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- **Rocky Mt. Research Station**
- **Idaho Panhandle National Forests**

February 2001

Sands Creek Research Project

Environmental Assessment

Deception Creek Experimental Forest

Sands Creek Research Project

Environmental Assessment

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Location: **Kootenai County, Idaho**

Lead agency: **USDA Forest Service**
-Idaho Panhandle National Forests and
-Rocky Mountain Research Station

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Notice: Comments received in response to this document, including names and addresses of those who comment, will be considered part of the public record on this proposed action and will be available for public inspection. Comments submitted anonymously will be accepted and considered; however, those who submit anonymous comments will not have standing to appeal the subsequent decision under 36 CFR Parts 215 or 217. Additionally, pursuant to 7 CFR 1.27(d), any person may request the agency to withhold a submission from the public record by showing how the Freedom of Information Act (FOIA) permits such confidentiality. Persons requesting such confidentiality should be aware that, under FOIA, confidentiality may be granted in only very limited circumstances, such as to protect trade secrets. The Forest Service will inform the requester of the agency's decision regarding the request for confidentiality, and where the request is denied, the agency will return the submission and notify the requester that the comments may be resubmitted, with or without name and address.

Organization of This Document

Chapter I - Purpose and Need for Action

Describes the proposed action, the purpose and need for action, relationship to the Idaho Panhandle National Forests Plan, decisions to be made, and any significant issues that provide the basis for the decision.

Chapter II - Alternatives Including the Proposed Action

Describes the range of alternatives considered in the analysis, and alternatives considered in detail. A comparison of alternatives concludes Chapter II.

Chapter III - Affected Environment and Environmental Consequences

Describes the affected environment in the analysis area. Discussion focuses on the existing condition of resources that would be affected by the alternatives. Additionally, the expected environmental consequences on resources within the project area are disclosed for each of the alternatives. Direct, indirect, and cumulative effects are predicted. Any expected, unavoidable adverse impacts are listed, including any irreversible and irretrievable commitment of resources.

Appendix A - List of Preparers and Agencies, Organizations Consulted

Lists the individuals who prepared the document and their qualifications. Additionally, this chapter contains a list of agencies, organizations, and individuals that were involved in the public scoping process and/or sent copies of the Environmental Assessment document.

Project File

Additional documentation, reports, and analysis that are referenced in this document can be found in the project file. These items have not been included in this document due to technical nature, excessive length; or are reference materials used to develop the analysis in this document. All supporting documents in the project file are located at the Coeur d'Alene River Ranger District, Idaho Panhandle National Forests, 2502 E. Sherman, Coeur d'Alene, Idaho.

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Chapter I: Purpose and Need For Action

Introduction

The Coeur d'Alene River Ranger District in cooperation with the FS-Rocky Mountain Research Station, is proposing to implement a forestry research study in Deception Creek Experimental Forest (DCEF) approximately 20 miles east of Coeur d'Alene, Idaho. This research project (*titled: "Alternative silviculture strategies for restoring western white pine ecosystems of the northern Rocky Mountains"*) would develop silvicultural strategies (regeneration, establishment, and development) that could be used to sustain or restore large, mature western white pine forests throughout the Inland West.

The study will be a long-term (minimum of 200 years) controlled experiment in three different areas having different species compositions, structures, and ages, each having a unique research objective. A western white pine and western larch stand will be used to quantify how silviculture treatments (irregular shelterwood) influence mass selection. Mass selection is the amount of rust resistant gained through natural selection. A mixed species stand (dominated by western hemlock, western red cedar) will be used to evaluate the effectiveness in the regeneration, establishment, and growth of western white pine, western red cedar, shrub, and herbaceous species in relation to canopy structure created by free and group selection. A 60-year-old white pine, ponderosa pine and western hemlock stand will be used to evaluate western white pine and western hemlock regeneration and development in relation to canopy structure created by seed-tree and free selection. Results from these studies will determine how alternative silviculture strategies will influence the structure, species composition, tree physiology, and disease relations in western white pine forests

In addition to silvicultural treatments, a pilot study will be conducted to evaluate changes in stream function and fish habitat of Sands Creek before and after removal of an adjacent road that encroaches into the flood plain.

The research study area is approximately 113 acres, and is within the Sands Creek drainage of DCEF. The legal location of the research study is T 51 N., R 1 W., within portions of sections 28, 32, and 33. See *Figure1-1* for a map showing the general location of DCEF and the proposed project, and *Figure 1-2* for a more detailed map showing the proposed project area.

1.2 Proposed Action Description

The proposed study would treat approximately 113 acres within Sands Creek of Deception Creek Experimental Forest, using a combination of group and individual tree selection (free selection[1]) to create a variety of stand structures. The objective is regenerating, establishing, and growing stands that have the characteristics of large, mature and old western white pine forests (stands having a plurality of western white pine

[1] **Free selection**- Hybrid of uneven-aged silviculture that combines single tree and group selection methods to increase the potential for regenerating shade-intolerant species, (Nyland 1996).

Deception Creek Experimental Forest
Rocky Mountain Research Station
Sands Creek Study Area
Idaho Panhandle National Forests
Coeur d'Alene River Ranger District

Vicinity Map Figure 1-1

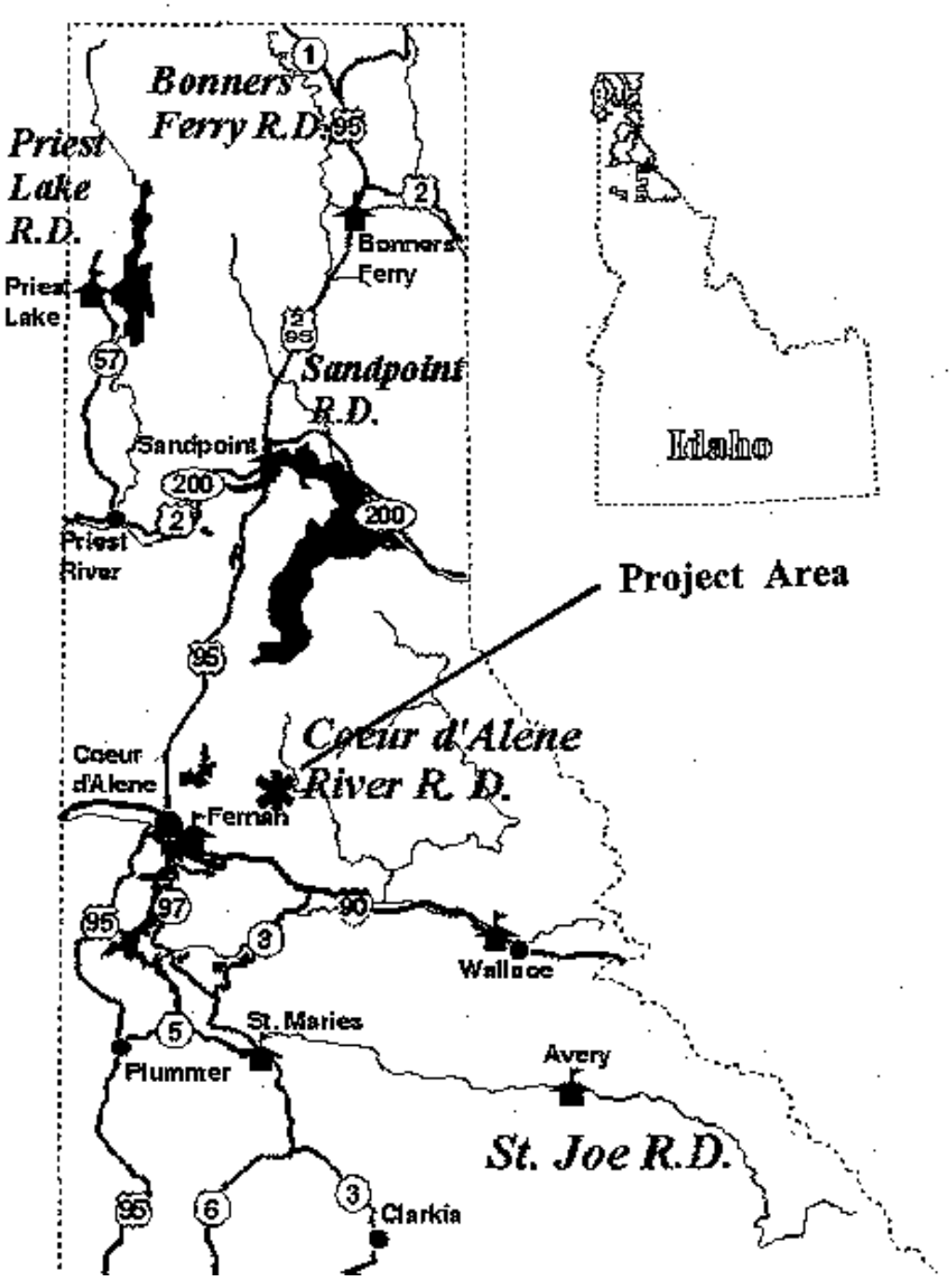
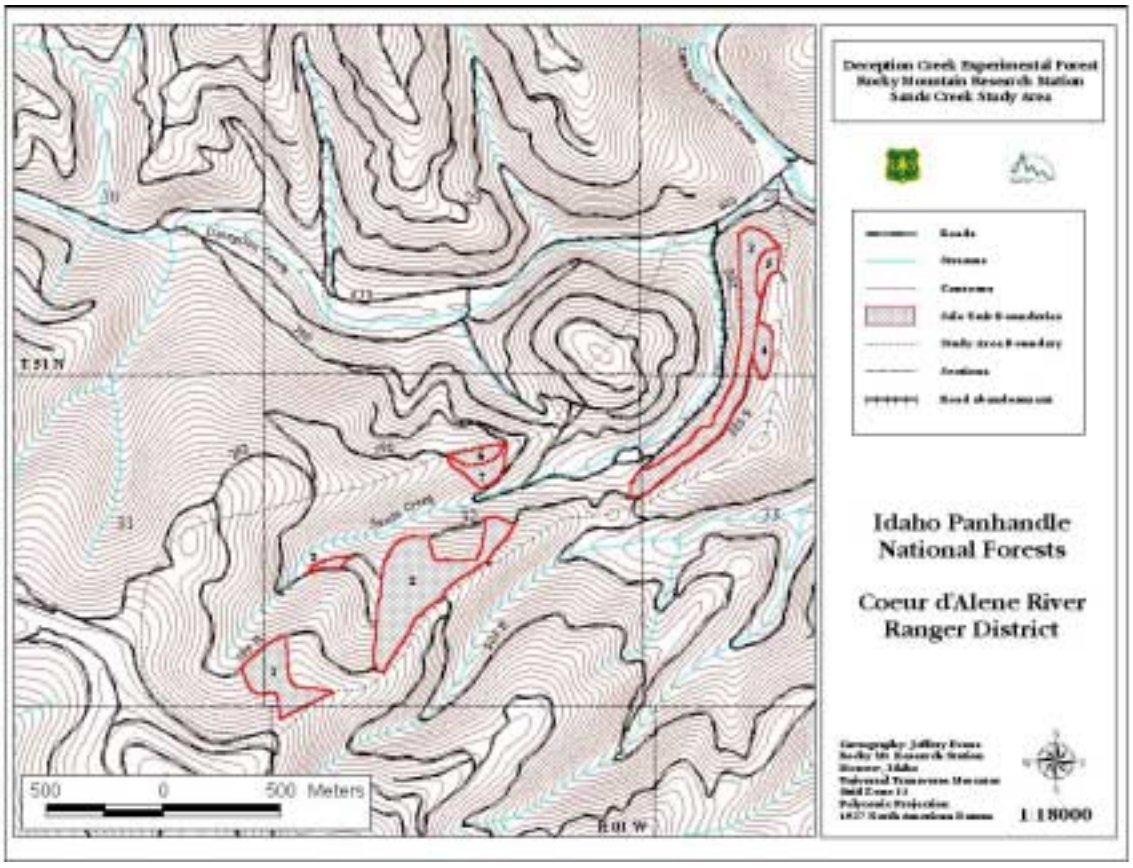


