



United States  
Department of  
Agriculture

Forest  
Service

Intermountain  
Region

August 2004



ENVIRONMENTAL  
ASSESSMENT  
FOR THE STAR RANCH FUELS  
REDUCTION PROJECT

BOISE NATIONAL FOREST  
IDAHO CITY RANGER DISTRICT  
IDAHO CITY, BOISE COUNTY, IDAHO



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# Chapter 1 – Purpose and Need

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Idaho City Ranger District Office in Idaho City, Idaho.

## Background

### National Fire Plan (NFP)

During the last ten years, wildfires have increased in size and intensity within the United States. In 2000, in response to a request by then President Clinton, the Secretaries of Agriculture and the Interior developed an interagency approach to respond to severe wildland fires, reduce their impacts on rural communities, and assure sufficient firefighting capacity in the future (USDA Forest Service 2000). This report outlined a strategy to reduce wildland fire threats and restore forest ecosystem health in the interior West. In 2001, the U.S. Congress funded the *National Fire Plan* to reduce hazardous fuel and restore forests and rangeland. In response, the Secretaries of Agriculture and the Interior, along with Western Governors and other interested parties, developed a 10-year strategy and implementation plan for protecting communities and the environment. This plan, coupled with the Federal Wildland Fire Management Policy (2001), forms a framework for Federal agencies, States, Tribes, local governments, and communities to reduce the threat of fire, improve the condition of the land, restore forest and rangeland health, and reduce risk to communities.

### Healthy Forest Initiative (HFI)

The Administration launched the Healthy Forest Initiative (HFI) in 2002 to reduce barriers to the timely removal of hazardous fuel. The HFI expedites administrative procedures for hazardous-fuel reduction and ecosystem-restoration projects on Federal land. Sixteen months later, Congress passed the Healthy Forests Restoration Act to reduce delays and remove statutory barriers for projects that reduce hazardous fuel and improve forest health and vigor.

### Healthy Forests Restoration Act (HFRA)

The Healthy Forests Restoration Act of 2003 (P.L. 108-148) contains a variety of provisions to expedite hazardous-fuel reduction and forest-restoration projects on specific types of Federal land that are at risk of wildland fire or insect and disease epidemics. The act helps rural communities, States, Tribes, and landowners restore healthy forest and rangeland conditions on State, Tribal, and private lands.

Criteria for projects to be authorized under this act include condition class, location to communities at risk (Federal Register, January 4, 2001, Vol. 66, No. 3, p. 751-777), and collaboration. The Star Ranch project meets the criteria for an authorized project under HFRA. (Boise County Wildland Fire Mitigation Plan, 2003)

The Idaho Statewide Implementation Strategy for the NFP was developed as a framework to guide completion of collaborative, community-based plans to address wildland fire issues. Each county would bring together all groups and agencies responsible for wildland fire suppression to develop a community-based wildland fire mitigation plan.

The Boise County Wildland Fire Mitigation Plan was completed in July 2003 by a planning team consisting of representatives of County, State, and Federal Governmental agencies, as well as local home-owners' associations, and county residents and land owners. The purpose of the plan is "to provide Boise County residents, public and private organizations with assistance and recommendations to reduce risk and hazards presented by wildfires within Boise County."

This plan includes a number of possible fire mitigation activities that could be implemented by local agencies or homeowners. In addition it identifies fuel reduction projects and Wildland/Urban Interface (WUI) watersheds. The Plan identifies hazard vulnerability and risk, prioritizes hazards and develops mitigation goals and strategies for implementation.

## Purpose and Need for Action

**Purpose:** The Star Ranch Fuel Reduction project is proposed at this time to respond to goals and objectives of the National Fire Plan and the Boise National Forest Land and Resource Management Plan (Forest Plan) (USDA Forest Service 2003), as well as implement recommendations of the Boise County Wildland Fire Mitigation Plan. The Star Ranch Fuel Reduction Project proposes to reduce fuels in this area in order to protect communities, homes, structures, forest resources, and provide for public and firefighter safety. This project area falls within a watershed identified as "at-risk" in the County Mitigation Plan. This watershed needs treatment to reduce the risk from an uncharacteristic wildland fire. The community of Placerville, Idaho is an identified Wildland-Urban Interface Community within the vicinity of federal lands that are at high risk from wildfire (*Federal Register August 2001*).

The Star Ranch Fuel Reduction Project contributes to the accomplishment of the following Forest Plan Fire Management Goals and Objectives.

**Goal FMGO03:** Use fire alone or with other management activities to restore or maintain desirable plant community attributes including fuel levels, as well as ecological processes.

**Goal FMGO04:** Use fire alone or with other management activities to treat natural and activity fuels to a level that reduces the risk of uncharacteristic or undesirable wildland fires.

**Goal FMGO05:** Provide for protection of life, investments, and valuable resources through appropriate vegetation, fuel, and wildland fire management

**Objective 0868** – Use prescribed fire and mechanical treatments to manage fuel loadings within or adjacent to wild land-urban interface areas to reduce wildfire hazards.

**Need:** The Star Ranch project area contains wildland/urban interface in which the current vegetation and fuel conditions are well outside the natural fire regime, placing human lives, property and natural resource values at risk of loss due to fire. The wildland vegetation and fuel

conditions have departed from the natural fire regime such that the project area is currently in Condition Class 2 and 3. Dry forest types historically contained diverse understories of grasses, forbs, and low shrub types with a large diameter ponderosa pine overstory. This condition was maintained over time by frequent low intensity fire. The Star Ranch Project Area has departed from this past condition because of the lack of frequent low intensity fire. These sites now contain dense stands with significant ladder fuels which readily facilitate crown fire. The risk of losing key ecosystem components is high and there is increased wildfire threat to the adjacent communities of Placerville and the Star Ranch subdivision.

**Purpose/Objective #1:** Manage fuel loadings with prescribed fire and mechanical treatments within or adjacent to WUI to reduce wildfire hazards.

**Indicators:**

- Condition Class
- Surface Fuel loading

**Purpose/Objective #2:** Promote early seral species and open stands that can be maintained in a low hazard condition by fire in the future.

**Indicators:**

- Acres of stands thinned to an average of 90 basal area and less, or 150 trees per acre or less.
- Acres of stands in ponderosa pine and dry Douglas-fir habitat types maintained or moved into ponderosa pine dominance.
- Acres of stands in subalpine fir habitat types maintained or moved into Douglas-fir pine dominance.
- Acres of stands in a condition that can be maintained with low intensity prescribed fire.

## Existing Condition

The majority (87%) of the Star Ranch Project area lies with potential vegetation groups that historically experienced high frequency low intensity fires. The mean fire return interval within the majority of the project area was every seventeen years. The remaining 13% of the project area would fall into a fire regime III, which has a mean fire return interval for this area of every 67 years, with a mixed fire severity result. The project area has missed numerous fire return intervals which would place the area in a moderate to high risk of losing key ecosystem components. The stand composition and structure has been altered resulting in unnatural tree densities and canopy closure. There is an increase in horizontal and vertical fuel loading and continuity which is well beyond historic levels. The result of this change is uncharacteristic fire intensity and severity. This type of uncharacteristic stand replacement fire has been seen on the Boise National Forest over the last 15 years in similar stand conditions.



These pictures represent current typical vegetation conditions within the Star Ranch Project Area. Notice the encroachment of young conifer species (ladder fuels).

## **Desired Condition**

The desired conditions described for the Forest Plan management areas, in conjunction with the other Forest Plan direction, provide the parameters for identifying and defining project-specific desired conditions. The following desired conditions will help guide management of the project consistent with the Forest Plan, the significant issues (described below), and the ecological conditions of the project area.

The desired condition of the Star Ranch Project Area is one of more historic conditions. This will consist of species composition that is more fire resilient and in the early seral open condition. Species will be represented by larger diameter ponderosa pine intermixed with a few large diameter Douglas-fir. The fuel loading and horizontal and vertical fuel continuity would be much less in these managed stands. These conditions would more representative of a condition class

one, which the ecosystem would be functioning within a historic range and the risk of losing key ecosystem components would be low. The project area, after implementation of management activities, would represent more historic conditions and could be maintained in this condition with the reintroduction of low intensity fire. The stands, in managed conditions, would decrease wildfire resistance to control and would give firefighters increased success in fire suppression operations. Fire intensity and severity would be much less in these stands under managed conditions. This would represent an increase in public and firefighter safety. The communities of Placerville and the sub-division of Star Ranch would be much more easily protected than at the present time.



Typical desire

s.

## Proposed Action

The Boise National Forest (BNF) is proposing management activities on approximately 4500 acres of the project area. The proposed management activities are consistent with the management direction in the Boise National Forest Plan and would be implemented according to the Plan's Standards and Guidelines. The proposals are to:

- Precommercial thinning of young ponderosa pine stands followed by burning of hand-piled slash, jacpot burning or removal of the thinned trees for biomass/fuelwood. Approximately 1564 acres.
- Commercial thinning of Douglas-fir and ponderosa pine stands followed by burning of created slash piles and prescribed fire (underburn). Approximately 1100 acres.
- Regeneration harvest of decadent Douglas-fir stands followed by burning of created slash piles and prescribed fire (underburn). Approximately 110 acres.
- Sanitation harvest of diseased and dying Douglas-fir and ponderosa pine stands followed by burning of created slash piles. Approximately 173 acres.
- Prescribed fire (underburn) in previously managed stands. Approximately 210 acres.
- Prescribed fire (broadcast burn) for natural fuel reduction on southern aspects. Approximately 1210 acres.
- Precommercial thinning within RCA followed by handpiling and burning piles. Approximately 112 acres.
- Construct 1.2 miles of permanent road and 0.5 miles of temporary road to provide economical access to timber stands north of Trail Creek. Improve drainage on approximately 4.0 miles of existing road.
- Decommission 4.8 miles of existing system road. Also stabilize and close 2.2 miles of existing non-system road.

Chapter 2 has a complete description of the Proposed Action, specific mitigation measures, and monitoring requirements.

## Decision to be Made

The Responsible Official for this proposal is the Forest Supervisor of the Boise National Forest. The Forest Supervisor will make the following decisions and document them in a Decision Notice following the completion of the environmental analysis and the Predecisional Administrative Review Process.

Should the Forest Service manage vegetation on National Forest System Land to protect adjacent communities, subdivisions, private property, and natural resources from the risks associated with wildland fire? If so:

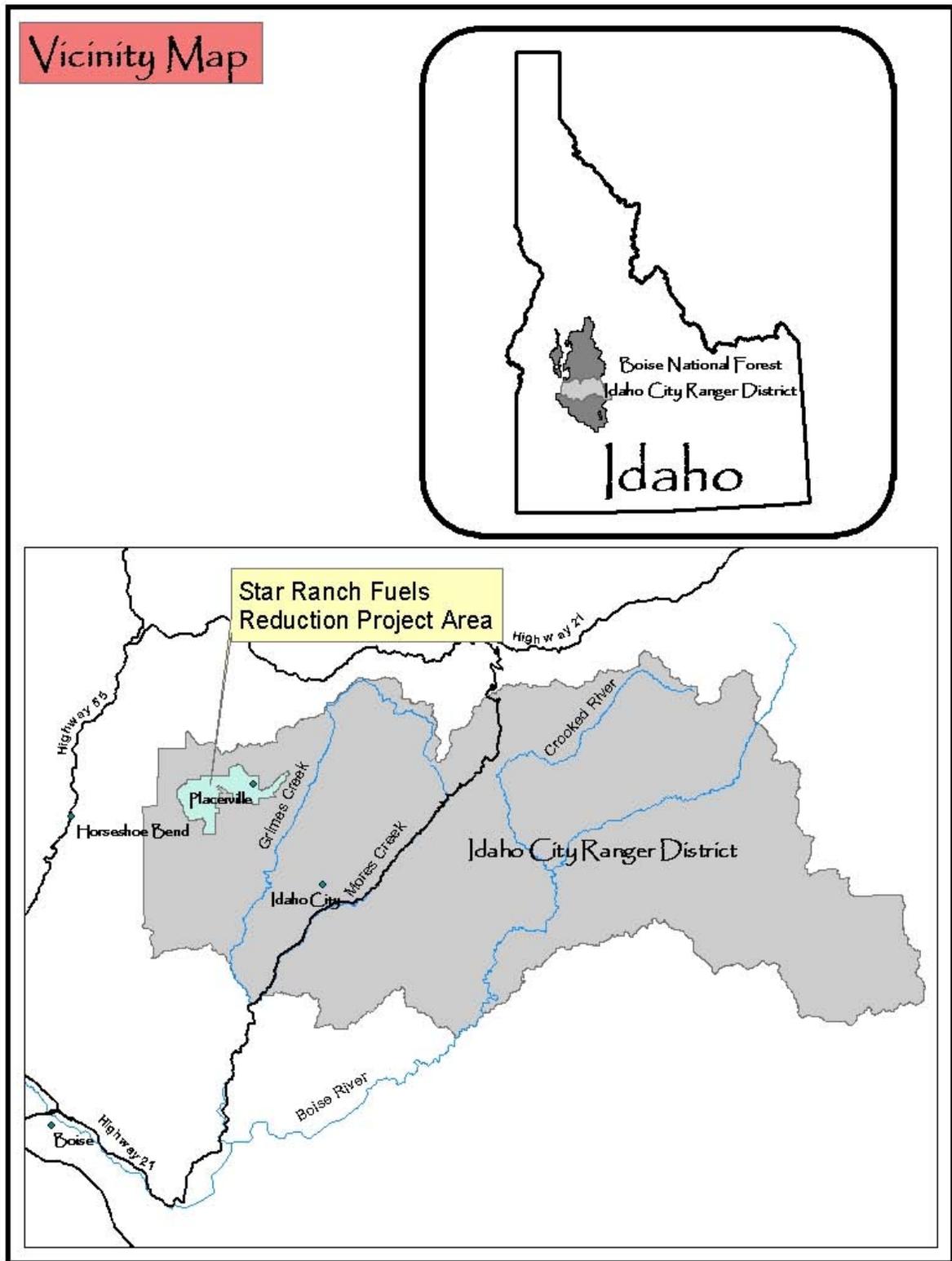
- What vegetation treatment methods should be used?
- Which areas should be treated?
- How many acres of vegetation should be managed?

- Which areas should be treated with prescribed fire without mechanical pre-treatment?
- If timber harvest is a selected method, where and how should timber be harvested?
- Should some roads be improved, constructed or maintained to provide access for fuel reduction activities? If so, which?
- What is the minimum transportation system necessary to manage the project area?
- What design features and mitigation measures should be required to meet Forest Plan standards and guidelines and to achieve desired resource objectives?
- What monitoring requirements are appropriate to evaluate implementation of this project?

## **Project Area**

The project is located in Boise County, Idaho, approximately 10 miles northwest of Idaho City. The project area is access by Forest Road #615 from the north, by Forest Road # 307 from the southeast and west. The project area encompasses approximately 8950 acres of land of which 8190 acres are National Forest administered lands, and 530 acres are Bureau of Land Management administered lands, 230 acres are private lands

Project Vicinity and Location Map



## Relationship to Forest Plan

The Forest Service has two types of decisions: programmatic (e.g., the Forest Plan) and project level which implements the Forest Plan. The Star Ranch Fuel Reduction EA is a project-level analysis; its scope is confined to addressing the significant issues and possible environmental consequences of the project. It does not attempt to address decisions made at a programmatic level.

The Forest Plan embodies the provisions of the National Forest Management Act of 1976, its implementing regulations, and other guiding documents. The Forest Plan sets forth in detail the direction for managing the land and resources of the Boise National Forest. Where appropriate, the Star Ranch Fuel Reduction EA also tiers to the Forest Plan Final Environmental Impact Statement (USDA Forest Service 2003), as encouraged by 40 CFR 1502.20.

## Forest Plan Management Areas

The Forest Plan uses management areas to guide management of the national forest lands within the Boise National Forest. Each management area provides for a unique combination of activities, practices and uses. The Star Ranch project area is within Management Area #8, Mores Creek. Goals, objectives and desired conditions of this management area are summarized below. The Forest Plan, Chapter 3, contains a detailed description of this management area (USDA Forest Service, 2003).

The proposed project lies within Mores Creek Management Area 8 and the entire project area falls within Management Prescription Category 5.2 – Commodity Production Emphasis within Forested Landscapes. The primary fire management objectives in this area are as follows:

- Use prescribed fire and mechanical treatments to manage fuel loadings within or adjacent to WUI areas to reduce wildfire hazards.
- Pursue partnerships for vegetation management in mixed land ownership areas.
- Develop and prioritize vegetation management in mixed land ownership areas and for WUI in coordination with local and tribal governments, agencies, and landowners.
- Coordinate and emphasize fire education and prevention programs with private landowners to help reduce wildfire hazards and risks.
- Work with landowners to increase defensible space around structures

## Issues

### Major Issues

Scoping and public involvement activities are used to identify unresolved issues about the effects of the proposed action. The analysis and resolution of major issues provides the basis for formulating alternatives to the proposed action. There were no major or unresolved issues identified during scoping.

### Other Minor Issues

The public, other agencies, and Forest Service resource specialists raised some concerns that the interdisciplinary team analyzed to determine potential effects caused by the Proposed Action.

Following the analysis of the proposed action, the interdisciplinary team found that there were minor effects to some resources. These valid cause and effect relationships with levels of effects too low to drive the development of additional alternatives or influence a decision were determined to be minor issues. These issues and the effects related to these issues are described in Chapter 3. Other minor issues are generally addressed through the proposed action, mitigation measures, and design features.

## Issues Eliminated from Detailed Study

Issues determined to have little relevance to the decision or have effects inconsequential to the decision were eliminated from detailed study. These concerns or issues were analyzed and effects were found to be inconsequential to the decision to be made.

### Scenic Environment

The action alternatives would meet the Forest Plan assigned visual quality objectives. There are no highly sensitive visual travelways or use areas within or adjacent the project area. The most noticeable visual changes to the scenic environment would be associated with the temporary visual effects of prescribed burning. Short and long term visual quality in the project area would be maintained. The Scenic Environment Specialist's Report found in the project record discusses the changes and effects in detail and is hereby incorporated by reference.

### Botanical Resources – Threatened, Endangered, Candidate, Proposed and Sensitive Plant Species.

There are no known populations of rare plants (TECPS) within the project area, and no new populations were located during the recent surveys, but unknown populations or potential habitat may exist. There is potential for rare plant habitat or populations within the project area for several species, but impacts are expected to be temporary or short-term. The District Botanist completed a Biological Evaluation for the Star Ranch Fuel Reduction Project and determined that this project is not likely to adversely affect threatened or endangered plant species, and there is no impact, or the alternatives are not likely to impact sensitive, proposed sensitive, or candidate species. The Botanical Specialist Report and Biological Evaluation Covering Listed, Proposed, Candidate, Sensitive, Proposed Sensitive, and Forest Watch Species for the Star Ranch Vegetation Management Project is found in the Project Record and is hereby incorporated by reference. Key findings follow:

- There would be no effect (NE) to habitat for *Spiranthes diluvialis* (Ute ladies' tresses) (effects insignificant) or for any other FWS Listed or Proposed Listed plant species. There would be no cumulative effects to any populations or potential habitat for any Listed or Proposed Listed species due to this project.
- This project may impact *Botrychium lineare* (Slender moonwort), *Botrychium simplex* (Least moonwort), *Lewisia sacajawea* (Sacajawea's bitterroot), *Phacelia minutissima* (Least phacelia) and *Sedum borschii* (Borch's stonecrop) individuals or habitat, but would not likely contribute to a trend towards Federal Listing or cause a loss of viability to the population or species (MIIH). There would be no impacts to potential habitat for any other Candidate, Sensitive or Proposed Sensitive plant species.
- There would be a low chance of long-term loss of population viability or loss of habitat for *Allotropa virgata* (Candystick) populations or habitat relative to implementation of

this project. There should be no chance of long-term loss of population viability or loss of habitat for any other Forest Watch plant species.

