water sources would promote greater utilization of available forage.
2.17	Cumulative effects must be addressed to conform to NEPA, NFMA, FRPMA, and Taylor Grazing Act.	Cumulative Effects	No	-	Effects of the Proposed Action and alternatives are addressed in Chapter 3 of the environmental assessment.
2.3	Mitigation measures in the proposed action are a direct threat to water rights.	Water Rights	No	-	Under the proposed action, livestock would continue to have access to water developments and certain stream reaches; no water rights would be violated.
2.5	Questioned whether annual operating instructions would eliminate grazing entirely in certain pastures.	Annual Operating Instructions	No	-	Under the Proposed Action, grazing would be eliminated in unit 2 of the Trout Creek Allotment.
2.7	Questioned what are the cumulative effects on the cattle industry from proposed action and other past, present, and reasonably foreseeable future actions (fire plan, road closures, etc.).	Cumulative Effects	No	-	Cumulative effects of the alternatives are addressed in Chapter 3 of the environmental assessment.
3.1	Requested discussion of how excluding dispersed recreation sites from being fenced into riparian areas will affect recreation.	Recreation	No	-	The Proposed Action excludes the dispersed sites from being fenced into the area preventing access to livestock. Dispersed sites would still be available to recreation as before.

## Summary of Scoping Comments Received on the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization Environmental Assessment (continued)

Comment No. <sup>a</sup>	Comment Summary	Topic	EA Issue <sup>b</sup>	Issue Statement No. <sup>c</sup>	Forest Service Response
3.10	Stated that the baseline for determining a “net improvement” to forest resources should be based on pre-grazing conditions, rather than post-grazing.	Analysis Methods	No	-	Current conditions, rangeland trend, and effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.11	Stated that the EA should disclose the potential and documented impacts of grazing in the project area	Analysis Methods	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.12	Stated that the EA should consider the qualitative value of non-commodity values such as recreation, and look beyond the immediate community when determining present net value.	Economics	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.13	Stated that the EA should address potential impacts on extraordinary circumstances, such as roadless areas.	Land Use/ Analysis Methods	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.14	Stated that the EA should address potential impacts on proposed wilderness areas in the project area.	Land Use/ Analysis Methods	No	-	See response to 3.13
3.15	Stated that the EA should address potential impacts to T&E species.	TES Species	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.16	Called for a comparison of the revenue generated by grazing fees <i>versus</i> the costs of managing grazing allotments.	Economics/ Analysis Methods	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.17	Stated that site-specific monitoring of grazing impacts has not been implemented in past.	Out of Scope	No	-	The Republic Ranger District has consistently met obligations for implementation monitoring strategy showing compliance with INFISH, has consistently met obligations for Tonata Allotment Management Plan monitoring, and is currently meeting obligations for Bamber Cluster Allotments. This is in addition to seasonal inspections and monitoring on all allotments.
3.18	Called for an assessment of the consistency of grazing with management area standards and guidelines in the project area.	Land Use/ Analysis Methods	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.19	Called for an assessment of compliance with existing guidance and directives regarding grazing management.	Land Use/ Analysis Methods	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.

## Summary of Scoping Comments Received on the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization Environmental Assessment (continued)

Comment No. <sup>a</sup>	Comment Summary	Topic	EA Issue <sup>b</sup>	Issue Statement No. <sup>c</sup>	Forest Service Response
3.2	Stated that Forest Service should include scientific substantiation for water developments to reduce grazing impacts in riparian areas.	Riparian/ Analysis Methods	No	-	Scientific background is included in the analysis file and Chapter 3 of the environmental assessment.
3.20	Conduct a comprehensive economic analysis of grazing from project and broad scale.	Economics/ Analysis Methods	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.21	Cumulative effects of grazing should occur at the project level as well as the broad scale.	Analysis Methods	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.23	Called for a discussion of trespass by outside cattle into these allotments.	Cattle Trespass	No	-	Livestock use from adjacent allotments is being addressed by fencing and is likely to occur in calendar year 2004.
3.24	Called for a discussion of rotation methods and the number of pastures.	Vegetation	No	-	Current conditions are included in Chapter 3 of the environmental assessment.
3.25	Stated that the EA should identify transitory range conditions.	Vegetation	No	-	Current conditions are included in Chapter 3 of the environmental assessment.
3.26	Stated that the EA should evaluate opportunities to realign pasture boundaries.	Out of Scope	No	-	The interdisciplinary team looked at realigning pasture boundaries and included those changes in the proposed action for the Trout Creek Allotment.
3.27	Called for an analysis of the cumulative effects of grazing combined with other timber harvest and resource management activities.	Cumulative Effects/ Analysis Methods	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.3	Questioned whether damage to Snow Peak Trailhead and to trail will be repaired. Questioned what is their current condition.	Recreation	No	-	The primary trail tread damage near the trailhead is cutting switchbacks, which leads to other use of the trails and increased erosion. Damage is less apparent in the trailhead itself because of rock surface on the road.
3.32	Stated that grazing impacts include life threatening encounters between people and cattle.	Recreation/ Public Safety	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.33	Stated that grazing impacts include degrading recreation value of Forest Service land.	Recreation	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.34	Stated that grazing impacts include trespass and destruction of adjacent private property.	Cattle Trespass	No	-	Fences or lack thereof on the National Forest boundary are the responsibility of the private landowner. The Forest Service does not construct or maintain fences on the boundary with private land.