Figure 1-2


Deception Creek Experimental Forest
Rocky Mountain Research Station
Sands Creek Study Area
Idaho Panhandle
National Forests
Coeur d'Alene River
Ranger District
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with smaller amounts of western larch, western red cedar, and western hemlock (Boyd 1980). To create the various stand structures approximately one million board feet of sawtimber, consisting of dead and dying western white pine, dead and genetically off site ponderosa pine, western hemlock, grand fir and Douglas fir would be harvested. Ground and cable based yarding systems would be used for the harvest. Six hundred feet (600 ft.) of temporary road would be constructed on top of the ridge and obliterated after use. Prescribed fire would be implemented in the spring or fall, depending on the treatment prescription. In addition, a road adjacent to Sands Creek would be removed. See Chapter II, Sec. 2.1, for additional details on the proposed action.

1.3 Purpose and Need

Early in the century, Congress recognized the critical need to have a nationwide network of Experimental Forests (each representing an abundant forest ecosystem) to guarantee a safe place where researchers could establish long-term studies in order to provide and evaluate results through time. Through Congressional designation a network of established Experimental Forests occur throughout the United States for the purpose of conducting forestry research. Having these established Experimental Forests has several advantages. Forests take several tens to hundreds of years to develop, therefore, short-term (1 to 3 year) or small-scale laboratory studies do not provide knowledge on long-term forest development and ecology. Maintaining the integrity of these controlled experiments (statistical design) is critical if results are going to be applicable from both a scientific and management perspective. In contrast, similar experiments located on private, state, or National Forest System administered lands are at risk because of changing political and management objectives. Therefore, Experimental Forests are the only place available for conducting large-scale forest experiments and where scientists can establish experiments that are both statistically sound and have applicability over large areas and long time periods.

The Deception Creek Experimental Forest (DCEF) was established in 1933 for the expressed purpose of conducting research on western white pine forests (*Jain and Graham 1996*). This forest does not represent unique forest ecosystems but rather these Forests represent ecosystems that dominate several thousands to millions of acres within the region where they exist, thus results from studies can be applicable over large areas of private and publicly owned forests. The research study is proposed in the Sands Creek drainage on DCEF. The project area was selected because; 1) of the presence of the various stand structures and compositions found in the 3,520 acre Forest; 2) the results could be used and applied across the northern Rocky Mountains; 3) there would be scientific control of when, how, and where treatments would be applied; 4) there is a guarantee that this studies will be maintained long-term and; 5) having this study on an Experimental Forest insures that results are unbiased and scientific rigor is maintained.

The introduction of white pine blister rust has caused a major change in these ecosystems. Fortunately western white pine does have some natural resistance to the rust although very small. However this small amount of resistance enabled scientists to increase the resistance to the rust through a breeding program. Seedlings that are planted

today have up to 68% resistance to the disease. However there are several stands that were planted early in the 30's 40's and 50's prior to available resistant seedlings and many stands have naturally regenerated after a disturbance (fires, ice storms, wind damage). Neither of these conditions has high amounts of resistance but do have some natural resistance (Figure 1-3). Although there are only small amounts of resistance in these trees these areas still provide opportunities for increasing the resistance to blister rust via mass selection. Mass selection is the amount of rust resistance gained through natural selection. When mortality is high in the overstory, the progeny from the remaining trees will have an increase in resistance to the rust by 5 to 10 percent. There are places within the study area that provide opportunities to determine if application of silviculture treatments to these non-resistant stands can increase the rust resistance in the seedlings that are naturally regenerated. By quantifying the influence of mass selection on naturally regenerated stands, results will provide additional information to both private and public landowners to options of managing these areas where western white pine has naturally regenerated.

Figure 1-3. 50-year-old plantation of non-resistant western white pine.

Western white pine is the primary species planted after harvesting. However, many of these areas followed the clearcut system, today other values (scenic, wildlife habitat) are minimizing the use of clearcutting as a management option. In addition, most of the research conducted in the western white pine forest concentrated on studies that provided western white pine lumber products. For the most part, these systems were clearcuts. A mixture of silviculture systems such as group selection, individual tree selection, and free selection have not readily been applied or studied but are the options that could be used in future management. Many believe that western white pine cannot survive and grow into maturity under these types of silviculture systems. However, western white pine has moderate tolerance (ability to survive and develop in closed conditions), which allows it to survive and grow under some limited growing space (although growth is decreased) and a variety of environments. The application of these alternative systems (if applied appropriately) can still favor the continued existence of the species. Therefore, the objectives are; 1) to add knowledge on the response of vegetation under a variety of canopies using alternative silviculture systems with particular attention being given to western white pine and western red cedar response and the diversity of structures and species composition created by these silviculture systems; 2) is to quantify and measure differences in the hydraulic function and fish habitat metrics before and after the road removal,;3) to establish a controlled experiment adequately identifying cause and affect relationships between applied silviculture systems and the regeneration, and establishment and development of forest ecosystems, and;4) to have a long-term study that will require scientific rigor for many decades.

Project Objectives and Research Goals

Title of Study Proposal: *Alternative silvicultural strategies for restoring western white pine ecosystems of the northern Rocky Mountains*

The primary project research objectives include:

- Develop silvicutural strategies (harvesting, prescribed fire, forest floor disturbances) that can be used to sustain or restore western white pine ecosystems through the Northern Rocky Mountains and show how these strategies influence the structure, species composition, nutrient dynamics, physiology, and disease relations.