### **Cultural Resources**

The Forest Service has consulted with the Shoshone-Paiute Tribes and other appropriate Indian tribes about their interest in the project. The Shoshone-Paiute Tribes are aware that historic properties exist in the project and will be avoided by management activities.

The Forest Archeologist has determined that management activities under each of the action alternatives would have No Adverse Effect on historic properties in the project area providing that historic properties that are eligible or potentially eligible for inclusion in the National Register are avoided. The Forest is preparing a report for submission to the State Historic Preservation Officer (SHPO). Concurrence on our determination of No Adverse Effect is expected. This Environmental Analysis hereby incorporates by reference the Cultural Resources Specialist Report for the Star Ranch Hazardous Fuels Reduction Project in the Project Record

## **Legal Requirements and other Specifically Required Disclosures**

The proposed action was developed to meet the laws, regulations, and requirements relating to federal natural resource management. The Interdisciplinary Team found the proposed action to be consistent with all the pertinent law, regulations, and coordination requirements. Although all such requirements will be met, the following summarizes the key concerns most often noted. Additional detail is found elsewhere in Chapters 3 and/or the project record for the Star Ranch Fuel Reduction Project.

### **Clean Air Act of 1970, as amended**

The purpose of the Clean Air Act is to protect and enhance the quality of the nation's air resources. The Star Ranch Fuel Reduction Project is designed to meet the standards of this act through management practices that consider air quality, health, and visibility standards.

This project would be implemented according to the Fire Management Plan and a prescribed burn plan, which is Forest Service policy. The State of Idaho requires that all burn plan terms and conditions relating to the control of smoke be followed. The prescribed burning plan includes specific implementation guidelines for smoke management and contingency.

The State of Idaho has a voluntary smoke management program. As part of a two state (Idaho and Montana) Airshed Group, southern Idaho, which includes the Boise National Forest, must report all proposed prescribed burning activities that use fire to accomplish land management objectives. A monitoring unit would give daily advisories based on predetermined airsheds and other planned burn events. The objective of this group is to insure that, based on meteorologic conditions, a given airshed is not overloaded with too many burn activities at one time. The Forest Service would not initiate any burning activities if Idaho Department of Environmental Quality declares an Air Pollution Episode or if the monitoring unit does not approve planned burns.

The nearest Class I area is the Sawtooth Wilderness, approximately 39 miles northeast of the project area. Based on modeling, no visibility impacts to this Class I area would occur (EA

Chapter 3 –Air Quality). The Idaho Department of Environmental Quality along with other state air quality regulators, Western Regional Air Partnership, and land management agencies are currently developing visibility goals, monitoring plans, and control measures to comply with regional haze visibility standards in all Idaho and Montana Class I areas. Idaho is expected to have a committal Regional Haze State Implementation Plan (SIP) in 2003, and a final SIP by 2008. If the SIP is in place during the implementation phase of this project, activities will be evaluated to ensure they are consistent with the SIP.

No Prevention of Significant Deterioration (PSD) permit is required because prescribed burning is not a stationary pollution source. Prescribed burning is considered to be a temporary area pollution source.

The project area is outside all state nonattainment areas, therefore, the Conformity process with the US Environmental Protection Agency and Idaho Department of Environmental Quality is not required. The state's nonattainment areas are located in north Idaho and in the southeast corner of the state.

### **Clean Water Act of 1948, as amended and Section 303(d) Listed Waters**

The objective of this act is to restore and maintain the integrity of the nation's waters. This objective translates into two fundamental goals: (1) eliminate the discharge of pollutants into the nation's waters; and (2) achieve water quality levels that are fishable and swimmable. This act establishes a non-degradation policy for all federally proposed projects. This would be accomplished through implementation and monitoring of Best Management Practices (BMPs *Best Management Practices*) Design features, including Best Management Practices, associated with proposed harvest and road opening activities would minimize soil disturbance and sediment delivery during and following implementation (EA Chapter 2-Mitigations and Design Features). The effectiveness of these Best Management Practices applied to timber harvesting and road construction has been extensively studied (Seyedbagheri, 1996; NCASI, 1999; IDHW-DEQ 1997). Application of these design features would be expected to decrease the short and long-term likelihood of sediment delivery to streams in quantities sufficient to impact water quality conditions (EA Chapter 3, Water Quality). There are no 303(d) listed streams within or immediately adjacent to the project area. The "Water Quality Federal Consistency Checklist" for the Star Ranch Fuels Reduction Project is contained in the project record.

### **Endangered Species Act of 1973, as amended**

The purpose of this act is to provide for the conservation of endangered fish, wildlife, plants, and their habitats. Biological Assessments have been prepared to document possible effects of proposed activities on endangered and threatened species within the analysis area potentially affected by the project (Fish Specialist Report and BE/BA, Botanical Specialist Report and BE covering TEPCS and Forest Watch Plant Species, and the Wildlife BA/BE for the Star Ranch Fuels Reduction Project are contained in the project record). Appropriate coordination, conferencing, and consultation with the US Fish and Wildlife Service (USFWS). will be completed prior to any decisions as a result of this document.

### **Executive Order 13175 on Consultation and Coordination with Indian Tribal Governments**

This order established a requirement for regular and meaningful consultation between federal and tribal government officials on federal policies that have tribal implications. The proposed action

was presented and discussed at the May 13, 2004 and April 14, 2004 Wings and Roots meetings (Wings and Roots Agenda-project record). These meetings are an official part of the tribal consultation process between the Shoshone-Paiute Tribe and the Boise National Forest. Copies of the proposed action were mailed to the Shoshone-Bannock Tribes requesting notification of interest or need for consultation (letter to Shoshone-Bannock Tribes, project record). The tribal notification and/or subsequent consultation processes did not result in the identification of any adverse effects to tribal interests or treaty rights associated with this project.

### **Migratory Bird Treaty Act, Executive Order 13186**

This act and subsequent executive order and memorandum of understanding between the USDI Fish and Wildlife Service and USDA Forest Service provide for the protection of migratory birds. This project may result in an unintentional take of individuals during timber harvest, thinning, and prescribed fire activities. However, the project complies with the Fish and Wildlife Service Director's Order #131 related to the applicability of the Migratory Bird Treaty Act to federal agencies and requirements for permits for "take". In addition, this project complies with Executive Order 13186 because the analysis meets agency obligations as defined under the January 16, 2001 Memorandum of Understanding between the Forest Service and Fish and Wildlife Service designed to complement Executive Order 13186. Migratory bird species are analyzed and discussed in the Wildlife BE/ BA found in the Project Record, and in the Sensitive, MIS, and other Other Species of Concern sections in Chapter 3, Wildlife Resources in this EA. If new requirements or direction result from subsequent interagency memorandums of understanding pursuant to Executive Order 13186, this project will be evaluated to ensure that it is consistent

### **Healthy Forest Restoration Act of 2003**

The Healthy Forest Restoration Act (HFRA) was signed into law (P.L. 108-148) on December 3, 2003. The intent of HFRA is to expedite the planning and implementation of hazardous fuels reduction projects on federal lands. Criteria for projects to be authorized under this act include Condition Class, location to communities at risk (Federal Register, January 4, 2001, Vol. 66, No. 3, p. 751-777), and collaboration. The Star Ranch Fuel Reduction project meets the criteria for an authorized project under HFRA.

### **Idaho Forest Practices Act of 1974**

The purpose of the Idaho Forest Practices Act is to assure the continuous growth and harvest of forest trees, and to maintain forest soil, air, water, vegetation, wildlife, and aquatic habitat. The Act requires forest practice rules for state and private lands, in order to protect, maintain, and enhance the state's natural resources. BMPs (*Best Management Practices*) and contract provisions will be used to meet specific Idaho Forest Practices Act regulations. In addition, other site-specific mitigation measures are listed in Design Features and Mitigations, Chapter 2.

### **State Water Quality Standards**

The project would not cause any of the General Surface Water Quality Criteria to be exceeded as none of the substances or materials listed would be used in conjunction with this project. Sediment would not exceed standards due to application of the BMPs. Surface Water Quality Criteria for Use Classification standards would not be affected. The project does not involve fecal coliform or toxic substances.

## **Effects on Wetlands and Floodplains**

None of the alternatives proposed construction that would affect any other floodplain and wetland areas. The floodplains and wetlands would be protected through mitigation measures such as buffer strips that conform to Executive Order 11988 (floodplains) and Executive Order 11990 (wetlands). Any activities within floodplains would also require consultation with the EPA and Army Corps of Engineers through the Dredge and Fill (404) permitting process.

## **Nonpoint Source Water Quality Program for the State of Idaho**

This program provides for the protection of Idaho's waters from nonpoint source pollutants. A Federal Consistency Checklist provides for compliance with the nonpoint source water quality provisions of the Federal Clean Water Act for the State of Idaho as agreed to in a Memorandum of Understanding (MOU) between the responsible State of Idaho and Federal land management agencies. This project meets the requirements of the MOU by completing the Federal Consistency Checklist, which is located within the project analysis file. Any portions of the checklist that are relevant to the decision to be made for this project are analyzed in detail within this environmental assessment.

The Water Quality Federal Consistency Checklist for Planned Projects, of which this Hydrologic Analysis is a part, documents compliance with the MOU between the Forest Service and the State of Idaho for implementing the Nonpoint Source Water Quality Program in the State of Idaho.

## **National Environmental Policy Act of 1969, as amended (NEPA)**

NEPA establishes the format and content requirements of environmental analysis and documentation. The process of preparing this environmental analysis was undertaken to comply with NEPA and its implementing regulations

## **National Forest Management Act of 1976 (NFMA)**

This act guides development and revision of National Forest Land Management Plans. NFMA has several provisions, including preparation requirements for timber sale contracts and maintenance of biodiversity. All action alternatives were developed to comply with NFMA and its implementing regulations. This project has been determined to be consistent with the goals, objectives, standards and guidelines in the 2003 Forest Plan.

## **Environmental Justice (E.O. 12898)**

Executive Order 12989 directs federal agencies of identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. Based on the analysis contained in this EA, no such issues or effects were determined and the proposed action and alternatives is in compliance with Executive Order 12898

## **National Historic Preservation Act (NHPA) of 1966, as amended**

Section 106 of NHPA requires federal agencies to consider the effects of their activities and programs on historic properties. Historic properties are significant cultural resources that are included in or eligible for inclusion in the National Register of Historic Places. The procedures for implementing Section 106 are outlined in the U.S. Code of Federal Regulations (36 CFR Part 800). These procedures include the identification and evaluation of historic properties in the Area

of Potential Effects (APE), the assessment of effects an undertaking may have on those historic properties, consultation on the effects of undertakings between the Forest Archeologist and State Historic Preservation Officer (SHPO), and in the event of adverse effect determinations, consultation with the Advisory Council on Historic Preservation (ACHP). This process requires consultation with SHPO, ACHP, and in certain circumstances, Indian tribes. NHPA, as amended in 1992, requires federal agencies to consult with appropriate Indian tribes regarding the management of traditional religious and cultural properties eligible for inclusion in the National Register of Historic Places. The Forest has submitted a report to SHPO, and expects SHPO concurrence that the Star Ranch Fuel Reduction Project will have No Adverse Effect on historic properties.

## **Project Record Availability**

Additional documentation, including more detailed analyses of project-area resources, may be found in the project record located at the Idaho City District Office, in Idaho City, Idaho. Certain of these documents are referenced throughout the EA by record name. These records are available for public review pursuant to the Freedom of Information Act (5 U.S.C 552).



## Chapter 2 - Alternatives

This chapter describes and compares the alternatives considered by the Forest Service for the Star Ranch Fuels Reduction project. It includes a discussion of the no action alternative and the proposed action that the interdisciplinary team studied in detail. This chapter includes a discussion of mitigation measures and other design features, monitoring, a description and map, and a comparison of these alternatives focusing on the significant issues. Chapter 2 is intended to present the alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the responsible official and the public (40 CFR 1502.14).

Some of the information used to compare alternatives at the end of Chapter 2 is summarized from Chapter 3, “Environmental Consequences.” Chapter 3 contains the detailed scientific basis for establishing baselines and measuring the potential environmental consequences of each of the alternatives. For a full understanding of the effects of the alternatives, readers will need to consult Chapter 3.

### Alternatives Considered but Eliminated from Detailed Study

Other alternatives were suggested during the planning process, one has been developed in detail, but others have not been included in the EA for detailed study. These are described briefly below, along with the reasons for not considering them further.

**Prescribed Burning Only:** An alternative was suggested to consider additional prescribed burning without thinning in any units if fuel loads and topography allow. The current alternative incorporates approximately 1410 acres of prescribed burning where no mechanical treatment is planned. These areas of sparsely forested land that would be under-burned with low-intensity prescribed fire. Unfortunately there are no other areas in which the terrain and current vegetation density and structure allows burning with a low intensity prescribed fire without unacceptable risk of moderate to high intensity fire and corresponding risk to the adjacent communities at risk of Placerville and the Star Ranch area. Treating only the 1410 acres with prescribed fire and not treating any additional areas would not meet the purpose and need and provide only marginal additional lowering of wildfire risk.

**A more strategic and effective fuel break adjacent the wildland-urban interface communities:** An alternative was suggested for a more strategic fuel break that would be designed to take advantage of existing areas with low fuel loads, natural features and topography. The proposed fuels reduction is strategically located on National Forest administered land. In addition the Forest Service has collaborated with private land-owners to accomplish fuels treatments on the adjacent private land. With nearly all the project area’s vegetation is in condition class 2 and 3, there are virtually no areas with low fuel loadings. One of the objectives of this project is to shift the project area toward a more historic condition, while protecting life and property.

## Alternatives Considered in Detail

The proposed action (alternative 2 ) and one other alternative is considered in detail. Alternative 1 is the no-action alternative, under which there would be no fuels reduction projects planned for National Forest administered lands at this time.

### Alternative 1 (No Action)

The National Environmental Policy Act (NEPA) requires consideration of the no action alternative in any NEPA environmental document. This alternative serves as the environmental baseline for analysis of effects. Under alternative 1, current management of the area would continue as directed in the Forest Plan, and the activities proposed in this document would not be implemented. No fire and fuels treatment, road or watershed improvements would occur. Fire suppression and road maintenance activities would occur. Implementation of alternative 1 would not meet the goals of the National Fire Plan and would not meet the Purpose and Need for this proposal.

### Alternative 2 (Proposed Action)

The proposed action was designed to respond to the purpose and need described in Chapter 1, the National Fire Plan, and the regional priority of treating the Wildland Urban Interface priority areas. The actions described in Table 2.1 will move the project area towards the desired condition by mechanically treating vegetation (primarily commercial and non-commercial thinning) and performing prescribed burning.

<b>Table 2-1</b>		
<b>Alternative 2 – Activities</b>		
<b>Category</b>	<b>Unit or Measure</b>	<b>Amount</b>
Commercial thin with non-commercial understory thin	acres	1100
Precommercial thin only	acres	1564
Precommercial thin-RCAs	acres	112
Sanitation with precommercial thin	acres	173
Regeneration harvest	acres	110
Planting	acres	50
Prescribed fire on harvest and precommercial thin areas	acres	3059
Prescribed fire-non mechanical treated areas	acres	1420
Road decommission	miles	4.8
Road closure (unclassified)	miles	2.2
Seasonal road closure (existing roads)	miles	5.2
Road construction (new-with seasonal closure)	miles	1.2

Road construction (temp)	miles	0.5
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This alternative is the proposed action as developed by the Interdisciplinary Team to address the Purpose and Need for this project. The proposed project would treat approximately 4500 acres with commercial harvest, pre-commercial thinning (thinning of trees 8” diameter and less) and prescribed fire. Prescribed fire activities include under-burning, broadcast burning, and jackpot pile burning.

## Transportation Management Activities

Road management techniques would be employed inside the project area to enhance safe travel and meet resource objectives. The proposed activities are:

### Road Decommission (4.8 miles)

Approximately 4.8 miles of classified would be decommissioned to improve water quality and watershed conditions. The majority of these road segments are overgrown, not currently being used and are not needed for future resource management or recreation road access. Eight identified road segments are proposed for decommissioning. Road decommissioning work will differ depending on the road segment.

- 307G (0.71 mi.): This segment is the portion inside the Trail Creek Riparian Conservation Area (RCA). It is currently vegetated and will require minimal work, if any to decommission.
- 307G3 (0.16): This segment is currently vegetated and will require minimal work, if any to decommission.
- 307E (1.21): This segment is the portion inside the Canyon Creek RCA and is currently vegetated and will require minimal work, if any to decommission.
- 374J (0.46): Appropriate drainage features will be installed and the culvert removed. It is currently vegetated and will require minimal work, if any to decommission.
- 374L (0.23): This segment is currently vegetated and will minimal work, if any to decommission.
- 374L2 (0.35): This segment is currently vegetated and will require minimal work, if any to decommission.
- 374L3 (0.43): This segment is currently vegetated and will minimal work, if any to decommission.
- 343 (1.28): This road segment is heavily rutted with 1-2 feet deep gullies and a spring on the upper end. Appropriate drainage features will be installed and the road surface seeded with a mixture of native or approved grasses and forbs to improve stability and reduce infestation by noxious weeds.

### Seasonal Closures (5.2 miles)

The 374L road and associated spurs would be designated as “closed seasonally” to all motorized vehicles from September 15 through June 15.

**Method:** A gate will be installed near the junction with the 374 road.

### **Road Closures/Watershed Improvement (2.2miles)**

Approximately 2.2 miles of unclassified road that is currently open for use and are not needed for future resource management are proposed for closure. Unclassified roads are not managed as part of the forest transportation system. They are unplanned or abandoned travel ways.

**Method:** Closures will include signing as closed. Closures may include seeding, installing drainage structures, boulder placement, and recontouring, depending on the site needs.

### **Culvert Replacement or Renovation (3 stream crossings)**

Culvert replacement or renovation is proposed to provide fish passage at three stream crossings. Crossings are located on Fall Creek on the 307E1 road at T7N, R4E, S16, Granite Creek on the 343 road at T7N, R4E, S15 and Granite Creek on the 343C road at T7N, R4E, S15.

**Method:** The culvert replacement or renovation will provide for fish passage and 100 year flow. Final designs for this culvert will occur at a later date.

### **Substantial Maintenance (4.0 miles)**

Portions of the 307E, 307E1, 374L and 343 roads would receive substantial maintenance to improve drainage and reduce surface erosion.

### **Unclassified Road added as System Road**

One currently unclassified road of approximately 1.5 miles will be added as a system road and managed as an open road.

### **New Construction**

**Forest Road 374L (1.2 miles).** This is an extension of the 374L road to reach previously unmanaged lands north of Trail Creek. Stream crossings would be designed to meet 100 year flows. In addition, springs and landslide-prone areas identified on-site will be avoided whenever possible. Cut and fill slopes will be seeded and mulched to reduce surface erosion. This road would have a similar seasonal road closure (September 15 through June 15) as that proposed for the existing segment of 374L.

