

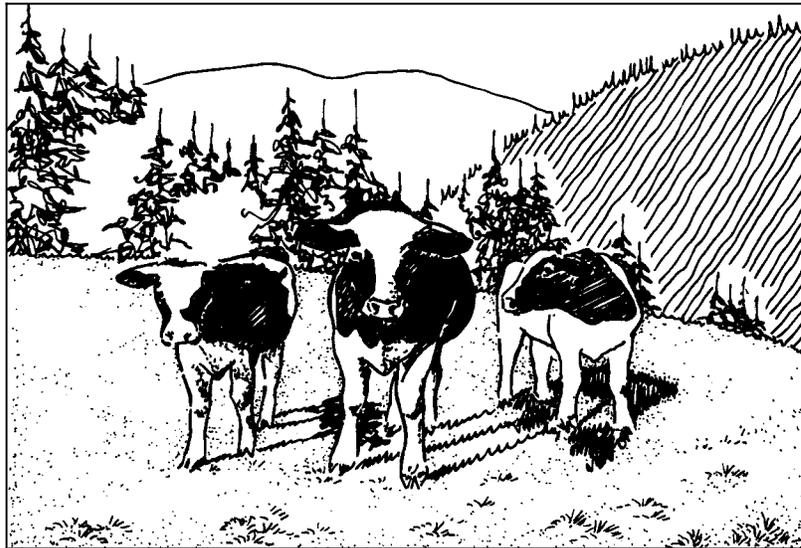
United States Department of Agriculture

USDA Forest Service
Northern Region



ST. MARIES GRAZING ALLOTMENTS

Environmental Assessment



Prepared for:

**ST. JOE RANGER DISTRICT
IDAHO PANHANDLE NATIONAL FOREST**

January 9, 2004

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Chapter One - Purpose and Need

1.1 Introduction

The St. Joe Ranger District of the Idaho Panhandle National Forest (IPNF) has prepared this Environmental Assessment (EA) to analyze and disclose the effects of continued cattle grazing in five grazing allotments in the St. Maries River watershed. These allotments include Catspur, Charlie Creek, Emerald Creek, Keeler Creek, and Merry Creek.

1.2 Project Area, Study Area, and Cumulative Effects Analysis Area

The District evaluated alternative management plans for these areas. This analysis includes three alternatives: grazing under existing practices, no grazing, and the proposed action. The location of the project area, study area, and cumulative effects area is described below. The cumulative effects area for fish, watershed analysis, and wildlife is the combined area of the five allotments.

1.3 Project Area Location

The St. Maries Grazing Allotments EA project area is located in Benewah, Latah, Shoshone and Clearwater Counties, Idaho, in the St. Joe Ranger District of the IPNF. The St. Joe Ranger District forms the southern portion of the IPNF and lies within the Columbia River Basin. The allotments are located within the St. Maries River drainage. Appendix A includes a regional location map, maps of the project vicinity and maps showing the allotment area boundaries.

The allotment areas are located about 15 miles south and southwest of the town of St. Maries, Idaho, which is about 35 miles south-southeast of Coeur d'Alene, and about 22 miles east of the Washington State border. The allotment areas include all or part of Township 43 North, Range 2 West; Township 42 North, Range 1 West; and Townships 42 and 43 North, Ranges 1, 2 and 3 East, Boise Meridian. The allotment areas contain a total of about 91,000 acres, of which approximately 51,000 acres are Forest Service lands. Legal descriptions of the allotments are on file at the St. Joe District office in St. Maries.

1.4 Management Direction

The *Forest Plan for the Idaho Panhandle National Forests* (USDA, 1987 as amended by INFish) provides direction for this analysis. The *Inland Native Fish Strategy Implementation Plan* (INFish) and EA (USDA, 1995c), that amended the *Forest Plan*, were also consulted. This analysis follows the guidance given in the *Framework for the Evaluation of Term Grazing Permits and the NEPA Process* (USDA, 1995b).

1.4.1 Forest Plan

The *Forest Plan for the Idaho Panhandle National Forests* and its Final Environmental Impact Statement (USDA, 1987) provide direction for management of the Forest and evaluating the resulting environmental impacts. This EA incorporates by reference the material presented in the FEIS and Forest Plan documents. This EA is "tiered" to the decisions and direction in the IPNF Forest Plan.

The Forest Plan gives goals and objectives for resources that could be affected by the proposed action. Elements of the proposed action were specifically designed to address riparian related goals and objectives of the Forest Plan. Specific Forest Plan goals which address grazing or resources that could be affected by grazing include:

- Manage range forage production for domestic livestock at current levels with additional emphasis to protect stream banks, riparian zones, threatened and endangered species, and wildlife values (Forest Plan, page II-1).
- Manage fisheries habitat to provide a carrying capacity that will allow an increase in the Forest's trout population (Forest Plan, page II-1).
- Maintain high quality water to protect fisheries habitat, water based recreation, public water supplies, and be within state water quality standards (Forest Plan, page II-2).
- Manage resource development to protect the integrity of the stream channel system (Forest Plan, page I-2).

The Forest Plan also gives objectives regarding range management (page II-7).

- Forage production will be continued at current levels, with permitted use of 6,700 animal unit months (AUM). Grazing is permitted on less than two percent of the Forest with a majority of the forage use occurring on 7,500 acres.
- Specific utilization and other applicable objectives will be included in each allotment plan. Transitory range in or adjacent to existing allotments may be used where compatible with the objectives of the specific management areas, as provided for in individual allotment plans. Grazing management will protect soil and water resources, riparian areas, and threatened and endangered plant and animal species.
- Noxious weed control will be based on an integrated pest management approach.

Forest-wide standards (page II-31) that apply to range uses include:

- Opportunities for grazing and other uses of public range resources will be managed to serve the welfare of local residents and communities.
- On big game winter range and key big game summer habitat, priority will be given to big game needs.
- The needs of TES and sensitive plant and animal species have priority in managing existing range allotments.
- Riparian zone and stream bank standards, with periodic monitoring, will be specified in each allotment plan. Stream condition surveys will be used on approximately 100 miles of fisheries streams within grazing allotments to develop the data for corrective stream bank problems.

In addition, the Forest Plan provides standards for grazing in old-growth forests:

Existing grazing allotments will be honored; however, a long-term objective should be to minimize or exclude domestic grazing within old-growth stands. New allotments in old-growth stands will not be established page (II-39).

The Forest Plan identifies nine management areas within the allotments. Each of these management areas has a different management goal based on its resource potential and limitations. A map indicating the location of each management area within each allotment is located in Appendix A.

1.4.1.1 Timber Management (M-1)

In MA-1 areas, the long-term growth and production of commercially valuable wood products is the primary goal, although the Forest Plan indicates that grazing can be a compatible use, consistent with demand, cost efficiency and wildlife needs. A total of about 22,930 acres of MA-1 areas are located in the allotment areas.

1.4.1.2 Timber Production with Big Game Winter Range (MA-4)

The primary goal for this management area is to provide winter forage to support existing and projected big game populations through scheduled timber harvest and permanent forage areas. The Plan states that forage in excess of wildlife needs may be made available for livestock use. About 16,895 acres of MA-4 areas are found in the five allotment areas.

1.4.1.3 Big Game Winter Range (MA-5)

In these areas, elk winter range is managed to provide sufficient habitat for existing and projected big game populations through permanent forage areas. Forage in excess of wildlife needs may be made available for livestock use. In the five allotments, only the Catspur allotment contains MA-5 areas (360 acres).

1.4.1.4 Timber Production with Big Game Summer Range (MA-6)

In these areas, high quality elk summer habitat is provided with production of wood products. Available forage in excess of wildlife needs may be used for livestock grazing. MA-6 areas are found only in the Emerald Creek and Merry Creek allotments, for a total of about 7,200 acres.

1.4.1.5 Land Unsited for Timber Production (MA-9)

MA-9 lands are managed to maintain and protect existing improvements and resource production. Existing range improvements should be maintained. Of the five allotment areas, MA-9 areas (about 580 acres) are found solely in Merry Creek.

1.4.1.6 Semi-Primitive Recreation (MA-10)

MA-10 areas consist of a cross-section of lands that have high value for semi-primitive recreation. These areas are in blocks of 2,500 acres or more, and are part of the roadless resource of the IPNF, with areas scattered throughout the forest. About 50 acres in the Merry Creek allotment in the Grandfather/Grandmother Mountain area have been allocated to this use.

1.4.1.7 Grazing (MA-15)

MA-15 areas are managed to maintain continued grazing use while protecting other resource values. These areas are treated as permanent forage areas.

Forest Plan management standards for wildlife and fish habitat improvement and stream protection in the MA-15 designation (page III-65) are:

- **Habitat Improvement:** Utilization standards will consider wildlife needs and be included in each allotment plan.
- **Stream Protection:** Maintenance of natural channels and adequate streamside vegetation will have a high priority in range allotment plans and prescriptions. A specific objective for stream bank protection will be included in all allotment plans where second order or larger streams are involved. In addition, all allotments will be managed to obtain no more than five percent streambank trampling damage.

1.4.1.8 Riparian Areas (MA-16)

These are riparian areas managed to feature riparian-dependent resources (fish, water quality, maintenance of natural channels, certain vegetation and wildlife communities) while producing other resource outputs. Grazing is only permitted in these areas where management criteria can be met (stream bank protection, maintenance of natural channels and adequate streamside vegetation). Primary riparian areas (about 1,860 acres total) are found in all five of the allotment areas and include the following creeks: Brown, East Fork of Charlie, Lacy, Elip, Eena, East Fork of Emerald, Little East Fork of Emerald, Keeler, West Fork of St. Maries, Log, Gold Center, and West Fork of Merry Creek.

1.4.1.9 Developed Recreation (MA-17)

This management area has as a primary goal of managing developed recreation opportunities in a roaded natural and rural recreation setting. No grazing is allowed on developed sites. Emerald Creek Campground and Recreational Garnet Digging Area are contained within the Emerald Creek Allotment area and the North South Ski Area is within the Charlie Creek Allotment.

1.4.2 INFish

The Inland Native Fish Strategy (INFish) amended the IPNF Forest Plan in August, 1995, and gives management guidelines for resident salmonids in Washington, Oregon, Idaho, Montana and Nevada. The INFish Strategy contains interim standards and guidelines to ensure that Federal actions will protect habitat and populations of resident native fish. Goals were established to maintain or restore water quality, riparian areas and associated fish habitats in order to provide healthy, functioning watersheds. Interim Resource Management Objectives (RMOs) for stream channel conditions were defined to provide the criteria for which “attainment or progress toward riparian goals is measured.” Interim Riparian Habitat Conservation Areas (RHCA) were established for all perennial and intermittent streams to achieve riparian management goals and objectives. Specific INFish relationships to the riparian, aquatic and terrestrial environmental components of the project area are discussed in more detail in Chapter Three.

1.5 Land Ownership

Land ownership within the five allotment areas includes a mix of Forest Service land, private land owned by the Potlatch Corporation and other smaller private land owners, and land owned by the Idaho Department of Lands. Table 1-1 shows the acreages of the allotment areas as determined from a 1:126,720 map.

Table 1-1
Public/Private Land Ownership in Allotment Areas (In Acres)

Ownership	Catspur	Charlie Creek	Emerald Creek	Keeler Creek	Merry Creek	Total
National Forest	1,560	15,140	15,066	5,024	13,720	50,950
Bureau of Land Management	--	--	99	--	--	99
Idaho Dept. of Lands	1,120	--	1,323	480	2,720	6,123
Potlatch Corporation	1,320	360	7,318	2,188	18,260	28,226
Other Private	280	290	2,634	160	2,260	5,824
Total	4,280	15,790	26,440	7,852	36,860	91,222

The Idaho Department of Lands and the Potlatch Corporation also authorize cattle to graze their lands under permit. In the St. Maries Allotment analysis area, each cooperator (i.e., Potlatch Corporation, Forest Service, Idaho Department of Lands) issues separate permits and share in permit administration. Under the grazing permits, cattle

are not confined to specific ownerships; they are allowed to graze across ownerships. Consequently, this analysis considers the total number of cattle allowed within each allotment area.

1.6 Purpose and Need

The need for this analysis was triggered by the expiration of the current grazing permits in the five allotments. This analysis is needed to determine the conditions under which term grazing permits would be reissued and new allotment management plans (AMPs) prepared.

To complete this EA, the St. Joe Ranger District relied upon the best information and technology available at this time. The District used direction from approved programmatic environmental documents and current policy statements on ecosystem management to identify goals, objectives and the proposed action for these areas. Two primary goals for this area are to:

- Improve or maintain ecosystem structure, composition, and function to promote and sustain healthy riparian, aquatic and terrestrial ecosystems.
- Provide for human values and needs by authorizing the level of commercial livestock use on national forest that is consistent with sustaining ecosystem health and diversity.

Given these goals, the interdisciplinary team developed project objectives by comparing existing landscape conditions to desired conditions. The team identified project objectives that would reflect the desired conditions. They designed actions to move the existing condition closer to desired conditions. These actions form the basis of the proposed action. Table 1-2 outlines general details of the proposed action and shows the relationship of these actions to project goals.

The purpose of the proposed action is to reauthorize livestock grazing in the Catspur, Charlie Creek, Emerald Creek, Keeler Creek, and Merry Creek allotments according to the management direction provided by the IPNF Forest Plan. Additionally, there is a need to incorporate direction from new policies (ie. INFish and its associated environmental documents). Through measures used to incorporate this new direction issues concerning riparian vegetation are expected to move towards the desired future condition. This EA analyzes and discloses the effects of livestock grazing as described in the proposed action and the alternatives to the proposed action.

The management plans for three of the allotments are over 10 years old. The Emerald Creek Cooperative Resource Management Area Memorandum of Understanding was signed in 1994, and the Merry Creek Cooperative Grazing allotment was last amended in 1992. Some of the existing grazing permits do not take into consideration all of today's concerns for riparian management or reflect new knowledge and understanding of the ecosystems.

The proposed action would allow continued use of available forage for livestock production, continuing this economic opportunity to local stock growers. This complies with the Forest-wide standard of managing grazing to serve the welfare of local residents and communities. During the life of each permit, the St. Joe Ranger District would monitor the effects of grazing within the allotments, as well as the effectiveness of all mitigation measures associated with the selected alternative.

**Table 1-2
Project Area Goals, Project Objectives and Resulting Proposed Action**

Goal: Maintain or restore ecosystem structure, composition and function to promote and sustain healthy riparian, aquatic and terrestrial ecosystems.	
Project Objectives	Proposed Action
Maintain or improve existing , riparian habitat conservation areas, and fish habitat (INFish Riparian Management Objectives).	All Allotments: Average stubble heights or browse utilization as detailed in the Grazing Implementation Monitoring Module (USDA,2000) will be maintained by the end of either the grazing or growing season, whichever comes last.
	Vegetation/community types along stream greenlines will be rated at a minimum 80 percent (both sides of the stream) providing good and fair bank stability.
	Maintain the bank trampling standard of 5% or less from the Forest Plan
	An average 50% or less forage utilization of key herbaceous forage species will be maintained in key meadow areas in all allotments.
Protect or enhance rare or unusual terrestrial vegetation (Threatened, Endangered or Sensitive Plants).	Emerald Allotment: The existing population of Deerfern (<i>Blechnum spicant</i>) on the allotment will be fenced to exclude cattle use.
Goal: Provide for human values and needs by reauthorizing the level of commercial livestock use on National Forest that is consistent with sustaining ecosystem health and diversity.	

Note: *The proposed actions apply only to National Forest System lands within the allotment boundaries.*

1.7 Proposed Action (Overview)

The St. Joe Ranger District proposes to authorize grazing for five allotments in the St. Maries watershed using the conditions described in Tables 1-2. The actual dates of use may vary based upon range readiness and utilization. Under this alternative, a utilization standard would be established in riparian zones. Utilization standards for meadow vegetation would remain in place. Long-term monitoring of streambank/hydrologic function would occur. The proposed action would require each permittee to meet new management standards to ensure allotment resource management objectives.

1.8 Decisions to Be Made

Based upon the site-specific environmental analysis contained within this EA, the District Ranger will decide:

- If the reauthorization of grazing in the five allotments on the St. Joe Ranger District will comply with other programmatic direction and policy such as the Forest Plan and INFish.
- If the implementation of new utilization and streambank standards will be carried out.
- Implementation of monitoring requirements that are needed to ensure that adaptive management strategies can be carried out.

A Decision Notice (40 CFR 1505.2) and Finding of No Significant Impact (FONSI) will be prepared after the public comments on the EA, and the Forest Service responds to those comments. The Decision Notice will:

- Summarize the alternatives.
- Identify the alternative to be implemented.
- Outline measures to mitigate adverse environmental impacts.
- Describe plans to monitor the effectiveness of mitigation measures.

**Table 1-3
Reasonably Foreseeable Management Activities Within Allotments
During the Next Decade**

Allotment Areas	Forest Service Activities	Other Activities
Catspur	<ul style="list-style-type: none"> • Dutch Cat timber sale in Catspur, Dutch, and Anthony Creek Drainages. • Potential gem quality garnet mining (hand-dug exploration pits). • Fuel wood and gathering of miscellaneous forest products • Timber harvest and post harvest activities (planting, burning) road building and decommissioning, and restoration work associated with Hidden Cedar EIS 	<ul style="list-style-type: none"> • Continued road construction and timber harvest by Potlatch Corporation and Idaho Department of Lands • Continued unauthorized garnet digging.
Charlie Creek	<ul style="list-style-type: none"> • Charlie Flight and Charlie Brown timber sales in the Charlie Creek and Short Creek drainage. Post-harvest activities-planting, burning, road decommissioning • Fuel wood and gathering of miscellaneous forest products 	<ul style="list-style-type: none"> • None known
Emerald Creek	<ul style="list-style-type: none"> • Tri-County and East High timber sales in the East Fork of Emerald Creek drainage • Continued recreational garnet digging in the East Fork of Emerald Creek • Exploratory testing for garnet along several tributaries of the East Fork of Emerald Creek and potential subsequent recreational digging. • Fuel wood and gathering of miscellaneous forest products • Continued use of Emerald Creek Campground • Timber harvest and post harvest activities (planting, burning), road building and decommissioning, and restoration work associated with Hidden Cedar EIS • Precommercial thinning 	<ul style="list-style-type: none"> • Continued mining for garnet sands in lower Emerald Creek and lower part of West Fork of Emerald Creek by Emerald Garnet Company • Continued timber harvest in West Fork of Emerald Creek drainage by Potlatch Corporation and Idaho Department of Lands • Additional road construction
Keeler Creek	<ul style="list-style-type: none"> • Tri-county timber sale in upper Hidden Creek drainage • Fuel wood and gathering of miscellaneous forest products • Exploratory testing for garnets along Wood Creek and potential subsequent recreational digging • Timber harvest and post harvest activities (planting, burning), road building and decommissioning, and restoration work associated with Hidden Cedar EIS 	<ul style="list-style-type: none"> • Construction of logging roads by Potlatch Corporation and decommissioning and potential future removal of the road that currently impinges on the riparian area of the main stem of Keeler Creek
Merry Creek	<ul style="list-style-type: none"> • Golden Wind timber sale in Windy Creek sub-drainage • Timber harvest and post harvest activities (planting, burning), road building and decommissioning, and restoration work associated with Hidden Cedar EIS • Fuel wood and gathering of miscellaneous forest products • Merry Creek White Pine Progeny Test Plantation 	<ul style="list-style-type: none"> • Continued timber harvest and associated road construction in Merry Creek and Middle Fork of St. Maries sub-drainages by Potlatch Corporation and Idaho Department of Lands

Table 1-3 displays current and foreseeable actions that could affect the issues pertinent to this analysis. Reasonably foreseeable actions include those management activities on Forest Service ownership that are on-going or scheduled to occur, for which a proposed action has been developed. These activities may occur regardless of which alternative is selected for implementation.

1.9 Scope of the Analysis

1.9.1 Determining the Scope of Analysis

To determine the scope of this EA, the team reviewed the three types of actions [40 CFR 1508.25(a)]: connected, cumulative and similar actions. The team considered three types of alternatives to the proposed action [40 CFR 1508.25(b)]: the current management alternative, other reasonable courses of action, and mitigation measures (not in the proposed action). Finally, the team considered three types of impacts [40 CFR 1508.25(2)]: direct, indirect, and cumulative.

Cumulative impacts are defined as the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” Table 1-3 lists reasonably foreseeable future actions anticipated within the allotment areas for the next 10 years.

1.9.2 Scope of Analysis

The scope of analysis addressed in this EA is limited to past, present, and reasonably foreseeable actions on lands within the boundaries of the five St. Maries River allotments. Alternatives range from reauthorizing use under the terms and conditions of the current term grazing permit (Alternative A – Current Management) to discontinuing livestock grazing (Alternative C). The proposed action (Alternative B) would authorize continued grazing on National Forest System lands with additional provisions to maintain or enhance riparian and aquatic resources.

The analysis documented by this EA does not address general management of the area, nor does it address programmatic or policy direction regarding livestock grazing. The information in this report pertains to the decision to authorize livestock grazing in the five St. Maries allotment areas, and if so, under what conditions. The analysis considers the direct and indirect impacts of grazing on National Forest lands and the cumulative effects of grazing on all lands within the project area. Activities associated with the alternative selected by the District Ranger will be carried out when practicable and without further NEPA documentation.

This EA is not a decision document, nor will it describe the decision of the District Ranger. The Decision Notice and Finding of No Significant Impact (FONSI) will explain the District Ranger’s decision and rationale.

In determining the scope of this EA, the Interdisciplinary (ID) team considered all land management activities expected to occur in the project area during the next few years. This analysis accounts for all the actions proposed at this time, shown on Table 1-3.

1.10 Organization of this Document

Chapter Two of this document outlines the three alternatives. In addition, Chapter Two describes the process used to develop the alternatives, as well as alternatives which were considered but rejected.

Chapter Three describes the affected environment of the project area and the existing condition of specific resources. It discloses the expected effects on the various resources for each alternative, and presents the predicted direct, indirect and cumulative effects, and also lists any expected, unavoidable adverse impacts, including any irreversible and irretrievable commitment of resources.

A list of preparers identifies the individual who prepared the document and their area of expertise.

Appendix A includes maps of the project area and allotments.

Appendix B contains the Biological Evaluations for wildlife, plant, and fish species.

Appendix C contains descriptions of the various protocols used to collect bank stability data.

All material referenced in this document is on file at the St. Joe Ranger District Office of the IPNF in St. Maries, Idaho.

Chapter Two - Alternatives

2.1 Introduction

This chapter describes in detail the alternatives that partially or wholly fulfill the purpose and need identified in Chapter 1. This chapter begins by outlining the process used to develop alternatives, including the scoping and public involvement process. Next, it describes the issues identified through these efforts.

Details of the alternatives, including their purpose and the specific activities within each alternative, are explained. The alternatives are described individually. Table 2-1 displays the alternatives in a matrix form for comparison. Maps for the alternatives are shown in Appendix A.

2.2 Scoping and Public Involvement

Public scoping for the project began in June, 1998. The St. Maries Grazing EA was listed in the Idaho Panhandle National Forest Quarterly Schedule of Proposed Actions. The Forest solicited public comment through a scoping notice mailed to individuals who had responded to the Quarterly Schedule and agencies on the St. Joe Ranger District's NEPA mailing list, including the grazing allotment permittees, involved state and private landowners. The notice described the St. Maries River Basin Grazing Allotment Management Plans Environmental Assessment, and described the project location. The notice also listed a district contact and anticipated decision date. Individuals interested in the project were invited to contact the District. Their names were added to the project mailing list. The St. Joe Ranger District received four responses to the scoping notice. The EA was sent out for thirty day review. Comments were received and addressed.