- Evaluate the hydraulic function and fish habitat metrics of Sands Creek before and after removal of the road encroaching into the stream flood plain.

- Collaborate with the Idaho Panhandle National Forests and Coeur d'Alene River Ranger District to implement silviculture systems for sustaining and restoring old-forest structure and composition.

- Collaborate with the Idaho Panhandle National Forests and Coeur d'Alene River Ranger District in implementing the road removal and data collection of stream characteristics after road is removed.

The primary research questions include:

Silviculture

- What is the amount of western white pine and western red cedar natural regeneration as result of silviculture treatments?
- What are the growth rates of western white pine and western red cedar seedlings after establishment under various overstory densities?
- What is gooseberry (alternate host of white pine blister rust) response to silviculture treatments?
- What are other tree, shrub, and forb species response under various overstory canopies?
- What is the difference in growth rate between planted and naturally regenerated western white pine seedlings?
- Through stand development, what amount and when should a portion of the overstory canopy be removed to ensure established saplings reach maturity and dominance ?

Disease Relations

- What is the blister rust resistance gained in progeny (seedlings) from rust free adults (overstory western white pine)?

Physiology

- What are western white pine physiological (water relations, proportion of sun leaves versus shade leaves) characteristics under various overstory densities?

Streams

- Does the removal of the road encroaching into the stream flood plain result in measurable differences in the hydraulic function of that stream?
- Does removal of the road encroaching into the stream flood plain result in measurable differences in common fish habitat metrics?

1.4 Scope of the Environmental Analysis

This proposal is limited to site-specific activities on the 113 acres of the research project area, and the adjacent road removal, stream study.

1.5 Forest Plan Direction Relative to the Analysis Area

This analysis is tiered to the Forest Plan and the proposed project is consistent with Forest Plan direction and the MOU with the FS-Rocky Mountain Research Station. Direction for the Deception Creek Experimental Forest (USDA Forest Service 1987) includes the following:

- The DCEF, now covering 3560 acres, was established in 1933 to make available a research area for silvicultural and other related research in the inland western white pine forest type (USDA-Forest Service 1987, Graham and Jain 1996).

- Provide areas for manipulative research. Timber cutting is limited to that necessary for research activities or to provide areas suitable for future research programs.

- The Intermountain Forest and Range Experiment Station *(now the Rocky Mountain Research Station, RMRS)* is responsible for the planning and coordination of all DCEF activities.

- A Memorandum of Understanding (MOU) between the Research Station and the Coeur d'Alene Ranger District (former Fernan RD) (USDA-Forest Service,1973), Explains the coordination to maintain a transportation system within the DCEF. Forest Plan direction between the Research Station and the Panhandle National Forest explains the coordination necessary to administer timber sales, protection against fire, insects and diseases.

The project site lies within Management Area 14 (Deception Creek Experimental Forest) within the Idaho Panhandle National Forest. Forest Plan direction regarding DCEF for this Management Area (USDA Forest Service 1987) includes the following:

- Provide protection and support services for the DCEF, as requested by the Research Station.

1.6 Public Review and Comment

Public involvement for this project began in the spring of 2000. The Coeur d'Alene River Ranger District distributed an initial letter describing the need for action and soliciting public comment on April 5, 2000. A legal notice was published in the Spokesman Review, (Spokane, Wa./ Coeur d'Alene, Id.) dated March 31, 2000. Six responses (5 comment letters, 1 request to stay on mailing list) were received in response to the scoping letter and legal notice.

Public responses and comments were reviewed to identify relevant issues and concerns, and have been addressed in the EA, and/or project file.. A complete listing of all comments considered during analysis is included in the project files.

Public concerns and comments included;

- The need to carry out research projects on experimental forests instead of private, or other federal lands, or utilize existing timber harvests.
- Whether or not there is a need to manage for western white pine recovery.
- Previous research projects within the DCEF, and the purpose of experimental forests.
- Current status of fisheries within DCEF and any impact to the fisheries from the Sands Creek research project.
- Old growth stands within, or adjacent to the DCEF.

1.7 Identification of Issues

Specific issues

- DCEF is the only place suitable to carry out long-term unbiased research projects, with strict scientific rigor.
- To use various silvicultural treatments to measure their effects on natural regeneration, and genetic white pine planted stock.
- Resistant and growth levels of natural and genetic planted western white pine under various canopy levels.
- Determine resistance from mass selection within the western white pine natural regeneration and the resistant levels within the overstory.
- To determine natural western red cedar regeneration and long-term maintenance from various silviculture treatments
- Determine the effects of riparian road removal on hydraulic functions and fish metrics, short and long term.

The Moist forests of the Northern Rocky Mountains have changed significantly in the last 70 years (Grahm and Jain, (In press), Neuenschwander et al. 1999, Quigley et al. 1997). Over this time, western white pine has declined by 90 percent within the Coeur d'Alene Mountains (Hann and others 1997) (Figure1-4). Although there are places where rust resistance western white pine has been planted, this component only accounts for a very small proportion of the original amounts that existed early in the century. Forests, which were historically dominated by western white pine and western larch, are now dominated by western hemlock, grand fir, and Douglas fir. With the introduction of an exotic

disease (white pine blister rust) from Europe early in the century, subsequent timber harvesting of large-mature western white pine (assumed would die from white pine blister rust) and fire exclusion have all contributed to the decrease of the large (greater than 30 inches in diameter and over 150 feet tall), majestic and mature western white pine component in these forests (Hann and others 1997).

In addition to western white pine, western red cedar is rare in the Coeur d'Alene Mountains. There are very few stands that contain redcedar. Similar to western white pine it also has unique social and ecological values. It is an extremely long-lived species (can live 750+ years) and is home to bird species such as pileated woodpeckers. It too has a high amount of genetic adaptability to change. (Rehfeldt). Like western white pine it also decomposes into red rotten wood. It is often located adjacent to riparian areas. However the species does not have the ability to grow over a wide range of environments like western white pine, in the Coeur d'Alene Mountains it tends to favor moist riparian areas or northerly facing lower slopes.

To determine natural resistance levels, and silvicultural treatments, sound scientific information on western white pine resistance, natural regeneration under differing canopies, and long term stand resiliency, will be needed, along with more scientific information on western red cedar regeneration and maintenance.

Figure 1-4. Dead western white pine snags as a result of white pine blister rust with western hemlock encroaching in the under story.

An important issue threatening Northern Rocky Mountain forests is the integrity of the riparian settings (Figure 1-5). Roads adjacent to or encroaching the flood plain are being removed. Although, in the long-term this is a benefit to the stream and flood plain, little information is available on the short-term affects on hydraulic function and fish habitat metrics after road removal in these forests ecosystems. Also there is little information available on the amount of time it takes for hydraulic function and fish habitat metrics to improve after road removal. An opportunity exists within the study area to begin to address these types of information.

Figure 1-5. Road encroaching into the stream and flood plane.

1.8 Decisions To Be Made

This EA does not document a decision. The purpose of this document is to disclose the effects and consequences of alternative actions considered in detail. Using information in the EA, the Deciding Official will render a decision based on consideration of project alternatives and public comment. A separate Decision Notice (DN) document will be signed and distributed to the public.

The decision to be made for this project is whether or not to implement this research study project as proposed, and if so, what operating standards, mitigation measures, and monitoring should be applied.

Chapter II: Alternatives, Including the Proposed Action

2.1 Alternatives Considered In Detail

Alternative 1: No Action

Under the No-Action alternative no research activities described in this proposed action would occur. Fire suppression and road maintenance activities would continue. This alternative is used as a baseline to compare the environmental effects of the action alternative.

Alternative 2: Proposed Action

This alternative is the research proposal as developed by the research staff of the FS-Rocky Mountain Research Station, Moscow, Idaho. The proposed study would treat approximately 113 acres in the Sands Creek drainage on the DCEF with commercial harvest, precommercial thinning and prescribed fire.

Other Alternatives

There are no other alternatives that meet the stringent requirements for scientific studies as described in Purpose and need

Silvicultural Treatments

Several stands in Sands Creek would be treated using free selection, shelterwood, group shelterwood, intermediate treatments, and combinations of techniques that would create a variety of stand structures (*Nyland 1996, Smith and others 1997*) all with the objective of increasing the amount of rust resistant western white pine occurring in the watershed. In addition, the silvicultural systems would be designed to test their effectiveness in increasing the amount of white pine blister rust resistance. The stands in Sands Creek are proposed for use in the study, each offering unique opportunities to study western white pine forest dynamics. Different prescriptions would be used in the stands and applied in a manner in which a replicated study meeting the research objectives could be installed (Table 2-1).