### **Temporary road construction**

Three segments (total 0.5 miles) will consist of temporary road construction: Spur #1 – north of Trail Creek in Section 29 off the 374L3 road is a spur approximately 1200 long. Spur #2 north of Fall Creek in Section 16 is an 800 foot spur off the 307E1 road. Spur #3 south of Placerville in Section 23 is a 650 foot extension off an existing BLM road. These roads will be closed and stabilized after use.

## Vegetation Management Activities

Approximately 1,383 acres would be managed via commercial timber harvest. Management techniques would include approximately 1,100 acres of commercial thinning, 173 of sanitation harvest, 110 acres of regeneration harvest. Post-harvest thinning of the smaller non-merchantable understory trees would also occur on most of these same acres. Pre-commercial thinning with biomass removal would treat an additional 1676 acres of young naturally regenerated and plantation stands. 112 acres of these acres are in RCAs. The above treated areas would be underburned with low-intensity prescribed fire, or material would be piled and burned, following harvest. Approximately 1,210 acres of interspersed sparsely forested land would be also underburned with low-intensity prescribed fire, an additional 210 acres of previously treated land would similarly be underburned.

### Commercial thin and non-commercial understory thin (1,100 acres) outside RCAs.

This prescription is designed to reduce the proportion of the shade tolerant tree species in the crown canopy and encourage the more fire resistant seral species as well as increase crown separation and tree spacing to reduce risks of crown fire events. Tree species such as aspen and ponderosa pine will be favored for retention in the thinned areas.

**Method:** The silvicultural prescription will include the commercial thinning of trees larger than 8 inches DBH, removing the smallest trees until 50 to 80 square feet of basal area is attained. Trees would be whole-tree yarded to landings and slash burned and/or removed. Priority for removal will be shade tolerant species such as Douglas-fir and subalpine fir. Species such as ponderosa pine and quaking aspen will be favored for retention. When needed, understory trees less than 8 inches DBH will also be pre-commercially thinned, retaining 50 - 150 trees per acre depending on initial density and habitat type. Some of the pre-commercially thinned trees may be removed for fuel reduction. Mechanical thinning would be followed by low intensity underburning to further reduce hazardous fuels. Commercially thinned trees will be removed with following logging systems:

- Helicopter- 200 acres,
- Skyline –110 acres,
- Tractor/jammer –790 acres.

### Regeneration (110 acres), outside RCAs.

This prescription is designed to regenerate stands dominated by Douglas-fir to seral ponderosa pine, where insect infestation and disease infection have created heavy tree mortality and fuel accumulation. This prescription will result in a mosaic of different tree sizes and species, ranging from small openings (1/2 to 3 or 4 acres in size) to groups of healthy dense trees thinned to similar density as in the *Commercial thin & non-commercial understory thin* above. These prescriptions would also reduce fuels by reducing the amount of understory brush and ground fuels.

**Method:** The silvicultural prescription will include a mix of commercial thinning, seedtree cutting, and sanitation/salvage of trees larger than 8 inches DBH that are dead or dying due to insects and disease (primarily dwarf-mistletoe). A mosaic of small openings in the canopy will result where groups of trees are disease infected, or have already been killed by insects.

In groups of relatively healthy trees, the groups would be thinned, removing the smallest trees until 40 to 80 square feet of basal area is attained. Merchantable trees would be yarded to landings and slash burned and/or removed. Priority for removal will be shade tolerant species such as Douglas-fir and subalpine fir, and insect infested and disease infected trees of any species. Species such as ponderosa pine, especially the large “relic” trees, and quaking aspen will be favored for retention. Understory trees less than 8 inches DBH will also be sanitized of disease and pre-commercially thinned, retaining up to 150 trees per acre depending on initial density and level of disease infection. Some of the pre-commercially thinned trees may be removed for fuel reduction. Mechanical treatments would be followed by burning to further reduce hazardous fuels and create sites for ponderosa pine regeneration. Openings created by insect mortality and sanitation harvest would be replanted to ponderosa pine. Commercially thinned trees will be removed with following logging systems:

- Helicopter- 90 acres,
- Skyline –20 acres,

### **Planting (50 acres)**

Up to 50 percent of the acres of the area identified above for regeneration harvest would be replanted to ponderosa pine where created openings occur.

### **Sanitation (173 acres), outside RCAs**

This prescription is designed to reduce the spread of dwarf mistletoe to understory trees in previously harvested stands.

**Method:** The silvicultural prescription will include sanitation removal of Douglas-fir heavily infested with dwarf mistletoe where economically viable. In areas where removal is not viable, trees will be felled, or girdled and left standing. Removals and girdling will be concentrated in previously harvested areas. Species such as healthy Douglas-fir and ponderosa pine will be favored for retention. When needed, trees less than 8 inches DBH will also be pre-commercially thinned, retaining 70 -100 trees per acre depending on existing density and habitat type. Some of the pre-commercially thinned trees may be removed for fuel reduction. Commercially viable trees will be removed with following logging systems:

- Tractor/jammer – 150 acres.
- Skyline – 23 acres

### **Pre-commercial thinning (1,564 acres)**

This prescription is designed to reduce the number of trees growing in plantations. The treatment is designed to increase crown separation and reduce ladder fuels in order to decrease the risk of uncharacteristic crown fire events and create conditions more favorable for wildfire suppression.

**Method:** The silvicultural prescription will include the cutting of trees less than 14 inches DBH to a residual density of 50 - 150 trees per acre depending on initial stand density and habitat type. Priority for removal will be the smaller and more suppressed or crowded trees in the stands. Species such as healthy dominant Douglas-fir and ponderosa pine will be

avored for retention. Pre-commercially thinned trees will be removed for biomass and miscellaneous forest products (such as firewood, post and poles, and hog fuel for electrical generation) where access and economics permit.

### **Pre-commercial thin within Riparian Conservation Areas (RCAs) (112 acres)**

Some vegetation management will occur in upland vegetation between 50 and 300 feet from intermittent or perennial streams. No cutting or removal will occur within riparian vegetation or within 50 feet of intermittent or perennial streams. This management action is designed to reduce the risk of uncharacteristic crown fire within the RCAs and create conditions more favorable for wildfire suppression. Additional benefits to the RCA would be increased growth on ponderosa pine and Douglas-fir trees for long-term large wood recruitment to the channel, and a reduced risk of insect attack on the large trees. Seral species such as ponderosa pine and quaking aspen would also be favored for retention.

**Method:** The silvicultural prescription will include the pre-commercial thinning of trees less than 10 inches DBH, and handpiling and burning of the slash. Priority for removal will be the smaller and more suppressed or crowded trees and shade tolerant species such as Douglas-fir and subalpine fir. Residual tree spacing will be variable, depending upon the vegetation type and RCA vegetation objectives. Seral species such as quaking aspen and ponderosa pine (especially the largest size trees) will be favored for retention.

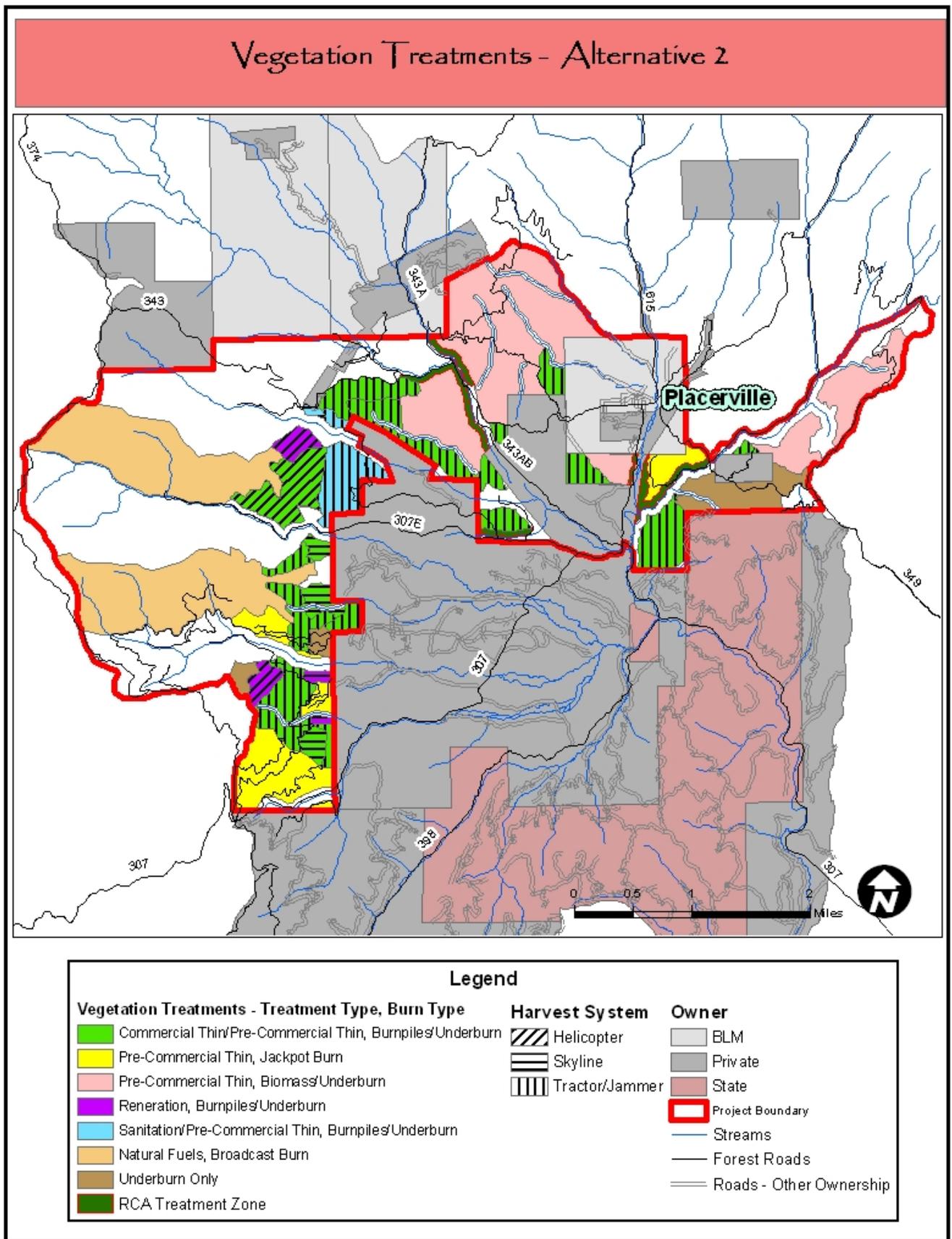
### **Prescribed fire on harvest and pre-commercially thinned Areas (3,059 acres)**

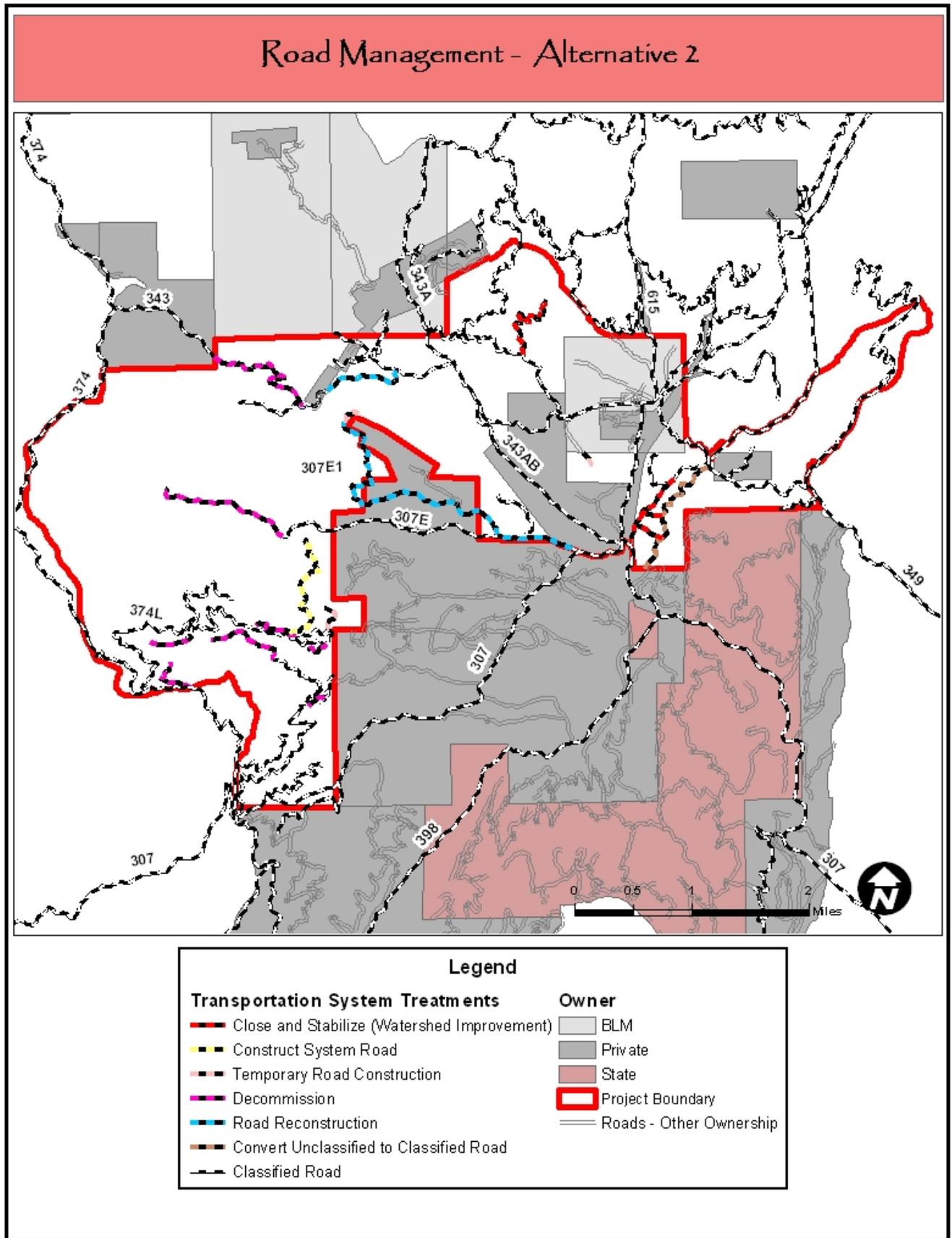
This treatment is designed to further reduce the level of hazardous ground fuels following mechanical thinning and ladder fuel removal by using timber harvest and pre-commercial thinning treatments.

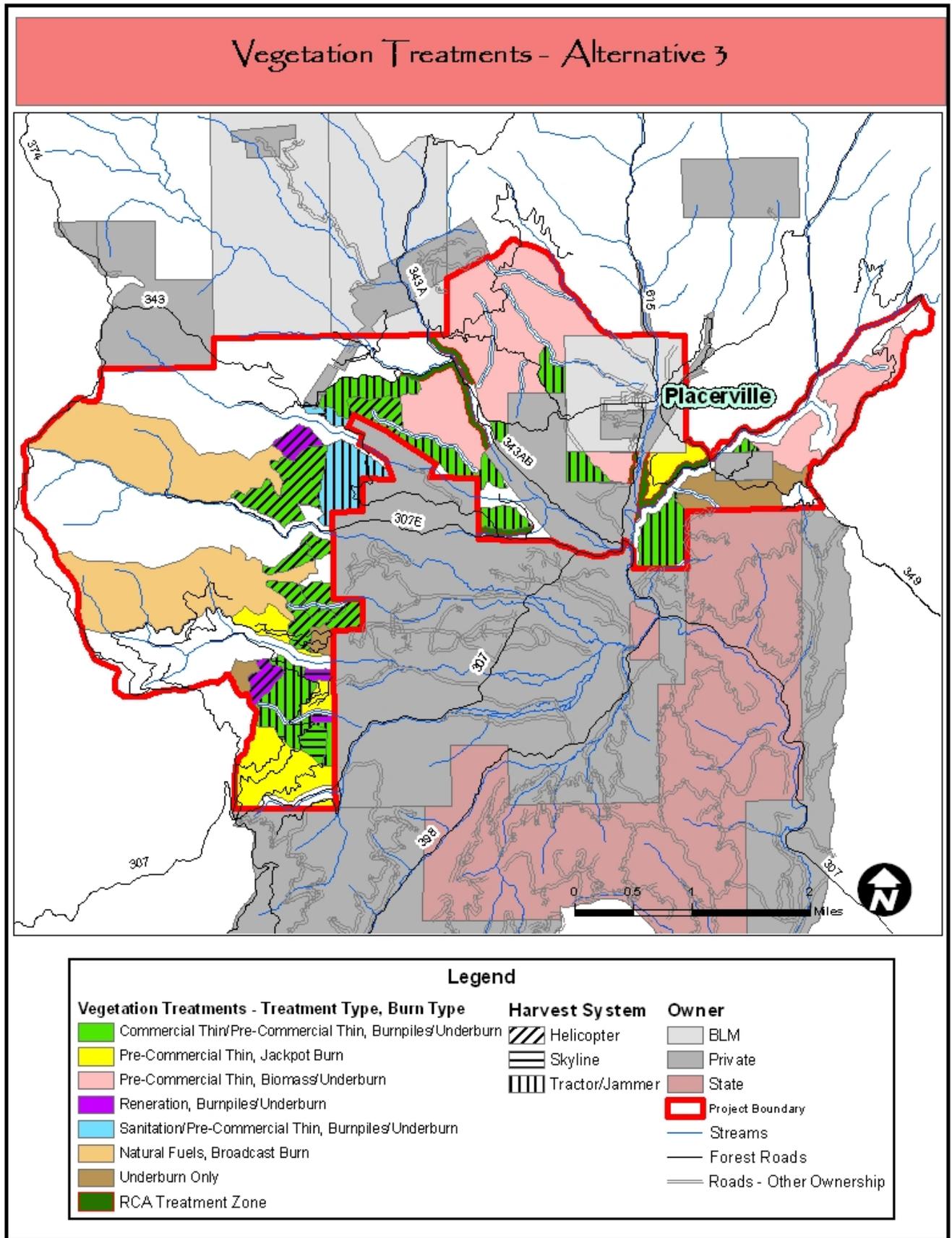
**Method:** These areas will be burned after commercial and/or pre-commercial thin treatments occur to reduce the level of hazardous fuels. There will be a combination of broadcast burning and jackpot pile burning. Fireline will utilize natural breaks, roads, and receding snowline where possible. If necessary, handline will be constructed and is not expected to exceed 3 miles total. Handline will be rehabilitated if needed.