2.3 Issues

Comments received during public scoping were used to identify issues. Comments included concerns over: riparian area management and health; the effects of grazing on fish, wildlife, and botanical habitat; the effects in plantations and timber sales; possible reductions in permitted cattle numbers; and support for a no grazing alternative. The EA team developed a list of issues related to the proposed action based upon the comments received during scoping and comments from IPNF resource specialists (riparian ecosystems, fisheries [bull trout and cutthroat trout], threatened and endangered species, soil compaction, noxious weeds, timber/forest health and reforestation, developed recreation uses, and heritage resources). Subsequently these issues became the focus for alternatives presented in the draft Environmental Assessment. The team grouped together similar concerns and issues to help develop two key issues. Key issues served as the focal points for developing alternatives and for evaluating the effects of the alternatives. Key issues identified include:

- Riparian/aquatic ecosystems
- Human values

Next, the ID team identified indicators of ecosystem health for each issue. Most indicators measure qualitative differences, not quantitative differences. Cattle do not always behave as predicted. Consequently, at times, unanticipated effects may occur. For instance, exclusions may shift patterns of use unexpectedly, causing unforeseen resource benefits or unanticipated resource impacts. Project monitoring provides the feedback mechanism for addressing these differences in expected effects.

Studies have shown that managers can predict recovery trends with accuracy. However, quantitative estimates of resource responses resulting from particular reductions in use of specific mitigation measures are more difficult to predict. Many variables, including weather, range species composition and palatability, stream resiliency, and dynamics within the cattle herd influence recovery rates. Therefore, this analysis identifies known values to establish benchmarks for comparison. Chapter Three presents these values and the anticipated resource trends in relation to those benchmark values in qualitative terms.

2.3.1 Key Issues

Issue 1: Riparian Ecosystems

Grazing has the potential to adversely affect riparian ecosystems.

Riparian health was assessed by evaluating anticipated changes in stream channel conditions, stream function, water quality, and riparian vegetation. Stream channel stability and trends are discussed for the major streams in the area. The analysis also assesses livestock trampling of streambanks for the proposed action and other alternatives. Water quality of each of the major subdrainages is described and the effects of the proposed action and other alternatives on beneficial uses are evaluated.

The existing composition and structure of riparian vegetation is described. The effects of the proposed action and other alternatives on both composition and structure are evaluated.

INFish Riparian Management Objectives (RMOs) set parameters for measuring effects on fish habitat. The RMOs, which apply to riparian ecosystem influences are; stream temperature, pool frequency, bank angle, bank stability and width to depth ratios. Chapter Three provides information about stream conditions in the St. Maries River basin and assesses compliance with the IPNF Forest Plan and INFish by evaluating how the proposed action and other alternatives respond to INFish RMOs.

INFish RMOs also serve as guidelines for assessing aquatic impacts since the amount and quality of fish habitat, and thus fish populations, are directly tied to the characteristics of the stream channel and banks. The analysis addresses the trend established by each alternative in meeting RMOs or other objectives.

Water quality and quantity also affect fish habitat. Non-point source pollutants, were assessed to evaluate water quality. The analysis uses Forest Plan standards for water and fish habitat potential to evaluate the sediment production of each alternative. Stream segments within the study area identified as Water Quality Limited segments (WQLs) were evaluated.

Issue Indicators: bank stability, width to depth ratios, stream temperature, vegetation coverage and composition, stubble height, and sediment production

Issue 2: Human Values

The proposed action and its alternatives may affect human values and uses.

Concerns were expressed over potential economic effects of implementing the proposed action and other considered alternatives. Permittees are concerned about effects on their livelihoods and ranch operations. Livestock producers contribute to the economies of local communities. Annual income to permittees, economic

benefits to local communities, and effects to the regional livestock industry and the Idaho Panhandle National Forest grazing program were considered.

2.3.2 Other Resources and Issues

The issues of timber harvest, forest health, reforestation, heritage resources, outdoor recreation, and soil compaction were evaluated by the ID team for this analysis. In all cases, these issues were not considered key issues and the rationale for these decisions are provided in the project file (Other Resources and Issues Considered and Subsequently Dismissed as Key Issues for the St. Maries Grazing EA).

2.4 Alternatives Considered in Detail

Three alternatives received detailed study: grazing under current practices, (Alternative A – Current Management), the proposed action (Alternative B), and removal of cattle (Alternative C). The team developed the proposed action based on the key issues described above. The three alternatives are described below. Allotment maps can be found in Appendix A. Table 2-1 compares the features of the three alternatives.

**Table 2-1
Comparison of Alternatives**

Grazing Allotment	Alternative A Current Management	Alternative B Proposed Action	Alternative C Remove Cattle
Site-Specific Riparian Management Objectives and Standards			
All Allotments	5% or less bank trampling	Standards for streambank key species stubble height, streambank vegetation coverage, and streambank stability including 5% or less bank trampling .	Not applicable
Riparian Area Enclosure Fencing			
All allotments	Maintain existing fencing	Maintain existing fencing	Remove existing fencing
Sensitive Plant Protection Measures			
Emerald Creek	None	Construct enclosure fence around existing identified population of deerfern.	None
Key Meadow Area Forage Utilization			
All Allotments	Average utilization of 50 or 60% for key forage species depending on the allotment.	Average utilization of 50% for key forage species in all allotments.	Not applicable
Monitoring			
All Allotments	Forage utilization, and condition of improvements	Forage utilization, condition of improvements, described site-specific riparian management standards, and streambank stability and vegetation coverage (See Table 2-2).	None

Note: Livestock numbers refer to number of cow/calf pairs permitted on National Forest system lands.

2.4.1 Features Common to Alternatives A and B

Plant surveys have been completed in the allotments and no listed species were found. However if any threatened or sensitive species were to be subsequently found, appropriate protection measures would be taken to protect habitat and the species. This might include altering management activities or implementing buffers or fencing around plant occurrences.

The analysis area contains known heritage resource sites, primarily associated with timber or CCC activities. None of the currently known sites requires mitigation for protection from the effects of cattle grazing. Any future discovery of heritage resource sites or caves would be inventoried and protected if found to be of cultural significance as directed by the National Historic Preservation Act.

2.4.2 Alternative A - Grazing with Current Practices

The Forest Service is required (40 CFR.1502.14(d) and FSH 1909.14, 23.1) to analyze a “no action” alternative and to use it as “baseline” for comparing the effects of the other alternatives considered in detail. This alternative is designed to reflect no change from current management. Under this alternative, grazing in the five allotments would continue under existing grazing permit and Allotment Management Plan terms and conditions. The St. Joe Ranger District would issue 10-year grazing permits for National Forest system lands on the five allotments within the St. Maries river basin as follows.

2.4.2.1 Management Objectives/Standards

Grazing parameters described in existing Allotment Management Plans would be followed. These parameters consist of the following:

Catspur, Charlie, Emerald, Merry Creek and Keeler Allotments

- Maintain stocking levels commensurate with prescribed forage conditions.
- Maintain water quality standards.
- Maintain habitat conditions for wildlife and fish.
- Keep cattle out of plantations from 0-5 years.
- Maintain streambank conditions within standards set by the Forest Plan.
- Average 50% of utilization of key meadow species (60% for Keeler Creek and Catspur Creek allotments).

2.4.3 Alternative B - Proposed Action

This alternative was developed to fully address the purpose and need. It provides the opportunity for continued livestock grazing, and was designed to set the parameters under which livestock can graze and still allow the vegetative and hydrologic components of the ecosystem to be maintained and/or improved. Under this alternative, grazing in the five allotments would be reauthorized. New management standards would be instituted that include standards for streambank key species stubble height, streambank vegetation coverage, streambank stability, and meadow utilization.

2.4.3.1 Riparian Management Objectives and Utilization Standards and Guidelines

Utilization standards would reflect objectives established by INFish RMOs and site specific RMOs. Movement towards RMOs is not expected to be instantaneous, but rather would occur gradually over time. Proposed monitoring under this alternative does not specifically measure these standards. However, by meeting monitoring goals systems should trend toward RMOs. The INFish RMOs applicable to the allotments are as follows:

- Develop a desired pool frequency of 47 to 96 pools per mile, depending on stream width. Pools are associated with meander bends and large woody debris in Rosgen C and E channel type systems, the most common stream channel types found in grazed areas within the allotments.
- Strive to decrease 7-day maximum water temperatures.

- Maintain more than 20 pieces of large woody debris per mile within forested reaches. Debris must be larger than 12 inches in diameter and greater than 35 feet in length.
- Maintain a width/depth ratio less than 10 (mean wetted width divided by mean depth).
- In addition to the 5% bank trampling standard set forth in the Forest Plan, a goal of 80% or more of the vegetation/community present along the greenline providing good and fair streambank stability (average length, both sides of stream) would be implemented in order to trend riparian areas within the allotments toward meeting INFish RMOs. This standard was developed by a team of Forest Service and U.S. Fish and Wildlife fishery biologists as part of the formal consultation process for the protection of bull trout in the St. Joe and North Fork of the Clearwater River basins (USDI, 1999).

Additionally, the standards set forth in the PacFish/INFish Grazing Implementation Monitoring Module (USDA, 2000a) would be followed. The module was developed to assist Forest Service and BLM staff in determining if grazing practices are in compliance with INFish and the Biological Opinions issued by the National Marine Fisheries Services and the U.S. Fish and Wildlife Service for bull trout and other Threatened and Endangered native fish species. These protocols provide a method for determining and monitoring appropriate measures of range use that are commensurate with the levels of on-the-ground activities. This document can be found in the project file.

Residual stubble height is being used as the end of season indicator in riparian areas in all currently established monitoring transects. The height of standing herbaceous vegetation remaining within the flood plain at the end of the livestock grazing season, or growing season, whichever ends last, would protect soils and streambanks during exposure to high flows, and filter out sediment to build streambanks over time. The protocols found in the Grazing Implementation Monitoring Module specify that anywhere from 2 to 6 inch stubble heights of key species at the end of the grazing season would be acceptable depending upon the site. Stubble heights for any one area are determined based on several site specific factors: inherent streambank stability, sensitivity of an area, and similarity of the area to its desired future condition. Based on two years worth of monitoring, year-end stubble heights have met even the most conservative potential requirements of 6 inches (see section 3.3.3). The monitoring transects shall be read as often as is necessary to ensure the proper management. In typical years this may occur only at the end of the grazing season. In atypical years, the transects may be read during the grazing season as well if the potential for overutilization is a concern.

When additional monitoring transects are established, they will be evaluated to determine if stubble height is the appropriate year end measure. If it is not an appropriate measure due to site characteristics, alternate monitoring measures will be employed as discussed within the monitoring module. If the desired stubble height is available at the time livestock leave a unit, but is subsequently reduced below the desired level by wildlife, the situation would be re-analyzed.

Finally, an average 50% utilization of key herbaceous livestock forage species in key riparian meadows would become the standard across all allotments. These meadow species frequently differ from those along the greenline and may show overutilization even when stubble heights along the greenline do not.

2.4.3.2 Sensitive Plant Protection

On the Emerald Creek allotment, the existing sensitive plant population of deerfern, would be fenced to exclude cattle use.

2.4.4 Alternative C – Remove Cattle Alternative

Under this alternative, grazing under temporary permits would require a separate analysis and decision. No range improvements would be constructed. All existing fencing and improvements would be removed.

2.5 Monitoring

Monitoring is designed to verify that the projects are implemented as designed, are effective, and are efficient in meeting the project goals and Forest Plan objectives. Table 2-2 describes the monitoring associated with the proposed action.

Forest Plan monitoring will assess whether the project and Forest plan goals for the allotments are appropriate. In addition, project monitoring will be conducted on specific projects to ensure that implementation is consistent with the established standards and guidelines and to determine the effectiveness of management activities and applied mitigation measures.

**Table 2-2
Monitoring Plan**

Monitoring Practice	Purpose	Location	Schedule	Responsible Individual/Agency
Baseline Monitoring				
“Greenline vegetation” and stream bank stability condition surveys.	To assess compliance with site-specific streambank vegetation coverage and streambank stability riparian management standards; to assess trends in meeting INFish RMOs, and to assess to effectiveness of riparian enclosure fencing.	Key stream reaches in all applicable allotments as identified by the District Hydrologist and other District Specialists.	Approximate five year intervals.	Forest Service
Implementation/Effectiveness Monitoring				
Forage utilization measurement	Gather short term data needed to adjust livestock distribution; verify livestock carrying capabilities; and make any needed adjustments in season of use and livestock numbers.	Key riparian meadow grazing areas identified in Allotment Management Plans	Observations will be made throughout the grazing season with a final utilization measure taken at the end of the grazing season.	Forest Service in conjunction with permittee or permittee’s designated range boss/rider.
To meet the INFish Riparian Management Objectives (RMO) - Implement screening and monitoring protocols contained in the PACFish/INFish Grazing Implementation Monitoring Module (U.S. Forest Service, Bureau of Land Management, February 14, 2000).	Assessment of National Forest grazing activity compliance with INFish and the Biological Opinions for bull trout and other TES native fish species issued by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service.	Grazing allotments within INFish area (includes the St. Maries River basin allotments). Key riparian areas in Catspur Creek, Charlie Creek, Hume Creek, Emerald Creek, and other areas identified by District Specialists according to Module protocols.	As described in Grazing Implementation Monitoring Module.	Forest Service.
Photopoints	To document livestock use	Gold Center Creek and other areas identified by District Specialists	Observations will be made throughout the grazing season with a final visit at the end of the grazing season.	Forest Service

2.5.1 Project Monitoring

Monitoring is conducted on specific projects to ensure that implementation is consistent with the established standards and guidelines. Monitoring is also conducted to determine the effectiveness of management activities and applied mitigation measures. In the case of the St. Maries River grazing allotments project-level monitoring would:

- Gather data and information needed for the interpretation of both estimated and verified ecological status (long-term trends) relative to desired resource conditions (see Baseline Monitoring in Table 2-2).
 - “Greenline vegetation” and bank stability condition surveys. Existing data was collected on key riparian grazing areas in 1998 (See project file). Desired frequency would be every five years.
- Check results against the predicted and/or prescribed resource management objectives and standards for the allotments. If the objectives are not being met, determine what changes are needed or if the objectives are unrealistic (see Implementation Monitoring in Table 2-2). This monitoring would include:
 - Meeting a goal of 50% or less forage utilization in key riparian meadow areas in all allotments.

- Implementing the monitoring protocols contained in the PACFish/INFish Grazing Implementation Monitoring Module (USDA, 2000a).
- Check compliance with Allotment Management Plan conditions and determine if adjustments are needed. This might include:
 - Periodic livestock counts to assure that only permitted livestock enter the allotments.
 - Range readiness evaluation to assure that the soil is not too wet and that sufficient forage growth has occurred before cattle are allowed on the range (pre-season).
 - Check the adequacy of existing improvements.
- Validate livestock carrying capacities and determine if any adjustments are needed.
- Identify the need for additional range/resource protection improvements.
- Satisfy parallel monitoring and reporting requirements of implementation of Best Management Practices (BMPs) and other resource management programs.

The ultimate goal of monitoring is to prevent resource damage. The monitoring described here is considered to be sufficient to detect resource damage and is attainable given current funding levels. Additional monitoring would be undertaken should the need arise and funding levels permit. The monitoring prescribed for all of the allotments is not feasible for the Merry Creek Cooperative. There are limited riparian areas on National Forest lands within the allotment, and they are generally brushy, wooded, and show little use from cattle. The open, low-gradient areas that do exist are small, show what appears to be incidental use by small numbers of cattle, and are not suited for stubble height, forage utilization, or greenline monitoring. Photopoints are considered to be adequate to document the level of use in the Merry Creek allotment. Gold Center Creek was chosen because of the presence of a rare plant (*Corydalis caseana var. hastata*) along the stream and because large meadow openings that receive cattle use occur just downstream of the Forest Service ownership. These meadows are located on land owned by the Potlatch Corporation and are monitored several times a year by photopoint and stubble height.

The Idaho Panhandle National Forest has implemented a process for long term monitoring of ecosystem core data. However the Core Data Monitoring Elements are not applicable to this project (see rationale in project file).

Chapter Three - Affected Environment and Environmental Consequences

3.1 Project Area Description

This chapter describes the existing condition of resources that might be affected through implementation of any of the three alternatives. First, the chapter provides a brief description of the project area and each allotment. Next, a brief history of the area sets the stage for a description of current resource conditions. A section describing the general recovery trends follows. The final section describes the current resource conditions in terms of the issues: riparian, aquatic and terrestrial ecosystems, and human values and uses.

3.1.1 Description

The 91,222 acres of the five grazing allotments are located in Benewah, Latah, Shoshone and Clearwater Counties, Idaho, in the St. Joe Ranger District of the St. Joe National Forest, and within the St. Maries River drainage basin. The St. Maries River drains into the St. Joe River.

Forest vegetation within the allotments is representative of the Moist Forest Potential Vegetation Group. Forest overstory tree species include western whitepine (*Pinus monticola*), Douglas fir (*Pseudotsuga menziesii*), western larch (*Larix occidentalis*), Ponderosa pine (*Pinus ponderosa*), western hemlock (*Tsuga hererophylla*), western red cedar (*Thuja plicata*), and grand fir (*Abies grandis*). The cedar and hemlock habitat types are the most productive lands and have very high biodiversity. The understory consists of pachistima (*Pachistima* spp.), clintonia (*Clintonia* spp.), bedstraw (*Galium* spp.) and ceanothus (*Ceanothus* spp.).

In riparian areas there has been a significant decline in mature/old growth structures, individual large trees, western red cedar and hardwood dominated stands, and understories of coastal disjunct plants (USDA, 1997b, page 49). In the areas of the allotment where meadows predominate along the major stream courses, riparian vegetation consists primarily of shrubs such as alders (*Alnus* spp.) and red-osier dogwood (*Cornus stolonifera*).

Flat, open meadows occur in the lower portion of most drainages within the project area. These meadows are characterized by grass/forb communities. Grass and forb species utilized by livestock in the project area include bluegrass (*Poa* spp.), timothy (*Phleum pratense*), orchard grass (*Dactylis* spp.), clover (*Trifolium* spp.), red top (*Agrostis alba*), brome (*Bromus* spp.), Idaho fescue (*Festuca idahoensis*), and carex (*Carex* spp.).

Precipitation within the IPNF ranges from 80 inches at the higher elevations to 30 inches in the lower elevations. Over 75 percent of this is in the form of snow, the depths of which range from 220 inches at high elevations to 40 at low elevations.

Human development in the project area is primarily rural, with the small communities at Clarkia, Fernwood and Emida closest to the allotment areas. In the past five years, populations of all the allotment counties have grown. Timber production is the dominant land use in the area, with 74 percent of the total lands in the St. Joe Geographic Area either used or allocated for this purpose. Outdoor recreation lands comprise approximately seven percent of the St. Joe area, with agriculture and minerals production representing about one percent each.

3.2 Grazing Allotment History and Description

Settlement in this part of the St. Maries River basin began at the turn of the century with homesteaders claiming lands primarily in the wide valley bottoms along the St. Maries River and its tributaries near the present day

communities of Clarkia, Fernwood, and Emida. The use of portions of the area for livestock grazing was a common practice during the early days and continues today. Wildfires, common in the area from the early 1900s through the 1930s, created a proliferation of grass that was valued by the early ranchers.

Timber harvest activities also began in the basin in the early 1900s. Railroad logging was common in the area through the 1930s. Many of the roads that currently provide access to the grazing allotments were constructed from the 1960s to the present time as part of logging activities. Timber management is the dominant land use in the area today and evidence of recent timber harvest activity is common in all of the allotment areas.

Portions of the Emerald Creek and Carpenter Creek subdrainages of the basin have been mined for garnet sands. Although most of the mining activity has occurred on private lands, some occurred on National Forest lands in the East Fork of Emerald Creek.

Sheep initially were grazed on National Forest lands in the basin and eventually were replaced with cattle in the early 1950s. The following summarizes use on the allotments. A more extensive history can be found in the project file (St. Maries Grazing Allotments Use History).

- **Emerald Creek-** The earliest documented use of grazing on the allotment was in the 1920's when cattle and sheep used the logged-over and burned areas in the Clarkia Ranger District. This early sheep use is thought to be primarily responsible for the establishment of the bluegrass meadows in the riparian areas of Emerald Creek. One meadow in the west fork of Emerald Creek supports a stand of Camas. This is an indication that this meadow has been in existence for quite a long time. Sheep used the allotment from 1943 to 1947. Use by cattle started about 1945 and has continued to the present. Permitted numbers and season of use fluctuated during the earlier years. After 1953, numbers were stabilized at 400 head of cattle until 1968. In 1968, the permitted number of cattle was 368 head, but was reduced the following year to 320. The East Fork of Emerald Creek was temporarily withdrawn from grazing in 1969 because of the conflict between recreational users and cattle. In 1972, cattle numbers were reduced to 225 head. These numbers continued until the Emerald Creek Cooperative Resource Management Area Memorandum of Understanding was signed in 1994. The Cooperative has since completed and updated range inventory of the allotment and total numbers are 413 cow/calf units (41 permitted on National Forest System lands).
- **Catspur Creek-** Approximately 625 sheep were annually grazed on the allotment from 1940 to 1950. From 1950 through 1957, 14 cattle were permitted to graze on this allotment. In 1959, permitted use was increased to 50 cattle (14 on National Forest lands). In 1965, more of the allotment came into National Forest ownership and so cattle permitted on National Forest system lands increased to 26 while the total number stayed the same (50). A total of approximately 50 cattle have grazed the allotment annually since that time.
- **Charlie Creek -** The total number of cattle on this allotment was as high as 103 cow/calf pairs in the past. The permitted numbers were reduced to 73 head of cattle in 1970, due to over-utilization, and have remained at about that number since. Currently, 74 head are permitted on the allotment (69 head permitted on National Forest System lands) however only 25 head have grazed for the past several years. The allotment had a period of chronic over-utilization and trespass problems from about 1960 until recently. Trespass resulted from adjacent landowners allowing livestock to drift onto the allotment, especially when

fences have not been maintained. Over-utilization has generally been associated with permittees allowing livestock to remain on the allotment past the removal date.

- **Merry Creek-** Currently, 160 head (10 on Forest Service) graze the Merry Creek/Middle Fork of the St. Maries River units and 35 head (17 on Forest Service) graze the Blair Creek unit. Cattle use on National Forest lands has decreased in the middle Fork of the St. Maries River unit and remained static in the Blair Creek unit. The Merry Creek Cooperative Grazing allotment was established in 1982. At that time, landowners began a coordinated approach to management (formalized in Merry Creek Coordinated Resource Management Plan [USDA, 1986]). This was a memorandum of understanding between landowners, which set specific goals, objectives, and guidelines for grazing within the cooperative area. Monitoring and field tours twice a season determine utilization levels and range improvements needed, which are incorporated in the following year's management practices. The Merry Creek Co-op Grazing Allotment Wildlife Plan Report documented the findings (USDA, 1996c).
- **Keeler Creek-** Portions of this allotment were grazed by sheep prior to 1950. In 1964, the allotment was designated as a cattle allotment. From 1964 to 1973 up to 36 cow/calf pairs were grazed annually. In 1973, permitted numbers were set at 25 head on National Forest system lands (52 head total). In 1993, because of base property requirements, the numbers were reduced to 10 head on National Forest system lands (21 head total). Currently the allotment is not in use.

Land ownership within the grazing allotments consists of intermixed blocks of National Forest, private, and State of Idaho lands. Table 1-1 contains a summary of land ownership for each allotment. Maps of each allotment can be found in Appendix A.

3.3 Riparian and Aquatic Resources

Riparian and aquatic ecosystem conditions, structure, function and health are closely linked to the amount and quality of fish habitat and fish populations. Livestock grazing primarily affects fisheries due to their influence on riparian vegetation, streambank conditions, and nutrient loading. Livestock can reduce and change the vegetative community composition of the riparian zone. The change to the vegetation has an impact on fish habitat by increasing stream temperatures, and reducing the amount of potential large woody debris, which is a main creator of pool habitat and structural diversity within the channel. Livestock can effect streambank conditions by increasing the amount of sediment entering the stream channel which can fill and reduce the amount of pool habitat, and also can create a shallower, wider channel.

3.3.1 Water Quality

Section 313 of the Clean Water Act (CWA) requires Federal agencies to comply with all Federal, State, interstate and local requirements, administrative authority, process and sanctions with respect to control and abatement of water pollution. The established objective of the Act, as amended by the Water Quality Act of 1987, is "...to restore and maintain the chemical, physical, biological integrity of the Nation's waters."