Table 2-1: Description of Stand Prescriptions

Stand	Silvicultural System	Residual Tree density	Research Objective	Fuels/Fire Treatments
1. 50-year-old white pine plantation (15 acres)	Irregular Shelterwood	75-150 white pine mixed/ac.	Genetic gain from mass selection	Surface fire
2. 50-year-old white pine plantation (45 acres) (Fig. 1-3)	Irregular Shelterwood	50-140 white pine mixed/ac.	Genetic gain from mass selection	Surface fire
3-5. Mid-aged mixed hemlock, grand fir, Doug-fir, cedar, white pine stand (40 acres) (Fig 1-6)	Free and group Selection	20-120 mixed species/ ac.	White pine and cedar regeneration and development in relation to canopy structure	Surface fire/lop &scatter
6. 60-year-old white pine, (5 acres) (	Seed-tree/shelterwood	5-10/ac	Genetic gain from mass selection	Surface fire/lop &scatter
7. 60-year-old white pine/ ponderosa pine plantation with old-western hemlock (8 acres) (Fig. 1-7)	Seed-tree/free selection	10-100 mixed species/ ac.	White pine and cedar regeneration and development in relation to canopy structure	Surface fire/lop &scatter

The experimental unit (i.e. the smallest area receiving an experimental treatment) used in the study will be individual western white pine trees, canopy openings defined by a fisheye camera lens, slope angle and aspect, and specific forest floor disturbances depending on the stand. These experimental units will be located and defined after the silvicultural prescriptions are applied. The goal of these prescriptions is to provide a range of forest conditions that can be used in replicated studies

Figure 1.6 Current forest structure with high amounts of western white pine mortality.

Figure 1.7 Plantation of ponderosa pine imported from the Black Hills with heavy mortality, and western white pine after blister rust mortality.

Design Features for the Proposed Action

Prescribed Fire Activities

Prescribed fire would be accomplished in the spring or fall, depending on the treatment strategy. The intent is to reduce duff accumulations to encourage natural western white pine regeneration, and to introduce genetic western white pine planted stock into the study area. This would be accomplished as a low intensity "jackpot burn" when conditions for damage to residual trees are minimized, and escape is unlikely. Large woody debris would be maintained for nutrient and long term recycling.

Air Quality

The Idaho Panhandle National forest is a party to the North Idaho Smoke Management Memorandum of Agreement, which establishes procedures regulating the amount of smoke produced by prescribed fire. The North Idaho group currently uses the services and procedures of the Montana State Airshed Group. All procedures set by the Missoula based group will be followed. The Missoula based monitoring unit is responsible for coordinating prescribed burning in North Idaho during the months of April through November. These procedures limit the amount of smoke accumulations to legal, acceptable limits.

Timber Harvest and Yarding Systems

Both ground based and cable-yarding systems would be used for the commercial timber harvest, and precommercial thinning would be done by hand. No new system road construction would occur, and INFISH Riparian Habitat Conservation Areas (RHCAs) buffers would be implemented for all vegetation treatment areas.

Project design features to mitigate resource effects would include:

- Skid trails would be cross-ditched and seeded following project activities to prevent soil erosion. Skid trails with the potential for vehicle access would have multiple large dips placed at intersection with roads..
- Two tenths of a mile of temporary road construction on the ridge top would occur, and will be ripped and seeded after use.
- All brushed-in roads open for harvest activities will be ripped, seeded and barrier after harvest activities
- Landings would be seeded following project activities to prevent soil erosion.
- Maximum width for skyline corridors would be 12 feet, with no less than 150 ftet between corridors.

Watershed and Fisheries Features

A 300-foot buffer (no harvest or burning activities) would be maintained on both sides of stream channels identified as perennial fish bearing; with 150-foot buffers on stream channels identified as perennial (or class II streams). Buffers would be evaluated during sale layout to ensure ground conditions meet Inland Native Fish Strategy standards and

guidelines (INFISH). Trees would be directionally felled away from the designated buffer zones.

The Action Alternative would include an adjacent riparian road removal that is encroaching into the Sands Creek floodplain. The aquatic resource improvement project would be complete within five years of closure of the timber sale contract. Activities that would be implemented in Sands Creek.

1. Road removal activities would be implemented on Road 202.2. Approximately 3300 feet would be removed. No crossings would be removed.

Road removal can involve several activities; removal of all road fills, installation of grade control, and seeding; full recontouring to a natural hillslope; deep ripping and outsloping. All areas of fill, eroded by the stream channel will be partial to fully recontoured, along with partial removal of road fill within identified sections.. The road surface will be ripped seeded and planted for the entire 3300 ft. The specific road removal work to be implemented would be identified through contract specifications and work lists prior to project implementation.

TES Plant Features

Surveys have been completed and there are no threatened or sensitive plant species within the project area. One forest plant of concern (round leaf rain orchid) was found in the Sands Creek Drainage and will be buffered “for protection” according to the District botanist.

Wildlife Features

During project design, layout or implementation, any suspect nests or sounds of agitated birds would be reported to the District biologist, at which time the District biologist will make an onsite visit to determine appropriate measures to protect nesting birds.

If Goshawk nest sites are found during the project design/implementation, a 30 acre no harvest buffer would be provided around the known nest site. Within the area of the nest site, purchaser operations and related activities would be suspended within one-quarter mile (approximately 400 meters) of known nest site during the period from March 15 to August 15 to reduce risk of nest abandonment caused by disturbance.

Timber Sale Contract CT6.251#- Protection of Endangered species would be included in the Timber Sale Contract.

2.2 Monitoring of Project Activities

Rocky Mountain Research Station personnel would incorporate detailed implementation and validation monitoring as part of the research plan. Air quality standards for burning would be coordinated with regional air shed monitors. The timber sale contract would include a provision that requires the protection of any unidentified cultural site. The sale contract would also include a similar provision to protect any unidentified populations or habitat for TES species.

2.3 Comparison of Alternative

Table 2-2 summarizes information from Chapter III: Affected Environment and Environmental Consequences, and compares the environmental effects of alternatives.

Table 2-2: Comparison of alternatives meeting purpose and need

Objectives/Resource Effects	Alt. 1: No Action	Alt. 2: Proposed Action
Forest Research Objectives	Research objectives not met	Research Objectives are met
Fire/Fuels Research Objectives	Research objectives not met	Research Objectives are met
Watershed/Sediment	Current sediment levels would not increase	No direct or accumulative effects from activities.
Fish TES	No effects	No significant effects on any TES fish species
Plants TES	No effects	No effects on any TES plant species
Wildlife TES	No effects	No significant effects on any TES wildlife species

Chapter III: Affected Environment and Environmental Consequences

This chapter describes the current condition of the environment likely to be affected and the environmental effects of the alternatives. Environmental effects that would occur relative to the implementation of alternatives presented in Chapter II are disclosed. The scientific and analytical basis utilized for the alternative comparisons at the end of Chapter II is presented.

3.1 Forest Vegetation (Western White Pine)

Affected Environment

The Deception Experimental Forest (DCEF) was established in 1933 to study the ecology and management of western white pine forests. The DCEF contains 3,520 acres and is located in one of the most productive areas of the western white pine type. The DCEF also contains the 300-acre Monford Creek Research Natural Area, set aside for non-manipulative research, within old growth western white pine type. This project analysis area is entirely in the Sand Creek watershed of the Forest. Early studies conducted on DCEF emphasized silvicultural systems designed to produce western white pine lumber products. For the most part, these systems used clearcuts, shelterwoods, and intermediate treatments including weedings, cleanings, and thinnings. These studies are 50 to 60 years old, giving rise to mixed stands dominated by western white pine and western larch. Unfortunately, large amounts of mortality occurred in both the western white pine from blister rust and in the ponderosa pine because the trees were genetically inappropriate for the site. In addition, in a portion of the area that was selectively harvested in the past, single tree selection regeneration methods created small gaps ranging in size from single to multiple trees and have been regenerated. The resulting stand structures and compositions created using these systems, provide a variety of conditions for evaluating seedling and sapling response for up to 10 different tree species and numerous shrub and forb species. However, because of natural selection and planting, young western white pines are highly (68%) resistant to blister rust and some mid-aged western white pine do show signs of blister rust resistance. The earliest studies evaluated different silvicultural methods of producing high quality saw timber and the effects of these treatments on tree growth, reproduction and undergrowth vegetation. Other studies evaluated factors affecting germination, survival, and growth of ponderosa pine. More recent studies investigated thinning methods, seed viability issues, site preparation methods for seedlings, and tree seed dispersal. Current activities include studies of historical changes in stand composition and density, monitoring of the early study transects and demonstration tours relating to ecosystem management. Other activities include hunting, hiking, skiing, snowmobiling, motorcycle trail use and other public recreational uses.