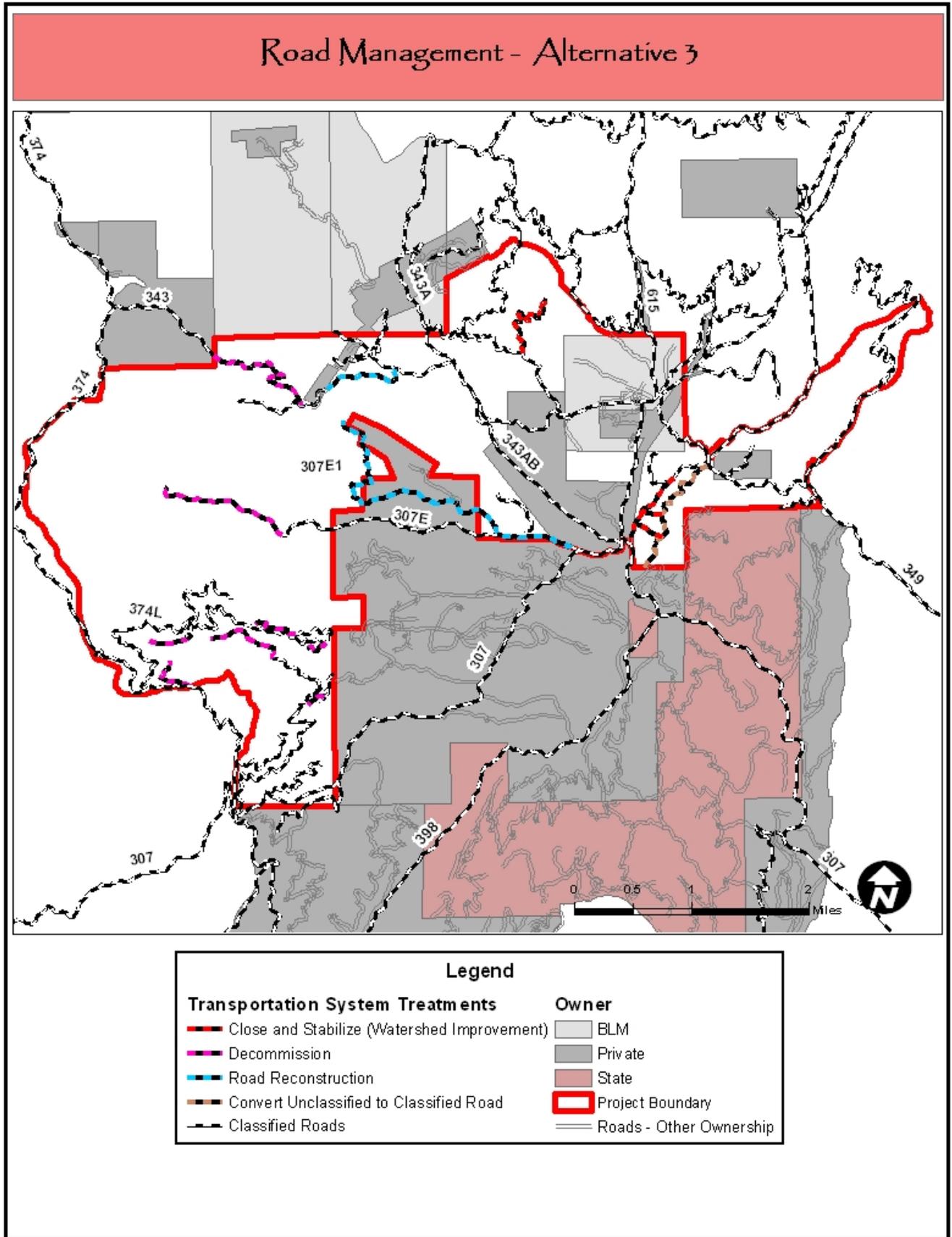
### **Prescribed fire only (1,420 acres)**

Approximately 1,210 acres of interspersed sparsely forested land and 210 acres of previously treated areas would be also underburned with low-intensity prescribed fire. This treatment is designed to reduce ground and brushy fuel component.









## Alternative 3

This alternative was developed in response to concerns expressed during the scoping and public comment period regarding additional roads within the project area. This Alternative treats the same acreage as Alternative 2 but eliminates all new and temporary road construction. More area would be aerially harvested than with Alternative 2. The logging system distribution is as follows in the commercial thin:

- Helicopter- 440 acres,
- Skyline –110 acres,
- Tractor/jammer –550 acres.

All other treatment acres are identical to Alt. 2. Refer to the following table 2-2 for a complete listing of activities for alternative 3.

<b>Table 2-2 Alternative 3 – Activities</b>		
<b>Category</b>	<b>Unit or Measure</b>	<b>Amount</b>
Commercial thin with non-commercial understory thin	acres	1100
Precommercial thin	acres	1564
Precommercial thin-RCAs	acres	112
Sanitation with precommercial thin	acres	173
Regeneration harvest	acres	110
Planting	acres	50
Prescribed fire on harvest and precommercial thin areas	acres	3059
Prescribed fire-non mechanical treated areas	acres	1420
Road decommission	miles	4.8
Road closure	miles	2.2
Seasonal road closure	miles	5.2

## Design Features and Mitigation Measures Specific to the Action Alternatives.

The analysis documented in this EA (Chapter 3) discloses the possible adverse and beneficial impacts that may occur from implementing the actions proposed under each alternative. Design features and mitigation measures have been formulated to mitigate or reduce adverse impacts and achieve desired outcomes. These measures were guided by the direction from the Boise National Forest Plan and project specific objectives and concerns.

## Range Management

RM1) The permittee would be forewarned about treatment and activities to provide time for any adjustments in grazing routines that may be necessary to avoid potential conflicts or disruptions to their operations. Coordination between contractors, district timber personnel, and range specialists will be needed to facilitate movement of livestock through the project area.

## Noxious Weeds

Avoid or reduce sources of weed seed to prevent new infestations and the spread of existing weeds by doing the following:

- NW1) Treat weeds in the project areas used by contractors, emphasizing treatment of weed infestations on existing landings, and skid trails, before activities commence.
- NW2) Train contract administrators to identify noxious weeds and select lower risk sites for landings and skid trails.
- NW3) Use standard timber sale contract provisions such as WO-C/CT 6.36 or similar wording to ensure appropriate equipment cleaning to prevent noxious weed spread.
- NW4) During fuel treatments and prescribed fire activities, use staging areas that are maintained in a weed-free condition.
- NW5) Gravel or borrow material source sites will be inspected by the local weed specialist for noxious weeds before materials are processed, used, or transported from the source site into the project area or onto the National Forest. If noxious weeds are present, the source site will not be used unless effective treatment or other mitigation measures are implemented.

Use logging methods and fuel treatments appropriate to local conditions or circumstances to minimize soil disturbance, consistent with project objectives and state approved BMPs.

Minimize roadside sources of weed seed that could be transported to other areas by:

- NW6) Require brush blades for slash work and eliminate as much unneeded earthwork as is possible.
- NW7) Periodically inspect system roads for invasion of noxious weeds. Inventory weed infestations and schedule them for treatment.
- NW8) Schedule and coordinate blading or pulling of noxious weed-infested roadsides or ditches in consultation with the local weed specialist.
- NW9) Where possible, avoid acquiring water for dust abatement where access to the water is through weed-infested sites. Identification of water access sites for dust abatement to be coordinated with botanist or noxious weeds specialist. Where avoidance is not feasible, identify appropriate mitigation to minimize or avoid the spread of seed.

NW10) Treat weeds in road decommissioning and reclamation projects before roads are made impassable. Re-inspect and follow-up based on initial inspection and documentation.

Where project disturbance creates bare ground, consistent with project objectives, re-establish vegetation to minimize conditions favorable to weed establish by:

NW11) Re-vegetating disturbed soil (except travel ways on surfaced projects) in a manner that optimizes plant establishment for that specific site. Seed landings, yarding areas, skid trails, temporary travel routes, and disturbed cut and fill slopes. Specific sites to be seeded by the timber purchaser will be designated by the Timber Sale Administrator. Seed should be sowed in the early spring or fall following the last disturbance activity.

NW12) Use local seeding guidelines to determine detailed procedures and appropriate mixes. *The use of native seeds/plant material is highly preferable if available* The botanist or range specialist will be involved in determining a suitable seed mix. To avoid weed-contamination, a certified seed laboratory should test each lot against the all-State noxious weed list to Association of Seed Technologists and Analysts (AOSTA) standards, and provide documentation of the seed inspection test.

NW13) Use certified weed-free seed and weed-seed-free hay, straw, and mulch.

NW14) Tires, vehicle undercarriages and other equipment that would be traveling off road onto worksites should be examined for attached weeds/plant material before entering and leaving the worksite

NW15) Practices detailed in the “USDA Forest Service Guide to Noxious Weed Prevention Practices” (2001) and management direction from the Forest Plan (Boise NF LMP 2003, Non-Native Plants, III-35-37, 188) should be followed.

NW16) Forest personnel should report findings of any existing noxious weed populations to the Weed or Botany specialist.

## **Watershed Resources**

WS1) Adhere to all default RCA buffer lengths for thinning and harvest activities (300 ft. for perennial streams and 150 feet for intermittent streams) except in areas where RCAs are specifically delineated by the District Hydrologist or District Fisheries Biologist.

Apply a 50 ft buffer around any high or moderate hazard landslide prone (LSP) areas with high risk (i.e., down slope homes, fish bearing streams) that are identified during project implementation. In moderate hazard landslide prone areas with low to moderate risk (i.e., over-steepened slopes, high water tables), management practices will be adjusted (i.e., maintain higher basal areas, relocate proposed roads) with review and guidance of the district hydrologist and fish biologist. High and moderate hazard LSP areas will be identified during layout by marking crews. Marking crews will be trained in LSP identification by the District hydrologist.

- WS2) No prescribed fire ignitions will occur in the Clear Creek watershed on the dry, xeric, untimbered portions of the units that have burn only prescriptions and no harvest or thinning. Fire will be allowed to back into these portions of the units.
- WS3) Disturbed ground would be reclaimed, including seeding and retention measures to prevent sediment from reaching streams until soil is secured by established vegetation. This may include measures such as mulching with existing forest materials such as pine needles, tree bark, and branches, or with imported mulch such as weed-free straw. Slash and logs from onsite could also be distributed over the disturbed area to serve as soil cover, retain sediment, provide a microclimate to speed up the soil building and revegetation process, and discourage motorized use.
- WS4) Roadwork would occur when soil conditions are dry enough to preclude the creation of tire ruts that may concentrate runoff and produce offsite sediment transport.
- WS5) Control of concentrated runoff from road surfaces to reduce erosion. Methods to reduce erosion and disperse drainage include properly spaced water bars, cross drains, outsloping, and decompaction of the road prism to break up the impervious surface and enable water infiltration and revegetation.
- WS6) During temporary or seasonal shut-down of project activities, erosion from disturbed ground that has the potential for transport to surface water would be minimized by temporary stabilization measures such as perimeter fencing with straw wattles or weed-free straw bales, filter fabric, temporary sediment ponds, and mulching of exposed areas.
- WS7) All erosion control and spill prevention devices/steps would be installed and ready prior to initiation of construction, including Sedimats, silt fences, and straw bales, as needed.
- WS8) If silt fence is installed any soil caught by the fence would be removed from the fence and incorporated back on the road surface prior to removal of the silt fence. All material used in construction of the silt fences would be removed from the site when roadwork is completed.

The following BMPs would be implemented for activities in riparian areas:

- WS10) Equipment would not be refueled or stored within riparian areas.
- WS11) Sediment control. Erosion control methods would be used to prevent sediment-laden water from entering a stream. All disturbed areas would be mulched with native material or weed-free straw and seeded with native grass species. Where culverts are removed, the banks would be sloped back to a stable angle and an erosion control blanket applied where culverts are removed from perennial streams. Native shrubs such as willows may be planted if pre-existing stream channel or bank stability concerns are identified.
- WS12) In-channel excavation work. The goal during in-channel excavation, usually associated with culvert removal, is minimal sediment delivery to streams. Wherever possible, activities will be delayed until flow has ceased or is at lowest flow (base flow).

WS13) The fisheries biologist or hydrologist would designate drafting sites. A 3/32 inch mesh is required on the intake.

#### Culvert Removal/Upgrade

WS14) All culverts would be removed from decommissioned and close/stabilized roads.

WS15) Restore natural gradient of the stream within the crossing site by removing all fill material. Gradient would be an average of the upstream and downstream gradients of the channel.

WS16) Fill material would be piled to match the natural slope of the landscape or a 2:1 slope, placed against the road cut and gradually outsloped to the outer road prism edge.

WS17) Disturbed material would be seeded with recommended seed mixtures (consult with district or forest botanist).

WS18) Structure replacement/upgrade would be designed to accommodate a 100-year flood, including associated bedload and debris and would be designed to provide unobstructed passage of all aquatic dependant species.

#### Soil Productivity

S1) Implement a coarse woody debris prescription of 3-14 tons/acre of >15" DBH trees created and left on site depending on PVG class and existing conditions. During unit layout marking crews will determine CWD prescriptions based on PVG current conditions. Marking crews will be trained to assess CWD requirements by the District Hydrologist.

S2) When new landings are constructed topsoil will be stockpiled. Landings would be reclaimed by reshaping to prevent water concentration, the landing would then be ripped, stockpiled soil spread over the landing, and then seeded.

#### Wildlife

WL1) Prescribed fire ignition will not occur within the RCA's during the spring nesting period from April 1 to May 15. During this nesting period any backing fire occurring within RCAs with a likelihood of entering the riparian zone will be actively suppressed to ensure burning does not occur within the riparian zone.

WL2) During any fall prescribed burn no ignition will occur within RCAs. Fire will be allowed to "back into" the RCAs and into the riparian zones during the fall.

WL3) Within stand #037 no prescribed fire will be allowed if active goshawk nesting has occurred in this unit. Prior to planned ignition of prescribed fire within the unit, a wildlife biologist will survey nesting site to determine nesting activity. In the absence of active nesting in Stand #037 prescribed fire will be a treatment option, and any needed fuel break will be constructed along the forest boundary that forms east boundary of this unit.

The following snag retention guidelines will apply to mechanically treated stands within the Star

Ranch Project area.

WL4) PVG 1 in large tree size class: maintain a minimum of 0.4 snags per acre of 10 to 20" diameter trees and 2.3 snags per acre of 20" diameter and over trees.

WL5) PVG 1 in medium tree size class: maintain a minimum of 0.4 snags per acre of 10 to 20" diameter trees, and 0.4 additional snags per acre of the largest available snags.

WL6) PVG 2 in medium size class maintain a minimum of 1.8 snags per acre 10 to 20" diameter , and 3.0 additional snags per acre of the largest available snags.

### **Cultural Resources**

CR1) Five sites, as identified in the cultural resources Determination of Significance and Effect, Report BS-04-2119, will be avoided by mechanical vegetation treatments and all burn activities.

CR2) Ten sites as identified in the cultural resources Determination of Significance and Effect, Report BS-04-2119, will be avoided by all mechanical treatments and jackpot/pile burning.

CR3) Two sites, as identified in the cultural resources Determination of Significance and Effect, Report BS-04-2119, will be avoided during all decommissioning activities.

### **Road Decommissioning**

RD1) The entrance of all decommissioned roads would be designed to prevent motorized entry. This may include activities such as, recontouring, boulder placement, tree planting, or other methods

### **Fuels Management, Prescribed Burning**

FM1) A Prescribed Fire Burn Plan will be written according to the guidelines found in the The Interagency Prescribed Fire Management Handbook and FSM 5140, and will incorporate the concerns defined in the Specialist Report for air quality. Requirements of the Idaho/Montana Airshed group and those found in Boise National Forest Management Plan (USDA, Forest Service, 2003); will also be integrated. The Plan will specify weather parameters to insure and fire behavior and effects are within a desired range. Prescribed Fire Burn Plans will incorporate mitigations to ensuring proper air mixing heights and transport winds to protect air quality, and to set prescriptions so burns can meet management objectives safely.

## **Proposed Monitoring**

Monitoring activities can be divided into Forest Plan monitoring and project-specific monitoring. The National Forest Management Act requires that National Forests monitor and evaluate their forest plans (36 CFR 219.11). Chapter IV of the Forest Plan includes the monitoring and evaluation activities to be conducted as part of Forest Plan implementation. There are three

categories of Forest Plan monitoring: implementation monitoring, effectiveness monitoring, and validation monitoring.

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

**Prescribed Fire:** Monitoring will be done based on requirements defined in Interagency Prescribed Fire Handbook and Forest Service Manual, FSM5140. These requirements will be incorporated and defined in the Prescribed Fire Burn Plan. The minimum monitoring requirements for prescribed fire projects include weather during prescribed fire, observed fire behavior, and whether fire treatments are meeting resource objectives.

**Cultural Resources:** All sites identified as requiring avoidance in the cultural resources Determination of Significance and Effect, Report BS-04-2119, will be monitored following the completion of the project.

## Comparison of Alternatives

This section compares outputs, objectives and effects of the alternatives for the Star Ranch Fuels Reduction project. The discussions of effects are summarized from Chapter 3, which should be consulted for a full understanding of these and other environmental consequences. Tables 2-3, 2-4, and 2-5 provide an overview comparison of information from the alternative descriptions and Chapter 3 relevant to the issues.

<b>Table 2-3 Comparison of Activities by Alternative</b>			
	<b>Alt. 1 No Action</b>	<b>Alt. 2 Proposed Action</b>	<b>Alt. 3</b>
Commercial Thin/Precommercial thin (acres)	0	1100	1100
Pre-commercial thin only (acres)	0	1676	1676
Sanitation and regeneration (acres)	0	283	283
Prescribed Fire-following mechanical treatment (acres)	0	3059	3059
Prescribed fire only (acres)	0	1420	1420
Road Decommission -System (miles)	0	4.8	4.8
Road Construction (miles)	0	1.2	0
Road Construction-Temp (miles)	0	0.5	0
Seasonal Road Closure (miles)	0	6.4	5.2

<b>Table 2-4 Comparison of Objectives by Alternative</b>			
	<b>Alt. 1 No Action</b>	<b>Alt. 2 Proposed Action</b>	<b>Alt. 3</b>
Condition Class 1	0	4,479	4,479

Surface fuel loading	7-15 tons/acre	4-6 tons/acre	4-6 tons/acre
Seral Species Dominated Component (acres)	2915	3425	3425
Open Stand Conditions (acres)	840	2950	2950
Stands with ability to be managed by prescribed fire (acres)	820	2700	2700

**Table 2-5  
Comparison of Effects by Alternative**

	<b>Alt. 1 No Action</b>	<b>Alt. 2 Proposed Action</b>	<b>Alt. 3</b>
Large Tree Component (acres)	312	613	613
Revenue Generated	-\$50,000	+\$284,000	+45,000
Implementation Costs	0	\$1,062,000	\$1,075,000
Wildfire Suppression Costs	Highest	Lowest	Slightly lower than alt 2
Road Density –Granite Creek 5 <sup>th</sup> HUC (miles/sq.mile)	4.84	4.73	4.71
Veg mgmt related sediment Clear Crk 6 <sup>th</sup> HUC year 2007 (% over natural)	0.0	6.4	5.5
Veg mgmt related sediment Clear Crk 6 <sup>th</sup> HUC year 2012 (% over natural)	0.0	0.0	0.0
Veg mgmt related sediment Lower Granite 6 <sup>th</sup> HUC year 2007 (% over natural)	0.0	17.5	17.5
Veg mgmt related sediment Lower Granite 6 <sup>th</sup> HUC year 2012 (% over natural)	0.0	0.0	0.0
Road related sediment Upper Granite 6 <sup>th</sup> HUC year 2007 (tons per year)	0.0	4.0	3.9
Road related sediment Upper Granite 6 <sup>th</sup> HUC year 2012 (tons per year)	0.0	0.0	0.0



# Chapter 3 – Affected Environment and Environmental Consequences

## Introduction

This chapter provides information concerning the affected environment of the Star Ranch Fuel Reduction project area, and potential consequences to that environment. It also presents the scientific and analytical basis for the comparison of alternatives presented in Chapter 2. All effects, including direct, indirect and cumulative effects, are disclosed. Effects are quantified where possible, and qualitative discussions are also included. The means by which potential adverse effects will be reduced or mitigated are described in Chapter 2 and in detailed resource reports contained in the Project Record.