3.3.1.1 Water Quality Limited Streams

Idaho has developed the Water Quality Standards (IDAPA 58.01) pursuant to Section 39-105 of the Idaho Code. These rules designate uses that are to be protected, and establish standards of water quality protection for these

uses. The Idaho Water Quality Standards (Idaho Department of Health and Welfare, 2000) designate the beneficial uses for the St. Maries River drainage in the area of the five grazing allotments as agricultural water supply, primary and secondary contact recreation, and cold water biota for general use, and salmonid spawning for future use. Agricultural water supply is defined as waters which are suitable for irrigation of crops or as drinking water for livestock.

In October, 1994, the State of Idaho under authority of the Environmental Protection Agency (EPA) and Section 303(d) of the Clean Water Act listed seven streams within the project area (Table 3-1) as water quality limited (WQL) and not expected to maintain beneficial uses. The Forest Service solicits comments from the Idaho Division of Environmental Quality (DEQ) on any proposed activities within these 303(d) listed streams. Best Management Practices (BMPs) are implemented to reduce pollution to the extent possible and improve the condition of impaired watersheds. Range management BMPs have been developed (USDA Forest Service *Key Soil and Watershed Conservation Practices Handbook*, FSH 2509.220). The standards described under the proposed action in Chapter Two relating to streambank condition, forage utilization, streambank cover conditions, and monitoring streambank conditions, are grazing-related site-specific BMPs adopted for implementation in the St. Maries River basin.

Table 3-1
Water Quality Limited Segments in
St. Maries River Grazing Allotment Area

Water Quality Limited Stream Segment	Pollutant(s) of Concern
Charlie Creek	S, H
Emerald Creek	S, T, H
Gold Center Creek	S, T, H
Flewsie Creek	S, T
Gramps Creek	B, S, T
West Fork of St. Maries River	S, T
Middle Fork of St. Maries River	S, H
St. Maries River, Mashburn to St. Joe	H, S, N
St. Maries River, Clarkia to Mashburn	unknown

Pollutants: H= Physical Habitat Alterations; B= Bacteria; S= Sediment; T= Temperature; N= Nutrients

Source: Idaho Department of Health and Welfare, Division of Environmental Quality, *Idaho Water Quality Status Report and Non point Source Assessment*, June, 1988; Idaho Division of Environmental Quality, *The 1998 Section 303(d) List for the State of Idaho*, January 2, 1999.

3.3.1.2 Relationship Between Beneficial Uses and Pollutants

Non-point source pollutants are the dominant pollutants in the project area. Non-point pollution sources in the St. Maries area include non-irrigated crop production, livestock grazing, timber harvesting, mining, and forest road construction. Grazing can limit water quality by introducing pathogens such as coliform bacteria, altering habitat by trampling banks and streambeds, introducing sediment from trampled banks, and increasing water temperature by creating wider, shallower stream channels and reducing riparian vegetation shading.

In the St. Maries area, point sources such as wastewater disposal from private drainfields and local communities compound existing problems. Pollutants add nutrients, sediment and bacteria to the stream systems. In addition, pollutants may cause thermal modifications along with flow and habitat alterations. All impair water quality, resulting in non-support of designated beneficial uses.

Beneficial uses have not been maintained in several streams within the allotments, as summarized in Table 3-1. (Merry Creek is no longer listed on the 1998 303(d) report the State of Idaho furnished to the Environmental Protection Agency). Past activities such as road building, mining, and timber harvest are possibly still affecting sediment transport throughout most of the project area. Sediment discharged into the streams over the years is not likely to have moved through the drainage system yet, and many streams still have not been restored to a stable condition. Unrestricted cattle access to a short segment of Catspur Creek, which is not classified as a WQL stream by the State of Idaho, may have caused nutrient pollution resulting in algae blooms. This was reported by IPNF staff in the Dutch Cat EA (USDA, 1997a).

3.3.1.3 Water Quality Environmental Consequences

3.3.1.3.1 Effects Common to Alternatives A and B

Continued riparian grazing under Alternatives A and B would contribute incrementally to nutrient pollution loads as well as pathogens. This would inhibit support of beneficial uses, including mainly cold water biota and salmonid spawning, but also primary and secondary contact recreation. Maintenance of existing riparian enclosure fences, dispersion of cattle by herding, and placement of salt at least 150 feet from perennial streams and areas of streambank disturbance are ongoing activities designed to lessen potential effects of cattle grazing on riparian areas. Mitigation work proposed under planned timber sales such as planting willows, placing large woody debris in the stream channels of both Hume Creek and an unnamed tributary to Charlie Creek, and the armoring a stream crossing on the unnamed tributary of Charlie Creek will also act to protect riparian areas.

Less than 200 head of cattle are permitted on the approximately 50,000 acres of forest service lands across all allotments. Much higher numbers of cattle grazing occur on the private lands within (e.g. nearly 400 head on the Emerald Creek allotment alone) and surrounding the grazing allotments. This fact suggests that while cattle on forest service lands undoubtedly contribute to pollution loads in streams, contributions from private lands would constitute the significant portion.

3.3.1.3.2 Alternative A (Existing Practice)

Direct/Indirect Effects Alternative A would continue grazing under the existing practices. Current areas of concentrated cattle access including the lower reaches of Catspur and Charlie Creeks would continue to be pollutant input locations. Current levels of nutrients, pathogens, temperature, and sediment contributed by cattle would continue. Grazing would continue to contribute, in however small a way, to limited water quality.

Cumulative Effects Grazing, combined with the timber sales, road use, and other actions, would continue to contribute to water quality limitations as described above. Alternative A would not contribute to the goal of supporting beneficial uses in the on-site water quality limited streams. Note, however, that grazing is a relatively small use in these allotments when compared to timber sales and road construction on National Forest, private, and state-owned land.

3.3.1.3.3 Alternative B (Proposed Action)

Direct/Indirect Effects The proposed action, Alternative B, would not reduce the number of cattle in the project area. Alternative B includes measures designed to detect instances of resource damage in a timely manner so that any situation that could lead to a decline in water quality can be quickly rectified.

Cumulative Effects Past mining activities continue to adversely affect water quality in Emerald and Gold Center Creeks, and more recent mining has affected the lower reaches of Emerald. Roads also contribute to sediment and temperature pollution in Charlie and Emerald Creek basins. Timber harvest has contributed to water quality limitations throughout the project area. If proposed monitoring and management measures are implemented effectively- Alternative B could incrementally reduce sediment, nutrient pollutants, pathogens, and temperature in reaches currently affected by cumulative actions by ensuring the timely discovery and redress of resource damage. This would contribute to the overall goal of restoring beneficial uses in Water Quality Limited streams.

3.3.1.3.4 Alternative C (Remove Cattle)

Direct/Indirect Effects Removal of cattle from the allotments would reduce inputs of nutrient pollution and pathogens to the on-site aquatic habitat. Temperature extremes would also be moderated as riparian shrub and tree vegetation would regenerate more rapidly. Sediment inputs would be reduced after localized cattle access trampling areas began to stabilize.

Cumulative Effects Past mining activities continue to adversely affect water quality in Emerald and Gold Center Creeks, and more recent mining has affected the lower reaches of Emerald. Roads also contribute to sediment and temperature pollution in Charlie and Emerald Creek basins. Timber harvest has contributed to water quality limitations throughout the project area. Removal of cattle from the area would reduce the overall level of pollutants in these drainages, and could help to restore full beneficial uses as described above. Note, however, that the number of animals to be removed are relatively small and beneficial effects may not be noticeable when compared to other activities (particularly timber sales). For example, Catspur Allotment involves 26 cow/calf pairs, but is the site of the Dutch Cat timber sale covering 626 acres.

3.3.1.4 Consistency with Forest Plan

All alternatives would be consistent with the goal of “maintaining high quality water” for beneficial uses. Permitted grazing on Forest Service lands is not likely to be the major determinant of water quality within the project area.

3.3.2 Stream/Riparian Condition Surveys

Stream and watershed surveys were conducted on the Forest Service managed portion of several creeks across all allotments in 1990, 1992, 1993, 1995, 1996, and 1998. For streams and their sampling dates see the project file (Watershed and Stream Survey Locations and Dates). Summaries of these surveys can be found within several EA/EIS documents located in the project file (Section H). Data collected in the pre-1998 surveys included, in some cases, stream channel type (Rosgen), stream channel stability, riparian conditions/vegetation, and fish habitat characteristics. The 1998 surveys were concentrated on reaches of stream in meadow areas where grazing was occurring. Stream stability was examined and data collected on livestock streambank trampling, overall streambank cover, and riparian vegetation composition and structure. Table 3-3 summarizes stream conditions, riparian vegetation and fish habitat. Additional surveys done in 2002 to address bank stability are displayed in Table 3-3 and will be discussed in section 3.3.3.

The existing conditions determined from the surveys were compared to Idaho Panhandle Forest Plan Standards, INFish Riparian Management Objectives (Table 3-2), standards established in the St. Joe/Little North Fork Clearwater Bull Trout Biological Assessment (St. Joe BA) (USDA, 1998), and the Grazing Implementation Module.

The *Idaho Panhandle Forest Plan Standard* states; “ Manage all allotments to obtain no more than five percent streambank trampling damage (bare soil).

The *Inland Native Fish Strategy* (INFish) amended the IPNF Forest Plan in August, 1995. The INFish strategy contains interim standards and guidelines to ensure that Federal actions will protect habitat and populations of resident, native fish. Goals were established to maintain or restore water quality, riparian areas, and associated fish habitats in order to provide healthy, functioning watershed. Interim Riparian Management Objectives (RMOs) for stream channel conditions and fish habitat components were defined to provide the criteria which attainment or progress toward riparian goals is measured. The Interim RMOs provide the target toward which managers aim as they conduct resource management activities across the landscape. It is not expected the objectives would be met instantaneously, but rather would be achieved over time.

Interim RMOs have been established for four habitat feature parameters: pool frequency, water temperature, large woody debris, and width/depth ratio (Table 3-2). Based on available information, RMOs for pool frequency and water temperature are not presently met at all stream reaches within the allotments.

Table 3-2 Interim Riparian Management Objectives (RMOs) for the St. Maries Grazing Allotment Area

Habitat Feature	Interim Objectives
Pool frequency	47 to 96 pools per mile, depending on stream width.
Water temperature	No measurable increase in maximum water temperature (warmest 7-day average). Maximum water temperatures below 15°C (59° F) within adult holding habitat and below 9° C (48°F) within spawning and rearing habitats.
Large woody debris	>20 pieces per mile; >12 inch diameter; > 35 foot length.
Width/depth ratio	<10/1 mean wetted width divided by mean depth.

The *St. Joe/Little North Fork Clearwater Bull Trout Biological Assessment* (USDA, 1998) developed standards for various projects which occur on National Forest lands. The U.S. Fish and Wildlife Service wrote a Biological Opinion (USDI, 1999) in agreement with the St. Joe BA. The standard identified in this document which applied to livestock grazing was;

- Vegetation/community types along the greenline will be rated at minimum 80 percent (average length, both sides of the stream) providing good and fair streambank stability.

Additional concerns over streambank condition and forage utilization will be addressed through monitoring to ensure compliance with Forest Plan standards for bank trampling and through the Grazing Implementation Monitoring Module.

The *Grazing Implementation Monitoring Module* was finalized in March of 2000. This interagency document was designed to meet the grazing implementation monitoring requirements of the salmon, steelhead, and bull trout PACFISH and INFISH Biological Opinions issued by the National Marine Fisheries Service on June 19, 1998 and

the U.S. Fish and Wildlife Service on August 14, 1998. Within the module, residual stubble height is identified as the preferred measure of end of season success. Stubble height has been correlated with a number of parameters that are beneficial to salmonids, on stream types that are dependent on herbaceous vegetation for streambank stability (Clary, 1999). The monitoring module provides an adaptive method for determining what stubble heights should be used, based on site-specific criteria. The module also provides alternate monitoring methods such as browse utilization, for use in areas where herbaceous vegetation is not the determinant of streambank stability. The procedures detailed within the module will be used to insure that RMO's are maintained in the area.

3.3.3 General Basin Characteristics

3.3.3.1 Fish Species Present in Area

Fish species found in the project area include westslope cutthroat trout, introduced non-native rainbow trout, brook trout or cutthroat-rainbow hybrids, and sculpins. Bull Trout are listed as "threatened" under the Federal Endangered Species Act (USDI, 1997) and were historically found in the project area. Bull trout were last positively identified and documented in the St. Maries drainage in 1987 (Apperson et al. 1988). Westslope cutthroat trout and the torrent sculpin have been identified as sensitive by US Forest Service Regional Forester (USDA, 1999d). Westslope Cutthroat trout have been identified in the majority of the fish bearing streams within the allotments. Sculpin have been identified in many of the fish bearing streams of the project area however they were identified to species.

3.3.3.2 Riparian Vegetation

Riparian vegetation in the region was historically dominated by large black cottonwood and western red cedar, which contributed to fish habitat by providing bank stabilization, shade for water temperature modification, and large woody debris for cover, sediment detention, pool formation, and nutrient inputs (USDA, 1997a). These areas have been impacted and modified by a variety of activities (mining, grazing, road building, railroads, timber harvest, and log splash dams) since the early 1900's. After logging and its associated activities especially, many low-gradient riparian areas were slow to regenerate due primarily to cold air drainage creating "frost pockets" in valley bottoms (USDA, 1996a). These frost pockets have changed the microclimate and have suppressed forest regeneration along the lower stream reaches. The resulting lack of large woody debris supply has destabilized these stream reaches and degraded fish habitat. Cattle grazing has perpetuated these openings by repressing riparian vegetation recovery in some areas. Riparian vegetation in these openings is now dominated by non-native grasses and by scattered shrubs consisting primarily of alder, willow and red osier dogwood. However, where the water table is high, a good compliment of native riparian vegetation often exists.

Within the riparian areas, cattle utilization is largely confined to the lower, low-gradient stream reaches throughout the project area where open meadows provide grazing. The majority of these low gradient sections of stream are primary on non-Forest Service managed lands. Within Forest Service managed lower gradient areas, grazing impacts are actually only concentrated in a small proportion of each allotment, less than 5 percent (USDA, 1995a). These areas typically coincide with Riparian Habitat Conservation Areas (RHCA's) as defined in INFish (USDA, 1995c).

Shrub diversity is low in a number of riparian areas including Charlie, Catspur, and Emerald Creeks. The shrub community consists primarily of alder in many areas. Greenline riparian vegetation surveys completed in 1998

(Hallisey, in project file) indicated 25 to 55 percent of the alders were decadent, and regeneration of new plants was sparse.

Localized impacts to streambanks and riparian areas by livestock are noticeable in some areas on each allotment. Also in some areas riparian shrub diversity is low. However, “greenline” riparian vegetation surveys completed in 1998 (Hallisey, in project file) indicated that riparian vegetation is gradually recovering from past impacts on the Emerald Creek and Keeler allotments and remaining at a static trend on the Catspur and Charlie Creek allotments.

3.3.3.3 Fish Habitat

In general the limiting factors for fish habitat within the allotments are habitat degradation, a lack of large woody debris, sediment and temperature (USDA1993, USDA 1995a, USDA 1996a, USDA 1997a, Idaho Department of Health and Welfare DEQ 1999).

Stream channel assessments have been performed for a number of on-site streams as part of analyses for timber sales, as discussed above (section 3.3.2) . Each of the allotments and sub-drainages is discussed below. Further information not related to grazing on each creek may be found in the project file (Stream Condition Information).

Catspur Grazing Allotment

The Catspur Creek sub-drainage includes Catspur, Log and Kitten Creeks. Catspur Creek was assessed during preparation of the Dutch Cat EA (USDA, 1997a). The following material summarizes this previous evaluation.

- **Catspur Creek**

Current trends within the project area streams are either static or on a slow recovery trend. Catspur Creek and its tributaries are most likely in a static oppressed trend from accelerated surface erosion and streambank instability. Streamside roads and road crossings impinge channel migration and reduce floodplain access and riparian vegetation. Recent watershed improvements and road improvements should enhance its recovery over the long term.

**Table 3-3
Stream Condition, Riparian Vegetation and Fish Habitat Summary**

	Catspur Creek	Kitten Creek	Charlie Creek	E. Fork of Charlie Creek
Stream Condition				
Rosgen Stream Channel Types*	B,E	B,E	A,B,C	C4
Channel Stability Rating and Trend	Functional at risk	Static	Functional at risk	
Livestock Bank Trampling	3% (2.5% in 2002)	--	-	--
Fish Habitat				
Summer Stream Temperature	--	--	8-13°C	8-14°C
Percent of Pool Habitat	30%	8%	<12%	12%
Overall Rating of Habitat Quality	Moderate	Low	Limited	Limited
Riparian Vegetation				
Shrub Composition	Alder, red osier dogwood	--	Dogwood, alder	--
Herbaceous Composition	Grass, sedge, forb	--	Grass, forb, sedge	--
Streambank Cover	83%	--	92%	--
	Preston Creek	Hume Creek	E. Fork of Emerald Cr.	W. Fork of Emerald Creek
Stream Condition				
Rosgen Stream Channel Types*	G, B4	E4, 6	B, C, 3, 4	--
Channel Stability Rating and Trend	--	--	Proper functioning condition	Fair
Livestock Bank Trampling	--	~1% in 2002	4% (~1% in 2002)	--
Fish Habitat				
Summer Stream Temperature	--	--	< 22°C	12-15°C
Percent of Pool Habitat	2%	--	43%	--
Overall Rating of Habitat Quality	Poor	--	Fair	Limited
Riparian Vegetation				
Shrub Composition	--	--	Alder	--
Herbaceous Composition	--	--	Sedge, grass	--
Streambank Cover)	--	--	95%	--
	Keeler Creek	W. Fork of St. Maries River	Gold Center Creek	Windy Creek
Stream Condition				
Rosgen Stream Channel Types*	B4, E6	C4	A, B, C	A, B3
Channel Stability Rating and Trend	Proper functional condition	Functional at risk	Fair to good	Good
Livestock Bank Trampling (percent)	0%	--	--	--
Fish Habitat				
Summer Stream Temperature	--	--	--	--
Percent of Pool Habitat	--	--	9%	--
Overall Rating of Habitat Quality	Limited	--	--	--
Riparian Vegetation				
Shrub Composition	Alder, dogwood, viburnum	Mix of conifers	--	--
Herbaceous Composition	Sedges, grass	Wetland grass, sedges	--	--
Streambank Cover (percent)	97%	--	--	--
	Flewsie Creek	Gramps Creek	Placer Creek	Mid Fork St. Maries River
Stream Condition				
Rosgen Stream Channel Types*	A, B	A, B4	A, B3	C4
Channel Stability Rating and Trend	Poor	Fair	Good	--
Livestock Bank Trampling (percent)	--	--	--	--
Fish Habitat				
Summer Stream Temperature	--	--	--	--
Percent of Pool Habitat	--	--	--	--
Overall Rating of Habitat Quality	--	--	--	--
Riparian Vegetation				
Shrub Composition	--	--	--	--
Herbaceous Composition	--	--	--	Grass, sedge
Streambank Cover (percent)	--	--	--	--

*The Rosgen classification system (1993) divides streams into similar units referred to as stream types. Under this system, streams are classified by a letter/number pair. The letter indicates the stream channel gradient and channel type; the number indicates the dominant substrate class.

Channel Types	Substrate Class		
A	Confined and steep.	3	Cobble
B	Moderate gradients. High flows across floodplain.	4	Gravel
C	Unconfined, low gradient, meandering.	5	Sand
E	Unconfined, meandering streams. Very low gradients and width/depth ratios.	6	Silt
G	Confined gullies. Moderate gradients.		

The ½-mile segment of Catspur Creek on National Forest system lands in Section 19 (T42N, R02E) has been impacted by historic grazing activities. Increased bank sloughing and deposition were noted where impacts from grazing increased. During the 1970s, a riparian exclosure fence was constructed along this segment to correct previously noted streambank stability problems. The fence was maintained until 1980, and then reconstructed in 1999 and 2000 to enclose a size of about 13 acres. In addition, shrub and cedar seedlings were planted within the exclosure in the spring of 2000 in order to enhance the riparian area (see hydrology addendum, project file). A streambank stability survey was completed in 1998 (Hallisey, project file). The survey results indicate that conditions meet the standards identified in the Forest Plan, St. Joe BA, and the Grazing Module (Table 3-3). Although conditions meet these standards, the 1998 survey recommended that the fence be reconstructed and maintained to protect the alder riparian shrub component along the stream from livestock grazing. In 2001 transects were established according to protocols found in the Grazing Implementation Monitoring Module (see project file). These transects were monitored again in 2002. Median stubble height standards for both years were met (Grazing Implementation Monitoring Data Sheets, project file). Additional bank stability measurements were taken in 2002 (protocols in Appendix C) and indicate that bank instability due to cattle was 2.5% while instability due to other factors was 3.9% (Table 3-4).

Fish habitat in Catspur Creek is considered to be of moderate quality due to low habitat diversity, a lack of structural complexity, and underdeveloped pool habitat.

Table 3-4: CatSpur Creek “Greenline” and Stubble Height Survey outside the cattle exclosure

Element	1998	2001 Aug	2001 Oct	2002 Oct	St.Joe BA Standard	Grazing Module
Total Vegetative Cover	83%				80%	
Shrub Cover	22%					
Grass, forb, sedge Cover	61%					
Total Raw Banks	17%					
Raw Banks (livestock)	3%			2.5%		
Raw Banks (non-livestock)	14%			3.9%		
Median Stubble Heights		12,>12"	11,>12"	>12"		6"

- **Kitten Creek**, tributary of Catspur Creek, has moderate gradients, with flows beginning with Rosgen B types. The headwaters were found to be very stable with mossy bottoms. Bankcutting and deposition occur as perennial flow and more moderate gradients evolve in the lower reaches. The lowest reach (a Rosgen E channel) has channeled floodplains from the streamside roads, increasing bank stability.

Fish habitat in Kitten Creek is considered to be of low quality due to low habitat diversity, and underdeveloped pool habitat.

Charlie Creek Grazing Allotment

The Charlie Creek sub-drainage includes Charlie Creek, East Fork Charlie Creek, Preston Creek, and Hume Creek. Smaller tributaries to these larger streams include Short, Pamas, Brown, Moolock, Elip, Lacy, Fagan, Ramskull and Deep Creeks. Most grazing activity occurs along the larger streams (Charlie, East Fork Charlie, Preston and Hume Creeks).

Charlie Creek was assessed in 1995 for the Charlie Tyson project; except where noted otherwise, the following material is summarized from this previous evaluation (see project file).

The Charlie Creek basin has been heavily affected by effects from land management, fire and salvage harvesting in the past, resulting in braided, aggraded channels in the lower stream reaches. Some minor sedimentation was also associated with the turnout of cattle at Hume Creek. The Charlie Tyson EIS describes some bank trampling impacts along a ¼-mile segment of lower Hume Creek (S4 & 9, T42N, R02E) and some impacts from cattle trailing along a shorter segment of an unnamed tributary of Charlie Creek near a grazing enclosure in the same section. The EIS also describes the riparian work (planting willows, placing large woody debris in the stream channels of both Hume Creek and the unnamed tributary to discourage cattle use and armoring a stream crossing of the unnamed tributary) that would be accomplished under the proposed timber sales to correct the problems. The EIS concluded that if this work were accomplished, grazing on National Forest system lands would have a low risk of changes in stream channel morphology.

- **Charlie Creek** Recent road construction and timber harvesting (mostly commercial thinning with 40 percent canopy removal) have not affected the stream's processes beyond what it can adjust to rapidly.

Charlie Creek remains in a stable-appearing condition from the headwaters downstream to a confluence with an unnamed tributary at the 3200 foot elevation bench. From this confluence downstream, the channel is of low gradient and is multi-channeled. An old railroad grade runs adjacent to the stream in this section. Past flooding events, compounded by the influence of the railroad grade and loss of riparian trees quite likely resulted in a sediment/water yield imbalance. No recent cut channels or raw banks were observed. Banks are well vegetated with grasses and some shrub species (alder, dogwood, willow) which offer lateral stability. A 1998 "greenline" survey done by Hallisey (results are located in the project file) found Charlie Creek to be in a "functioning, at risk" condition. The survey found the existing riparian vegetation adequate to protect the streambanks and dissipate high-energy flows (Table 3-5).