Mixed conifer (western white pine, western hemlock, grand fir, Douglas-fir) is the dominant forest cover type in the Sands Creek drainage of the DCEF. Prior to the

introduction of white pine blister rust DCEF contained some of the most majestic stands of western white pine found anywhere in the Northern Rocky Mountains. Trees over 200 feet tall and over 30 inches in diameter were common. Western white pine blister rust was introduced into North America on ornamental eastern white pine in 1910 in both western British Columbia and the northeastern United States. Because of white pine blister rust, mortality in the old (200 years +), mature (100 to 200 years), and mid-aged (50 to 100 years) western white pine is high. Presently, much of this type contains dense undergrowth of young to mid-aged western hemlock and grand fir as a result of the loss of western white pine and the aggressive regeneration and development of these species. In some areas where western white pine once dominated the species it is now absent.

Forests dominated by large, western white pine are not only visually pleasing, but they also provide many ecological and social functions:

- Habitat for wildlife,
- Large snags
- Persistent coarse woody debris on the forest floor
- Brown cubical rot
- Resistance to endemic insects and diseases
- Protect the nutrient resource when burned
- Produce high quality timber products, (Harvey and others 1999. Rehfeldt and others 1994, Rehfeldt 1994, Larsen and others 1980, Neunshwander and others 1999).

Direct and Indirect Effects of Alternative 1 (No Action)

Forest research into restoring western white pine forests would be deferred to a later date. As western white pine blister rust continues to kill trees and more areas become dominated by other tree species the window of opportunity for restoring the few forests of this type that we have left in the West is relatively short (Neunshwander and others 1999, Harvey and others 1999). Stand conditions on the 113 acres would continue to move toward a dense, multistory stand structure dominated by western hemlock and grand fir. These stands contain nutrient rich tree crowns located near the soil surface and fine roots are concentrated near the soil surface (Harvey and others 1999). When these stands burn they are prone to catastrophic loss of organic matter and nutrients, drastically impairing forest sustainability. This compression of nutrients towards the soil surface does not occur in high crowned and deep-rooted western white pine stands. In addition, when grand fir and western hemlock fall they decompose in to short persistence (less than 100 years) white rot. In contrast western white pine decomposes in to brown rot, which stays on and in the soil for long periods (400 years plus). This rotten material is rich in nutrients, makes nitrogen available for plant growth, and supports robust ectomycorrhizae (symbiotic fungus increasing the nutrient and water absorption capacity of plant roots) development, which are critical for plant growth. In the western white pine type 40 percent of the surface soil can consist of brown rotten wood.

More importantly, the knowledge on how white pine blister rust resistance can be increased through mass selection techniques will not be furthered. Planting of rust resistant seedlings will not always be possible because of location, seedling availability, funding, management priorities, or land allocation. Therefore, if western white pine is going to survive, as many options as possible are needed along with much information so that informed and reasoned natural resource decisions can be made that affect the species.

White bark pine, a close relative of western white pine, is also being killed by white pine blister rust. Similar to the large losses of western white in the Northern Rocky Mountains white bark pine is being killed throughout the Rockies. This white pine occupies the high elevations of the Rocky Mountains containing valuable watershed, recreation, and grizzly bear habitat. In many locations the seeds of white bark pine is a large portion of a grizzly bear's diet (Mattson and Jonkel 1990). The artificial rust resistance program in white bark pine is very limited and planting of seedlings to improve white bark pine forests will be minimal. Therefore, the more that is known on the gains and techniques for increasing rust resistance in western white pine will have direct applicability to white bark pine forests where research and management opportunities are minimal.

Direct and Indirect Effects of Alternative 2 (Proposed Action)

In Alternative 2, forest stand conditions on 113 acres will be dominated by western white pine and these trees will be more resistant to western white pine blister than the present stands. The proposed treatment will minimize the amount of visible blister rust in the stands and the level of blister rust resistance in these trees will be determined. Likewise, the level of resistance in the offspring from these trees will be determined. This information will be key in designing and executing natural regeneration programs in both western white pine and white bark pine.

The resulting stand structures would be a mosaic of young (80 years) western white pine, unevenly spaced in some areas. Other areas will contain a mosaic of old (100 to 200 years) grand fir and western hemlock interspersed with small openings containing western white pine. Moreover, in these areas small amounts of western redcedar will be featured. Throughout Sands Creek the numbers of small shade tolerant western hemlock and grand fir trees will be reduced but not eliminated. The genetically unsuited ponderosa pine (imported from the Black Hills of South Dakota) will be removed and prevented from reproducing. (Figure 1-7) Over-all tree numbers will be reduced in Sands Creek but a functioning forest will remain. All tree sizes and species will remain but there will be greater opportunities for western white pine to regenerate and develop. The reduction of the dense grand fir and western hemlock component will make these stands more resilient to endemic diseases and insects.

Prescribed fire treatments would recycle nutrients, and reduce duff accumulations to encourage natural white pine regeneration, and for the introduction of planted stock. Large coarse woody debris would be reduced to 20-30 tons/acre by either prescribed surface fires, or lop & scatter treatments. The majority of the humus and soil wood organic layers would remain after forest floor fuels treatments. The resulting fire patterns

and fire effects would be highly variable, ranging from unburned areas to areas with a complete burn.

Cumulative Effects

No cumulative effects on forest vegetation would occur from implementation of this research project.

3.2 WATERSHED

Affected Environment

The project area is located in Sands Creek a tributary of Deception Creek, which empties into the North Fork of the Coeur d' Alene River. Project area slopes range from approximately 15-60% and the topography is dissected mountain slopes (landtype classification 462, 464, 477) with low to moderate erosion potential depending on slope and location. Soils consist of moderate to deep ash cap layers with large amounts of organic soil components (large woody debris, buried wood, and rotten wood) on the surface and incorporated into the mineral soil layers. No wetlands, floodplains, or developed public water sources are located within the project area.

Direct and Indirect Effects of Alternative 1 (No Action)

Under this alternative, the activities described in the proposed action would not occur. Normal road maintenance and recreational use would continue. Current sediment delivery levels would not change.

Direct and Indirect Effects of Alternative Proposed Action

The proposed harvested area comprises approximately 16% of the drainage area. Actual crown cover removal would equal about 7% of the watershed widely dispersed on the hillslopes. Considering the low level of crown removal, and the implementation of INFISH buffers and BMP's, no direct discernable changes in hydrologic regime (water yield, peak flow or sediment yield) are expected.

Removal of 3289 feet of the #202.2 road encroaching along Sands Creek is also proposed with the project. Field review of the road on 8-June-00 did not reveal any road slumps or failures along the encroaching section. The entire length of Sands Creek adjacent to the road along with the road fill was well vegetated. There was evidence of sediment introduction to the stream from erosion of the road surface, particularly in the steep upper portion of the encroaching section. Sediment introduction from road fill erosion by the stream was limited to three small areas that were well dispersed along the stream channel. A partial obliteration of the road accompanied by placement of on-site woody debris in these erodible areas would benefit stream condition and watershed health. Indirect effects of the restoration would be sediment delivery to the channel, the majority of which would be stored behind logs, rootwads and other in-channel obstruction, therefore the probability that project induced sediment would affect downstream habitat is very low.

In addition to the removal of encroaching sections of the 202 road, there are several large pipes upstream that will be removed when they are no longer needed. These should be inventoried and addressed as opportunities for future watershed improvement.

Cumulative Effects

The R1/R4 WATSED model was used as an indicator of potential cumulative effects from management activities in the action alternative. The cumulative effects analysis area for the project extends from the headwaters of Deception Creek to its confluence with the Little North Fork of the Coeur d'Alene River, a total of approximately 3520 acres. WATSED results estimate a 1% increase in water yield, peak flow and sediment yield associated with project implementation and during the first year following implementation. WATSED estimators decline to background levels by the third year following harvest. A 1% change is statistically insignificant and would not be observable or measurable. The stream would be well buffered from management activities and BMP's would be implemented. WATSED outputs indicated that no cumulative effects would be expected from proposed management activities. Proposed harvest consists of 113 acres (3% of Deception Creek). Crown removal ranges from 30% to 70%. Actual harvest would consist of approximately 40 acres of equivalent clear-cut area (ECA's). Approximately 960 feet of temporary road with no stream crossings would be built on a ridge to access Units 3 and 5.