The discussions of resources and potential effects take advantage of existing information included in the Boise National Forest Plan's FEIS, other project EA's OR EIS's, project-specific resource reports and related information, and other sources as indicated. Where applicable, such information is briefly summarized and referenced to minimize duplication. The planning record for the Star Ranch Fuel Reduction project includes all project-specific information, including resource reports, the watershed analysis, and other results of field investigations. The record also contains information resulting from public involvement efforts. The planning record is located at the Idaho City Ranger District Office in Idaho City, Idaho, and is available for review during regular business hours. Information from the record is available pursuant to the Freedom of Information Act.

## Forest Plan Consistency

All alternatives including the proposed action are consistent with the Boise National Forest Plan. All applicable forest-wide and management area standards and guidelines have been incorporated into all alternative design. The Forest Service uses many mitigation and preventive measures in the planning and implementation of land management activities. The application of these measures begins during the planning and design phases of a project. A detailed Forest Plan Consistency Report is contained in the Project Record for the Star Ranch Project.

## Fuels

### Purpose/Objective #1:

Manage fuel loadings with prescribed fire and mechanical treatments within or adjacent to WUI to reduce wildfire hazards.

### Indicators:

- Condition Class

- Surface fuel loading

**Background:** Condition Class describe the degree of departure from historic fire regimes and conditions and are a method to quantify the amount of area that has uncharacteristic or undesirable fire risk. Condition Class 1 shows no departure from historic fire regimes, Condition Class 2 shows moderate alterations, and Condition Class 3 shows the greatest amount of departure. Fire regimes describe historic characteristics of fire in a given ecosystem, including factors such as fire frequency, intensity, severity, and patch-size.

Fuel loading is the weight per unit area of downed woody material. Surface fuels in the size range of 3" diameter or less will be the focus for reduction. These fine fuels are the main component of fire spread. This component of the overall fuel bed is reduced most effectively by prescribed fire and is one of the objectives of the project. Coarse woody debris does not contribute to fire spread and is not targeted for reduction by the proposed prescribed fire.

## Affected Environment

The majority (87%) of the Star Ranch Project vegetation analysis area lies within potential vegetation groups that historically experienced high frequency, low intensity fires. The mean fire return interval within the majority of the project area was every seventeen years. The project area has missed numerous fire return intervals which contribute to ground and surface fuel load well beyond historic levels. Current fuel loading data across the vegetation analysis area is estimated to range from 7 to 15 tons per acre.

The lack of high frequency, low intensity fire has changed the project area from an open stand condition with a species composition of large diameter ponderosa pine with a few large diameter Douglas-fir. Currently the area is composed of a few relic large diameter ponderosa pine, a heavily mixed under-story ponderosa pine and Douglas-fir, with a ground and surface fuel load well beyond historic levels. The stand composition and structure has been altered, resulting in unnatural tree densities and canopy closure. The missed fire intervals within the area has contributed to a shifting of Condition Classes from the historic Condition Class 1 found within PVGs 1 and 2, to Condition Class 3. The result of this change is the potential for uncharacteristic fire intensity and severity. Most of the analysis area is in Condition Class III (92% , 4,843 acres) with most of that being in the PVG 1 and PVG 2 Vegetation groups. Approximately 8 percent or 432 acres are classified as Condition Class 2 (PVGs 3 and 7).

The table below displays the number of acres and percentage of each PVG within the analysis area and the current Fire Regime Condition Class (FRCC) as determined by the Standard Landscape Method (NARTC, Nov. 2003). The fire regime condition class was based in the Forest Plan Implementation Vegetation and Fire Regime Condition Class Summaries by Watershed and was adjusted based on departure from fire frequency and severity for the project area.

Table 3-1

Potential Vegetation Group	Acres	% Of Analysis Area	Fire Regime	Condition Class
PVG 1 – Dry Ponderosa Pine/Xeric Douglas-fir	947	18%	I	3
PVG 2 – Warm, Dry Douglas-fir/Moist Ponderosa Pine	3,641	69%	I	3
PVG 3 – Cool, Moist Douglas-fir	285	5%	III	2
PVG 7 – Warm, Dry Subalpine Fir	147	3%	III	2
Non Forest	255	5%	II	3
<b>Vegetation Analysis Area:</b>	<b>5,275</b>	<b>100%</b>		

## Environmental Consequences

### Alternative 1- No Action:

The direct effects of the no action alternative would be an increasing risk of uncharacteristic wildfire. The Star Ranch project area has moved from the high frequency, low intensity fire regime to a regime consistent with stand replacement characteristics. This departure from historic condition is common in high frequency, low to moderate severity regimes (Graham and others 2004). The project area is currently in condition classes two and three; this trend will continue while risk of stand replacement fire will become more likely. The fuel loads and continuity will also continue to increase. Under wildfire conditions this will intensify burn severity both in ground and surface fires. This increased intensity and severity will have dramatic effects on the overstory vegetation and soil characteristics within the project area. The effects of a no action alternative would be a threat of uncharacteristic wildfire to adjacent communities and losing key ecosystem components within the project area.

### Cumulative Effects: No Action

The analysis area for cumulative effects will be the 5<sup>th</sup> Code Hydrological Unit of Granite Creek. This encompasses a total acreage of 33,779 with mixed ownership including, BLM, State, and Private.

The conditions that exist within the Granite Creek watershed will continue to deteriorate with the no action approach. Current projects; Re-Ophir, Chaney Clouder, 49er, Alder Ridge, adjacent to the proposed area will continue to move vegetation attributes toward historic conditions and trend toward condition class 1 as management activities progress. These existing projects will have fuels reduction benefits to the adjacent communities but are not large enough to effectively protect the entire community and the sub-division of Star Ranch. The acres not under current or recent management activities will steadily trend toward condition class three. Areas considered condition class three will move further from historic conditions, increasing the likelihood of

uncharacteristic catastrophic fire. This is a threat not only to the Granite Creek HUC but also to the surrounding areas. This watershed is currently identified as “at risk” in the Boise County Fire Mitigation Plan.

### **Alternatives 2 and 3**

The planned vegetation treatments will move the project area to a condition of more historic components resembling condition class one. Stand densities will be significantly lower and species composition will be more historic with the promotion of early seral species that are fire resilient. Refer to the vegetation resources analysis in this chapter for more detail on changes to stand density and species composition. The overall ground and surface fine fuel loads will be reduced to 4-6 ton/per acre with the use of prescribed fire on 4,479 acres. This reduction will break up the horizontal and vertical fuel bed continuity throughout the project area. This will reduce fire intensity and severity within the project area adjacent to the communities of Placerville and the sub-division of Star Ranch. A reduction of fuel loads and the movement of the project area toward condition class one will reduce resistance to control and provide for safety of firefighters and the public.

Currently, 92% of the 5,275 acres vegetation analysis area is considered to be in Condition Class three. Approximately 4,479 acres will be moved toward the historic condition of Condition Class one through use of prescribed fire and mechanical vegetation treatments using commercial and pre-commercial thinning. The vegetation characteristics of reduced densities and reduced fuel loading, maintained over time, will effectively reduce the threat of crown fire initiation and propagation throughout the area. Crown fires have the largest immediate and long-term ecological effects and the greatest potential to threaten human settlements near wildland areas (Graham and others 2004). The risk of uncharacteristic wildfire to the adjacent communities of Placerville and Star Ranch will be reduced.

### **Cumulative Effects: Alternatives 2 and 3**

The area under consideration for cumulative effects is the Granite Creek 5<sup>th</sup> code hydrological unit, which encompasses 33,779 acres. There are a number of projects occurring in the reasonably foreseeable future on Federal, State and Private land. On Forest Service administered land, there has been some past prescribed fire within the Granite Creek watershed. Recently, and in the reasonably foreseeable future, there are a number of prescribed fire projects ongoing and planned on Forest Service administered land. The Forest Service is currently implementing; Re-Ophir (480 acres), Chaney Clouder (1363 acres), Alder Ridge (1500 acres), and 49er (173 acres). The planned activities consist of pile burning and re-entry of low intensity prescribed fire to accomplish management objectives similar to the Star Ranch project. The total acres for these activities including Star Ranch are approximately 7,991 acres. The BLM is planning prescribed fire broadcast burns totaling 600 acres within the Granite Creek watershed. The Idaho Department of Lands is currently conducting fuels reduction activities. The activity should be completed in 2005 and will include 370 acres of prescribed fire in Wet Gulch one mile west of Centerville Idaho.

There currently are management activities being planned and implemented on private land within the Granite Creek HUC. The community of Placerville and the sub-division of Star Ranch are planning fuels reduction activities; the approximate acres are yet to be determined. This would include removal of small diameter trees and the burning of hand and machine piles. These proposed treatments would be adjacent to acres treated by other agencies and will increase the effectiveness of those fuels treatments. There is a considerable amount of fuels management and forest health activities ongoing and planned, the effects of this activity will benefit the adjacent

communities from a wildfire hazard and forest health standpoint.

To effectively change Condition Classes within the Granite Creek HUC, the acres treated must be a large percentage of the total HUC acres. Cumulative treatments of Federal, State, and Private entities will treat over 50% of the acres in PVG-1 and 2 within the watershed. The cumulative effects of the Star Ranch Project and other adjacent projects on Federal, State, and Private land will have an effect on condition class in specific vegetation strata (PVG 1 and 2) within the Granite Creek HUC, moving the landscape toward more historic conditions. This transition of condition class will have a dramatic effect on fire behavior and will give the communities added protection from uncharacteristic fire.

## Monitoring requirements

Monitoring will be done based on requirements defined in Interagency Prescribed Fire Handbook and Forest Service Manual 5140. These requirements will be incorporated and defined in the Prescribed Fire Burn Plan. The minimum monitoring requirements for prescribed fire projects include weather during prescribed fire, observed fire behavior, and whether fire treatments are meeting resource objectives.

### Project Record

This Environmental Analysis hereby incorporates by reference the Fuels Specialist Report in the Project Record (40 CFR 1502.21). The Fuels Specialist Report contains the detailed data, methodologies, analysis, references, and other technical documentation used in the assessment.

## Vegetation

### Introduction

This section discusses the vegetative conditions in terms of the project effects (from prescribed fire, harvest and thinning) on Large tree size class stands, seral tree species, and open stand conditions within the analysis area.

### Purpose/Objective #2:

Promote early seral species and open stands that can be maintained in a low hazard condition by fire in the future.

#### Indicators:

- Acres of stands thinned to an average of 90 BA and less, or 150 trees per acre of less.
- Acres of stands in ponderosa pine and dry Douglas-fir habitat types maintained or moved into ponderosa pine dominance.
- Acres of stands in subalpine fir habitat types maintained or moved into Douglas-fir/ponderosa pine dominance.
- Acres of stands in a condition that can be maintained with low intensity prescribed fire.

**Background:** Seral tree species are ponderosa pine in ponderosa pine and dry Douglas-fir habitat types (PVG 1 & 2), Douglas-fir and lodgepole pine in sub-alpine fir habitat types (PVG 7), and quaking aspen in all habitat types. Open stands are defined as those with average densities of 90 basal area (BA) and less, or 150 trees per acre (TPA) and less.

## Affected Environment

Forested stand within the Star Ranch project area have changed from large, open ponderosa pine dominated stands with a frequent, low intensity fire regime (and low fire risk), to multistoried, overstocked small diameter ponderosa pine and Douglas-fir stands (high fire risk) that have a higher probability for uncharacteristic wildfire. Due to a decreased frequency in the fire return interval from historic conditions, the removal of large fire resistant trees by historic logging, and the contiguous even-age regeneration of large past wildfire areas, dense stands of mid-age Douglas-fir and ponderosa pine have replaced the historic mature open stand ponderosa pine. This has changed stand conditions in the Star Ranch area from a low intensity non-lethal fire regime to a high severity lethal fire regime.

Approximately 3,200 stand acres within the Star Ranch project area are in a condition of high density and in a high severity fire regime. These are stands that exceed 90 basal area (BA), or have greater than 150 trees per acre (TPA). This is approximately 64% of the forested stand acres within the vegetation analysis area.

Approximately 1,600 acres within the Star Ranch project area in Potential Vegetation Groups (PVG) 1 & 2, which would have historically been dominated by ponderosa pine, but are now dominated by Douglas-fir. The natural successional trend in these stands in the absence of disturbance is toward Douglas-fir regeneration and eventual Douglas-fir dominance. This shift has probably been largely due to past fire suppression (that has interrupted and greatly lengthened the historic fire regime), and historic logging that tended to remove the large and more valuable ponderosa pine. Most of these stands have not experienced fire since the late 1800's/early 1900's.

In PVG 7 (moister, cooler sites), approximately 20 acres has also shifted from what would have been historically Douglas-fir to sub-alpine fir.

The vegetation analysis area for the Star Ranch Fuel Reduction Project is the sum of the stands within the project area boundary that were analyzed for potential treatment. This analysis area is a "subset" of the National Forest Lands within the project area boundary, and is approximately 5, 275 acres.

## Environmental Consequences

The vegetation analysis area for the Star Ranch Fuel Reduction Project is the sum of the stands within the project area boundary that were analyzed for potential treatment. This analysis area was a "subset" of the National Forest Administered Lands within the project area boundary, and is approximately 5, 275 acres.

### Alternative 1 - No Action Alternative

Stand species composition, structure and density would continue to move away from historical conditions. Overstocked stands would continue to increase in density and fuel build up, and develop increased understory ladder fuels, resulting in conditions more favorable for uncharacteristic (lethal) wildfire. When wildfire returns to these stands, it will most likely be a

stand replacement fire, and would also threaten the sustainability of the few remaining large, mature remnant ponderosa pine trees within the project area. High stand densities and high fuel loadings will preclude the use of prescribed burning as a tool to reduce the high fire hazards to homes, property and forest values in the Star Ranch area.

### Alternatives 2 and 3

The vegetation treatment and effects are identical between alternatives 2 and 3, these alternatives will be discussed jointly. Timber harvest and thinning would generally be from below and would be designed to; restore or maintain the large tree ponderosa pine component, increase the percent composition and dominance of ponderosa pine and decrease the amount of Douglas-fir, encourage transition from the small to medium to large tree size class by reducing densities and concentrating growth potential on trees that occupy the dominant and co-dominant canopy positions, and where opportunities exist rejuvenate aspen clones.

Thinning, both harvest thinning and non-commercial thinning, would take place on approximately 2,950 acres. Approximately 2,000 acres where stands exceed 90 basal area (BA), or have greater than 150 trees per acre (TPA) would be thinned to lower densities.

Table: 3-2 Change in open stand acres by potential treatment type

Open Acres	Thinning	Sanitation	Regeneration	Burning Only	No Treatment	Total Open Acres Within Veg. Analysis Area	% of Open Acres Within Veg. Analysis Area
Existing Condition	520	135	10	40	135	840	16%
Post-treatment Condition	2520	140	120	40	135	2960	56%

Acres rounded to nearest 5 acres

Table: 3-3 Change in areas dominated by seral tree species by treatment type

Acres Dominated by Seral Species (acres)	Thinning	Sanitation	Regeneration	Burning Only	No Treatment	Total Seral Dominated Acres Within Veg. Analysis Area	% of Seral Dominated Acres Within Veg. Analysis Area
Existing Condition	2075	10	0	320	510	2915	55%

Post-treatment Condition	2475	10	110	320	510	3425	65%
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Acres rounded to nearest 5 acres

Stand acres that can be maintained with low intensity fire are generally those with an open canopy and are dominated by ponderosa pine. Approximately 820 acres are in this condition now where they could be maintained with fire. Alternative 2 & 3 will increase the acres in this condition and that can be maintained by fire to approximately 2,700. Table 3-2 shows the total amount of area existing and converted to an open stand condition. Some of these acres are a Douglas-fir dominated vegetation composition that would be difficult to maintain in an open stand condition with low intensity fire due to the potential mortality to the Douglas-fir component.

### **Cumulative Effects**

The area under consideration for cumulative effects is the Granite Creek 5<sup>th</sup> code hydrological unit, which encompasses 33,779 acres. There are a number of projects occurring in the reasonably foreseeable future on Federal, State and Private land. On Forest Service administered land, there has been some past prescribed fire within the Granite Creek watershed. Recently, and in the reasonably foreseeable future, there are a number of prescribed fire projects ongoing and planned on Forest Service administered land. The total acres for these activities including Star Ranch are approximately 7,991 acres. The BLM is planning prescribed fire broadcast burns totaling 600 acres within the Granite Creek watershed. The Idaho Department of Lands is currently conducting fuels reduction activities.

There currently are management activities being planned and implemented on private land within the Granite Creek HUC. The community of Placerville and the sub-division of Star Ranch are planning fuels reduction activities.

To effectively change Condition Classes within the Granite Creek HUC, the acres treated must be a large percentage of the total HUC acres. Cumulative treatments of Federal, State, and Private entities will treat over 50% of the acres in PVG-1 and 2 within the watershed. Most of these treatments will reduce stand densities and or create conditions more favorable to the continued introduction of low intensity fire for maintaining favorable conditions. The cumulative effects of the Star Ranch Project and other adjacent projects on Federal, State, and Private land will have an effect on condition class in specific vegetation strata (PVG 1 and 2) within the Granite Creek HUC, moving the landscape toward more historic conditions. This transition of condition class will have a dramatic effect on fire behavior and will give the communities added protection from uncharacteristic fire.

### **Issue**

Project activities (prescribed fire, harvest and thinning) could have an impact/effect on the large tree size class stands.

**Indicator:** Acres of stands in the large tree size class.

**Background:** The large tree size class is defined as those stands where the average diameter of the trees in the overstory or uppermost tree layer is greater than 20 inches DBH.

## Affected Environment

Ten stands (312 acres total) within the Star Ranch Project are currently classified as large tree. The individual stands range from 6 to 80 acres in size, and are scattered through out the project area.

The large tree size class is the size class most limited within the Star Ranch Project area, and is the component that will take the longest time to restore. The large tree size class is well below Forest Plan goals in the 5<sup>th</sup> order watershed.

## Environmental Consequences

### Alternative 1 - No Action Alternative

No immediate change occurs to the 312 acres in the large tree size class. However, due to increasing stand densities and increasing fuels (ground fuels and ladder fuels) the risk of losing these stands to catastrophic wildfire continues to increase.

### Alternatives 2 & 3

The large tree size class is increased from 312 acres to 613 acres. Increasing the acres of stands in the large tree size class is consistent with long term Forest Plan goals of restoring the Large tree size class. The increase in the Large tree size class is largely due to thinning from below, which increases the average stand diameter and moves some of the Medium Tree Size class stands (301 acres) into the Large tree size class. All existing large tree size class stands are retained in the large tree size class category. A goal of Alternatives 2 & 3 is to promote the trend of a continued movement of stands within the project area toward the large tree size class. The thinning treatments will also increase the future rate of growth on the remaining trees, which will accelerate the movement of smaller size stands toward the large tree size class.

### **Cumulative Effects**

Cumulative effects area for the large tree size class is the National forest lands within in the project area. Actions that may cumulatively affect the large tree size class are the following:

**Past Actions:** Within the past 17 years, timber harvest has occurred or is occurring on approximately 254 acres. The harvest prescription on 234 of the acres (49er, Granite and Star timber sales 1997 and 2004) has been thinning from below, where the smaller trees in the stand are removed and the larger trees retained. These harvest activities have not negatively impacted the large tree size class, but have been designed to retain the large tree component and promote an increase in the numbers of large trees through increased tree growth, vigor and increasing the average stand diameter. Regeneration harvest has occurred on approximately 20 acres (Huckleberry Flat timber sale 1987) and most of the large trees were removed due to dwarf-mistletoe disease. These 20 acres may or may not have been classified as a large tree size stand at the time of cutting, but the prior tree size classification is unknown.