In 2000 a PACFISH/INFISH effectiveness monitoring survey was conducted on a grazed reach of Charlie Creek (USDA, 2002). Several features of both the stream and riparian zone were measured. Table 3-6 compares measurements between Charlie Creek and Foehl Creek, an unmanaged stream of similar geology. The surveyed reach met the InFish RMO's relating to pools/mile but did not meet the RMO's for wetted width/depth ratio or amount of large woody debris (Table 3-6). Additionally, effectiveness monitoring was done at a key grazing site in Charlie Creek where only variables with the potential to be altered by grazing, and not other management activities, were measured. At this site bank stability was 95% for both methods and effective ground cover was 99%.

Table 3-5: Charlie Creek “Greenline” and Stubble Height Surveys

Element	1998	2001 July	2001 Oct	2002 Oct	St.Joe BA Standard	Grazing Module
Total Vegetative Cover	92				80%	
Shrub Cover	36					
Grass, forb, sedge Cover	56					
Total Raw Banks	8					
Raw Banks (livestock)						
Raw Banks (non-livestock)						
Median Stubble Heights		>12”	>12 ”	>12”		6”

Table 3-6: Channel and Riparian Characteristics Measured by Effectiveness Monitoring

Stream	Residual Pool depth (cm)	Pools per mile	% stable banks ¹	% stable banks ²	% undercut bank	Greenline % shrub canopy cover	Effective Ground Cover	Large Woody Debris
Charlie Creek	0.42	68	77	49	30	70.3	99	0
Foehl Creek	0.67	39	98	85	33	87.1	100	61

In 2001 transects were established according to protocols found in the Grazing Implementation Monitoring Module, the same transects were monitored in 2002. Table 3-5 shows that stubble heights were greater than goals at each measurement. (Grazing Implementation Monitoring Data Sheets, project file).

Fish habitat in Charlie Creek is considered to be of poor quality due to low habitat diversity, a lack of structural complexity, and underdeveloped pool habitat. Water temperatures ranged from 8 to 13 C°.

- **Preston Creek** is a major tributary to Charlie Creek. Thick alder and dogwood line the streambanks and offer lateral stability. The multi-channeled form most likely occurred from similar events and influences as in Charlie Creek. Mining exploration channeled and degraded the lowest 1/4 mile of stream and its floodplain. Current channel type is Rosgen G. Some development of a B-type channel is forming within this channel and indicates a recovering trend.

Fish habitat in Preston Creek is considered to be of poor quality due to low habitat diversity, a lack of structural complexity, and underdeveloped pool habitat.

- **East Fork of Charlie Creek** has experienced historical disturbance in the form of railroad logging. Multi-channeled sections occur in areas where stream constrictions occurred from crossing, splash dams, and current beaver dams. Livestock bank trampling was noted along some segments of the East Fork Charlie Creek (S14, T43N, R02E) in 1998. Additional surveys to assess bank stability were completed in 2002 (see Appendix C for protocols). Bank instability due to cattle use was determined to be less than 1% while instability due to non-cattle factors was 6.4% (Bank Stability Monitoring Summary, project file).

Fish habitat in East Fork Charlie Creek is considered to be of poor quality due to low habitat diversity, a lack of structural complexity, and underdeveloped pool habitat. Water temperatures ranged from 8 to 14 C°.

- **Hume Creek** Cattle have caused some bank trampling near the boundary between National Forest System and private lands. Streambank shrubs have also been damaged. These E channel types are vulnerable to trampling and bank cutting but are also responsive to altered grazing practices and vegetation rehabilitation (Rosgen, 1996). During summer, 1993, watershed improvements projects were begun in Hume creek, under an approved plan from an earlier timber sale. In 1998 livestock bank trampling was noted along some segments of lower Hume Creek (Sec 4, 9, and 16, T43N, R02W). Additional surveys to assess bank stability were completed in 2002 (Table 3-3 and 3-7) that showed the Forest Plan standard (<5%) is being met. Effectiveness monitoring for bank stability on Hume Creek showed a wide range of values (100% or 40%) depending on the method used (see Appendix C). Only a short segment of stream adjacent to private ground was looked at compared to the 2002 measurements.

In 2001 transects were established according to protocols found in the Grazing Implementation Monitoring Module and were monitored again in 2002 (Grazing Implementation Monitoring Data Sheets, project file).

Table 3-7: Hume Creek “Greenline” and Stubble Height Surveys

Element	2001 July	2001 Oct	2002 Oct	St. Joe BA Standard	Grazing Module
Total Vegetative Cover				80%	
Shrub Cover					
Grass, forb, sedge Cover					
Total Raw Banks			2.4%		
Raw Banks (livestock)			<1%		
Raw Banks (non-livestock)			2.3%		
Median Stubble Heights	>12”	12, >12 ”	>12”		6”

- **Ramskull Creek** Surveys to assess bank stability were completed in 2002. Bank instability due to cattle use was nonexistent while instability due to non-cattle factors was 2.5% (Bank Stability Monitoring Summary, project file).

Emerald Creek Grazing Allotment

The Emerald Creek sub-drainage includes the West Fork of Emerald Creek, East Fork of Emerald Creek, Willow Creek and Cedar Creek. Most National Forest system lands within the allotment are located in the East Fork of Emerald Creek.

The lower reaches of both forks of Emerald Creek have been dredged for garnet sands since 1940s, and have been partly realigned. Mining for garnet sands in the East Fork of Emerald Creek was completed in 1995, and the

mined area has been rehabilitated, with the riparian area adjacent to the stream left intact. Some garnet sand mining is still occurring on private and state of Idaho land in the lower main stem of Emerald Creek.

Emerald Creek drainage basin was assessed in the EIS for the Emerald Resource Unit Timber Sale (USDA, 1993). The following material is summarized from this previous study, except where noted.

- **East Fork of Emerald Creek** was the subject of Pfankuch channel stability surveys in 1990. The Pfankuch survey uses a numerical rating system of 15 parameters for a total score to categorize the channel stability as excellent, good, fair or poor. The East Fork of Emerald Creek ranked fair in stability in both 1974 and 1990. Most of the stream reaches were also classified by Rosgen’s stream classification as B, with some C in the upper reaches.

In 1990, the Forest Hydrologist considered that the overall general condition of the East Fork of Emerald was fair, and that the system is recovering and moving toward dynamic equilibrium. Recovery toward lower sediment production and transport in the system was expected. A 1998 inspection of the lower East Fork Emerald Creek on Forest Service lands concluded that the reach was hydrologically in “proper functioning condition.” Grazing has resulted in bank trampling and raw bank of about 4 percent.

Approximately 1-¼ miles of the East Fork of Emerald Creek in Sections 3 and 9 of T42N, R02E has been fenced on both sides to exclude grazing and protect the riparian zone along the stream. In 2001, the enclosure was expanded and approximately 400 shrub and cedar seedlings planted within it (see hydrology addendum, project file). The fence is currently maintained. Since the fence was completed in 1990, improvement in bank stability and riparian vegetation growth has been noted. Streambank stability “greenline” surveys completed in 1998 (Hallisey) found the stream to be in a hydrologically properly functioning condition with bank trampling below the limit set by the Forest Plan and Infish (Table 3-3).

Table 3-8: East Fork Emerald Creek “Greenline” and Stubble Height Surveys

Element	1998 within enclosure	1998 outside enclosure	2001 July	2001 Oct	2002 ^a	2002 ^b	2002 ^b	St. Joe BA Standard	Grazing Module
Total Vegetative Cover								80%	
Shrub Cover	33	18							
Grass, forb, and sedge Cover	65	77							
Total Raw Banks	2	5							
Raw Banks (livestock)	0.3	4			1.5	<1%	<1%		
Raw Banks (non-livestock)	1.7	1			6.4	6.4%	8.3%		
Median Stubble Heights			>12”	>12”	>12”				6”

b = different transects along the East Fork Emerald

In 2001 transects were established according to protocols found in the Grazing Implementation Monitoring Module (see project file). Median stubble heights in July of 2001 were greater than 12 inches on both

sides of the stream (Table 3-8). At the end of grazing season in October both readings were still >12 inches. The same transects were monitored in October of 2002 and the stubble heights were greater than 12 inches on both sides of the stream. (Grazing Implementation Monitoring Data Sheets, project file).

In 2000 a PACFISH/INFISH effectiveness monitoring survey was conducted on a grazed reach of East Fork Emerald Creek (USDA, 2002). Several features of both the stream and riparian zone were measured. Table 3-9 compares measurements between East Fork Emerald Creek and Foehl Creek, an unmanaged stream of similar geology. The surveyed reach did not meet the InFish RMO's relating to pools/mile or wetted width/depth ratio but did meet the RMO for amount of large woody debris (Table 3-9).

Table 3-9: Channel and Riparian Characteristics Measured by Effectiveness Monitoring

Stream	Residual Pool depth (cm)	Pools per mile	% stable banks ¹	% stable banks ²	% undercut bank	Greenline % shrub canopy cover	Effective Ground Cover	Large Woody Debris
E.F. Emerald Creek	0.42	53	95	95	12	73.5	96	27
Foehl Creek	0.67	39	98	85	33	87.1	100	61

Fish habitat in East Fork Emerald Creek is considered to be of fair quality due to high habitat diversity, a lack of structural complexity, and underdeveloped pool habitat. Water temperatures between June and September 2001 ranged from 9 to 24C° (project file).

- **West Fork of Emerald Creek** was surveyed in 1990 and was ranked fair in stability overall. Since the 1990 survey, additional mining activities and road construction have occurred in the lower reaches, which has affected channel geomorphics. Most of the riparian grazing areas along the West Fork are in private ownership.

The West Fork of Emerald is in fair-to-good hydrologic condition in its upper reaches. No mass failures were noted and vegetation is vigorous on the stream banks. However, the privately owned lower reaches of the West Fork Emerald Creek where grazing is concentrated were found to be in poor condition, with high sedimentation and a destabilized channel. Beneficial uses are not being met in these lower reaches on private land and bank trampling and raw bank are in excess of 50 percent in these areas.

Fish habitat in West Fork Emerald Creek is considered to be of fair quality in the upper reaches due to the presence of large woody debris but poor quality in the lower reaches due to fair habitat diversity, a lack of structural complexity, and underdeveloped pool habitat. Water temperatures, during habitat surveys, ranged from 12-15 C°.

- **Cedar Creek:** In 1998, (Hallisey survey in project file), livestock bank trampling was noted along a half-mile reach of Cedar Creek, a tributary to the St. Maries River (Sec. 35, T43N, R01E).

Keeler Creek Grazing Allotment

The portion of the West Fork of the St. Maries River sub-drainages that is the site of the Keeler Creek allotment includes a short section of the West Fork of the St. Maries River, Keeler Creek, Hidden Creek and Wood Creek. Most grazing on National Forest system land occurs in the Keeler Creek drainage and along the West Fork of the St. Maries River.

The Keeler Creek Road Access EA, prepared by the Forest Service in 1996, described the current condition of the Keeler Creek Allotment Area. This document is summarized in the following section. Additional material from other sources is noted.

- **The West Fork of St. Maries River** meanders through a wide valley of old alluvial materials, vegetated by small shrubs, forbs and grasses. Because of cold air drainage, the few riparian conifers are primarily subalpine fir and lodgepole pine. The channel substrate is gravel and few rock fragments are found in the streambank material. Consequently, the substrate is mobile and banks are susceptible to cutting and caving. This lower portion of the river's valley is quite wide and open and allowed the river to be quite sinuous. This morphology promoted settlement and agriculture practices. The riparian area of the lowest reach has been reduced from several hundred yards width to a small linear band of shrubs and forbs due to channelization and agriculture activities.

A 1998 investigation indicated that the West Fork of St. Maries River is considered functional-at risk, with no apparent trend (Hallisey greenline surveys, 1998 in project file).

Fish habitat in West Fork St. Maries is considered to be of poor quality due to fair habitat diversity, a lack of structural complexity, and underdeveloped pool habitat. Water temperatures ranged from 6 to 22 C°.

- **Keeler Creek** exhibited some raw banks and channel scour, which can be indicative of a channel that may be sensitive to water yields and bank disturbance. An old logging railroad grade runs adjacent to the channel. Cattle grazing occurs in the riparian meadows along lower Keeler Creek. Although there has been some localized streambank livestock trampling impacts in the past, field investigations completed in 1998 show that Keeler Creek is in proper functioning condition, and is functioning well in today's environment. The 1998 streambank stability "greenline" survey completed by Hallisey (see project file) in the riparian grazing area found 3 percent raw streambank, with no measurable evidence of livestock bank trampling. This meets both the Forest Plan livestock objective of limiting trampling damage to 5% or less and the INFish site specific maximum 20 percent raw streambank stability standard for type C channel stream segments in the St. Joe River basin.

Fish habitat in Keeler Creek is considered to be of poor quality due to low habitat diversity, a lack of structural complexity, and underdeveloped pool habitat.

- **Hidden Creek:** A survey to assess bank stability in Hidden Creek was completed in 2002. Bank instability due to cattle use was trace to nonexistent. Instability due to non-cattle factors was 1.1% (project file).

Fish habitat in Hidden Creek is considered to be of poor quality due to low habitat diversity and a lack of structural complexity.

- **Wood Creek:** A survey to assess bank stability in Wood Creek was completed in 2002. Bank instability due to cattle use was trace to nonexistent. Instability due to non-cattle factors was 1.3% (project file).

Fish habitat in Wood Creek is considered to be of fair quality due to habitat diversity and underdeveloped pool habitat.

Merry Creek Grazing Allotment

National Forest system lands within the Merry Creek Allotment are concentrated in Gold Center Creek, Placer Creek, Flewsie Creek, Gramps Creek and some portions of the Middle Fork of the St. Maries River drainage. Grazing on National Forest land occurs on riparian meadows primarily in the upper portion of the Gold Center Creek drainage, although some also occurs along Flewsie Creek.

The Merry Creek Allotment Area was described in the Hobo Cornwall FEIS (USDA, 1996a). The following material is summarized from the Hobo Cornwall document. Newer information is noted separately.

- **Gold Center Creek** basin was heavily impacted by past mining. Eroding tailings are present in some areas. Stream channels are A and B types with generally low or very low sensitivity to grazing. However, the lowest reach of Gold Center Creek is a C channel with meandering, low gradient streams and high sensitivity.

Gold Center Creek is in moderately fair condition with some minor bankcutting and sediment deposition noted. Field investigation in 1995 indicated the creek was in equilibrium within the natural range of variability. The upper segments on Forest Service land had slight cattle use, indicated by short minor trail development and some forage usage. The mid and lower sections of Gold Center Creek on private lands appeared to have heavier usage along the C type channel. This privately owned lower riparian area is more open with fewer streambank shrubs, more trail development and more forage use. Areas of heavy cattle use were noted. Some bank sloughing and aggradation were also observed.

Fish habitat in Gold Center Creek is considered to be of poor quality due to low habitat diversity, a lack of structural complexity, and underdeveloped pool habitat.

- **Placer Creek** was found to be in good condition by stream surveys in 1995. No evidence was found of substrate fining, aggradation or bank sloughing. Little to no cattle use was observed. Placer Creek is classified as A and B type channels, with low or very low sensitivity to grazing. Stream channel stability was considered good.

Fish habitat in Placer Creek is considered to be of poor quality due to low habitat diversity, a lack of structural complexity, and underdeveloped pool habitat.

- **Flewsie Creek** was in poor condition in the lowest reach due to deposition, bank cutting and a fining of the substrate. Because this stream is primarily on private land, it was not channel typed in recent years.

However, typically this size stream in this topography would be B channel type in the lower reaches, grading into steeper A in the headwaters.

- **Windy Creek** the stream channel is controlled by geologic structure and the erosion feeding observable bedload sediment is a natural process rather than the result of any land use activities. Windy Creek is in generally good condition. No cattle use was observed within the riparian or up-slope areas.
- **Middle Fork St. Maries River** is a type C channel, a meandering, low gradient stream flowing through open grass and sedge meadow lands. Field reviews indicated the channel has some bank cutting and deposition of gravels occurring, with associated increased width and decreased depth. There is a lack of shrubs and large conifers along the streambanks. Most grazing occurs along these riparian areas. A National Forest system riparian area in Section 31 (T43N, R02E) between Merry and Blair Creeks had one area of heavy use where shade and possible salting assembled cattle. The channels have some cattle trailing in the lower reaches but cattle use did not appear to be significant in the small riparian area.

3.3.3.4 Summary of Comparison of Existing conditions to INFish

Based on surveys that collected quantitative or qualitative pool frequency information and were completed prior to 2000, the pools per mile standard is met only in the East Fork of Emerald Creek Of the streams with (Table 3-10). In 2000 surveys were done on portions of Charlie Creek and the East Fork of Emerald Creek that were included in the allotment. These surveys indicate that both streams essentially meet the pool standard (Table 3-11).

Little information is available for the “width/depth ratio” parameter. In the Charlie Creek allotment, Preston Creek and the East Fork of Charlie Creek are reported to be multi-channeled depositional reaches. This implies that the width/depth ratio is likely to exceed the standard of 10/1.

RMOs for the “large woody debris” parameter do not appear to be met in any area of the allotments
Water temperature does not meet the RMO standards for the streams where information is available.

Table 3-10: Comparison Of INFish RMO Attainment in Streams Across All Allotments (based on qualitative and quantitative surveys conducted between 1992-1998 on entire stream lengths)

Stream	Pools/mile	Wetted width/depth	Large woody debris	Temperature
Cat Spur	No	No	No	~
Kitten	No	No	No	~
Charlie	No	No	No	~
Preston	No	No	No	~
EF Charlie	No	No	No	No
EF Emerald	Yes	~	Yes	No
WF Emerald	~	~	~	No
Keeler	No	No	~	~
Gold Center	No	No	~	No
Gramps	~	~	~	No
WF Merry	~	No	~	~
WF St. Maries	No	No	~	No

Table 3-11: Comparison of INFish RMO Measurements in Charlie Creek and the East Fork of Emerald Creek (based on quantitative surveys conducted in 2000 on portions of streams within the allotments)

Stream	Pools per mile		Wetted width/depth ratio		Large Woody Debris	
	Infish RMO	Measured	Infish RMO	Measured	Infish RMO	Measured
Charlie Creek	56	68	<10	55.7	>20	0
EF.Emerald Creek	56	53	<10	53	>20	27

3.3.3.5 Environmental Consequences

The primary risk to the aquatic environment from cattle grazing is associated to the affects to the riparian habitat. Cattle grazing can directly change the vegetative composition and productivity of the riparian area, or it can prevent reestablishment of riparian tree and shrub vegetation. This effect to the riparian vegetation indirectly effects fish habitat by:

- reducing stream shading thus increasing stream temperatures (RMO temperature)
- reducing the potential for recruitment of large woody debris to the stream, which reduces the pool frequency and structural complexity of the channel (RMO Large Woody Debris and pools/mile)
- increasing instream sediment by reducing the amount of vegetation with more complex root systems which are better at stabilizing banks (RMO width/depth).

Cattle can also trample streambanks which indirectly effects fish habitat by:

- increasing the width to depth ratio of the channel which increases stream temperatures and decreases habitat diversity (RMO width/depth)
- increasing instream sediment, which can fill in pool habitat and decrease pool quality and eventually habitat diversity (RMO pools/mile)

Based on these correlations the following analysis will use change to vegetative composition and productivity, and bank stability as the issue indicators for changes to fish habitat.

3.3.3.5.1 Effects Common to Alternatives A and B

Direct/Indirect Effects:

Riparian Vegetation

Continued maintenance of the riparian enclosure fencing along the East Fork of Emerald Creek and Catspur Creek; and the planting of willows along Hume Creek and an unnamed tributary to Charlie Creek (Charlie Creek timber sale mitigation measure) would allow vegetation recovery to continue more quickly.

Fish and Fish Habitat

Armoring a cattle stream crossing in the Charlie Creek drainage and placing large woody debris in Hume Creek and an unnamed tributary to Charlie Creek are projects approved under the Charlie Tyson EIS (1995a). These projects would improve conditions in those streams. Improvements occurring to the riparian vegetation as a result of the planned projects should provide some increased improvement to the fish habitat of those streams.

Cumulative Effects

The streams that flow through the grazing allotments are characterized in the headwaters area by higher gradient segments that have forested riparian habitats not generally used by cattle. Grazing impacts on National Forest System lands are concentrated along lower-gradient stream segments associated with riparian meadows in the lower portions of the watersheds.

Impacts to the aquatic resources due to activities on private lands in the lower portions of the watersheds will continue.

3.3.3.5.2 Alternative A (Existing Practice)

Riparian Vegetation:

Direct/Indirect Effects: Alternative A would continue grazing under the existing practices. In some areas a gradual improvement relative to past land management practices would occur. However in areas of concentrated cattle use within riparian areas on National Forest System lands, localized streambank trampling and suppression shrub growth and reestablishment of coniferous vegetation would continue. The areas most affected would continue to be primarily in sections of the Catspur, Cedar, East Fork of Charlie, and Hume Creek drainages (see section 3.3.3.3).

Cumulative Effects The combination of the current conditions, other on going activity and the continuation of the exiting grazing practices which suppresses shrub cover and tree establishment would perpetuate the current degraded conditions of some segments of riparian vegetation.

Fish/Fish Habitat

Direct/Indirect Effects: The continued suppression of the riparian shrub and tree cover would further retard the attainment of InFish RMO's, ie pool frequency and lwd densities. The continuation of a degraded riparian zone which does not provide sufficient shading will thus maintain stream temperatures at the current elevated conditions. A lack of change to grazing practices, which currently allow continued bank trampling, will also increase the risk of bank sloughing. Bank sloughing increases the amount of sediment entering into the channel which could settle into pool habitat and reduce pool quality as well as frequency.

Cumulative Effects Although cattle grazing is only influential along limited stream sections, their activity along with the current condition and other activities within the drainage will perpetuate the current degraded condition of the fish habitat.

3.3.3.5.3 Alternative B (Proposed Action)

Riparian Vegetation

Direct/Indirect Effects The proposed action, Alternative B, would not initially reduce the number of cattle or change grazing seasons. Alternative B, however, includes more restrictive standards for stubble height, and streambank cover. Forest Service allotment monitoring would also require annual monitoring of forage utilization. If monitoring indicates that the criteria are not being met, options exist to modify operating plans to correct problems. Options for modifying operating plans include but are not limited to: modifying turn out or removal dates, modifying salting practices, installing more fencing, changing the numbers of cattle, using rotational grazing and increasing monitoring frequency. The specification of standards, scheduled monitoring and options for adjustment to grazing practices will allow for an increased rate of recovery for riparian shrub and conifers. The revised utilization standards could also reduce cattle trampling, allow stabilization of banks and eventually may allow for the narrowing and deepening of channels. Potential improvements in stream conditions would be greatest in those identified stream reaches in Cedar Creek, Catspur Creek, East Fork of Charlie Creek, and Hume Creek drainages where concentrated cattle use on National Forest System lands is resulting in localized suppression of riparian vegetation and bank trampling.

Cumulative Effects The combination of the effects described for the direct and indirect effects, current conditions, and expected activities will prevent further degradation and should increase the rate of recovery to a riparian condition which includes a timber component. Benefits of measures would affect primarily the lower reaches of streams in these allotments, where grazing impact is currently concentrated.

Fish/Fish Habitat

Direct/Indirect Effects : The improvements to the condition of the riparian vegetation (especially the increase in the timber component) will indirectly benefit the fisheries by aiding in the reduction of stream temperatures, improving the potential for future large woody debris recruitment, which in turn can create pool habitat, and structural complexity of the channel.

The establishment of standards, a monitoring schedule and options for adjustments to grazing management will reduce the potential for bank trampling. The reduction in bank trampling will in turn reduce the amount of sediment entering the channel thus allowing for the continuation of existing pool habitat and potentially allowing for improvement in the quality of those pools.

Potential improvements in stream conditions would be greatest in reaches with the heaviest current grazing impact, including the lower reaches of Catspur, East Fork of the Charlie, and Hume Creeks.