3.3 FISHERIES

Affected Environment

Field surveys were completed from 1993 through 1996; a Biological Evaluation for Sensitive fish species, and a Biological Assessment for USF&W Listed fish species was completed and is in the project record. The current TES fish list for the Sands Creek project area and cumulative effect area is presented in the following table:

table 3-1: Fish TES Species

FISH TES SPECIES	Documented sites or Potential Habitat?	Alt. 1	Alt. 2
Bull Trout *(USFWS-Threatened)*	No sites, Habitat present	May affect but not likely to adversely affect	May affect but not likely to adversely affect
White Sturgeon (*USFWS Endangered*)	No sites or habitat, not within historic range	No effect	No effect
West slope Cutthroat Trout (*sensitive*)	Documented site and habitat	May impact but not lead to federal listing	May impact but not lead to federal listing
Torrent Sculpin (*sensitive*)	Documented sites and habitat	May impact but not lead to federal listing	May impact but not lead to federal listing
Redband trout (*sensitive*)	No sites or habitat, not within historic range	No effect	No effect

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Listed Fish Species

No documented sightings of Bull trout are known from the project area. No listed fish species (bull trout) have been found in the project area, or in the entire Deception Creek Watershed (CDA zone Fisheries files). A complete Biological Assessment (BA) for Listed fish species was completed and is in the project record.

Sensitive Fish Species

Two sensitive fish, West slope cutthroat trout and Torrent sculpin are know or suspected to occur within the project or cumulative effects area. A complete Biological Evaluation (BE) for Sensitive fish species was completed and is in the project record

Inland Native Fish INFISH

Perennial fish-bearing stream channels are found in the project area. The entire Sand creek watershed contains know populations of West slope cutthroat trout and Deception creek contains West slope cutthroat trout and is suspected to have populations of Torrent sculpin. The interim guidelines for INFISH stream buffers will be implemented to maintain and protect the stream corridor.

Direct and Indirect Effects of Alternative 1 (No Action)

The no action Alternative would result in no change in the current condition or trend in the Management Indicator Species in any of the watersheds, which currently have a stable population of adfuvial cutthroat trout and a non-viable population of bull trout

Direct and Indirect Effects of Alternative 2 (Proposed Action)

With the low level of crown removal and the implementation of infish buffers, no direct or indirect effect impacts would be expected to fish species or habitat. A proposed temporary road (0.2 tenths of a mile) will be constructed high on the ridge within unit 3, and will not cross any stream, therefore there will be no loss of riparian vegetation. With the vegetation and buffers no sediment is expected to enter any stream course from this action. There will be no direct or indirect effects from the proposed road construction. The newly constructed road will be rehabilitated after the burning and planting, no direct or indirect effects would occur from this action. The lower section of the #202 road will be rehabilitated (have a partial obliteration accompanied by the placement of on-site woody debris). The indirect short term effects or the road obliteration would be short term fine sediment delivery to the channel, the majority of this would be stored behind logs and other in channel obstruction. To protect spawning fish and emerging fry no work should occur on the #202 road obliteration until after July 15th. Direct effects could be some short-term interruption of feeding.

Cumulative Effects

Ongoing fire suppression, road maintenance and recreation activities would continue, but the Sands creek project in Deception creek should trend habitat conditions in a manner that has minimal measurable risk to fish habitat. In consideration of potential influences from direct and indirect effects associated with the proposed project as well as state and private activities, the cumulative effects are not expected to change the existing condition or trend for fisheries resources in the cumulative effects watershed. Cumulatively, this analysis indicates that threatened or sensitive fish are not anticipated to be adversely affected by the project activities analyzed in this document. This project is expected to have no additional measurable effects to the Little North Fork of the Coeur d'Alene river.

3.4 RARE PLANTS

Affected Environment

There are a total of 29 sensitive plants listed for the Coeur d'Alene River Ranger District that were considered in this effects analysis. The complete list of species and habitat guilds is in the project file. Sensitive species are determined by the Regional Forester as those species for which population viability is a concern, as indicated by a current or predicted downward trend in population numbers or in habitat capability which would reduce the species' existing distribution. A habitat assessment was conducted using the Timber Stand Management Records System (TSMRS), Idaho Conservation Data Center records, aerial photo interpretation and knowledge of similar habitats. The review indicated that there is deerfern in the immediate vicinity, within ¼ air mile, and that moist forest and wet forest sensitive plant habitat guilds have the potential to occur in the project area based on presence of suitable habitat. Full field surveys completed on August 30, 1999, confirmed this assessment. These surveys thoroughly covered all the treatment units and concentrated on the riparian area as well as moist forest microsites. The quality of suitable wet forest habitat has been compromised in the riparian area due to disturbance from past road construction in close proximity to the streambed. Mortality in both the western white pine from blister rust and the off site ponderosa pine, has further reduced the mature tree component necessary for highly suitable moist forest habitat. The existing habitats in the project area are primarily moist forest western hemlock/ *Clintonia uniflora* to western hemlock/ *Asarum caudatum* in microsites toward the draws, along with wet forest types of western hemlock/ *Gymnocarpium dryopteris*, to western red cedar/*Oplopanax horridum* below the existing #202.2 road scheduled to be removed under alternative 2. The project area is dominated by mid-aged mixed stands of western white pine, western hemlock, and grand fir with mature stands of western hemlock, grand fir. Many areas with mortality from blister rust and snow damage are resulting in western hemlock, grand fir under story. Some areas have dense western hemlock reproduction. Deerfern, Constance's bittercress, clustered lady's slipper, Idaho barren strawberry, and Henderson's sedge can occur in moist forest communities that have experienced some disturbance.

The only rare plant found was one occurrence of round-leaved rein orchid, though not listed as sensitive, is on the Forest species of concern list for the Coeur d'Alene River Ranger District. Plant species identified as "Forest species of concern" are species which may not be at risk on a rangewide, regional or state scale, but may be imperiled within a planning area, such as a National Forest (USDA 1997). This species, round-leaved rein orchid, seems to be secure on the IPNF, however, there are few documented occurrences on the Coeur d'Alene portion of the Forest, and these tend to consist of only 1-2 plants per location.

A threatened species, as determined by the US Fish and Wildlife Service, is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. There are no known occurrences of the listed threatened species: water howellia, Ute ladies-tresses, or Spalding's catchfly in the Coeur d'Alene Basin. Suitable habitat for threatened plant species (aquatic, shrub-Carr deciduous riparian, or grassland) is not present within the project area. Threatened and

sensitive plant list for the IPNF is presented in the following table:

Table 3-2: Plant Threatened and Sensitive Species

***NI**= No impact to any populations, species or habitat. **MIIH = May** impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or a loss of viability to the populations or species.*

THREATENED AND SENSITIVE PLANT SPECIES	Documented sites or Potential Habitat?	Alt. 1	Alt. 2
Spiranthes diluvialis (FWS-Threatened) **Ute ladies'-tresses** Orchid	No sites or habitat	No Effect	No Effect
Howellia aquatilis (FWS-Threatened) **Water howellia**	No sites or habitat	No Effect	No Effect
Spiranthes diluvialis (FWS-Proposed) **Spalding's silene**	No sites or habitat	No Effect	No Effect
Asplenium trichomanes **Maidenhair spleenwort**	Potential habitat	NI	MIIH
Blechnum spicant **Deerfern**	Potential habitat	NI	MIIH
Botrychium ascendens **Upswept moonwort**	Potential habitat	NI	MIIH
Botrychium crenulatum **Dainty moonwort**	Potential habitat	NI	MIIH
Botrychium lanceolatum **Triangle moonwort**	Potential habitat	NI	MIIH
Botrychium minganense **Mingan moonwort**	Potential habitat	NI	MIIH
Botrychium montanum **Western goblin**	Potential habitat	NI	MIIH
Botrychium paradoxum **Paradox moonwort**	Potential habitat	NI	MIIH
Botrychium pendunculosum **Stalked moonwort**	Potential habitat	NI	MIIH
Botrychium pinnatum **Northwestern moonwort**	Potential habitat	NI	MIIH
Botrychium simplex **Least moonwort**	Potential Habitat	NI	MIIH
Buxbaumia aphylla **Leafless bug-on-a-stick moss**	No sites or habitat	NI	NI
Buxbaumia viridis **Green bug-on-a-stick moss**	Potential habitat	NI	MIIH
Cardamine constancei **Constance's bttercress**	Potential habitat	NI	MIIH
Carex chordorrhiza **String-root sedge**	No sites or habitat	NI	NI
Carex hendersonii **Henderson's sedge**	Potential habitat	NI	MIIH
Carex livida **Livid sedge**	No sites or habitat	NI	NI
Carex xerantica **Dryland sedge**	No sites or habitat	NI	NI
Cetraria subalpina **Iceland-moss lichen**	No Sites or habitat	NI	NI

THREATENED AND SENSITIVE PLANT SPECIES	Documented sites or Potential Habitat?	Alt. 1	Alt. 2
Collema curtisporum **Short-spored jelly lichen**	No sites or habitat	NI	NI
Cypripedium fasciculatum **Clustered lady's slipper**	Potential habitat	NI	MIIH
Hookeria lucens **Clear moss**	Potential habitat	NI	MIIH
Hypercium majus **Large Canadian St. Johns wort**	No sites or habitat	NI	NI
Minulus alsinoides **Chickweed monkeyflower**	Potential habitat	NI	MIIH
Rhyncchospora alba **White beakrush**	No sites or habitat	NI	NI
Scheuchzeria palustris **Pod grass**	No sites or habitat	NI	NI
Scirpus subterminalis **Water clubbrush**	No sites or habitat	NI	NI
Thelypteris navadensis **Sierra woodfern**	Potential habitat	NI	MIIH
Waldsteinia idahoenesis **Idaho barren strawberry**	Potential habitat	NI	MIIH

Alternative 1 (No Action)

This alternative would have no impact on any threatened or sensitive species or Forest species of concern plants or habitat. Long-term riparian habitat would not be improved.