Timber stand improvements (TSI) has also occurred on approximately 500 acres with in the project area. The TSI has generally been thinning from below of non-commercial size trees (i.e. trees less than 10 inches DBH) and has had no negative effect on large size trees or stands in the large tree size class. TSI activities are also designed to increase the future numbers of large size trees by accelerating growth on the largest and most vigorous non-commercial size trees, and by bringing these stands into a large tree size class within a shorter time period than without

treatment.

**Future Actions:** No other harvest activities are currently planned within the project area.

Future TSI is planned on approximately 1,000 acres within the project area. This is the post-harvest thinning on the 49er sale (166 acres), the Alder Ridge thinning and biomass removal (350 acres), and the Deadman 10/02 lands thinning and DMT-sanitation (500 acres). This TSI is also designed to generally be thinning from below of the non-commercial size trees (i.e. trees less than 10 inches DBH) and will have no negative effect on the large tree size class stands. These TSI activities are also designed to increase the future numbers of large trees by accelerating growth on the most vigorous non-commercial size trees, and by bringing these stands into a large tree size class in a shorter time period than without treatment.

## Project Record

This Environmental Analysis hereby incorporates by reference the Vegetation Specialist Report in the Project Record (40 CFR 1502.21). The Vegetation Specialist's Report contains the detailed data, methodologies, analysis, references, and other technical documentation used in the assessment. Consistency with Forest Plan vegetation desired conditions is contained in the following documents in the Project Record: Star Ranch Fuel Reduction Project Consistency With Boise Forest Plan, and the Assessment Of The Granite Creek 5<sup>th</sup> Level HUC

## Air Quality

### Issues:

Issue #1: Smoke emissions from broadcast and pile burns could adversely affect people that reside in the Boise Mores Creek Basin and the surrounding area.

**Indicator:** Smoke emissions measured in PM 2.5 ug/M<sup>3</sup> (2.5 microns per cubic meter) in a 24 hour average within the Boise Mores Creek Basin and surrounding area.

**Indicator:** Smoke emissions measured in PM 2.5 ug/M<sup>3</sup> (2.5 microns per cubic meter) in a one hour period within the Boise Mores Creek Basin and surrounding area.

Issue # 2: Smoke emissions from broadcast and pile burns could adversely affect the nearby Class 1 (Sawtooth Wilderness) airshed.

**Indicator:** Effect on Class 1 airshed.

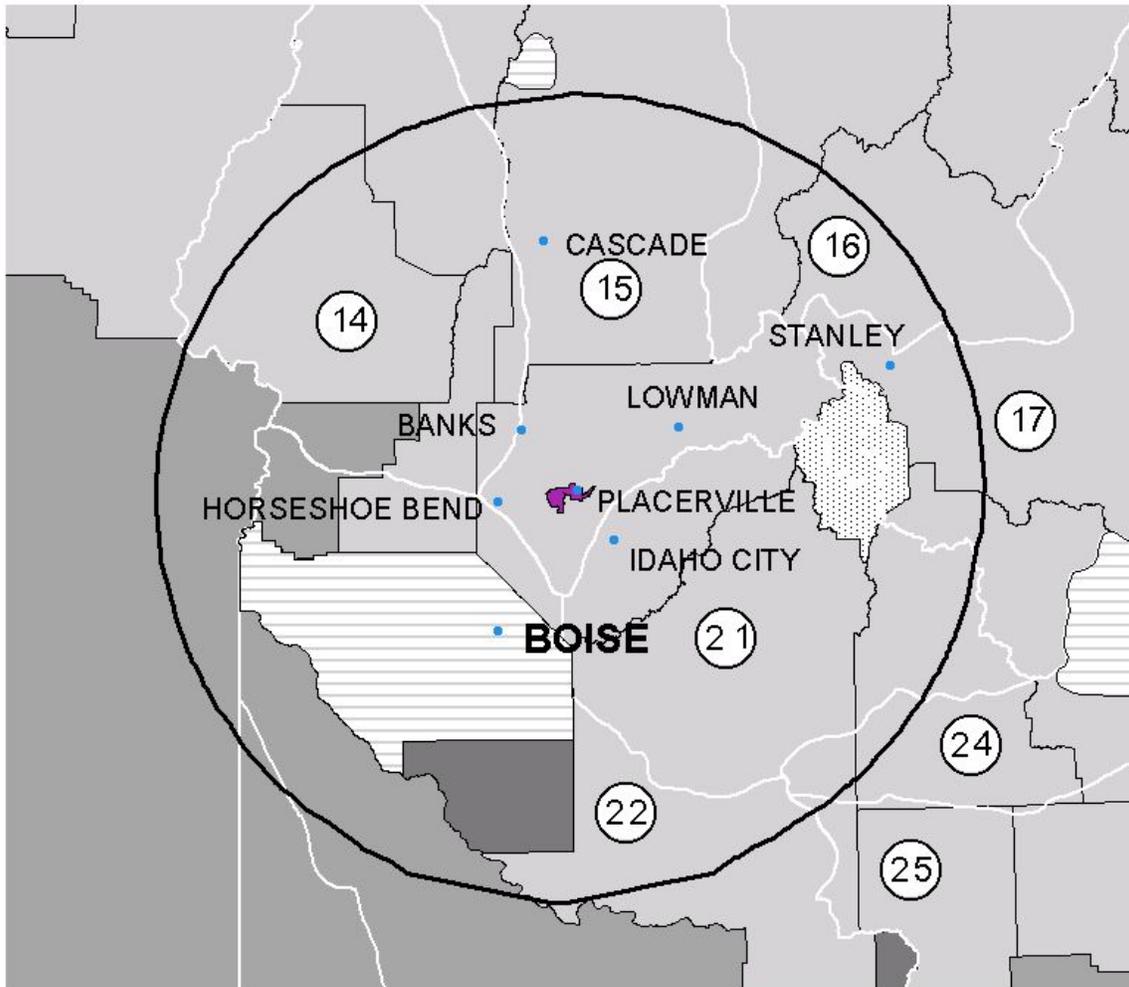
**Background:** There has been a rise in air quality concerns in the last twenty years. The Clean Air Act, 1970 has set the stage for air quality monitoring and compliance. The Clean Air Act is designed to "Protect and Enhance" air quality, and requires the Forest Service to protect administered lands from adverse effects of anthropogenic air pollution. The standards for this compliance were set through the National Ambient Air Quality Standards (NAAQS). In regards to the Star Ranch Hazardous Fuels Project there are a number of concerns with air quality and the degradation of the airshed. This project area lies in the Idaho/Montana airshed group 15. The main pollutants for prescribed fire emissions are Particulate Matter (PM). PM 2.5 and 10 (particulate matter less than 2.5 and 10 microns in diameter) are the emissions that are monitored for air quality concerning prescribed fire. The main concern for Fire Managers is PM 2.5 because of the immediate threat to public health. This pollutant is the focus of monitoring

because of the strict NAAQS standards for PM 2.5 emissions. There are a number of impact zones and Class 1 airsheds that are in the 62 mile (100k) radius of the project area boundary these will be discussed in detail in the report.

## **Affected Environment**

The analysis area for air quality is 62 mile radius from the project area. This analysis area size is driven by the Forest Plan Guideline ASGU02 (USDA Forest Service, 2003) which suggests a 62 mile distance surrounding the project area to the initial area of consideration for air quality impacts. The airsheds that occur within this 62 mile radius are 14, 15, 16, 17, 21, 22, and 24. Airsheds are geographical areas in which dispersion characteristics are similar. The following is a brief summary for each airshed.

# Affected Airsheds & County Emissions



## Legend

- Cities
- ▨ Impact Zones (horizontal stripe)
- Project Boundary
- 100 Km Buffer
- Airsheds (in white with labels)
- ▨ Class 1 Area - Sawtooth National Recreation Area
- PM 10 Emission Distribution Category by County (tons/year)
- 1 (1-1000)
- 2 (1001-2000)
- 3 (2001-3000)
- 4 (3001-4000)

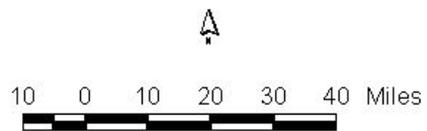


Figure 3-1 Airsheds within 62 mile (100 km) zone of Project Area

### **Airshed 14**

Airshed fourteen lies over counties which are considered to be in the low category for PM 2.5 emissions. Adams, Washington, Payette, and Gem counties are in the 1-2000 tons/year emission category for PM 2.5. The Star Ranch project will likely not affect this airshed in any way because the prevailing wind direction will move management emissions to the north and east away from airshed fourteen. Diurnal effects may funnel emissions back toward airshed 14, but the effects to the airshed would be minimal.

### **Airshed 15**

Star Ranch Fuels Reduction Project lies within airshed 15 and will have the majority of immediate effects from land management actions. Airshed 15 contains the impact zone of McCall Idaho. However, this impact zone is outside the 62 mile analysis area and will not be affected by management actions within the project area. The area of most concern is the Boise Mores Creek Basin; this basin contains the rural areas of Placerville, Centerville, New Centerville, Pioneererville, and the sub division of Star Ranch. Although the population density is relatively low this area tends to be affected by seasonal inversions that trap particulates and other pollution. Boise and Valley counties have the majority of land within airshed 15; however the airshed overlaps into portions of Adams, Idaho, and Custer Counties. These counties fall into the low to moderate (2001-6001 tons/year) categories for PM 2.5 emissions per year. Airshed 15 also incorporates part of the Sawtooth Wilderness which is a Class 1 airshed. Class 1 airsheds have strict guidelines for visual and air quality impacts that will be incorporated.

### **Airshed 16**

The analysis area clips the southwestern edge of airshed 16, and falls into Custer and Valley counties. These counties are low to moderate for emissions (2001-6001 tons/year), and will likely not be affected from management activities within the project area because of terrain features and the dispersion of smoke over a large distance.

### **Airshed 17**

Airshed 17 is located on the far eastern edge of the analysis area. The Sawtooth Wilderness lies within the boundary of airshed 17. Class 1 airsheds have strict guidelines for visual and air quality impacts that will be incorporated into this document. Portions of Blaine and Custer County are inside the airshed 17 boundary. The counties are considered to be low in the emissions category for PM 2.5. This particular airshed will likely not be affected by management actions because of prevailing southwest winds will disperse smoke away from the airshed. Terrain features and geographic distance from the project area will also limit smoke impacts.

### **Airshed 21**

Ada, Boise, Camas, and Elmore counties are inside the boundary of this airshed, with the majority of the area in Elmore County. These counties are all low to moderate for PM 2.5 emissions. Airshed 21 also incorporates the largest portion of the Sawtooth Wilderness Area. The northern and western edges of the airshed will be the most heavily affected areas. The town of Idaho City is known for its nighttime inversions and potential for air quality concerns. A PM 2.5 air monitoring station is located within the city limits. This station provides feedback on management activities that impact Idaho City. The Boise Impact Zone also touches the edge of airshed 21. Boise, Idaho is the only population center that is currently in the “maintenance” category for air pollution (CO, PM<sub>10</sub>) within the analysis area. This area although reasonably

close (19 miles) to the project area should not be affected by management activities within the project area. General south southwest air flow over the project area tends to push emissions from management activities away from Boise and the Ada County impact area.

### **Airshed 22**

Airshed 22 incorporates numerous counties. Included in this airshed are Canyon and Ada Counties. The concern for these counties is that the area is considered to be non-attainment for air quality. Northern Ada County including Boise Idaho is non-attainment for carbon monoxide and PM 10 emissions. This area currently is considered a “Maintenance area” meaning that the area is currently meeting the EPA’s standards for air quality because of regulations defined in the Maintenance Plan developed by the IDEQ, Air Quality division. This plan outlines the steps necessary for the area to remain a “Maintenance area”. The Star Ranch Project Area is roughly 19 miles north of the Ada County line. Management activities should not affect the “maintenance area” in any way because of the prevailing wind direction will transport smoke to the Northeast away from Boise. Careful Burn Plan development will ensure that the Boise impact area will not be affected by management activities.

### **Airshed 24**

The analysis area also enters airshed 24, which is southeast of the project area. The 62 mile radius touches just small areas within Elmore and Camas counties that lie within airshed 24. This small portion of airshed 24 will likely not be affected because of the prevailing south southwestern flow of the general winds. This flow will take emissions to the northeast and away from airshed 24. The corner of the airshed is approximately 62 air miles from the project area, and will not be affected by prescribed fire and smoke from the Star Ranch project area.

## **Environmental Consequences**

### **Alternative 1: No Action**

There would be no increase in management created smoke emissions with the no action alternative. However, the smoke impacts from a wildfire could have long term negative effects. The project area lies in the southern half of airshed fifteen. Airshed fifteen has been negatively affected by wildfire in the last fifteen years. In that time, 13 percent of the land area within the airshed has been burned in wildfires (362,000 acres). Smoke impacts from wildfires is usually much more severe than smoke from prescribed fire. Wildfire smoke generally is more concentrated and lasts for a much longer time (weeks or months) than smoke generated from prescribed fire. In airshed fifteen 6,000 acres is prescribed burned annually, the no action alternative would not increase these acres.

### **Alternative 2 and 3**

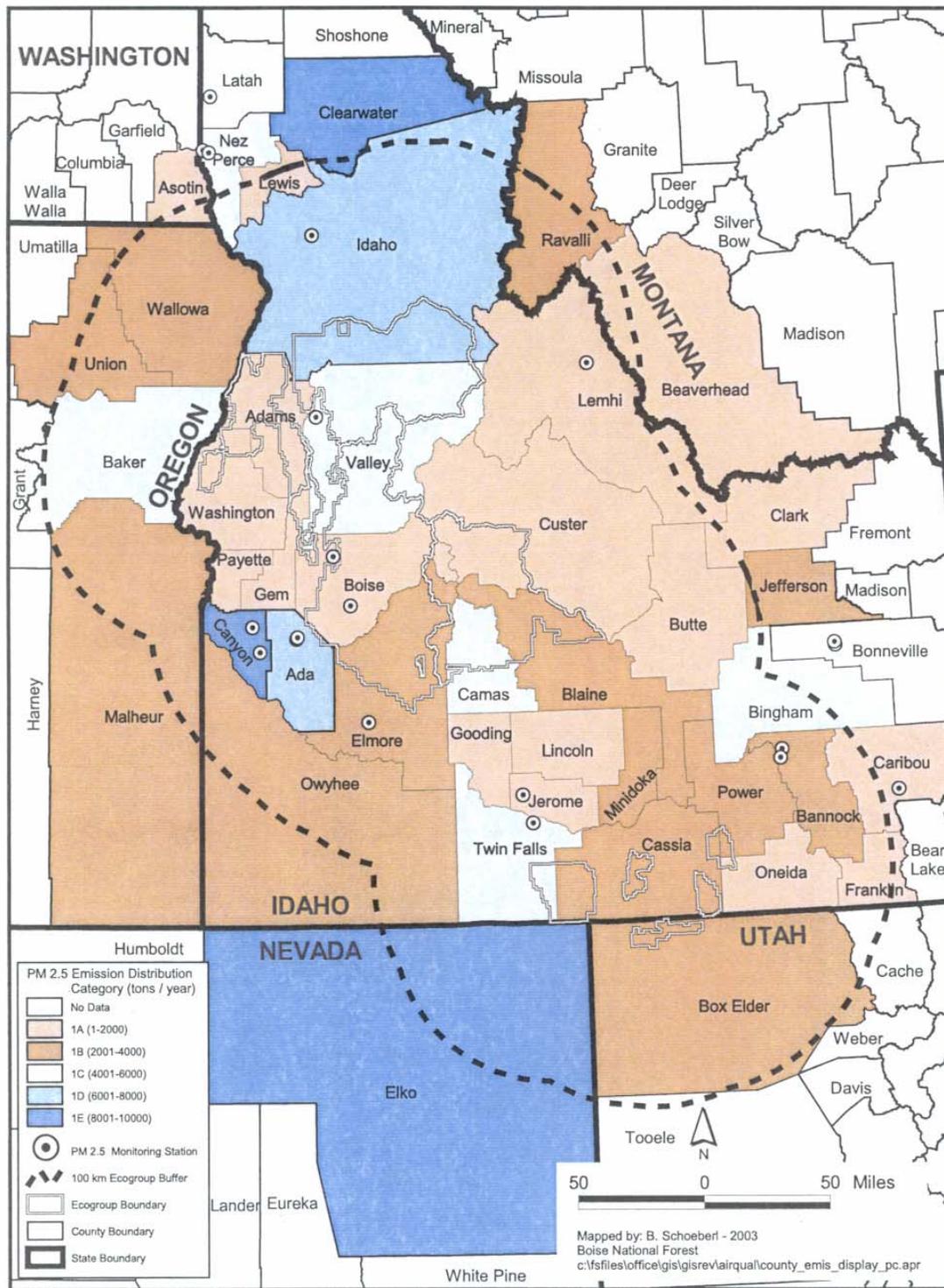
The acres of prescribed fire and pile burn will be the same under each alternative. These alternatives will be analyzed together in regards to effects in the 62 mile radius analysis area.

Prescribed fire acres would be spread out over the next decade and would add an average of 500-700 acres of burning per year to airshed 15. There are air quality monitors within the airshed and within close proximity to the project area. Idaho City and Garden Valley contain air quality monitoring equipment to measure PM 2.5 emissions. These sites will be used to monitor direct impacts of smoke emissions. Placerville and the sub division of Star Ranch will be affected mostly because the towns are directly adjacent to the project area.

SIS (Smoke Impact Spreadsheet)(<http://www.airsci.com/SIS.html>) is the smoke dispersion model used to measure smoke impacts to the adjacent communities, and to ensure compliance with the National Ambient Air Quality Standards (NAAQS). Particulate Matter 2.5 ug/M<sup>3</sup> is used to measure smoke compliance for prescribed fire. The NAAQS standard is 65ug/M<sup>3</sup> for PM 2.5 in a 24 hour average. An “Emergency Episode” may be declared if PM 2.5 is sustained at 80 ug/M<sup>3</sup> for an extended period. One hour is the time period in which the “emergency episode” may be declared shown by the graph in figure 6. Approximately 500-700 acres will be burned in Star Ranch per year. This burning would occur in approximately 5 to 10 days per year as conditions allow. Placerville and Star Ranch sub division lie just over 1 mile from where burning will occur. According to SIS modeling air quality will be affected but the levels will not exceed the NAAQS standards. The following air quality graph shows the effects of burning 300 acres of slash in one day under spring burning conditions. Typically only 100-200 acres per day can be accomplished in slash units. When implemented slash units emit more emissions than any other broadcast burns. The 300 acre unit is representative of a “worst case scenario” for acres burned in one day.