Cumulative Effects The combination of the effects described for the direct and indirect effects, current conditions, and expected activities will prevent further degradation and should increase the rate of recovery for the fisheries and move the streams toward attainment of InFish RMO's.

3.3.3.5.4 Alternative C (No Grazing)

Riparian Vegetation

Direct/Indirect Effects Alternative C would allow riparian vegetation to recover from past logging and mining activities more quickly. Grasses and forbs would colonize trampled areas and stabilize streambanks in the short-term. Shrub cover would increase to up to 100 percent in some areas along the stream banks, based on observations of previous riparian fencing exclusions. Over the long term of several decades, trees are likely to become established, beginning a natural forest regeneration succession.

Cumulative Effects Alternative C would remove all adverse impacts from grazing. It would contribute to recovery of meadow areas created by timber harvest and perpetuated by past grazing. Non-federal lands in the lower portions of each watershed would continue to be affected by cattle grazing if grazing still occurs on other ownerships.

Fish/Fish Habitat

Direct /Indirect Effects

Alternative C would eliminate impacts on fish habitat and populations due to cattle grazing. This alternative would accelerate recovery of all aspects of aquatic habitat and would be likely to assist in fish population recovery. Areas of trampling would become stabilized over time, and sediment inputs would be reduced, allowing for improved pool development, as sediment would eventually be flushed from pools more rapidly than sediment inputs replaced it. In particular, a riparian tree canopy and shrub understory could regenerate, providing the basis for future large woody debris that is essential for improvement of all three indicators of fish habitat quality.

Cumulative Effects Alternative C would have a minor beneficial cumulative effect, assisting in fish habitat and population recovery from past disturbances. The reduction of grazing impact would compensate somewhat for ongoing impacts from existing roads and timber harvest, however the reduction of impacts on Forest Service managed lands would not likely compensate for activities on non-Forest Service lands in the lower reaches of the streams.

3.3.3.6 Consistency with Forest Plan

Alternative A (Existing condition): Surveys in 1998 and 2002 indicate that the Forest Plan goal of no more than 5 percent streambank trampling damage is currently being met at Catspur, Emerald, Charlie Creek, and Keeler allotments. Specific bank trampling percentages from grazing are not available for the Merry Creek allotment. The Forest Plan goal should continue to be met, however without the implementation of monitoring proposed in this document failure to meet standards will not be detected. Median Stubble Heights are currently meeting standards established in the St. Joe BA, which establishes site specific standards per InFish direction. The four

InFish RMO's, which apply to the streams of the project area, however, are not being completely met and are unlikely to be met if this Alternative is selected.

Alternative B (Proposed Action) Forest Plan goal of no more than 5 percent trampling would be met. Median stubble heights standards established in the Grazing Implementation Monitoring Module which establishes site specific standards per INFish direction, would be met. A trend toward attainment of InFish RMO's would occur.

Alternative C (No Grazing) would eliminate streambank trampling in all allotments and would therefore be in compliance with the Forest Plan. Median Stubble Heights standards established in the St. Joe BA would be met. A trend toward attainment of InFish RMO's would occur.

3.4 Range Condition

This section discusses effects of the proposed action and other alternatives on meadow community composition and structure, range conditions, threatened, endangered, and sensitive plants and wildlife, management indicator species, and neotropical migratory birds.

Both forest and meadow communities are found within the project area. Livestock use both community types however, based on past grazing activities in the St. Maries River grazing allotment, cattle grazing is predominately restricted to open, grass/forb dominated habitat associated with timber harvest, riparian areas, and road corridors. Because cattle concentrate their use in these meadow communities, this analysis focuses on these areas. Such habitat is limited to a portion of the overall grazing allotments. Most of the primary and secondary range within the allotments are closely associated with riparian areas. Meadows follow drainages, becoming narrower upstream. Eventually meadows give way to forest. Within the project area, transitory range is most often associated with openings created by recent timber harvest activity and associated roads. Power transmission line corridors also provide some transitory range within the area.

Although the grazing activity could contribute to the perpetuation of treeless, grass/forb dominated areas, cattle grazing does not have a significant affect on forest structure. This is mainly due to the cattle's affinity for open and lightly timbered areas and their nature as grazers. Although grazing may regularly occur in some heavily forested habitats, cattle typically avoid these areas because of limited forage availability and the difficulty of travel through forests. Therefore, high priority habitats such as mature/old growth forest and tree cavity habitat would not be significantly affected by cattle presence.

The primary impacts to plants and animals from cattle presence is the consumption and trampling of grass/forb vegetation, stream bank erosion, degradation of water quality, and soil compaction (Trimble and Mendel, 1995; Platts, 1991; Kauffman and Krueger, 1984). Cattle grazing along linear features such as stream and road corridors also provides an opportunity for the transmission of noxious weeds.

3.4.1 Meadow Community, Composition and Structure

3.4.1.1 Composition, Structure, and Function of Meadow and Riparian Communities

Riparian areas supporting meadows and shrub fields provide a variety of needs for many wildlife species. Streams, ponds, and other water bodies provide for drinking water for wildlife as well as domestic animals. They also provide breeding areas for fish and amphibians.

The analysis area includes a network of meadows located in the lower portions of the following subdrainages of the St. Maries River basin: Catspur Creek and Kitten Creek (Catspur Allotment); Charlie Creek, the East Fork of Charlie Creek, Preston Creek, Brown Creek, and Hume Creek (Charlie Creek Allotment); the east Fork of Emerald Creek, West Fork of Emerald Creek, Willow Creek and Cedar Creek (Emerald Allotment); Gold Center Creek, Gramps Creek, Flewsie Creek, and the Middle Fork of the St. Maries River (Merry Creek Allotment); and Keeler Creek and the West Fork of the St. Maries River (Keeler Allotment). The largest meadows are on non-National Forest System (NFS) lands. The meadows on NFS land are generally relatively narrow stringers with riparian associated vegetation. Review of circa 1930 aerial photos indicates that many riparian areas were relatively open at that time. The historic condition in these riparian stringers is difficult to determine – they have been impacted by human activities (e.g. roads, railroads, mining, logging) for a long time.

Typically, sedge species (*Carex* spp.) are found in wet areas along streambanks and areas with subsurface flows. Shrubs are also normally found in the wetter areas and seeps close to streambanks. The most common riparian shrubs found in the St. Maries river basin are alders (*Alnus* spp.), willows (*Salix* spp.), and redosier dogwood (*Cornus stolonifera*). Streambank greenline surveys (Hallisey, 1998 in project file) completed on key meadow stream reaches in the allotment area found that shrub species currently occupy a range of 18 to 36 percent of meadow streambank area.

The drier portions of the meadows, away from the streambanks, are characterized by grass/forb communities. Grass and forb species utilized by livestock in the project area include bluegrass (*Poa* spp.), timothy (*Pleum pratense*), orchardgrass (*Dactylis* spp.), clover (*Trifolium* spp.), redtop (*Agrostis alba*), brome (*Bromus* spp.), Idaho fescue (*Festuca idahoensis*), and the previously mentioned sedge species.

3.4.1.2 Meadow Community, Composition and Structure Environmental Consequences

The effects to riparian vegetation have been previously discussed in the Riparian and Aquatics section. Discussion here will focus on meadow community successional and compositional changes.

3.4.1.2.1 Effects Common to Alternatives A and B

Under both action alternatives, cattle grazing may contribute to the maintenance of existing meadow habitat by restricting shrub and tree establishment. The amount of meadow habitat within the allotments is expected to remain constant under both action alternatives. Cattle grazing would continue to result in a minor amount of soil compaction along trails and suppression of the least hardy native meadow plants. Continued grazing would encourage the maintenance of hardier vegetation such as numerous species of non-native pasture grasses and herbaceous weed species.

3.4.1.2.2 Alternative A (Existing Practice)

Direct/Indirect Effects Under Alternative A, meadow conditions would not change from current conditions. Grazing would continue at the present rate, and meadows would continue to experience the same level of soil compaction and weed establishment as presently occurs.

Cumulative Effects In addition to cattle grazing, other activities in the allotment areas promote the establishment of weed species in meadows. Ground disturbing activities in meadows such as road building and utility line construction are most likely to promote the spread of weeds into meadows. Roads built in and adjacent to meadows can also contribute to soil compaction. Alternative A would contribute to the cumulative effects on meadows by contributing to weed establishment.

3.4.1.2.3 Alternative B (Proposed Action)

Direct/Indirect Effects The mitigation of grazing impacts through stubble height guidelines would improve meadow conditions over present conditions.

Cumulative Effects In addition to cattle grazing, other activities in the allotment areas promote the establishment of weed species in meadows. Ground disturbing activities in meadows such as road building and utility line construction are most likely to promote the spread of weeds into meadows. Roads built in and adjacent to meadows can also contribute to soil compaction. Alternative B would contribute to the cumulative effects on meadows by contributing to weed establishment .

3.4.1.2.4 Alternative C (Remove Cattle)

Direct/Indirect Effects Under Alternative C, the elimination of cattle grazing in the meadow communities would facilitate vegetation succession. Shrubs and trees located in perimeter areas would eventually spread into the meadows. The meadows would eventually transition into shrub, and then forest communities providing interferences such as fire do not intervene.

The non-native pasture grasses that now dominate many of the meadows would not be replaced by native grasses and forbs. The well established pasture grass communities that now dominate the meadows would prevent such a transition. The existing grasses would initially thrive in the absence of cattle grazing. However, they would eventually yield to the shrubs and trees as their numbers and sizes increase and resultant shading overcomes the grasses.

Cumulative Effects Other forest practices such as road building and fire suppression also affect meadow communities and habitat. Because meadows do not provide timber, timber harvest activities generally do not affect meadows. One exception would be when roads are built through meadows to access timber harvest units.

The elimination of cattle grazing would add to the decline in meadow habitat throughout the forest. The elimination of cattle, when considered in conjunction with the suppression of fire, could cause a substantial reduction in meadow communities.

3.4.2 Range Condition

Surveys conducted in 1997-2001 on the Emerald Creek Allotment examined forage production rates for both meadow types and open, timbered areas (10 to 30 percent canopy closure) used for grazing within the St. Maries River basin (Emerald Creek Cooperative Resource Management Area Year 2001 Range Summary, project file).

On meadow types, the monitoring done on Forest Service land in 2000 indicates that forage production was 4109 lbs./acre. Adjusting this for a 50 percent utilization standard results in 2054 lbs./acre available for allowable use. This equates to approximately 2.5 Animal Unit Month (AUM)/acre capacity on meadow types.

On open canopied timber types used for grazing, total forage species production in 2001 was estimated at 2726 lbs./acre. Adjusting for a 50 percent utilization standard results in 1,363 lbs./acre for allowable use. This equates to an approximately 1.7 AUM/acre capacity on this vegetation type.

Current forage production is more than adequate to support the current number of livestock permitted on National Forest system lands within the basin. Under current management, the District has strived for 50-60 percent meadow forage utilization. This utilization standard will change to a uniform 50% under the proposed action. In the past decade average yearly utilization has ranged from: 41 to 90% on the Emerald Creek Allotment; 59 to 93 percent on the Charlie Creek Allotment; 74 to 84 percent on the Keeler Allotment; and 30 to 90% on the Merry Creek Allotment. On the Catspur Allotment, utilization measurements from the most recent decade range from 25 to 70 percent.

Past monitoring has rated long-term vegetation conditions (from permanent range transect data) on the five allotments as good to excellent, with an upward trend. Soil conditions range from fair to excellent with either an upward or static trend. However, monitoring from 2001 in the Emerald Creek allotment showed a downward trend for soil condition primarily due to weed encroachment.

3.4.2.1 Range Condition Environmental Consequences

3.4.2.1.1 Alternative A (Existing Practice)

Direct/Indirect Effects If current practices were to continue, range conditions and forage production levels are not expected to change appreciably. However recent monitoring in Emerald Creek has shown that trends can decline through increases in noxious weeds. Allowable forage utilization for meadow types would remain at current levels. Transitory range produced by the timber harvest activities projected on both National Forest system lands and private lands for the next decade would continue to make up for the forage lost to vegetation succession in areas previously harvested.

3.4.2.1.2 Alternative B (Proposed Action)

Direct/Indirect Effects Range conditions would improve under Alternative B. Standards for herbaceous species (stubble height and utilization) would be implemented. Meeting these standards would require better livestock distribution on all allotments and is expected to forestall or quickly rectify resource damage. This would result in lower meadow utilization levels, moving closer to meeting the desired 50 percent utilization goal. Forage production levels are not anticipated to change under this alternative. Transitory range produced by the timber harvest activities projected on both National Forest system lands and private lands for the next decade would continue to make up for the forage lost to vegetation succession in areas previously harvested.

3.4.2.1.3 Alternative C (Remove Cattle)

Direct/Indirect Effects Under this alternative, both range and soil conditions would both improve over time. Herbaceous forage currently utilized by cattle would be available for use by wildlife.

3.4.3 Forage Resources

Most of the forage within all allotments is produced from riparian meadows along the lower portions of certain drainages. Transitory range provided within clearcuts, the Bonneville Power Administration powerline, and other forested areas with less than 50 percent of canopy cover is available for grazing, and seeded road-cuts and fills provide additional forage. Due to ground disturbance, these areas have been seeded to adapted non-native grasses and legumes with orchardgrass, timothy, tall fescue, Kentucky bluegrass, red top, brome and clover providing most of the overall forage. Some of the meadow areas contain species of native *Carex* and Idaho fescue that supplement the introduced non-native forage species. The residual native grass species tufted hairgrass (*Deschampsia caespitosa*), slender hairgrass (*Deschampsia danthonoides*), sedges (*Juncus* spp.), and California oatgrass (*Danthonia californica*) are not abundant enough to provide for livestock grazing.

In the Catspur Allotment most forage is produced along Catspur Creek and the St. Maries River. Utilization on the allotment has ranged from 25 to 70 percent in the past. Considering most utilization measurements were done on meadow types where 60 percent utilization was considered acceptable, current allowable use is within the guidelines adopted in the current AMP.

In the Charlie Creek Allotment most forage is produced from riparian meadows along the lower portion of Charlie Creek, Ramskull Creek, Hume Creek and the East Fork of Charlie Creek. In the 1970's cattle numbers were reduced to deal with documented over-utilization problems. In the last decade, utilization on the allotment has ranged from 59 to 93 percent.

In the Emerald Creek Allotment most of the forage within the allotment is produced from riparian meadows along the West and East Forks of Emerald Creek. Other smaller meadows are located along Willow Creek and Cedar Creek. Recent utilization monitoring on the meadow types of the allotment show an average annual utilization of 41 - 90 percent. Permanent condition and trend transect data indicate that vegetation conditions range from fair to good. Soil conditions are rated as good. Both vegetation and soils have shown an upward trend in past years. However, in 2001 a downward trend was reported in the upland monitoring transects due to a large increase in weed density.

In the Keeler Creek Allotment most of the forage within the allotment is produced from riparian meadows along Keeler Creek, Hidden Creek and the West Fork of the St. Maries River. Utilization on the allotment within the past decade has ranged from 74 to 84 percent.

In the Merry Creek Allotment Most of the forage within the allotment is produced from riparian meadows along the Middle Fork of the St. Maries River and some of the major tributaries such as Gold Center and Merry Creek. Recent monitoring of meadow areas on the allotment has shown the range condition to be good, with utilization ranging between 30 – 90 percent. As the guidelines and objectives of the CMRP are followed, the overall trend for the riparian area vegetation within the permit area is upward. Range utilization monitoring determined that heavy use was occurring along lower Gold Creek and the BPA powerline opening. Utilization exceeded the 60 percent guidelines along Gold Center, Titley, and Flewsie Creek riparian areas. Therefore, utilization standards were lowered in 1992 to 50 percent to prevent heavy use, and grazing impacts were reduced by not salting near water, reducing animal numbers and deferring grazing in these areas.

3.5 Wildlife

3.5.1 Wildlife Species Relevancy Screen

The National Environmental Policy Act directs the agency to focus on a full and fair discussion of significant issues, and identify and eliminate from detailed study the issues that are not significant. Some wildlife species and/or habitats do not occur in the wildlife analysis area and it can easily be determined – with no further analysis – that there would be no impacts. Other wildlife species and/or elements of wildlife habitat require further analysis and discussion to determine potential effects. A relevancy screening process was used to determine which species required further analysis based on the evidence of species or habitat occurrence or the potential for the proposed actions to affect a species or its habitat. The relevancy screening process also helped determine the extent of analysis needed to determine potential effects.

Results of the Relevancy Screen are displayed in the EA (Table 3-12 and the MIS section). The project file contains the Relevancy Screen and more detailed information than displayed in the EA.

3.5.2 Threatened and Endangered Wildlife

Of the five threatened and endangered wildlife species identified as potentially occurring in the Idaho Panhandle National Forests (USDI, 2002), only the gray wolf and bald eagle are likely to occur within the St. Maries grazing allotment area (Table 3-12). Based on the lack of capable habitat, the lynx has a low potential for occurring in the grazing allotment, and then primarily in the higher elevations of the Merry Creek allotment.

Table 3-12 displays a short synopsis of T&E habitat and information/results from the Relevancy Screening process.

**Table 3-12
Threatened and Endangered Wildlife Species**

Species	Habitat Requirements	Presence Within Project Area	Comments
Woodland Caribou	Lichen producing forests, typically mature/old growth.	Not present	The analysis area occurs beyond the southern extent of their present range and outside of the recovery area.
Gray Wolf	Remote areas for denning, ample prey (ungulate) population.	Potential	Marginally suitable habitat present, but wide ranging species.
Grizzly Bear	Remote areas with ample food supply, often higher elevations.	Not present	Project area in the Experimental Population Area of Bitterroot Ecosystem. No known or suspected suitable habitat in analysis area.
Lynx	Mesic conifer forests that provide a prey base of snowshoe hare (generally above 4,000'). Includes late and early successional stages.	Low potential, not probable	Based on elevation, forest type, and potential vegetation (habitat type) the project area contains insufficient capable habitat to support the species.
Bald Eagle	Large bodies of water with ample prey (fish, waterfowl), large trees for nesting.	Low potential	No known or suspected nesting or wintering habitat present, but could be present during migration.

3.5.2.1 Environmental Consequences-Threatened and Endangered Species

3.5.2.1.1 Effects Common to Alternatives A and B

Gray Wolf Cattle grazing on the St. Maries River grazing allotments is Not Likely to Jeopardize the Continued Existence of the Species or Result in Destruction or Adverse Modification of Proposed Critical Habitat for wolves. The physical presence of livestock has not been documented to affect wolf use of habitat (Fritts et al., 1992 IN Forest Service, 1995e). Because wolf denning and rendezvous sites are not known or suspected to be present in the grazing allotment due in large part to relatively high road densities and human disturbance levels, grazing is not anticipated to impact important wolf habitat. Grazing is not expected to have a significant effect on wolf prey species (see discussion on elk below). Wolf activity in/adjacent to the upper portion of the Merry Creek allotment is not expected to appreciably increase the likelihood of effects on wolves because of limited use by cattle in the upper portion of that allotment.

The presence of cattle could increase the wolf prey base in the allotment area if wolves were to target the cattle as prey. However, such an event would likely only result in a short-term benefit to wolves as this would create potential conflicts with the permittees and could lead to the development of problem wolves. Because wolf presence in the grazing allotment is believed to be uncommon and the cattle would only be present during spring and summer months, wolf-cattle interaction is likely to be a rare event.

With the reintroduction of wolves in central Idaho wolves in the grazing allotments are designated as non-essential experimental populations (USDI, 1994). As such, any impacts that may occur would not affect critical habitat or

populations. Rules and regulations pertaining to reintroduction of wolves provide direction for management of wolves in grazing allotments on public lands (USDI, 1994). These alternatives are consistent with that direction and do not bring about any changes that would affect the status of wolves or lead to any adverse impacts.

Bald Eagle Because of the infrequent and short-term presence of bald eagles and because the nearest documented nest is more than 13 miles away, cattle grazing in the St. Maries River grazing allotment areas may affect, but is not likely to adversely affect bald eagles. Because of seasonal use by the two species, bald eagles, and cattle are not likely to occur in the grazing allotment simultaneously. Degradation of riparian habitat and stream water quality by cattle could have adverse effects on bald eagle food resources (fish), but the low level of eagle presence in the area limits the likelihood severity of any potential impacts. Much of the riparian habitat most suitable for eagles is on non-National Forest System land. The continued grazing on NFS land would not appreciably affect bald eagles.

Lynx The proposed action may effect, but is not likely to adversely affect lynx. Cattle grazing may reduce forage available to snowshoe hares (lynx' primary prey) and may impact plant communities (Ruediger et. al. 2000). However, the portions of lynx habitat in the allotments are the higher elevations that are used by cattle later in the grazing season, if used at all. Also, cattle grazing (in open meadows) typically does not coincide with suitable lynx habitat (mesic coniferous forests above 4,000 ft.). The allotments are being managed to meet INFISH standards and guidelines thereby protecting riparian habitat. Proposed stocking levels and grazing conditions would not affect lynx habitat and are consistent with the *Canada Lynx Conservation Assessment and Strategy* (Ruediger et. al., 2000). The proposed grazing conditions along with the low probability of lynx occurrence in the allotments would result in a negligible impact (if any) on lynx.

Cumulative Effects Cumulative effects on habitat for T&E species are more associated with past, present and future disturbances (e.g. fire, mining, and timber management), roads/human access and other human activities (e.g. railroads, private land uses) on NFS and non-NFS land. Because cattle grazing would have little influence on endangered species in these allotments, the small effects of the grazing in Alternatives A and B would not appreciably add to past, existing and reasonably foreseeable effects.

3.5.2.1.2 Alternative C (Remove Cattle)

- **Gray Wolf** Because the present impact of cattle on wolves in the grazing allotments is negligible, the removal of cattle would also have minimal effect on wolves. Therefore, Alternative C would be not likely to jeopardize the continued existence of the species or result in destruction or adverse modification of proposed critical habitat.
- **Bald Eagle** The removal of cattle from the allotments could provide a minor benefit to bald eagle food resources by reducing impacts to riparian habitat and streams. Therefore, Alternative C may affect, but is not likely to adversely affect bald eagles.
- **Lynx** Cattle grazing typically does not coincide with suitable lynx habitat in the St. Maries grazing allotments. However, the cessation of grazing activities that may be impacting vegetation in lynx habitat may therefore have some small (but insignificant) impacts on lynx prey availability and lynx movement. Therefore, the removal of cattle may effect, but is not likely to adversely affect lynx.

Cumulative effects on habitat for T&E species are more associated with past, present and future disturbances (e.g. fire, timber management, and mining), roads/human access and other human activities (e.g. railroads, private land

uses) on NFS and non-NFS land. Cessation of grazing and removal of the small effects of the grazing would not appreciably affect existing and reasonably foreseeable effects. Because the elimination of cattle grazing would have little influence on endangered species, Alternative C would not change the cumulative effects on these species.

3.5.2.2 Consistency With Forest Plan

The IPNF Forest Plan requires the management of livestock grazing land to be consistent with the protection and management of other resources including threatened and endangered wildlife. Goals and objectives of the IPNF Forest Plan include providing for recovery of listed species and contributing to the conservation and recovery of listed species. IPNF Forest Plan standards provide specific management direction. Potential impacts in all alternatives would not adversely affect populations of any threatened and endangered wildlife species. All alternatives are consistent with Forest Plan goals and objectives and meet Forest Plan standards for threatened and endangered wildlife.

3.5.3 USFS Sensitive Wildlife Species

Sensitive species are determined by the Regional Forester (FSM 2670.5) and are those species for which population viability is a concern. The National Forest Management Act directs the Forest Service to review programs and activities to ensure that species do not become threatened or endangered as a result of Forest Service actions. Forest Plan direction for the IPNF states that habitat of sensitive species will be managed to prevent further declines in populations to prevent Federal listing.

Sensitive wildlife species from the USFS, Region One list which may occur on the St. Joe Ranger District, a short description of their habitat requirements, and potential project area presence based on the relevancy screen are displayed in Table 3-13. Detailed descriptions of each species are located in the project file (Wildlife Analysis).