Alternative 2 (Proposed Action)

Implementation of Alternative 2 would not have any effect on listed threatened species as no populations or habitat occur within the proposed activity area. Implementation of Alternative 2 may have some impact to individuals listed as sensitive such as undetected moonworts or habitat in the wet forest types from the proposed removal of the road prism, however this activity would have a long-term benefit because channel stability and riparian community habitat would be improved. Habitat and sensitive species of the moist forest guild such as undetected moonworts could also be affected but, because of the scope and intensity of the proposed action, it will not affect population viability or habitat capability. The Forest species of concern, round-leaved rein orchid, found within the project area will be protected with buffers, as directed by the District Botanist.

Cumulative Effects

There is no effect on species or habitat of the Federally listed threatened plant species because there are no occurrences or habitat in the activity area. The potential for cumulative effects on sensitive species and habitat of the wet and moist forest guilds in the activity area is very low due to past road building and stand treatment activities. No sensitive plant populations were found and the round-leaved rein orchid, occurrence will be mitigated as directed by the Districts botanist.

3.5 WILDLIFE

Affected Environment

A field reconnaissance was done during the summer of 1998. (as described in the BA in the project record there are no effects to the threatened and endangered species; the grizzly bear, gray wolf, lynx or bald eagle.)Habitat for the common loon, flammulated owl, and peregrine falcon is not present. There are no lakes for loon habitat, cliff-sites or foraging habitat for the perigrine falcon, or dry Douglas fir and native Ponderosa pine for the flammulated owl. The following paragraph refers to species whose habitat is present within the project area.

Table 3-3: Wildlife TES Species

***NI**= No impact to any populations, species or habitat. **MIIH**= May impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the populations or species. **BI**= Beneficial impact to the species or habitat*
******Due to similar habitat characteristics, analyzed with other sensitive species***

WILDLIFE TES SPECIES	Documented sites or Potential Habitat?	Alt. 1	Alt. 2
Bald Eagle *(FWS-Threatened)*	No sites or habitat	No Effect	No Effect
Gray Wolf *(FWS-Threatened)*	Potential low quality habitat	No Effect	No Effect
North American Lynx (FWS Threatened)	Sightings, not in potential habitat (LAU)	NI	NI
Grizzly Bear	No sites, no habitat		
Sensitive species			
Northern Goshawk	Potential habitat	NI	**MIIH**
Northern Leopard Frog	Potential habitat	NI	NI
Boreal Toad	Potential habitat	NI	NI
Flammulated Owl	No sites or habitat	NI	**NI**
Peregrine Falcon *(FWS-Threatened)*	No sites or habitat	No Effect	No Effect
Coeur d'Alene Salamander	Potential habitat	MII	**NI**
Black -backed Woodpecker	Potential habitat	NI	MIH
Townsend's Big-eared Bat	No sites or habitat	NI	NI
Fisher	Potential habitat	NI	NI
Wolverine	Low quality habitat	NI	NI
Harlequin Duck	No sites or habitat	NI	NI
Common Loon	No site or habitat	NI	NI
Management indicator species			
Pine Marten*	Potential habitat	NI	NI
Pileated woodpecker*	Potential habitat	NI	NI
Elk	Potential habitat	NI	NI

The following section describes the existing condition and impacts to sensitive species. Habitat for the common loon, flamulated owl, Townsend's big-eared bat, Harlequin duck, and perigrine falcon is not present. There are no lakes for loon habitat, cliff sites or foraging habitat for perigrine falcons, or dry Douglas fir and native ponderosa pine for Flamulated owl. There are no mine sites for Townsend's big-eared bat habitat. Fast flowing streams or rivers with loafing sites for the Harlequin duck are not present. The following paragraph refers to species whose habitat is present within the project area.

Direct and Indirect Effects of Alternative 1 (No Action)

Alternative 1 would not have any adverse effects on wildlife habitat or habitat for threatened, endangered, and sensitive species. There would be no impacts to sensitive species except the Coeur d'Alene salamander.

Direct and Indirect Effects of Alternative 2 (Proposed Action)

Goshawk

Direct and indirect effects

The project area is within an area suitable for a goshawk nesting territory of 5,000 acres. Some quality-nesting habitat is available outside of the project area. Directly within the project area, field reconnaissance and aerial photo interpretation found that only the ridgetop above unit 4 and 5 provide a small amount of nesting habitat for the goshawk. Goshawks prefer gentle slopes, (Hayward 1983) and the majority of the area is too steep for nesting goshawks. Within the nesting territory, habitat is fragmented and fewer older stands are available for nesting than historically. Cumulatively, there is a loss of habitat in the nesting territory. There are no known goshawks within or in the near vicinity of the project area.

Cumulative Effects

Due to the road being built along the ridge, a immeasurable amount of habitat will be lost. Cumulatively, this project minimally adds to past-lost habitat. Alternative 2 may impact individuals, but is not likely to lead toward federal listing. Mitigations incorporated for Goshawks will provide for their needs should a Goshawk nest be located prior to or during project activities.

Fisher and Pine Marten

Direct, Indirect an Cumulative Effects

There is minimal amount of large structure for the fisher within the forested portion of the project area. Riparian areas provide the most likely habitat for travel of the fisher. Although unit 4 has structure for fisher denning, it is too steep to be quality denning habitat. (Ralph, pers comm.. 1998). The adjacent, Skookum salvage sale minimally reduced habitat and currently has open roads, which in the short term can increase the risk of incidental trapping. Within 5 years, road obliterations will improve security for the fisher in the cumulative effects analysis area for the fisher

Fisher denning habitat would not be impacted under alternative 2. Roads would not be built in fisher denning habitat. The obliteration of the Sands creek road would improve security for the fisher. Because fisher denning or habitat (riparian areas) would not be negatively impacted by road building or harvesting, this project would not cumulatively add to past impacts to the fisher in the analysis area. This project will have no impact to the fisher.

Wolverine

Direct and indirect effects

Wolverines are low density, wide-ranging species that inhabit remote forested areas ranging over a variety of habitats. Based on their wide-ranging nature and existing habitat components (i.e. lack of denning habitat and large sparsely inhabited wilderness areas), and sighting information, recorded wolverine occurrences in the Coeur d'Alene drainage are mostly transient individuals. There are no known sightings in the project area. There is no wolverine denning habitat within or adjacent to the project area. Relatively high road densities limit the drainages suitability as wolverine habitat.

Cumulative Effects

The likelihood of a wolverine using the project area is low given the wide-ranging nature of the wolverine and the low quality habitat due to past road activity. Changes in forest structure would not impact the wolverine, as they range over a variety of habitats. Because road densities would decrease with this project (slightly decreasing the risk off incidental trapping), and there would be no impact to denning habitat, this project would not impact the wolverine.

Coeur d'Alene salamander

Direct and indirect effects

There are no known Coeur d' Alene salamander sites in the project area. There would be no alteration of stream flows that may impact the salamander. Potential habitat exists in the streams, especially the upper end of Sands Creek. Under alternative 1, increased sedimentation to the riparian areas may be impacting habitat.

Cumulative Effects

Alternative 2 would not increase stream flows or alter the Coeur d'Alene salamander habitat. The portion of Sands Creek where the road obliteration would occur is not in the portion of Sands Creek having the rocky riparian areas characteristics of this species habitat. Therefore, road obliteration would not impact the salamander by decreasing sedimentation. This project will not impact the Coeur d'Alene salamander.

Black-backed woodpecker and cavity nesters (including Pileated woodpecker)

Direct and indirect effects

Snags provide habitat for the black-backed woodpecker. Some snags and live replacement trees for future habitat would be maintained for the black-backed woodpecker. Adequate amounts of snags are available in the adjacent portions of the Deception Creek Experimental Forest. Some of the largest white pine snags and in the most abundance on the District are located on the Experimental Forest and will not be harvested under this alternative.