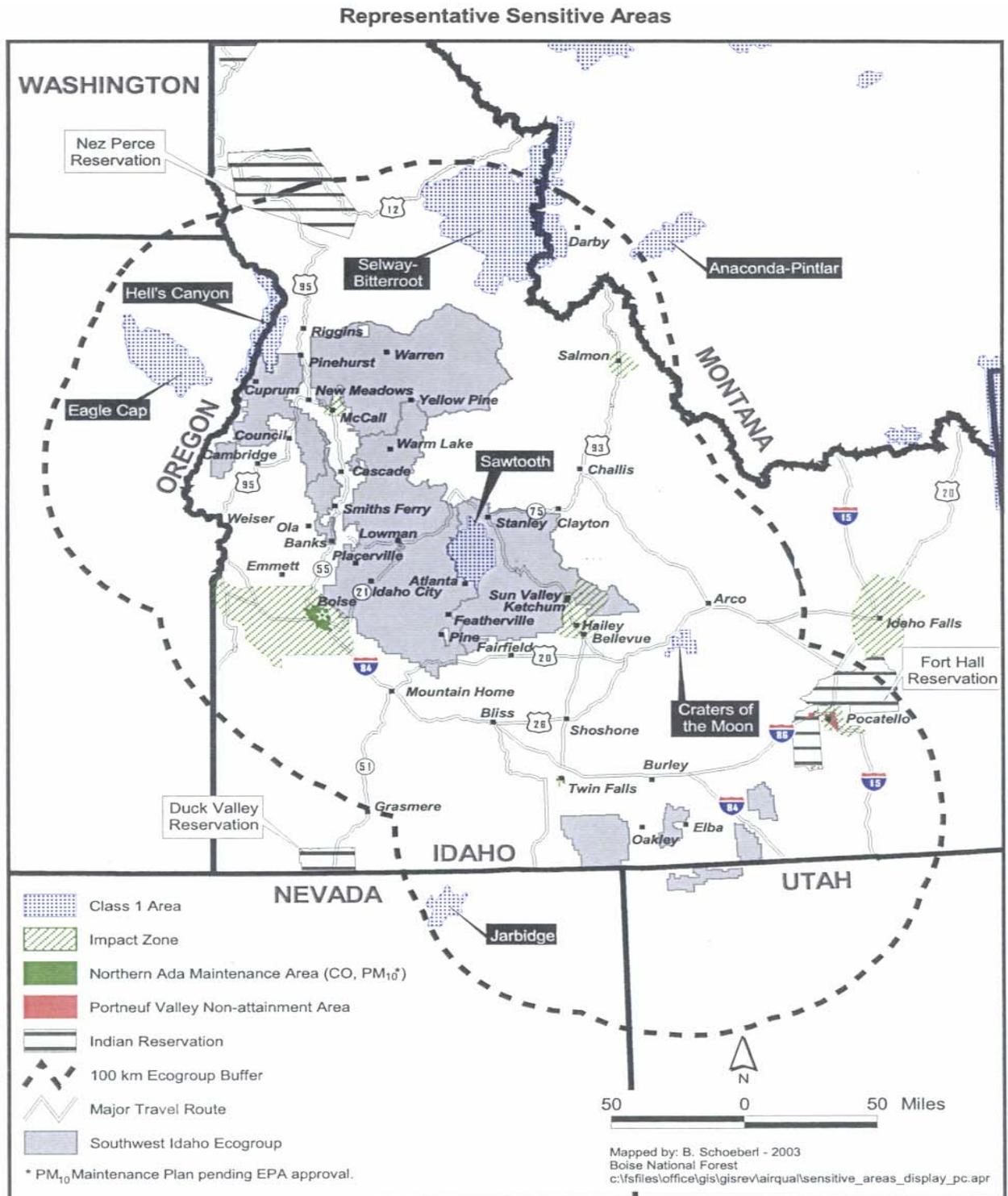
Figure 3-2

Annual Average PM 2.5 County Emissions From 1995 - 1999 (Counties in 100 km of Ecogroup)



Map From Boise National Forest Land and Resource Management Plan 2003.

Figure 3-3



Map from the Boise National Forest Land and Resource Management Plan 2003.

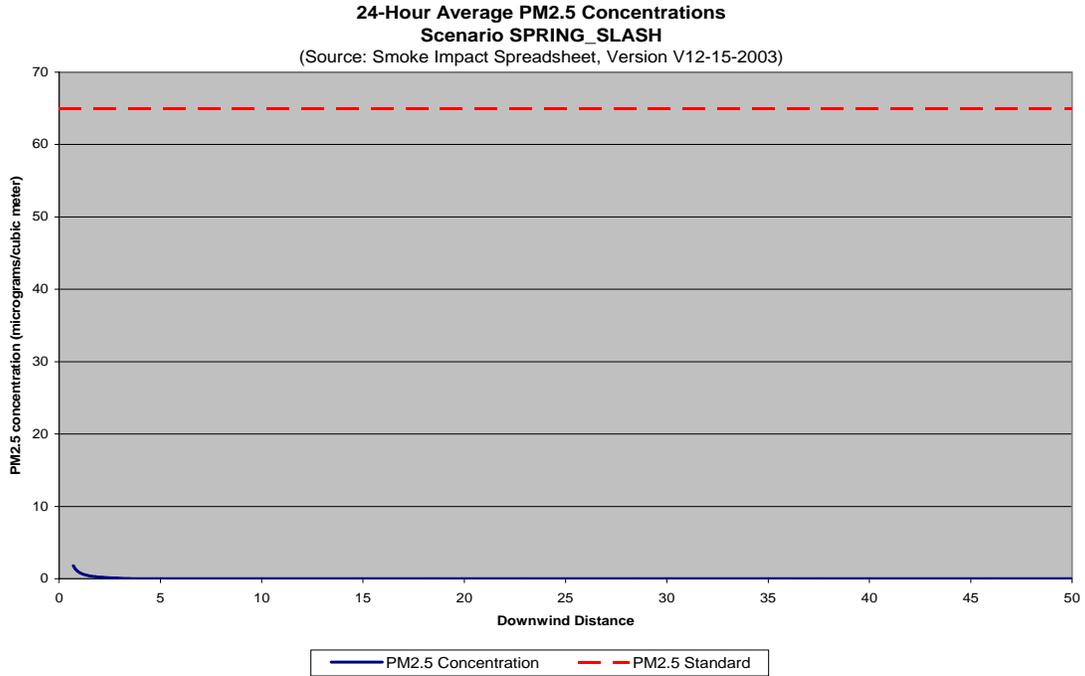


Figure 3-4: PM concentration level vs. the down wind direction in miles. The graph shows 24 hour average emissions are very low and extend less than 3 miles from the source.

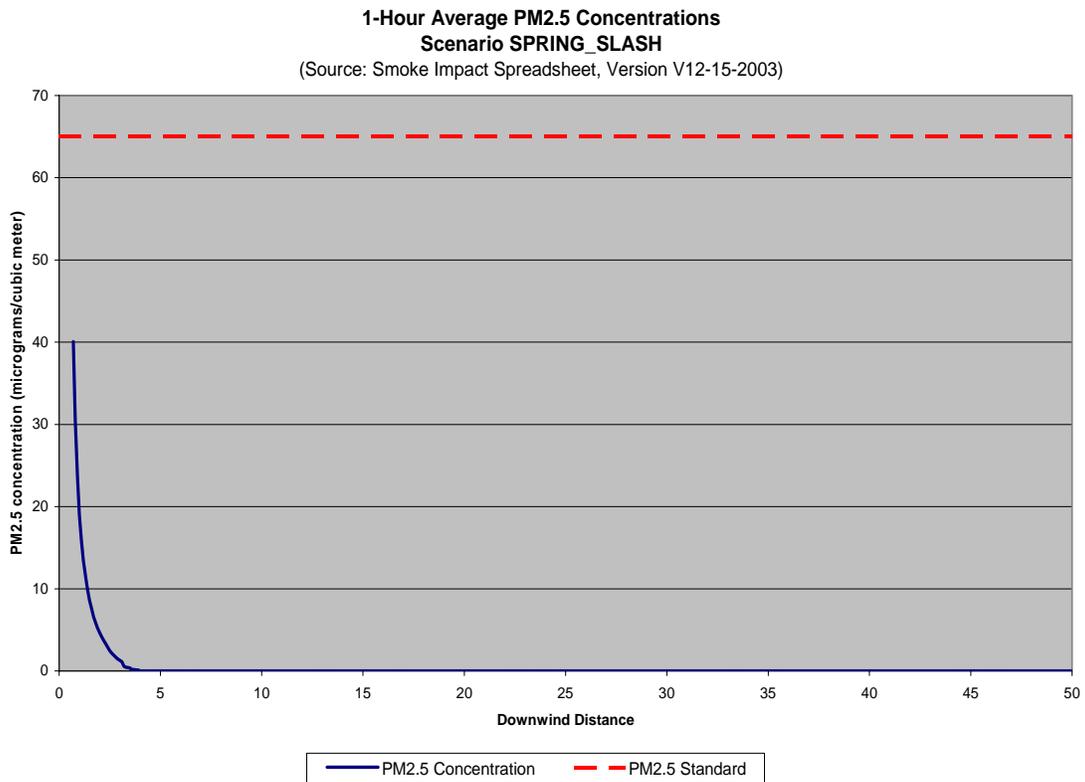


Figure 3-5 shows the 1 hour average is 40ug/M<sup>3</sup> at one mile from the burn site. PM 2.5 @ 80 ug/M<sup>3</sup> in one hour average is the “Emergency Episode” threshold.

## Sensitive Smoke Receptors within Close Proximity to the Project Area

Area	Airshed #	Distance Air Miles	Direction from Project Area
Sawtooth Wilderness	17, 21	39 miles	East
Placerville	15	1 mile	Generally East
Star Ranch	15	1 mile	Generally East
Centerville	15	5 miles	East
New Centerville	15	5 miles	Southeast
Pioneerville	15	6 miles	Northeast
Boise	22	19 miles	South, Southwest
Idaho City	21	7 miles	Southeast
Garden Valley	15	10 miles	North

Although there are plenty of smoke receptors in the area, the SIS dispersion models show that NAAQS standards will not be violated. Prescribed Fire Burn Plans will be written to mitigate smoke concerns (i.e. transporting smoke directly into adjacent communities). Air quality will be monitored to ensure the NAAQS standards have been met. Although the models show that the burns will not exceed NAAQS standards careful planning will occur to ensure that the standards are met. Known sensitive people will be notified before prescribed fires are implemented. The South Southwest general wind flow will transport smoke away from sensitive areas and will help to dissipate smoke in the area of the Boise Mores Creek basin.

Boise, Idaho is a “maintenance” area for air quality. A “maintenance area” is defined as an area that has exceeded NAAQS standards in the past, but is currently in compliance with NAAQS standards. This area will also not be affected by smoke emission from this project. Boise is 19 air miles from the project area; the general flow will push smoke away from Boise so there will not be smoke impacts to this area.

### **Class 1 Airshed – Sawtooth Wilderness**

The Sawtooth Wilderness also lies within the analysis area, and is a Class 1 airshed. The Class 1 airshed will not be affected by smoke impacts from this project. The SIS dispersion model shows that most of the smoke impacts will be directly adjacent to the project area within a 3 mile radius.

The Clean Air Act 1970 sites very specific rules for these designated areas. The prevention of significant deterioration of air quality (PSD) prevents the deterioration of air quality in areas with historically clean air. The Sawtooth Wilderness lies approximately 39 miles due east of the project area. Although management activities may contribute to regional haze, wilderness visitors will not suffer “plume blight” because of the terrain features and distance from the project area. Prescribed fire activities will be planned to occur when wind currents dissipate smoke and have the least impacts to the surrounding area. Wind currents typically will lift smoke and transport it to the north northeast. Prescribed burns are implemented on days with a fair ventilation index (VI); this management action will dissipate smoke so the wilderness areas will not be negatively impacted by air and visual quality.

### Cumulative Effects: Alternatives 2 and 3

The analysis area for cumulative effects is the 62 mile radius from the project area. Air quality is monitored and NAAQS standards enforced by the State of Idaho DEQ. The Idaho/ Montana Airshed Group track emission inputs and air quality. There is a finite amount of emissions allowed into each airshed at any one time or daily. The Idaho /Montana Airshed Group has numbers assigned to each prescribed fire so management emissions can be tracked. Burn restrictions are based on the amount of inputs and the air quality and dispersion for that particular day. Prescribed fires are cancelled if emissions are too great or the air mass is stagnant not allowing for smoke to disperse. Cumulative emissions from prescribed fires are monitored and only a certain number of acres burnt are allowed daily. This system is in place to ensure air quality standards are met in each airshed, and that smoke emissions from many projects will not combine and exceed air quality standards. The counties that would be directly affected by cumulative effects from this project and others will continue to have low emissions per year. This project in conjunction with other planned project will not change the air quality in those counties.

A Prescribed Fire Burn Plan will be written for the planned prescribed burning to meet management objectives while incorporating all the concerns defined in the Specialist Report for air quality. The Interagency Prescribed Fire Management Handbook 2003 defines specifically what each Burn Plan must incorporate. Following this handbook, the FSM 5140, the Boise National Forest Management Plan 2003, and requirements of the Idaho/ Montana Airshed group defines the parameters in which prescribed burns can be conducted to meet all air quality laws and regulations. Prescribed Fire Burn Plans are developed with mitigations to ensuring proper air mixing heights and transport winds to protect air quality, and to set prescriptions so burns can meet management objectives safely.

### Project Record

This Environmental Analysis hereby incorporates by reference the Air Quality Specialist's Report in the Project Record (40 CFR 1502.21). The Air Quality specialist's Report contains the detailed data, methodologies, analysis, references, and other technical documentation used in the assessment.

## Water Quality

This report discusses the conditions of watershed resources within the project area and discloses effects of the alternatives on these resources within the analysis area. The analysis presented here will focus on water quality indicators and slope stability. These are the watershed process elements that will be used as indicators to determine the relative condition of hydrologic functions occurring within the project area.

### Issues

Issue #1 Project activities would increase erosion and sediment delivery to streams. This would modify local hydrology adversely affecting water quality and overall stream health.

**Indicator:** Amount of increased sediment yield above existing sediment yield.

Issue #2 Project activities would reduce slope stability and increase risk of landslides resulting in increased sediment yield and reduced soil productivity.

**Indicator:** Landslide Prone (LSP) acres within project treatment areas and miles of road construction in LSP areas.

The 8,950 acre project area is contained within a portion of three 6<sup>th</sup> field HUCs. These are Upper Granite Creek, Lower Granite Creek, and Clear Creek. The three HUCs together comprise the Granite Creek 5<sup>th</sup> field HUC. Granite Creek is tributary to Grimes Creek.

## Affected Environment

### Slope Stability

The District landslide prone GIS layer developed from the SINMAP model shows approximately 1000 acres of high hazard landslide prone areas on the steep slopes adjacent to drainages on the west side of the project area. The north and east portions of the project have no landslide prone areas.

The Forest Plan defines Landslide Prone Areas as areas with a tendency for rapid translational slides. These slides are also referred to as debris slides. The SINMAP model is an Arc View extension that implements the computation and mapping of a slope stability index based upon geographic information, primarily digital elevation data.

High hazard Landslide Prone areas identified by SINMAP were field verified and validated the model for this area. A few small (< 0.25 acre) recent and historic landslides were evident on the steep, lower slopes adjacent to Canyon Creek and Fall Creek.

### Water Quality/Surface Erosion

The streams in the project area have not been assessed by the Idaho Department of Environmental Quality (IDEQ) for water quality parameters associated with support of beneficial uses. All water from the project area ultimately drains into Grimes Creek. Grimes Creek has not been assessed by IDEQ.

#### *Watershed erosion*

The BOISED sediment yield model was used to evaluate the cumulative sediment impact from logging and prescribed burning on the three 6<sup>th</sup> field HUC watersheds as a result of project implementation. The model is a local adaptation of the sediment yield model developed by the U.S. Forest Service for application to forested watersheds associated with the Idaho Batholith (USDA Forest Service, 1991). The model simplifies for analysis an extremely complex physical system and does not take into consideration site-specific circumstances. It is not appropriate to use the model as a reliable predictor of sediment quantities, but is best used to compare alternative management scenarios within a watershed.

BOISED predicts that currently none of the sediment delivered to the Granite Creek watershed is a result of past timber harvests or prescribed burning.

#### *Road Erosion*

The WEPP (Water Erosion Prediction Project) model was used to evaluate project specific erosion from roads within the project area and compare sediment delivery from roads by alternative. The WEPP model (USDA, 1995) is a complex computer program that describes the physical processes that lead to erosion. These processes include infiltration and runoff; soil detachment, transport, and deposition; and plant growth, senescence and residue decomposition.

The model is a continuous simulation computer program that predicts soil loss and sediment deposition from overland flow on hillslopes, soil loss and sediment deposition from concentrated flow in small channels, and sediment deposition in impoundments.

The WEPP model predicted existing sediment delivery from roads is presented in table 3-4.

*Table 3-4. WEPP predicted existing sediment delivery from all roads within the project area in each 6<sup>th</sup> field HUC*

<b>Watershed</b>	<b>Clear Creek</b>	<b>Lower Granite</b>	<b>Upper Granite</b>
<b>WEPP Predicted Sediment Yield (tons/year)</b>	16.4	14.7	16.9

## **Environmental Consequences**

### **Slope Stability**

#### **Alternative 1 - No Action Alternative**

This alternative would not affect the likelihood of a landslide occurring within the project area. Landslides are naturally occurring disturbances that may have occurred in the past and may have an influence on the project area in the future.

#### **Alternative 2**

High hazard Landslide Prone areas identified by SINMAP were field verified. A few small (< 0.25 acre) recent and historic landslides were evident on the steep, lower slopes adjacent to Canyon Creek and Fall Creek. The 300' default RCA buffer for timber harvest is sufficient to avoid these areas. No other landslides were identified.

Due to the type of proposed management activities, any mass movement would be unexpected and their causes indiscernible from natural variables.

No activities are proposed in high and moderate hazard landslide prone areas with high risk. In low-hazard areas and moderate hazard areas with low to moderate risk project design minimize the effects of mechanical fuel reduction treatment activities on landslide hazard. This would be accomplished by avoiding the steeper areas down slope that are in RCAs adjacent to drainages and in most areas the method of harvest would resemble selective type prescriptions. All of the beneficial influences to slope stability are favored by a selection logging system (Gray and Megahan 1981). Some treatments would create openings 1-5 acres in size. Because these treatments are in low-hazard landslide prone areas these openings would not be expected to cause landslides.

Prescribed burning to reduce natural fuel loads would occur at low intensities and is not expected to increase or initiate landslide activity. Declining root strength has been determined to be a factor in slope stability (Burroughs, Thomas 1977). There would be little tree mortality as a result of a low intensity burn and much of this would be limited to seedling and sapling size trees (Fire/Fuels Specialist Report). Impacts to tree root structure would therefore be minimal and would have a minor effect on slope stability.

The proposed new and temporary roads would be constructed on moderate to gentle slopes outside of landslide prone areas. Design features, including Best Management Practices would minimize the risk of landslides. The effectiveness of these Best Management Practices applied to timber harvesting and road construction has been extensively studied (Seyedbagheri, 1996; NCASI, 1999; IDHW-DEQ 1997).

### **Alternative 3**

Effects from harvest and prescribed burns would be the same as Alternative 2. The change of harvest method from tractor to helicopter on 217 acres would have an immeasurable effect on slope stability as tree root strength is of most consequence to providing slope stability and the volume of harvest does not change in this alternative.

There would be a slight decreased risk of landslide because there is no road construction proposed in this alternative as compared to alternative 2. This decreased risk would be minimal because the new and temporary roads proposed in alternative 2 would be constructed on moderate to gentle slopes outside of landslide prone areas and design features, including Best Management Practices would minimize the risk of landslides.

### **Cumulative effects**

None of the alternatives would have any effect on soil productivity outside of the project area. Therefore, the area used to assess the cumulative effects consists of the project area. Past activities that have affected slope stability are livestock grazing, timber harvest, fires, and roads. There are no management-induced landslides within the project area.

Alternative 1 would have no effect on slope stability within the project area, therefore no cumulative effects are anticipated from alternative 1.