**Table 3-13
USFS Sensitive Wildlife Species**

Species	Habitat Associations	Presence Within Project Area	Comments
Black-backed Woodpecker	Conifer forests with dead/dying trees (especially burned areas).	Present	Species and suitable habitat present in analysis area.
Flammulated Owl	Mature/old growth Douglas fir and Ponderosa pine forests.	Low potential	Limited capable/suitable habitat present in analysis area.
Common Loon	Lakes over 8 acres, below 5,000 feet elevation.	Not present	No capable/suitable habitat present in analysis area.
White-headed Woodpecker	Mountain pine forests	Not present	Limited capable or suitable habitat present in analysis area. Considered vagrants at the periphery of their range. (For analysis purposes in the same species guild as flammulated owl).
Northern Goshawk	Mature old-growth forest	Present	Species and suitable habitat present in analysis area.
Harlequin Duck	Swift mountain streams away from human disturbance.	Not present	No suitable habitat present in analysis area.
Fisher	Mature/old growth forests, riparian linkages.	Documented sightings	Species and suitable habitat present in analysis area.
Wolverine	Remote areas with adequate food supply.	Low potential	Limited suitable habitat based on relatively high road concentrations and levels of human disturbance.
Townsend's Big-eared Bat	Undisturbed caves, tunnels, and sometimes abandoned buildings for roosting and hibernating.	Not present	No known capable/suitable habitat in analysis area.
Coeur d'Alene Salamander	Fractured rock, seeps, waterfall spray zones and streamsidles below 5,000 feet.	Present	Two documented occurrences in Merry Creek and Charlie Creek.
Northern Leopard Frog	Lakes, ponds for breeding.	Not suspected	Suitable habitat present in analysis area, however project area outside of predicted range and species not known to occur.
Boreal Toad	Lakes, ponds for breeding. Variety of other habitats at other times.	Present	Species/suitable habitat present in analysis area.
Peregrine Falcon	Tall cliffs for nesting, large bird concentrations during migration	Not Present	No capable/suitable habitat present in analysis area.

3.5.3.1 Environmental Consequences- Sensitive Wildlife Species

3.5.3.1.1 Effects Common to Alternatives A and B

Cattle use on NFS land is of relatively low intensity, especially on upland areas. Field review indicates that existing cattle grazing is not appreciably altering the structure and composition of upland vegetation. This low impact is due primarily to lower forage volume, lower palatability, and distance to water. Therefore, grazing would not appreciably affect the critical components (forest structure) associated with **black-backed woodpecker**, **flamulated owl**, and **northern goshawk** habitat. Therefore, alternatives A and B would have no impact on these USFS sensitive species.

Effects on riparian vegetation on NFS land are/would not be intensive or extensive enough to affect fisher use of riparian areas for travel. Vegetation adjacent to the narrow riparian areas generally occurring on NFS lands provide ample opportunities for fisher movement. Again, the greatest impacts from grazing to riparian vegetation are/would occur on non-NFS land. Therefore, alternatives A and B would have no impact on **fisher** or their habitat.

Direct effects of livestock grazing may include mortality of **boreal toads** from trampling. Habitat alteration from livestock grazing is presently not believed to be a primary cause of boreal toad declines (Loeffler, 1998). It is assumed that grazing practices intended to maintain healthy riparian habitat will also contribute to management objectives for protection of boreal toad habitat (Loeffler, 1998) and by habitat association, northern leopard frogs. Desired conditions for protection of habitat include: (1) maintaining properly functioning riparian-wetlands, (2) maintaining water quality and quantity, (3) maintaining vegetative cover, (4) minimize trampling by livestock.

Existing practices regarding livestock distribution, forage utilization, and riparian exclosure fencing provide some measure of protection for boreal toads and northern leopard frog habitat on NFS land in the allotments. Impacts from grazing are likely to be localized and therefore would not be anticipated to threaten boreal toad (or leopard frog) populations. The alternatives may affect individuals or habitat, but are not likely to contribute to a trend toward Federal listing or loss of viability of the species.

The allotments are outside of the predicted range for the **northern leopard frog** in Idaho (Digital Atlas of Idaho) and they have not been recorded in or adjacent to the project area. Based on the likelihood that northern leopard frogs are not present in the project area there would be no effects on the species.

Coeur d'Alene salamander populations continue to exist at two of the documented sites in the allotments under current grazing. No further protection measures are need at these sites. The site at which the population no longer exists shows no evidence of grazing impacts (personal observation). Given the location and nature of known Coeur d'Alene salamander sites (i.e. relatively steep road cuts/fills) continued grazing under alternatives A and B would be expected to maintain existing populations at known sites. Cattle grazing under the action alternatives has the potential to affect undocumented populations. However, the risk of adverse impacts is very small, unlikely to occur, and of minimal consequence to Coeur d'Alene salamander habitat and/or populations. The action alternatives are not likely to contribute toward a trend for Federal listing or loss of viability of the species.

The project area does not provide the habitat characteristics of **wolverine** habitat (i.e. large areas with low open road densities). Wolverines are not suspected as being present other than as possible transitory individuals.

Continued grazing would not affect road densities or disturb potential denning habitat. Wolverine habitat would not be affected.

Cumulative Effects Cumulative effects on habitat for sensitive species are more associated with land management objectives on non-NFS lands, past harvest, existing roads, and human access. The small effects of the grazing would not appreciably add to the effects from past, present, and reasonably foreseeable actions.

3.5.3.1.2 Alternative C (Remove Cattle)

Direct/Indirect Effects Alternative C would not result in impacts to any USFS sensitive species.

Cumulative Effects Because cattle grazing is not having an appreciable adverse effect, any beneficial effect from removing cattle would be negligible and there would be little change in cumulative effects from implementation of Alternative C on sensitive species.

3.5.3.2 Consistency With Forest Plan

The IPNF Forest Plan requires the management of livestock grazing land to be consistent with the protection and management of other resources including USFS sensitive wildlife species. Goals and objectives of the IPNF Forest Plan include managing habitat to maintain populations of sensitive species of wildlife and to assure adequate populations to prevent the need for federal listing. The IPNF Forest Plan standard for sensitive species is to prevent further declines in populations which could lead to federal listing under the ESA. Potential impacts in all alternatives would not adversely affect populations of any sensitive wildlife species. All alternatives are consistent with Forest Plan goals and objectives and meet the standard for sensitive wildlife.

3.5.4 Management Indicator Species

Management Indicator Species (MIS) are species selected to estimate the effects of management activities on wildlife populations. The Forest Plan identified MIS for the IPNF. They include several categories of species including: threatened and endangered (discussed earlier), commonly hunted or trapped, and species whose population changes are believed to indicate effects of management on other species or biological communities. Species associated with old growth forests and big game species are the primary MIS that occur in the grazing allotment area.

MIS Associated with Old Growth Forest

The MIS associated with old growth forests include northern goshawk (*Accipiter gentilis*), pileated woodpecker (*Dryocopus pileatus*), and pine marten (*Martes americana*). Detailed descriptions of each species are located in the project file (Wildlife Analysis). A total of 11,987 acres of mature/old-growth forest was identified within the allotments using a coarse filter screening of habitat. This represents about 23 percent of the National Forest lands within the allotments. Although a significant proportion of the allotments consists of mature/old-growth habitat, cattle access to mature and old growth forest is limited due to the lack of substantial amount of suitable forage and access limitations that result from woody debris and slope typically associated with these habitats. When they do occupy mature/old-growth habitat, they are primarily in transit between areas that provide better forage.

Big Game MIS

Big game MIS include elk (*Cervus elaphus*) and moose (*Alces alces*). Detailed descriptions of each species are located in the project file (Wildlife Analysis). Timber harvest areas and meadows provide abundant browse for big game throughout the analysis area. Much of the allotment area may be used by big game throughout the year, but the portions above 4,000 feet elevation provide limited suitable winter habitat.

3.5.4.1 Environmental Consequences- MIS Species

3.5.4.1.1 Effects Common to Alternatives A and B

Old Growth Associated Existing cattle grazing is not appreciably altering the structure or composition of upland vegetation (e.g. because cattle are grazers). It is anticipated that this would continue to be the case under alternatives A and B. Cattle presence in the St. Maries allotments would not significantly impact old-growth components (i.e. forest structure) depended upon by the pileated woodpecker, pine marten, and other wildlife associated with old growth. Therefore, neither of the action alternatives would adversely affect MIS associated with old growth habitat.

Big Game Because cattle are grazers they would consume potential elk and/or moose forage in the grazing allotment. However, cattle grazing is/would not significantly affect cover/forage ratios for big game within the analysis area. The cattle would be removed from the allotment prior to winter range use by elk and other big game, and there would be no direct conflict with cattle during critical wintering months. Cattle grazing during spring and summer months would result in a reduction of available herbaceous forage in the areas predominately occupied by the cattle (riparian areas), but these reductions would not result in adverse effects to big game MIS. Any impacts on access/human disturbance (e.g. behind gates) would be temporary and within use levels allowed for due to general forest use and administrative use. An analysis of potential elk use related to livestock in the Keeler Creek allotment, the analysis done for the Hidden Cedar Project, and information from IDF&G (project file, Hidden Cedar Elk/Cattle Grazing and Field Trip to Dutch Cat) indicates that the presence of cattle - at current levels - is not conflicting with elk use on NFS land. Based on the low number of cattle and utilization standards grazing is and would have negligible adverse effects on big game.

Cumulative Effects Other activities such as timber harvest, roads/access, land management objectives on non-NFS lands, and hunting affect MIS habitat and populations. Such activities have a significantly greater influence on MIS populations than cattle grazing. Therefore, the cumulative impacts from Alternative A and B on MIS would be negligible when added to past, present and reasonably foreseeable actions.

3.5.4.1.2 Alternative C (Remove Cattle)

Direct/Indirect Effects Because cattle have little influence on old-growth habitat, elimination of grazing would not significantly affect old-growth. Because of an anticipated increase in forage availability under this alternative, elimination of grazing in the analysis area would benefit big game MIS (primarily elk). However, because the cattle grazing is limited to only a small portion of the grazing allotments and does not occur in areas identified as critical big game winter range, the overall benefits would be minor.

Cumulative Effects Other activities such as timber harvest, roads/access, and hunting vulnerability affect MIS habitat and populations. Such activities have a significantly greater influence on MIS populations than cattle grazing. Because the elimination of cattle grazing within the allotments would slightly improve existing forage

conditions and big game MIS may be benefitted. This alternative would not contribute to any cumulative adverse impacts on MIS species.

3.5.4.2 Consistency With Forest Plan

The IPNF Forest Plan requires the management of livestock grazing land to be consistent with the protection and management of other resources including MIS species. Goals and objectives of the IPNF Forest Plan include providing a diversity of plant and animal communities, managing habitat to maintain viable populations of wildlife species, and managing big game habitat to achieve IDF&G objectives. The IPNF Forest Plan standard for MIS is to maintain viable populations distributed throughout the Forest. Standards for old growth were established to maintain diversity of plant and animal communities. IPNF Forest Plan standards for range include giving priority to big game needs on winter range and key summer range. Potential impacts in all alternatives would not adversely affect populations of any wildlife MIS. All alternatives would maintain a diversity of plant and animal communities, maintain adequate big game habitat on winter range, are consistent with Forest Plan goals and objectives and meet the standards for maintaining diversity, old growth and wildlife MIS.

3.5.5 Neotropical Migratory Birds

Over 100 species of neotropical migratory birds (for this analysis this also includes all forest land birds) occur in Idaho, many of which utilize the various habitats that are present in the St. Maries grazing allotments. They include a diverse group of birds that are comprised primarily of songbirds, but also include some raptor and shorebird species. They each have specific habitat requirements and occupy a variety of habitats including coniferous and deciduous forest, meadows, riparian areas, wetlands, and subalpine habitat. Although they occupy all habitat types in the analysis area, over 80 percent of neotropical migratory birds utilize riparian habitat for nesting or foraging during a portion of their annual cycle (Krueper, 1992). Therefore, the riparian areas in the St. Maries grazing allotments are considered to provide the most productive neotropical migratory bird habitat.

The streams that flow through the grazing allotments are characterized in the headwaters by higher gradient segments that have forested riparian habitat that provides little difference in habitat from surrounding upland areas. These stream segments are not generally used by cattle. Riparian habitat on NFS lands in the St. Maries grazing allotments utilized for grazing in general, falls within the narrow valley bottom riparian complex as described in the Idaho Bird Conservation Plan prepared by Idaho Partners in Flight (2000). These types of riparian areas are described as being “lower in priority for birds than other described types” (Idaho Partners in Flight, 2000).

3.5.5.1 Environmental Consequences- Neotropical Migratory Birds

3.5.5.1.1 Effects Common to Alternatives A and B

Effects to individual neotropical migrant birds or habitat are likely to continue from grazing under both action alternatives. However, grazing in the St. Maries allotments would not appreciably affect priority avian habitats (Idaho Partners in Flight, 2000). As discussed elsewhere in this document, impacts on terrestrial upland habitat (including low-elevation mixed conifer and Ponderosa pine) are minimal and would not appreciably affect habitat or birds. The greatest potential for impacts on birds would be in riparian habitat. As described in Chapter III, the riparian habitat on NFS lands are not high priority habitat for avian species and are not specifically addressed in the Conservation Plan for Priority Birds and Habitats: Riparian Habitat (Idaho Partners in Flight, 2000).

Any impacts are likely to affect a relatively small amount of the grazing allotments and would primarily occur along riparian and road corridors, and in meadows where grazing is most intense. Based on the limited scope of grazing on NFS land any impacts on migrant bird would be correspondingly limited in scope and would not affect high priority habitat (thereby limiting the consequences).

Cumulative Effects Other land management (e.g. agricultural use on non-NFS land) and forest management practices (e.g. timber harvest) also affect neotropical migratory bird habitat. Impacts from cattle grazing combined with these other impacts generally result in greater impacts to neotropical migratory birds than what would occur individually from these actions. Therefore, Alternatives A and B would add to the cumulative impacts to neotropical migratory birds. However, Alternative A could potentially result in slightly greater impacts than Alternative B, because it does not contain provisions establishing the more extensive standards of monitoring and use.

3.5.5.1.2 Alternative C (Remove Cattle)

Direct/Indirect Effects No impacts to neotropical migratory birds from grazing would occur under Alternative C. Areas that have experienced impact from past grazing would eventually recover. Therefore, Alternative C would provide a slight benefit to neotropical migratory birds over existing conditions.

Cumulative Effects Because the elimination of cattle grazing within the allotments would slightly benefit neotropical migratory birds, Alternative C would slightly offset the effects on these species from other land uses and forest activities. Therefore, Alternative C would not contribute to cumulative impacts to neotropical migratory birds.

3.6 Rare Plants

3.6.1 Threatened, Endangered and Sensitive Plant Species

3.6.1.1 Threatened and Endangered Species

Three threatened plant species are suspected to occur on the Idaho Panhandle National Forests; water howellia (*Howellia aquatilis*), Spalding's catchfly (*Silene spaldingii*), and Ute ladies tresses (*Spiranthes diluvialis*). A description of the species and their habitats is located in the project file (Rare Plant Descriptions).

There are no known locations of these plants on the St. Joe District, but potentially suitable habitat was thought to exist. Surveys in potential habitat were conducted in the summer of 2000 for Ute ladies' tresses and water howellia. No populations of were found (see survey forms in the project file). According to the habitat profiles developed by Moseley (1999) the Idaho Panhandle National Forest falls into the Northern Rocky Mountains Ecoregion. In Idaho, no occurrences of *S. diluvialis* are located in this ecoregion. A single site in Washington occurs in alkaline wetlands at the western edge of this ecoregion however, these types of wetlands do not occur in northern Idaho. Moseley concludes that very few of the plant associations and the adjacent riparian plant communities found at *S. diluvialis* sites occur in this ecoregion and the vegetation within the ecoregion consists almost entirely of coniferous forests which are not potential habitat for *S. diluvialis* therefore, the probability of Ute ladies'-tresses occurring in northern Idaho is low.

In the summer of 2001 (July 13, 15, 17, 18, and 20), potential habitat for Spalding's catchfly was ground truthed for suitability. Those areas that were most promising were surveyed for species presence at the same time. Because *S. spaldingii* may not appear every year, these areas were resurveyed on 8/7/02 and 8/14/02 and none were found. All survey forms are located in the project file.

**Table 3-14
USFS Sensitive Plants for the St. Joe Ranger District**

Species	Habitat Guild	Presence in Analysis Area
<i>Asplenium trichomanes</i>	Rock seeps in Moist/Wet Forest	Possible
<i>Blechnum spicant</i>	Moist/Wet Forest	Documented
<i>Botrychium ascendens</i>	Wet Forest	Likely
<i>Botrychium crenulatum</i>	Wet Forest	Likely
<i>Botrychium lanceolatum</i>	Moist/Wet Forest	Likely
<i>Botrychiumminganense</i>	Moist/Wet Forest	Likely
<i>Botrychium montanum</i>	Wet Forest	Likely
<i>Botrychium paradoxum</i>	Moist/Wet Forest	Likely
<i>Botrychium pendunculatum</i>	Wet Forest	Likely
<i>Botrychium pinnatum</i>	Moist/Wet Forest	Likely
<i>Botrychium simplex</i>	Moist/Wet Forest	Documented
<i>Buxbaumia aphylla</i>	Subalpine	Possible
<i>Buxbaumia viridis</i>	Wet Forest	Documented
<i>Cardamine constancei</i>	Deciduous Riparian, Moist/Wet Forest	Possible
<i>Carex hendersonii</i>	Moist/Wet Forest	Documented
<i>Carex xerantica</i>	Subalpine	Possible
<i>Cetraria subalpina</i>	Subalpine	Possible
<i>Collema curtisporum</i>	Deciduous Riparian	Possible
<i>Cypripedium fasciculatum</i>	Dry/Moist/Wet Forest Microsites	Likely – documented in close proximity
<i>Grindelia howellii</i>	Dry Forest	Unlikely
<i>Hookeria lucens</i>	Wet Forest	Possible
<i>Mimulus alsinoides</i>	Rock Cliffs/Seeps in Dry/Moist/Wet Forest	Possible
<i>Thelypteris nevadensis</i>	Wet Forest seeps	Possible
<i>Triantha occidentalis</i>	Subalpine peatlands	Possible
<i>Waldsteinia idahoensis</i>	Moist/Wet Forest	Possible

Likely = high potential habitat for the species exists within a grazing allotment

Possible = the presence of habitat for the species may occur within a grazing allotment

Unlikely = habitat for the species does not occur within a grazing allotment

3.6.1.2 Sensitive Species

A total of 25 USFS sensitive plant species have been documented or could potentially occur within the allotment areas (Table 3-14). A total of 3,196 acres (about 6 percent of the National Forest land in the allotments) of potentially suitable habitat is present within the analysis area (project file, High Potential Habitat Queries). The majority of it consists of wet/moist forest and subalpine habitat. Not all of this habitat is available or desired for

use by cattle. Regional direction (Leonard, 1992) states that the need for and extent of field reconnaissance should be commensurate with the risk associated with the project and species involved, and the level of knowledge already in hand. A description of these and all rare plant habitat guilds on the St. Joe District is located in the project file (St. Joe Rare Plant Habitat Guild Descriptions).

Deer fern (*Blechnum spicant*), least moonwort (*Botrychium simplex*), green bug-on-a-stick (*Buxbaumia viridis*), and Henderson's sedge (*Carex hendersonii*) have been documented in the analysis area (Idaho Conservation Data Center, 2002). There are several occurrences of deer fern within the two allotments. Only one exhibits any sign of cattle use. This population will be fenced along with the least moonwort occurrence. All other deer fern sites are located deep in timber. All known populations of *B. viridis* occur under heavy timber and show no signs of cattle use. The Henderson's sedge is located on private land. More detailed descriptions of these rare plant occurrences are in the project file (Rare Plant Description and Documentation Information).

3.6.1.3 Environmental Consequences Rare Plant Species

3.6.1.3.1 Effects Common to Alternatives A and B

Grazing can directly impact endangered, threatened, and USFS sensitive (TES) plants through trampling and consumption by cattle. Indirect impacts could result from modification of habitat due to cattle presence including promotion of the establishment of exotic species and the prevention of natural evolution of plant communities. Because grazing activity is primarily concentrated in the riparian areas and along road corridors, potential impacts are generally limited to species of concern and the 21 sensitive plant species included in the wet, moist, and dry forest, and deciduous riparian guilds identified in Table 3-14 as well as the threatened species water howellia, Spalding's catchfly, and Ute ladies'-tresses. Impacts to the known population of deer fern and *Botrychium simplex* near Emerald Creek from grazing have been reported and include trampling and grazing by livestock. Such impacts are expected to continue if mitigation measures are not implemented. Similar impacts to documented and undocumented populations of TES plants could result in riparian areas where cattle frequently feed. Because cattle presence is typically less concentrated outside of riparian areas, direct impacts (i.e., trampling, consumption) to TES plants in other habitats are less likely. There is no evidence of cattle presence at the other known sites of deer fern and green bug-on-a-stick moss within the cattle allotments.

Grazing by cattle along linear features such as road and riparian corridors can provide a vector for the establishment and spread of noxious weeds. Such promotion of noxious weeds could threaten some TES populations. Potential impacts to TES plants would not be limited to where cattle graze. Once established, noxious weeds could spread into other nearby areas where they could possibly affect TES plant populations otherwise undisturbed by cattle.

Neither action alternative would likely result in adverse effects on any of the four USFS sensitive plants associated with sub-alpine habitats because cattle typically do not utilize these areas.

3.6.1.3.2 Alternative A (Existing Practice)

Direct/Indirect Effects Plant surveys in areas of potential habitat for the two threatened species water howellia and Ute ladies'-tresses were completed in the summer of 2000. Highly suitable habitat for Ute ladies'-tresses was not present within the allotments on federal lands and no populations were found of either water howellia or Ute ladies'-tresses. Surveys for the threatened species Spalding's catchfly were conducted in July 2001 and repeated

in August 2002. No populations were found. Because no individuals are present in the grazing allotments, there would be **no effect** on these three species.

Within the allotments, not all of the potential habitat for sensitive species has been surveyed. However, the majority of this potential habitat occurs in areas that do not receive direct cattle use. Of the known sensitive plant sites, none would receive any mitigation for protection. Because grazing is primarily concentrated in the riparian areas and along road corridors, potential impacts are generally limited to the species associated with these areas. No sensitive plants are generally found within grassland habitat, although deerfern and some *Botrychium* species may occur there incidentally. Because cattle presence is typically less concentrated outside of riparian areas, direct impacts (trampling, consumption) to plants in forest guild habitats are less likely. However, effects cannot be ruled out and so Alternative A may impact individuals or habitat within the moist and wet forest guilds, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Cumulative Effects Other forest management practices also impact TES plants. Activities such as timber harvest can result in direct impacts to populations while other activities such as road and utility corridor construction can promote the spread of weeds that often displace TES plants. Impacts from cattle grazing under Alternative A combined with these other impacts would result in generally greater impacts to TES plants than what would occur individually from these actions. State and private landowners are not required to protect sensitive species. However, completed and proposed surveys and any associated mitigation would assure that any known sensitive plants would be protected from actions that are likely to contribute to that species loss of viability. Grazing would not have cumulative effects on federally listed species because surveys have not revealed any to be present in the project area.

3.6.1.3.3 Alternative B (Proposed Action)

Direct/Indirect Effects Plant surveys in suitable habitat for the two threatened species water howellia and Ute ladies' tresses were completed in the summer of 2000 and no populations were found. Surveys for the threatened species Spalding's catchfly were conducted in July 2001 and repeated in August 2002. No populations were found. Because no individuals are present in the grazing allotments, there would be **no effect** on these three species.