## Summary of Scoping Comments Received on the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization Environmental Assessment (continued)

Comment No. <sup>a</sup>	Comment Summary	Topic	EA Issue <sup>b</sup>	Issue Statement No. <sup>c</sup>	Forest Service Response
3.36	Stated that grazing impacts include increasing the risk of fire.	Vegetation/ Fire Risk	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.37	Stated that grazing impacts include destruction of habitat and prey-source for indicator, sensitive, and threatened species.	TES species	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
3.4	Questioned how much of riparian area around Culvert and Seven Dollar #2 water developments would be barricaded and with what.	Proposed Action	No	-	The included area may be up to ½ acre in size barricaded by fencing.
3.41	Stated that the analysis include discussion of the findings of the report titled "Effects of Livestock Grazing on Upland Forests, Stand Dynamics, and Soils of the Interior West" by Belsky and Blumenthal (1995).	Analysis Methods	No	-	This reference will be included and the document incorporated into the analysis file.
3.42	Stated that the analysis should reveal that ending grazing would permit a return to original baseline conditions.	Analysis Methods	No	-	Effects of the No Grazing alternative can be found in Chapter 3 of the environmental assessment.
3.5	Map the meadows containing encroaching conifers to be removed.	Analysis Methods	No	-	The areas are mapped in the Proposed Action. Maps clarifying the area are included in Chapter 2 of the environmental assessment.
3.6	Stated that the scoping letter did not include any specific actions for the Swan Lake Allotment. Questioned if this was an oversight.	Proposed Action	No	-	Swan Lake Allotment is currently meeting forest plan standards. The lakes and campgrounds in the Swan Lake area are currently excluded from grazing by livestock.
3.8	Cattle grazing on the south slope of Horseshoe Mountain may damage native grasses.	Vegetation	No	-	Rangeland conditions are addressed in Chapter 3 of the environmental assessment.
3.9	Cattle grazing east of the West Fork of Trout Creek may cause damage to riparian areas and areas of conservation concern.	Vegetation/ Wildlife/ Riparian	No	-	A large portion of the West Fork of Trout Creek is eliminated from livestock grazing in the Proposed Action. Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.19	Questioned what are the impacts to the recreational values of Swan Lake from proposal, and how would the proposal mitigate this.	Recreation	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.2	Questioned what are the cumulative effects of these allotments.	Cumulative Effects	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.

## Summary of Scoping Comments Received on the Swan Lake, Quartz, and Trout Creek Grazing Allotments Reauthorization Environmental Assessment (continued)

Comment No. <sup>a</sup>	Comment Summary	Topic	EA Issue <sup>b</sup>	Issue Statement No. <sup>c</sup>	Forest Service Response
4.3	Stated that the project and other allotments are cumulatively contributing nutrients to Curlew Lake.	Cumulative Effects/ Water Quality	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.4	Questioned whether Trout Creek has a TMDL.	Water Quality	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment. There is no TMDL for Trout Creek to our knowledge.
4.5	Questioned what improvements to the Trout Creek drainage would result from the new allotment plan.	Water Quality	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.6	Questioned if Trout Creek was a 303d stream.	Water Quality	No	-	Not on the State of Washington 303d list as of June 2004.
4.7	Questioned whether cows defecating in the stream constitute a violation of the Clean Water Act.	Water Quality /Policy/ Procedure	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.
4.8	Restore allotments to a fully functioning condition.	Ecosystem Health	No	-	Effects of the Proposed Action and alternatives can be found in Chapter 3 of the environmental assessment.

<sup>a</sup> Comments are numbered sequentially within individual letters; thus, Comment #2.11 is the eleventh comment in Letter #2. Five scoping letters or statements were received, and were numbered as follows:

1. Steve Konz (personal comment received 25 March 2004)
2. Sharon Shumate, Ferry County Natural Resource Board (letter dated 5 April 2004)
3. David Heflick, Kettle Range Conservation Group (letter dated 15 April 2004)
4. Mike Peterson, The Lands Council (letter dated 12 April 2004)
5. Charlie Keith and René Ulam (comment form dated 14 April 2004)

<sup>b</sup> Issues that identify points of dispute, disagreement, or debate concerning the effects of the proposed action.

Yes – S: Significant issues, including those that may shape the development of alternatives; (note that "significant" issues and "significant" impacts have different meanings in a NEPA context; the identification of significant issues does not preclude a Finding of No Significant Impacts);

Yes – NS: Non-significant issues, such as those that concern matters beyond the scope of the proposed action;

No: Non-issues, including questions about the proposed action or its potential effects, comments about the general effects of grazing, or requirements for NEPA analysis.

<sup>c</sup> Issue Statements (See Chapter 1 for additional details):

- 1 **Mitigation:** Implementation of some mitigation measures that were designed to reduce impacts to resources may not be feasible, or the measures themselves may not be effective.
- 2 **Recreation:** Livestock have damaged the Snow Peak trail and trailhead. Continued grazing in the area may cause additional damage.
- 3 **Riparian/Water Quality:** Grazing in riparian areas impacts riparian habitats and water quality, which may affect watershed health.
- 4 **Economics:** Implementation of mitigation measures designed to reduce resource impacts will reduce the amount of grazing area available to permittees, and incur costs to permittees and the Forest Service.
- 5 **Wildlife:** Mule deer winter range forage habitat may be altered by livestock grazing.
- 6 **Vegetation:** Grazing impacts native plant communities by changing the distribution and abundance of plant species, and contributing to the spread of noxious weeds.