Cumulative Effects

Because it is possible that a nest tree may be harvested, this project may impact individuals, but is not likely to lead toward federal listing. Cumulatively, this project minorly adds to the loss of habitat in the past. Because some snags will be maintained in units, and adequate habitat is adjacent to the project area, this project may impact individuals, but is not likely to lead to federal listing.

Boreal toad and Northern leopard frog

Direct and indirect effects

There is potential habitat in the seeps area adjacent to road# 612 and riparian areas. Past roading activity most likely reduced habitat.

Cumulative Effects

There would be no impact to these species because habitat will not be disturbed and buffers along the creek will maintain habitat.

Big Game

Direct and indirect effects

The project area is within Elk habitat unit (EHU) 7. An EHU is made up of several compartments and encompasses large areas. For example, EHU 7 comprises 9 compartments totaling 50,877 acres. The Forest Plan Goal for habitat potential is 42% in EHU 7. The project area is not within summer or winter range, and field reconnaissance found little sign of big game. Due to the small scale of this project, shortness of duration, and less than one mile of temporary road being constructed, the EHU potential is not predicted to decrease due to the project. There is one moose known to be present within the project area. Some cover for big game will be lost for approximately 10-20 years. Road closures in the adjacent skookum sale within the next

1-5 years and the obliteration of the Sands Creek road will increase security for big game. Because the project is not occurring in winter or summer range, is of short duration and does not decrease security acres long term, it is not expected to change the EHU potential below Forest Plan goal or measurably effect big game

Cumulative Effects

The cumulative effects analysis is based on running an EHU model which calculates habitat effectiveness percentage based on factor such as open road density, changes in cover-forage ratios, road closure types, and whether the activity is occurring in big game summer or winter range. The Forest Plan objective is 42% for EHU 7, with the Current level EHU 7 at 50%. This project along with other timber sales and roads in the southern portion of EHU 7 is expected to have a slight decrease in Elk habitat unit 7.

3.6 CULTURAL RESOURCES

Affected Environment

No cultural resources are identified in the project area. The entire DCEF area has been surveyed and there are no cultural sites within the project area. (Monument Mt. survey). Existing structures within DCEF include a bunkhouse that has been vandalized and damaged by snow over the years and is scheduled for removal, in the near future.

Direct and Indirect Effects of Alternative 1 (No Action)

Under the no-action alternative, no activities described in the proposed action would occur. There are no identified cultural sites in the project area. There would be no effects on the cultural resource.

Direct and Indirect Effects of Alternative 2 (Proposed Action)

There are no identified cultural sites in the project area. There would be no effects on the cultural resource.

Cumulative Effects

No other activities affecting cultural resources is known for this area. No cumulative effects on the cultural resource would occur.

3.7 OTHER RESOURCES

Minerals

No mineral claims are found in the area. No impacts would occur on the mineral resource.

Noxious Weeds

Some increase in noxious weeds may occur as a result of the vegetation management activities and the road maintenance and usage during implementation of Alternative # 2. Ongoing activities such as recreation within the DCEF have the potential to increase noxious weeds under either alternative. Any new populations of noxious weeds would be

controlled using Integrated Pest Management techniques as stated in the Weeds EIS. No significant increase of noxious weeds is expected for any of the alternatives.

Range

There are no current grazing permits for this area. There would be no effects on the range resource from any of the alternatives.

Recreation

The project area has no developed recreation areas. The primary use is hunting, and snowmobile use. Alternative 2 would have no effect on any of the current recreational uses in the area. Some short-term restrictions could affect the use of the system roads that are found within the Research Area. However, no activities will take place from December 11 to March 30 during the winter recreation period.

Transportation System/Roads

There would be no new system road construction.. Approximately two tenths (0.2) of a mile of temporary road will be constructed and obliterated after use. Approximately seven tenths (0.7) of a mile of existing roads will be brushed and bladed for harvest activities and will be ripped, seeded, and earthen barriers placed after activities. 3289 feet of #202.2 road will be obliterated under the proposed action, riparian road study. This road is a groomed snowmobile route and will be relocated on existing road #562 before removal. This section of existing road ties into the #202.2 road and enters # 612 road 600 ft. downstream from the existing 202.2 road near Honeysuckle Campground.

Visuals

Alternative 2 would not create any changes in the visual quality resource for the area.

Air Quality

This proposal would have some short-term (1-2 days) impacts on air quality standards, but air quality levels would comply with all State and Federal air quality regulations. Prescribed fire activities would be accomplished during weather conditions that would minimize any impacts of smoke on communities and the air quality of monitored reference sites.

3.8 Specifically Required Disclosures

Unavoidable Adverse Effects

There would be no unavoidable adverse effects from implementation of any alternatives for this proposed project.

Irreversible and Irretrievable commitments of Resources

There are no irreversible or irretrievable commitments of resources as a result of implementation of the project alternatives.

Relationship of Short-Term Uses and Long-Term Productivity

The purpose of the research study project is to determine management techniques that would produce the best outcomes for Long-Term Productivity.

American Indian Treaty Rights

Federal laws that provide direction and guidance to the Forest Service in identifying, evaluating and protecting heritage resources regulates heritage and tribal interest. The Forest Plan tiers to these laws and therefore, proposed action alternatives will meet Forest Plan Standards. This proposal would not conflict with any treaty provisions.

Cultural Resources

All areas of proposed ground disturbing activities have been inventoried for cultural resources. No cultural resources are identified in the project area. The Forest would comply with all aspects of the National Historic Preservation Act.

Energy Requirements and Conservation Potential of Alternatives

The energy consumption associated with the alternatives, as well as the differences between the alternatives, is insignificant.

Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (Feb. 11, 1994) requires all Federal Agencies to make environmental justice part of each agencies mission, by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects on minority populations or low-income populations. Although low-income and minority populations live in the vicinity, the project would not discriminate against these groups. Based on the composition of the affected communities and the cultural and economic factors, the activities that are proposed would have no disproportionately adverse effects to human health and safety or environmental effects to minority, low-income, or any segments of the population.

Even-Aged Vegetation Management

The National Forest Management Act (NFMA) of 1976 requires the disclosure of any silviculture prescription that creates an opening larger than 40 acres, using even-aged vegetation management. The proposed project does not propose any silviculture prescriptions that would create any forest openings, and no even-aged management would occur.

Floodplains and Wetlands

The removal of the #202.2 road adjacent to Sands Creek is expected to have a initial increase in sediment delivery, but a long term benefit to both water quality and fisheries.

Social Groups

The proposal alternatives would have no affects on any social groups, including minorities, Native American Indians, women, or the civil liberties of any American citizen.

Threatened and Endangered Species (T&E)

No significant adverse effects would occur on any TES fish, plant or wildlife species.

Water Quality

The State of Idaho Forest Practices Water Quality Management Plan, and Forest Service "Soil and Water Conservation Practices" standards would be implemented to meet state and federal water quality regulations. The project would have no effect on water quality.

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Appendix A: List of Preparers and Scoping With Other Agencies, Organizations and Individuals.

This appendix includes a list of preparers of the document. Additionally, a list of agencies, organizations, and individuals that have attended public meetings, or received scoping letters and/or sent copies of the Environmental Assessment, or otherwise expressed interest in the project.

List of Preparers

The following individuals were primarily responsible for developing the environmental analysis.

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Education: PhD, Forestry
Contribution: Principle Investigator, Study Design, and Silviculture Prescriptions, Responsible Official.

Theresa Jain
Position: Research Forester
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Idaho Panhandle National Forest, Coeur d'Alene Ranger District, USDA-Forest Service

Kerry Arneson
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Contribution: Documentation compilation and distribution.

Steve Bateman
Position: Ecosystems Staff Officer.
Contribution: Analysis process guidance and documentation review

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Contribution: Cultural resource analysis

Valerie Goodnow
Position: Botanist
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Contribution: TES plants analysis, EA document preparation

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Kristen Philbrook
Position: Wildlife Biologist
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Position: Acting Forest Supervisor
Contribution: Responsible Official.

Daniel Frigard
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Contribution: Team leader, Technical support.

List of Agencies and Organizations and Individuals

Federal Officials and Agencies

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Idaho Panhandle National Forest Supervisor's Office, Coeur d'Alene, ID
Idaho Panhandle National Forest, Coeur d'Alene River Ranger District, Coeur d' Alene and Silverton, ID
U.S. Fish and Wildlife Service, Coeur d'Alene, ID

State Agencies and Local Officials

Idaho Division of Environmental Quality, Boise, ID
Idaho Fish and Game, Panhandle Region, Coeur d'Alene, ID

Businesses

Organizations

Kootenai Environmental Alliance, Coeur d'Alene, ID
Selkirk Priest Basin Association, Sandpoint, ID
The Ecology Center, Missoula, ID

Individuals

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