The effects on sensitive plants from Alternative B would be similar but slightly smaller to those of Alternative A. The main difference would be that the population of deer fern in Emerald Creek that is currently being impacted by cattle would be fenced. However, because the possibility of impacts to unknown populations of sensitive plants would still exist, Alternative B **may impact** individuals or habitat within the moist and wet forest guilds, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Cumulative Effects Other forest management practices also impact TES plants. Activities such as timber harvest or garnet digging can result in direct impacts to populations while other activities such as road and utility corridor construction can promote the spread of weeds that often displace TES plants. Impacts from cattle grazing under Alternative B combined with these other impacts would result in generally greater impacts to TES plants than what would occur individually from these actions. State and private landowners are not required to protect sensitive species. However, completed and proposed surveys and any associated protection measures would mitigate effects for any new species found on federal lands. Protection measures for the population of deerfern on

Emerald Creek would result in more stability for the species than would be found in Alternative A. Grazing would not have cumulative effects on federally listed species because surveys have not revealed any to be present in the project area.

3.6.1.3.4 Alternative C (Remove Cattle)

Direct/Indirect Effects No grazing would occur under Alternative C. While federally listed plants may have once been located in the project area, decades of human activity including grazing has resulted in extensive habitat modification. As such very little suitable habitat remains for these species and none were found during surveys. Therefore, there would be no effect on the three federally listed species potentially to be found in the project area.

Cumulative Effects Because the elimination of cattle grazing would not impact TES plants, Alternative C would not contribute to the cumulative effects on these species.

3.6.1.4 Consistency with Forest Plan

The Forest Plan states one management goal as "manage habitat to maintain populations of identified sensitive species of animals and plants" (Forest Plan, II-1). A Forest Plan standard for sensitive species is to "manage the habitat of species listed on the Regional Sensitive Species List to prevent further declines in populations which could lead to Federal listing under the Endangered Species Act" (Forest Plan, II-28). The Forest Plan also identifies the need to "Determine the status and distribution of Threatened, Endangered, and Rare (sensitive) plants on the IPNF" (Forest Plan, II-18). Because surveys have been completed with no rare plants found, both action alternatives would meet the intent of the Forest Plan. The No Action Alternative would also meet the intent of the Forest Plan.

3.7 Noxious Weeds

Surveys conducted for the St. Joe Noxious Weed Control Project EIS indicate that spotted knapweed (*Centaurea biebersteinii*), St. John's wort (*Hypericum perforatum*), meadow hawkweed (*Hieracium pratense*), Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), common tansy (*Tanacetum vulgare*), oxeye daisy (*Leucanthemum vulgare*), and orange hawkweed (*Hieracium aurantiacum*) are all present within the grazing allotments. All of these species are considered established on the St. Joe District according to the St. Joe Noxious Weed Control Project EIS (project file). There are also four species within or near the allotments that are considered to be new invaders on the district; purple loosestrife (*Lythrum salicaria*), houndstongue (*Cynoglossum officinale*), dalmation toadflax (*Linaria genistifolia*), and sulfur cinquefoil (*Potentilla recta*). The St. Joe Noxious Weed Control Project EIS (USDA, 1999a) designates all of the allotments as potential weed treatment sites. The proposed weed management program includes a combination of manual (hand-pulling, mowing, brushing), cultural (revegetating with native species, fertilization), biological (biotic agents to attack undesirable plant species), and chemical treatment (herbicides) along roads in the forest area and in meadows within the grazing allotment areas. Herbicides have been applied, on a limited basis, within the allotments in the past. Three biological control agents for spotted knapweed were released in the area in April 2001.

3.7.1.1 Environmental Consequences-Noxious Weeds

There are a variety of weed species found within the allotments. Many of them are considered established species for which complete eradication is not a feasible goal. The continued spread of weed populations is expected to occur under all alternatives because of transport along travels corridors and waterways. Cattle may aid in noxious

weed spread in several ways. Weed seed may be transported in the coats of the livestock. However, of all the weed species found on the allotments, only houndstongue creates a burr that is adapted to this type of transport. Cattle may transport weed parts via the mud attached to their hooves, but these seeds will have difficulty germinating in plant communities that are healthy and competitive. In addition, with less than 200 pairs allowed to graze on all allotments, the effects of seed transport in this manner is likely to be small compared that of transport by vehicles, recreationists, and natural forces. Cattle may provide the greatest opportunity for weed spread by soil disturbance or overgrazing of competitive desirable vegetation. Cattle generally do not spread large amounts of weed through their feces because weeds at the seed stage are not attractive forage.

3.7.1.1.1 Effects common to all alternatives

Under all alternatives, weeds will be treated in accordance with the St. Joe Noxious Weed Control Project EIS as time, district priorities, and funding permit. While weed treatments may eradicate new invaders, they are only expected to contain or slow the spread of existing established species. As the density of weed populations occurs, the available forage will decrease resulting in a downward trend.

3.7.1.1.2 Alternative A (Existing Practice) Effects

Because there are few monitoring standards associated with this alternative, the opportunities for cattle to damage the resource and permit the establishment of new weeds is highest under this alternative. Cumulatively, weeds would continue to spread across the landscape although weed treatments are expected to slow the rate of spread.

3.7.1.1.3 Alternative B (Proposed Action)

The proposed monitoring under this alternative is designed to prevent or minimize resource damage which should lessen the risk of noxious weed establishment. However, cumulatively weeds are still expected to slowly spread although weed treatments are expected to slow the rate of expansion.

3.7.1.1.4 Alternative C (Remove Cattle)

Because other activities within the allotment areas have the greatest potential to spread weeds, cessation of grazing is not expected to result in large reductions of weed populations. However, in conjunction with weed treatments, this alternative has the greatest potential to reduce new weed establishment. Cumulatively weeds are still expected to slowly expand across the landscape.

3.8 Human Values

3.8.1 Human Values Overview

The Forest Plan for the IPNF was completed in 1987. Management direction in the Forest Plan states that “Opportunities for grazing and other uses of public range resources will be managed to serve the welfare of local residents and communities” (Forest Plan, Pg. II-31).

The Rangeland Reform Draft Environmental Impact Statement (DEIS) evaluated economic conditions across 16 western states where grazing is allowed (USDA, 1994). The Rangeland Reform DEIS concluded that federal rangelands are essential to the economic vitality of many farms, ranches, and rural communities. Average

dependency of cattle producing grazing permits on federal forage in Idaho is 23 percent. Respondents of a Rangeland Reform DEIS survey estimated that each permittee spends about \$19,000 annually in local communities. The Rangeland Reform analysis also found that western Federal grazing permittees receive an average of \$431 in revenue for each calf grazed on Federal lands. A forage -related job/income model (USDA, 1999b) estimated that a total of eight jobs were supported by the 6,500 AUMs of forage produced by the IPNF in 1994. Although National Forest system grazing contributes a relatively small economic benefit (three percent of forage production and eight jobs) within the panhandle region (see project file IPNF Regional Grazing Program Contributions and Costs and Table 3-16), grazing on National Forest lands is important to ranchers living in the Forest Plan’s area of impact. Additional information regarding the regional grazing program on the IPNF and the associated costs is located in the project file (IPNF Regional Grazing Program Contributions and Costs).

3.8.2 St. Maries River Grazing Allotments

The five National Forest grazing allotments (Keeler, Catspur, Emerald Creek, Merry Creek, and Charlie Creek) located in the St. Maries River basin are important to local ranchers and to the economy of the small communities in the basin. Table 3-15 summarizes some of the economic factors related to National Forest Grazing in the basin, based on 1998 data.

Table 3-15
Economic Factors of St. Maries River Grazing Allotments
(National Forest Lands in 1998)

Economic Factor	Result
Number of ranchers dependent on National Forest forage	6
AUMs of forage provided	733
Estimated annual revenue provided to ranchers ¹	\$74,563
Estimated contribution to local community economy ²	\$114,000
Percent of IPNF forage provided	18

¹ \$431 average revenue/calf X 173 cow/calf units grazed in 1998 (Range Reform DEIS, 1994).

² \$19,000 contributed annually/each producer x 6 ranchers (Range Reform DEIS, 1994).

All of the ranchers permitted on the St. Maries allotments own property either within the allotment boundaries or adjacent to them that provides supplemental forage for their operations. They also lease grazing lands from other landowners, such as timber companies and the Idaho Department of Lands, that are often intermingled with National Forest system lands and are managed cooperatively to provide for manageable grazing units or allotments. Loss of available grazing on any of these lands can adversely affect the economic viability of the operations of affected ranchers. Three of the permittees move their cattle to other areas outside the basin for winter grazing/feeding.

The 173 cattle grazed on National Forest system lands within the five allotments generate an estimated annual \$74,563 revenue for the six permittees. The 704 cattle grazed on intermingled private lands within the allotment boundaries generate an additional \$303,424 in annual revenue for the permittees. Based on the findings of the Range Reform DEIS, the six ranchers utilizing National Forest forage on the five allotments annually spend \$114,000 in local communities. The forage produced on the five St. Maries River Basin grazing allotments provided 18 percent of the forage produced in the Idaho Panhandle National Forest in 1998.

3.8.2.1 Environmental Consequences- Human Values

Table 3-16 summarizes the economic effects of each alternative.

**Table 3-16
Summary of Economic Effects (NF System Lands)**

Economic Indicator	Alternative A Grazing with Existing Practices	Alternative B Proposed Action	Alternative C No Grazing
Local			
¹ Annual revenue to ranchers	\$74,563	\$74,563	-----
² Contribution to local economy	\$114,000	\$114,000	loss of portion of \$114,000
Animal units (AUMs) of forage produced	733	733	-----
Region			
IPNF forage production (AUMs)	4,171	4,171	3,438
Livestock production jobs supported in 5 county area of impact of IPNF ³	8	8	6.5
Income generated by livestock production jobs supported in IPNF 5 county area of impact ³	\$332,000	\$332,000	\$272,240

¹ \$431 average revenue/calf X 173 cow/calf units grazed in 1998 (Range Reform DEIS, 1994).

² \$19,000 contributed annually/each producer x 6 ranchers (Range Reform, DEIS, 1994).

³ Missoula Forest Science Laboratory, Micro IMPLAN Income/Employment Coefficients for Fiscal Year 1994 Range Program (USDA, 1999b).

Additionally, there are benefits and costs associated with each alternative to both the permittees and the Forest Service. (see Economic Analysis for Grazing Permits in project file). Monetarily costs and benefits are essentially the same under alternatives A and B. Costs may be slightly higher in Alternative B to both the Forest Service and permittees due to the additional monitoring requirements. However, benefits would also be expected to increase in the form of improved resource conditions. In alternative C there are neither permit administration costs nor benefits for either party.

3.8.2.1.1 Alternative A (Existing Practice) and Alternative B (Proposed Action)

Under Alternatives A and B, forage production and grazing practices would be the same. As a result, the effects to the local and regional economy would be similar.

Local Ranchers Six ranchers depend upon the 733 Animal Unit Months (AUMs) of National Forest system land forage currently produced from the five allotments for summer grazing. Annual revenues to the six ranchers from grazing 173 cow/calf units grazed on intermingled private lands within the allotment boundaries generate an additional \$303,422 in annual revenue for the permittees.

Under Alternatives A and B, the current level (733 AUMs) of forage production on National Forest system lands would continue. Rancher revenues generated from both National Forest system land and private land grazing would remain at current levels.

Local Communities and Counties Under these alternatives, economic support generated by grazing on the five allotments to local communities and counties would continue.

The six ranchers grazing on the allotments would continue to contribute an estimated \$114,000 (USDA, 1994) to local communities.

3.8.2.1.2 Alternative C (No Grazing)

Local Ranchers Under this alternative, no grazing would occur in the five allotments. Ranchers would lose approximately \$74,563 in annual revenue from grazing produced on National Forest system lands and an additional \$303,434 from grazing produced on private lands within the allotments. An estimated 733 AUMs of National Forest forage would not be available for use.

Declines in forage production could result in a decrease of 2.5 livestock industry jobs in the five county impact area based on the latest data available from the Micro IMPLAN model. If this occurred, a corresponding estimated decrease in related income of \$59,760 from current levels (\$332,000) could occur.

Ranchers whose permits would terminate may find that the value of their ranching operation would decline (USDA, 1994, pgs. 3-70 to 71). However, since permits are not transferable to new owners or create any right, title, interest, or estate in the public lands, such losses would be difficult to assess.

Local Communities and Counties Under this alternative, local communities would not receive the economic benefits from livestock use. Respondents of a Rangeland Reform '94 survey (USDA, 1994, page 3-75) estimated that they spend about \$19,000 annually in local communities. Based on this assumption, the six ranchers that graze on the five allotments annually contribute an estimated \$114,000 to the local economy. Ranchers whose permits terminated would not spend some of this amount. Impacts would be concentrated primarily in Benewah County.

3.8.2.2 Idaho Panhandle National Forest Forest Plan Consistency

3.8.2.2.1 Alternative A (Current Practice)

Although this alternative is consistent with IPNF Forest Plan Direction relation to range management and local communities, it is not consistent with direction provided by the INFish amendment to the Forest Plan because it does not incorporate any method to detect if standards are being met.

3.8.2.2.2 Alternative B (Proposed Action)

This alternative is consistent with IPNF Forest Plan direction, as amended by INFish.

3.8.2.2.3 Alternative C (No Grazing)

The Idaho Panhandle National Forest Plan strives to manage for a balance of resource uses. Under this alternative, the option for management of grazing land in the St. Maries river basin is foregone. This alternative does not adversely affect other resources; but it does not help achieve Forest Plan goals for range management or for local communities

Chapter Four - List of Preparers

The following individuals are members of the interdisciplinary team for the St. Maries Grazing Allotment Project, and worked together to prepare this Environmental Assessment. Areas of responsibility are identified for each team member.

Team Member	Project Responsibility
US Forest Service, St. Joe Ranger District	
Dennis Griffith	Overall Team Leader
Judy Hallisey, John Macy	Hydrologist
Mike Owen, Lisa Hawdon	Fisheries Biologist
Chuck Stock	Wildlife Biologist
Mark Mousseau, Suzanne DiGiacomo	Botanist
David Evans and Associates, Inc.	
Ron Bockelman	QA/QC Review
Martha Wiley	Team Leader, Document Preparation
Bret Forester	Wildlife Biology, Terrestrial Ecology
John Macklin	Riparian Ecosystems, Fisheries Biology

Chapter Five - List of Agencies, Organizations, and Persons Receiving Copies of This Environmental Assessment

5.1 Government Agencies

Coeur d'Alene Tribe, Plummer, Idaho
Idaho Department of Lands, St. Maries, Idaho
Idaho Department of Health and Welfare, Division of Environmental Quality, Coeur d'Alene, Idaho
Idaho Department of Fish and Game, Coeur d'Alene, Idaho
USDA Forest Service, Palouse Ranger District, Clearwater National Forest, Potlatch, Idaho
USDI, Fish and Wildlife Service, Spokane, Washington

5.2 Organizations and Businesses

Alliance for the Wild Rockies, Missoula, Montana
Crystal Creek Camp, Lenore, Idaho
Defenders of Wildlife, Washington DC
The Ecology Center, Missoula, Montana
Emerald Creek Garnet Company, Fernwood, Idaho
Idaho Conservation League, Moscow, Idaho
Inland Empire Public Lands Council, Spokane, Washington
Kootenai Environmental Alliance, Coeur d'Alene, Idaho
Klaveano Ranches, Pomeroy, Washington
Potlatch Corporation, St. Maries, Idaho
Shattuck Creek Ranch Outfitter, Elk River, Idaho

6.3 Individuals

Dennis Baird, Moscow, Idaho
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Bradley Flatt, Kendrick, Idaho
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Chapter Six- References and Literature Cited

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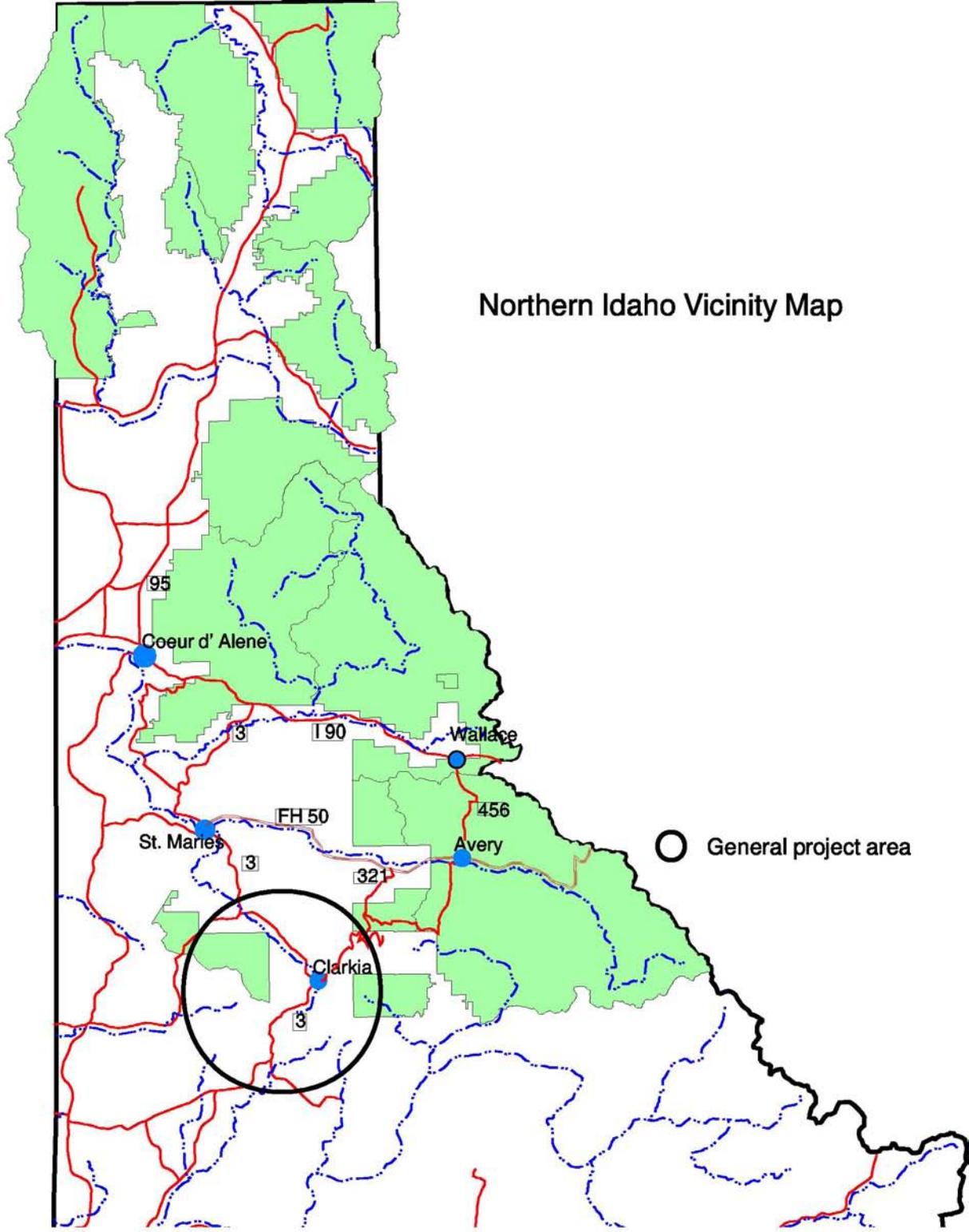
5.2 Personal Communication

- Hallisey, J. 1998. USDA Forest Service. Hydrologist. Idaho Panhandle National Forests. St. Joe Ranger District. Riparian assessments and greenline surveys. Personal communication.

Stock, C., 1998. USDA, Forest Service. Wildlife Biologist, Idaho Panhandle National Forests, St. Joe Ranger District. Personal communication October 13, 1998 and January 6, 1999.

Appendix A - Allotment Maps

Northern Idaho Vicinity Map

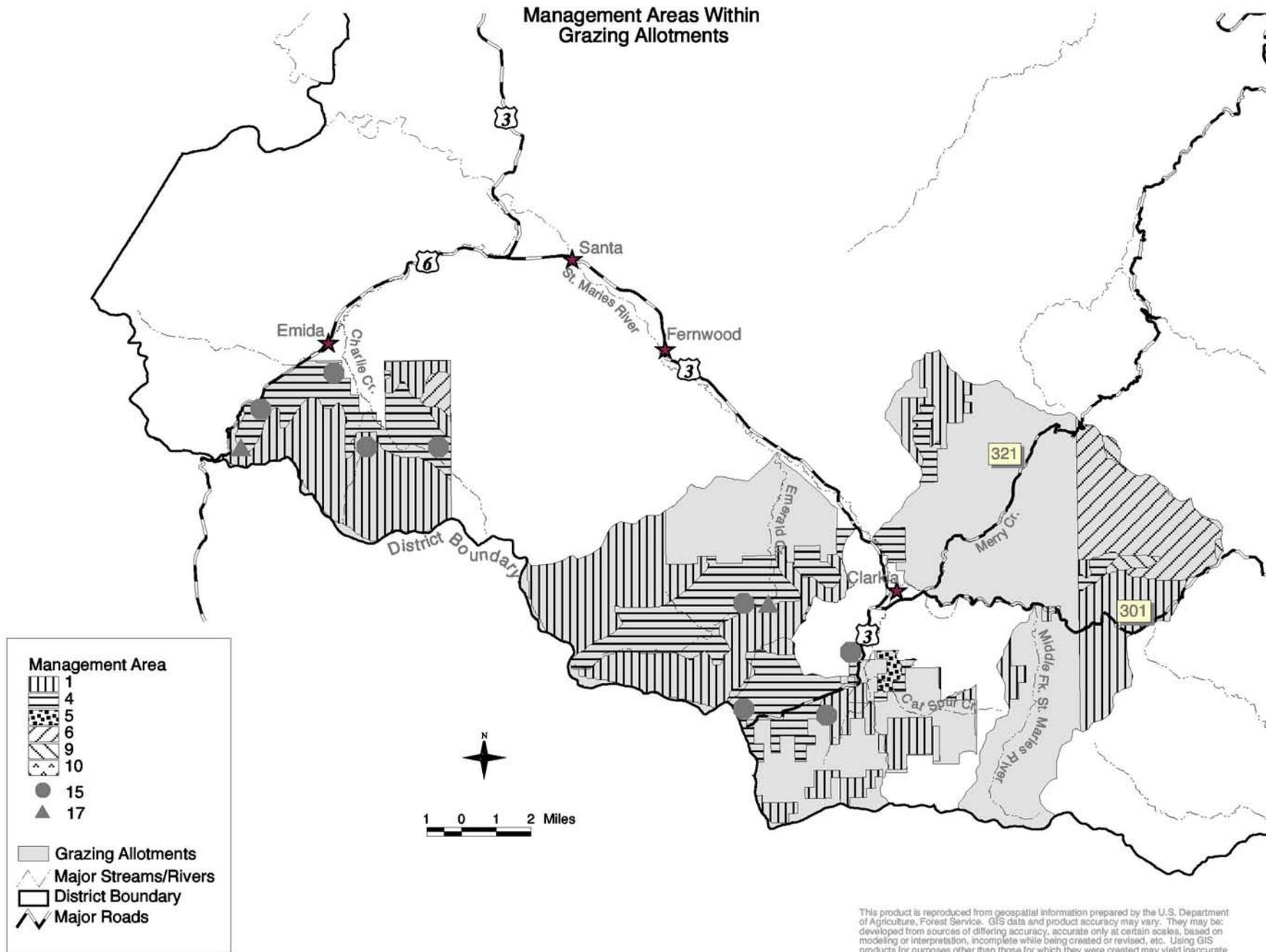


○ General project area

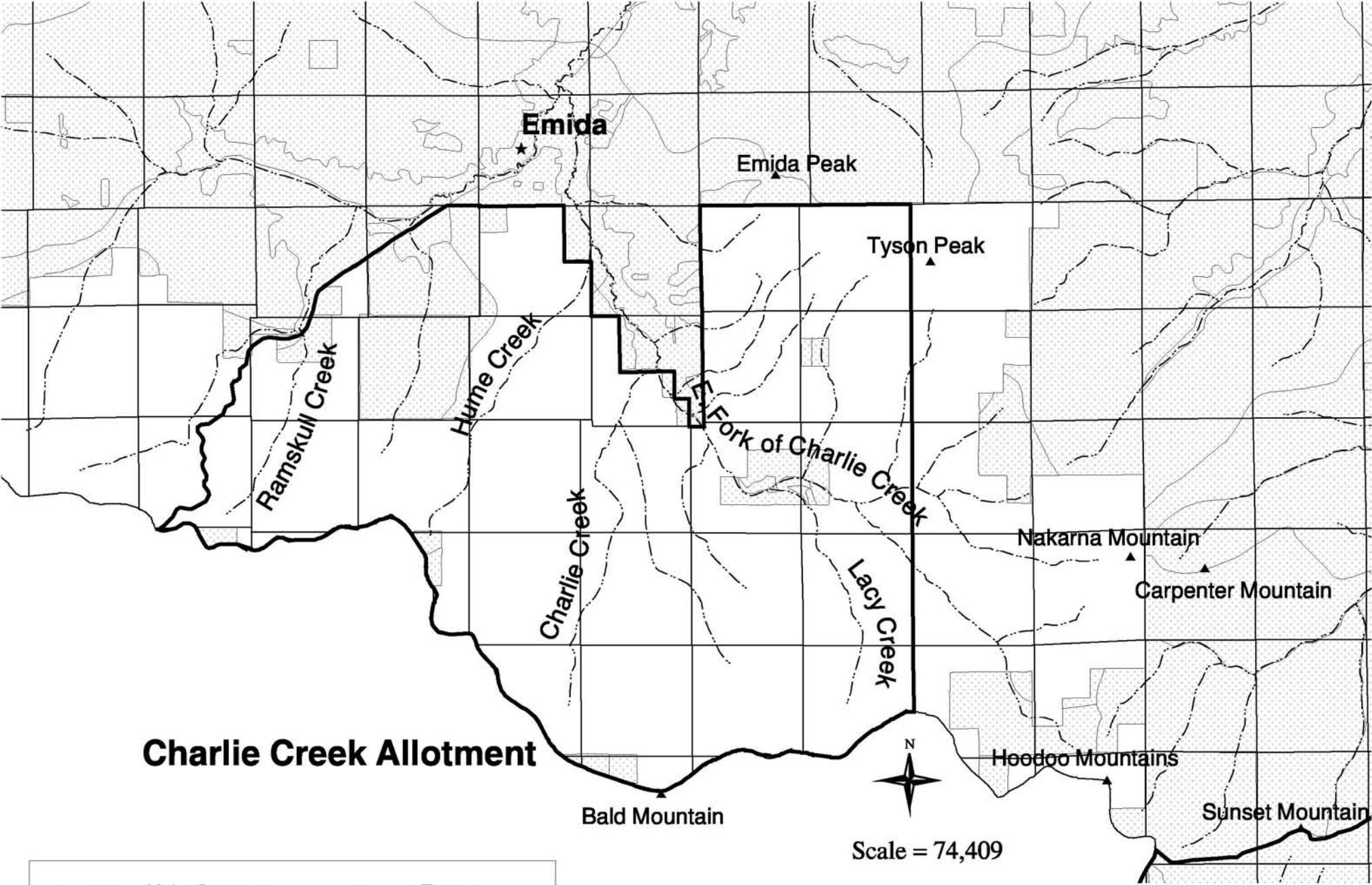
- | | | | |
|--|----------------|---|----------------------|
|  | Major Streams |  | IPNF Boundary |
|  | Idaho Highways |  | Idaho State Boundary |



Management Areas Within Grazing Allotments



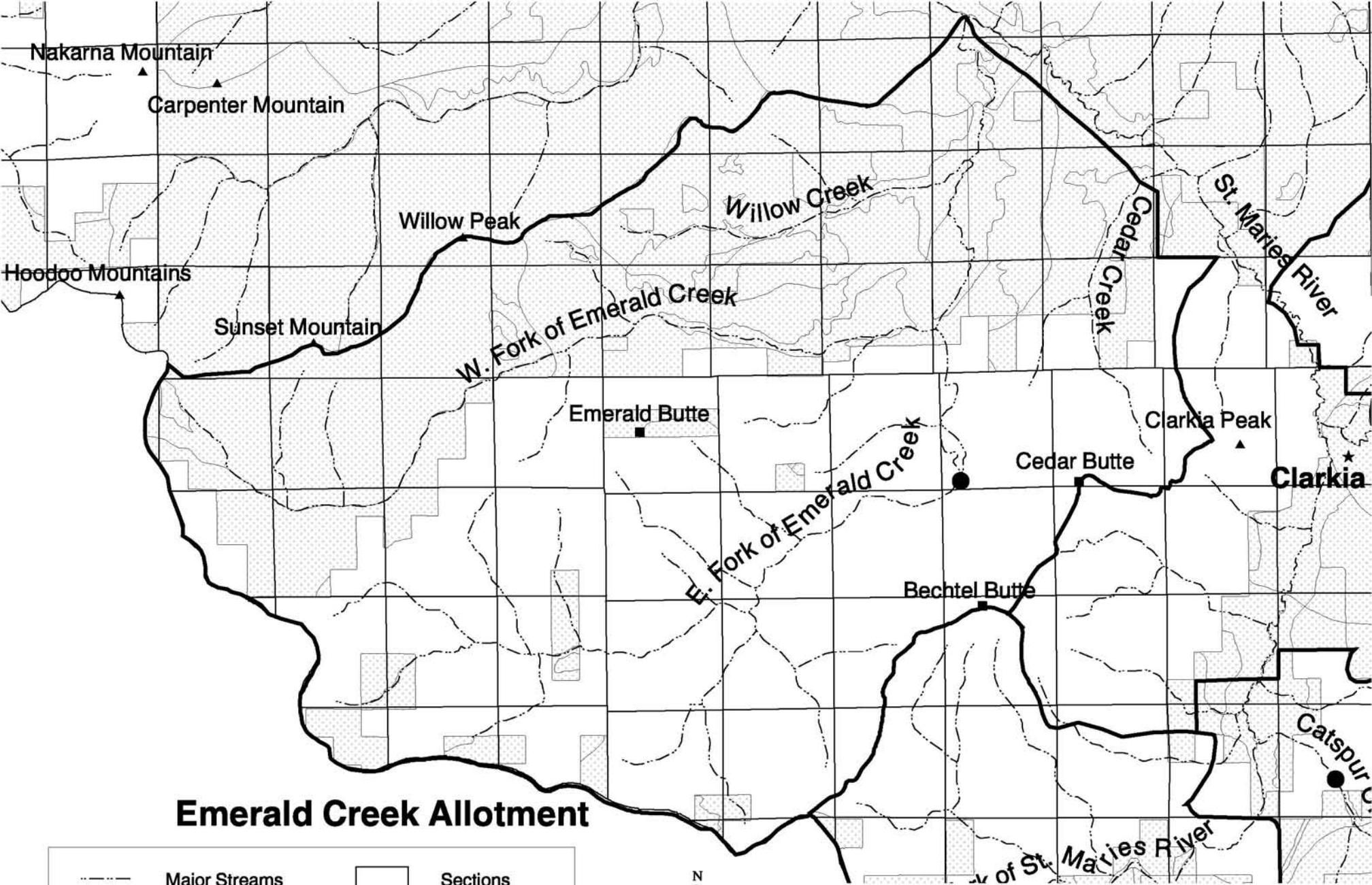
This product is reproduced from geospatial information prepared by the U.S. Department of Agriculture, Forest Service. GIS data and product accuracy may vary. They may be developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, etc. Using GIS products for purposes other than those for which they were created may yield inaccurate or misleading results. This information was released on 2/20/2003. The Forest Service reserves the right to correct, update, modify, or replace GIS products without notification. For more information, contact the St. Joe Ranger District at (208)245-2531.



Charlie Creek Allotment

	Major Streams		Towns
	Allotment Boundary		Private Land

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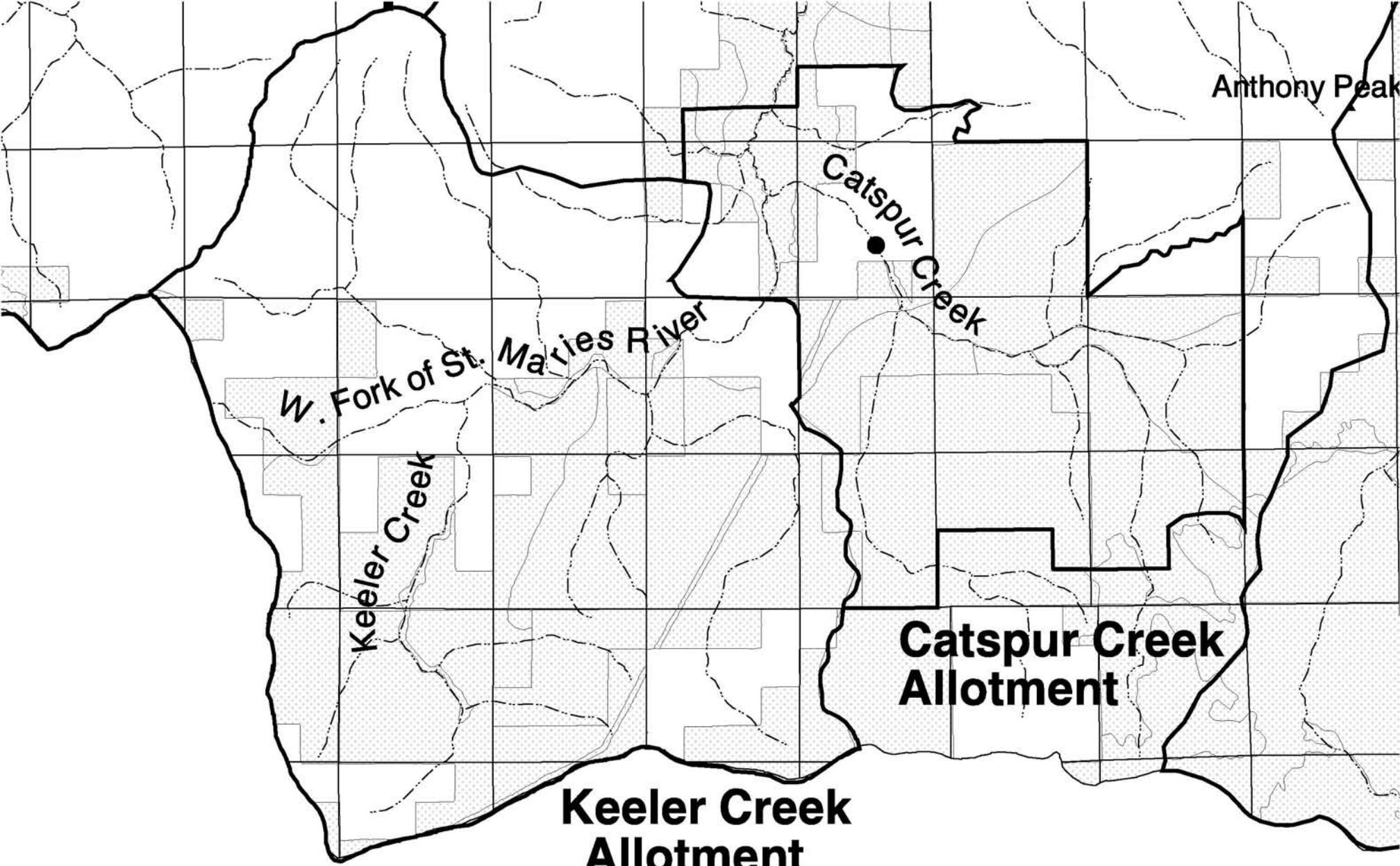
Emerald Creek Allotment

	Major Streams		Sections
	Allotment Boundary		Private Land
	Towns		
	Existing Riparian Fence		



Scale = 74,409

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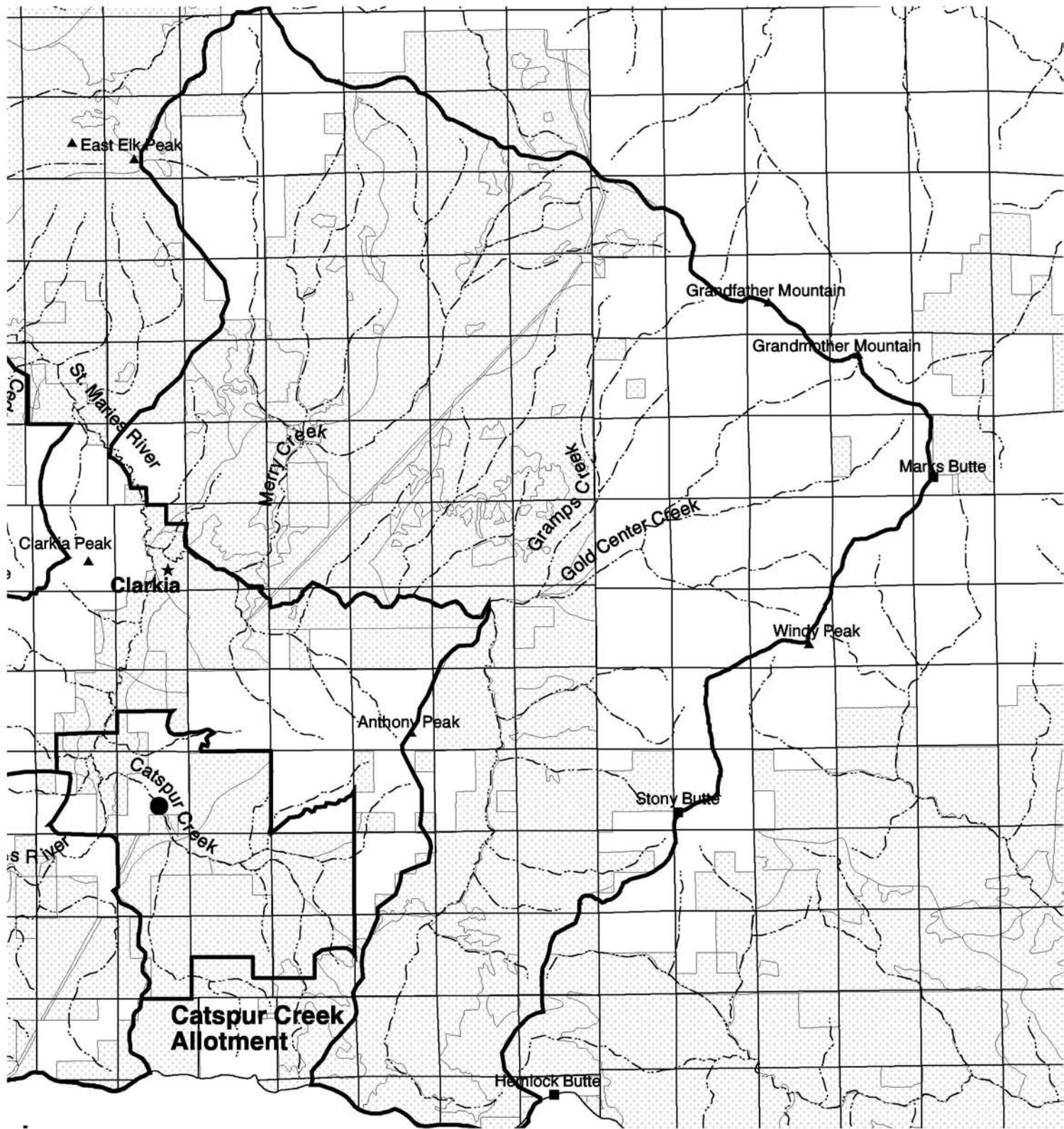
	Major Streams		Sections
	Allotment Boundary		Private Land
	Towns		

 Existing Riparian Fence



Scale = 55,000

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- | | | | |
|--|--------------------|---|--------------|
|  | Major Streams |  | Private Land |
|  | Allotment Boundary |  | Towns |
|  | Sections | | |

Merry Creek Allotment



Scale = 79,500

Appendix B- Biological Evaluations

Sensitive Wildlife Species Biological Evaluation Summary of Conclusion of Effects*

Project Name: St. Maries Grazing Allotment Environmental Assessment

Species	Alternative A	Alternative B	Alternative C
Black-backed woodpecker	NI	NI	NI
Boreal toad	MIIH	MIIH	NI
Coeur d'Alene salamander	MIIH	MIIH	NI
Common loon	NI	NI	NI
Fisher	NI	NI	NI
Flammulated owl	NI	NI	NI
Northern goshawk	NI	NI	NI
Townsend's big eared bat	NI	NI	NI
Northern leopard frog	MIIH	MIIH	NI
Wolverine	NI	NI	NI
Harlequin duck	NI	NI	NI

Conditions:

Recommendations:

Prepared by: _____
Wildlife Biologist

Date: _____

NI= No Impact

MIIH= May Impact Individuals or Habitat, But Will Not likely Contribute To a Trend Towards Federal Listing Or loss of Viability to the Population or Species

WIFV**= Will Impact Individuals or Habitat, with a Consequence that the Action May Contribute To a Trend Towards Federal Listing Or loss of Viability to the Population or Species

BI= Beneficial Impact

*Note: Rationale for Conclusion of Effects is Contained in the NEPA Document

**Trigger for a Significant as Defined in NEPA

**Sensitive Plant Species Biological Evaluation
Summary of Conclusion of Effects***

Project Name: St. Maries Grazing Allotment Environmental Assessment

Habitat Guild	Alternative A	Alternative B	Alternative C
Wet Forest	MIIH	MIIH	NI
Moist Forest	MIIH	MIIH	NI
Dry Forest	MIIH	MIIH	NI
Deciduous Riparian	MIIH	MIIH	NI
Subalpine	NI	NI	NI
Peatland	NI	NI	NI

Requirements:

- Construct fencing around known deerfern population on Emerald Creek Allotment to exclude cattle use.
- Take appropriate TES plant protection measures, as recommended by the Forest Botanist, if new sightings are reported

Prepared by: _____
Botanist

Date: _____

NI= No Impact

MIIH= May Impact Individuals or Habitat, But Will Not likely Contribute To a Trend Towards Federal Listing Or loss of Viability to the Population or Species

WIFV**= Will Impact Individuals or Habitat, with a Consequence that the Action May Contribute To a Trend Towards Federal Listing Or loss of Viability to the Population or Species

BI= Beneficial Impact

*Note: Rationale for Conclusion of Effects is Contained in the NEPA Document

**Trigger for a Significant as Defined in NEPA

**Sensitive Fish Species Biological Evaluation
Summary of Conclusion of Effects***

Project Name: St. Maries Grazing Allotment Environmental Assessment

Species	Alternative A	Alternative B	Alternative C
Westslope cutthroat trout	MIIH	MIIH	NI
Torrent sculpin	MIIH	MIIH	NI

Conditions:

- Follow standards and guidelines for livestock grazing as contained in the U.S. Fish and Wildlife Services' Biological Assessment for ongoing and proposed activities on bull trout in the St. Joe and North Fork of the Clearwater River Watersheds (March 31, 1999).
- Implement INFish grazing monitoring protocol (April 7, 1999).
- Maintain riparian enclosure fencing on the Emerald Creek and Catspur Allotments.

Recommendations:

Prepared by: _____
Fisheries Biologist

Date: _____

NI= No Impact

MIIH= May Impact Individuals or Habitat, But Will Not likely Contribute To a Trend Towards Federal Listing Or loss of Viability to the Population or Species

WIFV**= Will Impact Individuals or Habitat, with a Consequence that the Action May Contribute To a Trend Towards Federal Listing Or loss of Viability to the Population or Species

BI= Beneficial Impact

*Note: Rationale for Conclusion of Effects is Contained in the NEPA Document

**Trigger for a Significant as Defined in NEPA

Appendix C- Bank Stability Protocols

The bank stability measurements discussed in this document were collected in one of three ways during the period of 1998 to 2002; an unspecified greenline method, a linear measurement method, and a method developed by Platts et al. (1987) and modified by Bauer and Burton (1993).

The unspecified greenline method was done in 1998 by a Forest Service hydrologist. Unfortunately no records of the protocols used exist, only the data sheets (Hallisey, project file). Linear distances of bank trampling were noted along certain creeks for anywhere between ½ to 2 ½ mile long transects. However, it is not known if both sides of the creek were sampled, why the areas were chosen, or what constituted trampling.

The north zone of the Idaho Panhandle National Forest developed the second method in order to provide simple, baseline information on certain creeks. Low-gradient (2% or less) streams were surveyed for effects from livestock. These streams were determined to be those in which it is most likely to find fish, and most likely to have cattle related effects. Stream segments were identified using GIS queries. Segments to be surveyed were chosen if they had continuous areas of 2% gradients. Some areas were surveyed even if the 2% gradient wasn't continuous, as long as cattle use was evident. As long as the gradient was continuously or nearly continuously 2% sampling continued. Therefore, stream segments could include tributaries, braiding, current beaver activity, and be of any width.

Stream segments identified in the queries were broken into 100 meter transects. At the beginning of each transect, maximum depth, water width, and bankfull width were taken. The length of the transect was walked and for each bank, the length of unstable bank was recorded. Left and right banks were determined while looking upstream. An effort was made to distinguish between instability due to cattle and that due to other factors (i.e. recreation, wildlife, stream action). If a section of instability could not reasonably be attributed to cattle, it was marked as "other". Instability was defined as trampling or sloughing streambanks that would add sediment to the stream. Natural stream actions such as sediment deposition along gravel flats and undercutting may add sediment to the stream but were not considered as instability. However, sometimes judgements were made in which these types of things were counted as instability depending on the situation. The number of access points were also counted in each transect. Each individual spot used to access the creek was counted as a point. This meant that in a relatively small section, there might be many access points. Some stream crossings might consist of one wide access point where all vegetation was gone. However, many stream crossings consisted of many individual trails, all within a short distance from one another, that still had vegetated bank between each. Not all access points were considered as unstable. Many were vegetated and the bank looked whole.

Along each transect a narrative was kept of other items of interest such as hotspots, level of browse, presence of browse regeneration, and the character of the vegetation. Pictures were taken at areas of particular interest.

The National fish and Aquatic Ecology Unit developed the third method, and the descriptions that follow were taken from their annual summary report (USDA, 2002). To choose sites, the team used the 3547 U.S. Geological Survey, Hydrologic Unit – 6th field sub-watersheds within the study area as a list of potential sample sites. In addition they included only those sub-watersheds that contained "response" reaches with gradients <3%. This reach type was chosen because it displays the greatest response to upstream impacts from management

activities. Secondly, the watershed upstream of the response reach must contain >50% FS/BLM ownership. The sub-watersheds were stratified into those with livestock grazing (managed), reference, and managed but not grazed (other). Sub-watersheds were categorized as “reference” if they were not grazed by livestock within the last 30 years and had experienced minimal timber harvest, roading, or mining activities. The “other” category sub-watersheds were not sampled. This category included sub-watersheds that were not grazed but had experienced extensive timber harvest, road building mining activities, or contained inactive grazing allotments. Sample sites were then randomly chosen within the managed and reference strata described above. Managed and reference sub-watersheds were then randomly selected to be sampled. In 2001 a change was made to the above procedure in that the “managed” and “other” categories were combined such that all managed lands were included.

The primary field-sampling units were stream reaches with no side-channel, tributaries, or current beaver activity. Sample reaches were at least 20 bankfull channel widths and a minimum of 80 meters in length as measured along the thalweg.

Bank stability measurements were collected at each transect by observing an area of the bank 15 cm to either side of the transect location and vertically from the scour line to either the crest of the first convex slope or to twice maximum bankfull depth. This method uses bank cover and the presence of instability indicators to describe bank stability. The bank is considered “covered” if it contains > 50% live vegetation or roots, rocks > 15 cm, wood >10 cm in diameter, or any combination of the above. Banks were considered stable if they do not show indications of breakdown, slumping, or fracturing, or consist of bare soil but have an angle > 100 degrees. A dichotomous key was used to categorize each location into one of six categories: covered stable, uncovered stable, false banks, covered unstable, uncovered unstable, or unclassified. The percent of stable banks was calculated using two different methods.

- Method 1: The percent stable banks is calculated as the number of covered stable, uncovered stable, and false bank measurements / total number of measurements.
- Method 2: Uses the same data as method 1 however the percent stable banks is calculated as the number of covered stable + false bank measurements / total number of measurements. The category of uncovered stable is considered unstable using this method because they are vulnerable. Such banks show excessive deposition or the bank is trampled so that slumping and breakdown do not occur but there is little vegetation present.