A mitigation measure common to all actions would identify landslide prone areas and mitigate actions in these areas based on hazard and risk. Foreseeable future activities would be hand thinning that would not affect slope instability. Therefore, no cumulative affects are anticipated.

### **Water Quality/Surface Erosion**

The methodologies used to predict sediment yield were BOISED for vegetative treatments and prescribed burning and WEPP for roads. Roads on non-forested lands were included in modeling

### **Watershed Erosion**

The project area falls within three, 6<sup>th</sup> field HUCS. The analysis areas for BOISED erosion and sediment yield modeling is each of the three 6<sup>th</sup> field HUCS. Sediment yields and water quality pertaining to existing condition were compared by Alternative. While it is inappropriate to use models as a highly reliable predictor of absolute quantities of sediment delivered to streams at specific times, it is appropriate to use model results for comparison of Alternative management scenarios within a watershed. The output can be used as a qualitative prediction of water quality in the system. BOISED predicts sediment yield as a result of all past and ongoing management activities, as well as the effects of past large fires. The BOISED model was used to predict erosion from vegetation management and prescribed fire activities. BOISED results are presented in table 3-5.

*Table 3-5. BOISED Predicted Percent Over Natural (% ON) Sediment Yield from Vegetation Management and Prescribed Burning by 6<sup>th</sup> field HUC.*

Year	Alt 1 Clear Creek % ON	Alt. 2 Clear Creek % ON	Alt. 3 Clear Creek % ON	Alt 1 Lower Granite % ON	Alt.2 Lower Granite % ON	Alt.3 Lower Granite % ON	Alt 1 Upper Granite % ON	Alt.2 Upper Granite % ON	Alt.3 Upper Granite % ON
2005	0.0	9.5	8.3	3.5	8.9	8.9	0.0	6.6	6.4
2006	0.0	16.4	15.7	1.7	7.3	7.3	0.0	9.4	9.2
2007	0.0	6.4	5.5	0.0	3.2	3.2	0.0	4.0	3.9
2008	0.0	3.0	2.7	0.0	1.5	1.5	0.0	2.0	2.0
2009	0.0	1.2	1.1	0.0	0.6	0.6	0.0	0.8	0.8
2010	0.0	0.6	0.5	0.0	0.3	0.3	0.0	0.4	0.4
2011	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2012	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

### Road Erosion

The analysis area for WEPP erosion and sediment yield modeling is the project area within each 6<sup>th</sup> field HUC. The WEPP (Water Erosion Prediction Project) model was used to evaluate project specific erosion from roads within the project area. The model was not used to predict erosion from construction and decommissioning activities. The model was used to predict erosion from roads after roadwork is completed. Roads were modeled with road decommissioning, including temporary roads, occurring in 2006. WEPP results are presented in table 3-6.

*Table 3-6. WEPP predicted sediment delivery by Alternative from all roads in the project area within each 6<sup>th</sup> field HUC (Tons/Year).*

Year	Alt 1 Clear Creek t/y	Alt 2 Clear Creek t/y	Alt 3 Clear Creek t/y	Alt 1 Lower Granite t/y	Alt 2 Lower Granite t/y	Alt 3 Lower Granite t/y	Alt 1 Upper Granite t/y	Alt 2 Upper Granite t/y	Alt 3 Upper Granite t/y
2004	15.8	15.8	15.8	14.6	14.6	14.6	16.6	16.6	16.6
2005	15.8	16.4	15.8	14.6	14.7	14.6	16.6	16.9	16.6
2006	15.8	5.5	4.8	14.6	10.9	10.9	16.6	16.3	15.7
2007	15.8	5.5	4.8	14.6	10.9	10.9	16.6	16.3	15.7

### Alternative 1

This alternative does not propose any new management activities and would therefore have no effects on management-induced sediment yield. Current management induced sediment yield for the analysis area, as modeled by BOISED, is 0% over natural. Current sediment yield from roads as modeled by WEPP is: 15.8 t/y for Clear Creek, 14.6 t/y for Upper Granite Creek, and 16.6 t/y for Lower Granite Creek.

Roads within the analysis area would continue to be the primary source of sediment delivery to streams. The total length of system roads, both open and closed would be maintained at the current level.

### **Alternative 2**

The BOISED model predicts the harvest and prescribed fire activities proposed for alternative 2 would result in a short-term increase in sediment yield (table 3-5). This would be an immeasurable increase throughout the watersheds and would not have a measurable affect on water quality.

The WEPP model predicts a temporary increase and long term decrease in sediment yield from roads (see table 3-6 above). This would be an immeasurable decrease throughout the watersheds. However it would probably have a moderate to high, localized, beneficial effect on water quality where roads are located along streams.

Design features, including Best Management practices, would also minimize the risk of concentrating water on side slopes. The effectiveness of these Best Management Practices applied to timber harvesting and road maintenance has been extensively studied (Seyedbagheri, 1996; NCASI, 1999; IDHW-DEQ 1997). Application of these design features (specifically streamside buffers) is expected to decrease the short and long-term likelihood of sediment delivery to streams in quantities sufficient to impact water quality conditions. No measurable erosion or sediment delivery to streams would probably occur as a result of this activity.

### **Alternative 3**

The BOISED model predicts slightly less sediment yield from harvest and prescribed fire activities proposed for alternative 3 as compared to Alternative 2 for the Clear Creek and Upper Granite watersheds. There would be no measurable decrease in sediment yield as compared to Alternative 2. BOISED predicts no difference in sediment yield for the Lower Granite watershed. The WEPP model predicts slightly less sediment yield due to no road construction in Alternative 3 as compared to Alternative 2. Because project design features for Alternative 2 would reduce sediment delivery to an immeasurable amount, there would be no measurable decrease in sediment yield as compared to Alternative 2 (tables 3-5 and 3-6).

### ***Effects Common to all action alternatives***

Design features, including Best Management Practices, associated with proposed harvest and road opening activities would minimize soil disturbance and sediment delivery during and following implementation. The effectiveness of these Best Management Practices applied to timber harvesting and road construction has been extensively studied. Application of these design features would be expected to decrease the short and long-term likelihood of sediment delivery to streams in quantities sufficient to impact water quality conditions.

### **Cumulative Effects**

The three 6th field HUCs that contain the project area, when added together, form the Granite Creek 5th field HUC. The analysis area for water quality cumulative impacts is the Granite Creek 5th field HUC. This cumulative effects area was selected because the three subwatersheds within the project area drain into Granite Creek.

Past and present activities that affect water quality are timber harvest, roads, grazing, mining, recreation, new housing developments, and fires. Past activities within the watershed, especially road related, have increased sedimentation over natural levels. These sediment levels would remain the same for alternative 1.

Reasonably foreseeable future activities are recreational mining, continued new housing developments, prescribed fires, timber harvest on private, state, and BLM lands.

For analysis of cumulative effects on water quality the BOISED and WEPP sediment yield models were run for current and reasonably foreseeable Forest Service activities. Although activities outside of Forest Service jurisdiction may increase sediment yield, the models predict that Forest Service activities would result in a short-term increase in sediment and a long term reduction in sediment yield (tables 3-5 and 3-6 above).

Therefore, no negative cumulative sediment impacts to water quality are expected to occur as a result of implementing the proposed Star Ranch project.

### **Project Record**

This Environmental Analysis hereby incorporates by reference the Hydrologist Specialist Report in the Project Record (40 CFR 1502.21). The Hydrologist Specialist Report contains the detailed data, methodologies, analysis, references, and other technical documentation used in the assessment.

## **Fisheries Resources**

### **Issues**

Issue 1: Vegetation management activities could increase erosion and sediment delivery to streams. This sedimentation could in turn affect Bull Trout or Rainbow/redband trout habitat.

**Indicator:** Sedimentation delivery to streams from vegetation management activities

Issue 2: Sedimentation from roads management, particularly roads within RCAs which have a higher likelihood of sediment delivery, could directly affect Bull Trout or Rainbow/redband trout habitat and function.

**Indicator:** Sedimentation delivery to streams from road management activities.

**Indicator:** Road density and RCA road density.

## Species considered:

**Bull trout** (*Salvelinus confluentus*) are listed as threatened under the Endangered Species Act. Bull trout are also identified in the Forest Plan as a management indicator species (MIS)

July 2000, 16 Bull trout were discovered in Mores Creek above the Hayfork culvert. Sampling efforts in 2001 revealed only two bull trout below the Hayfork culvert and no bull trout above. Sampling continued in 2002 and 2003 with no additional bull trout discovered. This does not conclude extirpation of bull trout because sampling efforts were not extensive and did not occur across all focal habitat. No bull trout have been documented within the project area or within Grimes Creek drainage.

USFWS designates areas that contain habitat essential for the conservation of a threatened or endangered species which may require special management considerations. These areas do not have to be occupied by the species at the time of designation. Proposed critical habitat within the subbasin includes Mores Creek. It is approximately 21 river miles from the project area to Mores Creek.

**Rainbow/redband trout** (*Oncorhynchus mykiss gairdneri*) inhabit a diverse array of habitat in rivers and streams, including small intermittent streams. Redband, like other salmonids, are dependent on cold, clean water, but have been seen documented in stream temperatures over 28° Centigrade (Behnke 1992, p. 178). Several streams throughout the Project Area support a population of native redband trout.

This section discusses conditions of the fisheries resource within the analysis area and discloses effects of the alternatives on fisheries within the analysis area. The analysis presented here will focus on sediment and road density/location. Sediment is the main process that this project has the potential to affect fisheries habitat and will be used as the main indicator to determine the relative condition of the fisheries resource within the analysis area. Road density and physical barriers will also be discussed. These elements, their measurement criteria, and existing conditions of each will be discussed in subsequent sections.

## Existing Condition

### Environmental Baseline

The Pathways and Watershed Condition Indicator Matrix from the Forest Plan was used to track existing conditions and effects (USDA Forest Service, 2004). Only directly relevant indications are captured here, refer to the Fish Specialist Report: Biological Assessment Evaluation for Star Ranch Project contained in the Project Record for the complete description of all Pathways and Watershed Condition Indicators specific to this project.

The fisheries analysis area for the Star Ranch Fuels Reduction Project will be conducted at the Granite Creek 5<sup>th</sup> field Hydrologic Unit (HU) - 1705011204 code.

Table 3-7. Baseline data of Effects Indicators (Granite Creek 5<sup>th</sup> Field HUs.)

Agency/Unit:	Boise National Forest Idaho City Ranger District	HU Code & Name:	Granite Creek 5 <sup>th</sup> - 1705011204
Fish Species Present:	Rainbow trout, brook trout.	Spatial Scale of Matrix:	5 <sup>th</sup>
(Anad. Sp.) Population:	None	Subpopulation:	
(Bull trout) Core Area:	Lucky Peak	Local Population:	Granite Creek
Management Action(s):	Star Ranch Fuels Reduction Project		
<b>Pathways Indicators</b> <sup>a, c</sup>	<b>Population and Environmental Baseline</b>		
	<b>Desired Condition</b>	<b>Baseline</b> <sup>b</sup>	<b>Discussion of Baseline – Current Condition</b>
<b>Water Quality</b>			
Sediment	<12% fines in gravel (<6mm)  ≤20% surface fines (<6mm)	1204- <b>FUR</b> , SR/PJ	1204 – 53.5% fines (visual estimate). 1993 habitat survey. <i>Data in BNF Aquatic Survey Database.</i>
<b>Habitat Access</b>			
Physical Barriers	No man-made fish barriers.	1204 - <b>FUR</b> , M/PJ	1204 - No comprehensive survey has been conducted but several barriers exist throughout the watershed that do not allow upstream fish passage at a range of flows.
<b>Watershed Conditions</b>			
Road Density and Location	Total road density <0.7 mi/m <sup>2</sup> of subwatershed; no roads within RCAs	1204 - <b>FUR</b> , O	1204 – 3.23 mi/m <sup>2</sup> . <i>WARS Database.</i>
Riparian Conservation Areas	The RCAs have historic and occupied refugia for listed, sensitive, native, or desired species. The RCA provides adequate shade, LWD recruitment, sediment buffering, connectivity, and habitat protection and connectivity to minimize adverse effects from land management activities.	1204 - <b>FAR</b> , PJ	Some vegetation components are outside desired condition. This is likely a cause from previous management activities, historic mineral exploration, wildfires and valley bottom roads. RCA functions and processes are still generally intact.

a. Matrix checklist adapted from USFWS and NMFS 1998.

b. FA = Functioning Appropriately, FR = Functioning at Risk, FUR = Functioning at Unacceptable Risk, PJ = Professional

Judgment, SR = Surveys, M = Monitoring, O = Other

c. Evaluated against local criteria where appropriate and available (see IV.C)

## Environmental Consequences

The proposed action would involve commercial harvest, fuels reduction activities (prescribed burning and mechanical treatment), road construction and road decommissioning. These activities would result in soil disturbance and have the potential to increase sediment delivery to area streams. Relevant habitat indicators for this analysis are sediment and road density/RCA road density as it relates to fish habitat.

Table 3-8. Effects of Management Actions on Matrix Indicators. Alternatives 2 and 3

Pathways		Effects of the Management Action(s)																																																																																																																																																			
Indicators a, d	Effects b, c	Temporary trend/effect	Short-term trend/effect	Long-term trend/effect	Discussion of Effects																																																																																																																																																
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Sediment	Maintain with improved conditions	-	+	+	<p>BOISED model reflects that implementation of the proposed action would result in a short-term increase in sediment yield within the analysis area. In the years following project implementation there would be a sediment reduction. Sediment produced from removing culverts and associated road activities would likely be temporary and immeasurable at the local population scale. Overall, a net decrease in the amount of sediment is expected due to reduced drainage network. Beneficial effects are expected from reduced road drainage network, reduced road density and reduced RCA roads. Long-term reductions in sediment are anticipated throughout the project area. Design elements and mitigation measures would limit sediment delivery the first year. Proposed activities would occur in nodal and adjunct habitat and effects are expected to be minimal and short duration with long-term beneficial effects. Project design elements, standards and guidelines, and BMPs would minimize sediment and related impacts.</p> <p>BOISED Predicted Sediment Yield from Vegetation Management and Prescribed Burning by Alternative</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Alt. 1 Clear Creek % ON</th> <th>Alt. 2 Clear Creek % ON</th> <th>Alt. 3 Clear Creek % ON</th> <th>Alt 1 Lower Granite % ON</th> <th>Alt. 2 Lower Granite % ON</th> <th>Alt. 3 Lower Granite % ON</th> <th>Alt 1 Upper Granite % ON</th> <th>Alt. 2 Upper Granite % ON</th> <th>Alt. 2 Upper Granite % ON</th> </tr> </thead> <tbody> <tr><td>2005</td><td>0.0</td><td>9.5</td><td>8.3</td><td>3.5</td><td>8.9</td><td>8.9</td><td>0.0</td><td>6.6</td><td>6.4</td></tr> <tr><td>2006</td><td>0.0</td><td>16.4</td><td>15.7</td><td>1.7</td><td>7.3</td><td>7.3</td><td>0.0</td><td>9.4</td><td>9.2</td></tr> <tr><td>2007</td><td>0.0</td><td>6.4</td><td>5.5</td><td>0.4</td><td>3.2</td><td>3.2</td><td>0.0</td><td>4.0</td><td>3.9</td></tr> <tr><td>2008</td><td>0.0</td><td>3.0</td><td>2.7</td><td>0.0</td><td>1.5</td><td>1.5</td><td>0.0</td><td>2.0</td><td>2.0</td></tr> <tr><td>2009</td><td>0.0</td><td>1.2</td><td>1.1</td><td>0.0</td><td>0.6</td><td>0.6</td><td>0.0</td><td>0.8</td><td>0.8</td></tr> <tr><td>2010</td><td>0.0</td><td>0.6</td><td>0.5</td><td>0.0</td><td>0.3</td><td>0.3</td><td>0.0</td><td>0.4</td><td>0.4</td></tr> <tr><td>2011</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></tr> <tr><td>2012</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td></tr> </tbody> </table> <p>WEPP Predicted Sediment Yield from Roads by Alternative</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Alt 1 Clear</th> <th>Alt 2 Clear</th> <th>Alt 3 Clear</th> <th>Alt 1 Lower</th> <th>Alt 2 Lower</th> <th>Alt 3 Lower</th> <th>Alt 1 Upper</th> <th>Alt 2 Upper</th> <th>Alt 3 Upper</th> </tr> </thead> <tbody> <tr><td>2004</td><td>15.8</td><td>15.8</td><td>15.8</td><td>14.6</td><td>14.6</td><td>14.6</td><td>16.6</td><td>16.6</td><td>16.6</td></tr> <tr><td>2005</td><td>15.8</td><td>16.4</td><td>15.8</td><td>14.6</td><td>14.7</td><td>14.6</td><td>16.6</td><td>16.9</td><td>16.6</td></tr> <tr><td>2006</td><td>15.8</td><td>5.5</td><td>4.8</td><td>14.6</td><td>10.9</td><td>10.9</td><td>16.6</td><td>16.3</td><td>15.7</td></tr> <tr><td>2007</td><td>15.8</td><td>5.5</td><td>4.8</td><td>14.6</td><td>10.9</td><td>10.9</td><td>16.6</td><td>16.3</td><td>15.7</td></tr> </tbody> </table>					Year	Alt. 1 Clear Creek % ON	Alt. 2 Clear Creek % ON	Alt. 3 Clear Creek % ON	Alt 1 Lower Granite % ON	Alt. 2 Lower Granite % ON	Alt. 3 Lower Granite % ON	Alt 1 Upper Granite % ON	Alt. 2 Upper Granite % ON	Alt. 2 Upper Granite % ON	2005	0.0	9.5	8.3	3.5	8.9	8.9	0.0	6.6	6.4	2006	0.0	16.4	15.7	1.7	7.3	7.3	0.0	9.4	9.2	2007	0.0	6.4	5.5	0.4	3.2	3.2	0.0	4.0	3.9	2008	0.0	3.0	2.7	0.0	1.5	1.5	0.0	2.0	2.0	2009	0.0	1.2	1.1	0.0	0.6	0.6	0.0	0.8	0.8	2010	0.0	0.6	0.5	0.0	0.3	0.3	0.0	0.4	0.4	2011	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2012	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Year	Alt 1 Clear	Alt 2 Clear	Alt 3 Clear	Alt 1 Lower	Alt 2 Lower	Alt 3 Lower	Alt 1 Upper	Alt 2 Upper	Alt 3 Upper	2004	15.8	15.8	15.8	14.6	14.6	14.6	16.6	16.6	16.6	2005	15.8	16.4	15.8	14.6	14.7	14.6	16.6	16.9	16.6	2006	15.8	5.5	4.8	14.6	10.9	10.9	16.6	16.3	15.7	2007	15.8	5.5	4.8	14.6	10.9	10.9	16.6	16.3	15.7
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Watershed Conditions					
Road Density and Location	Improve	Improve	Improve	Improve	Changes in road density depend on what road treatment is being proposed and the scale of the reduction. A reduction in RCA road density would improve the overall condition within those RCAs. Road density would still remain high and Functioning at Unacceptable Risk but a reduction in RCA road density would be an improving trend.
Riparian Conservation Areas	No Influence	none	none	none	This indicator would not likely be affected because the proposed action would not affect forest density, shade, LWD or buffering.
Habitat Access					
Physical Barriers	Improve	+	+	+	One barrier would be restored. Beneficial effects are anticipated.

- a. Matrix checklist adapted from USFWS and NMFS1998.
- b. This displays the potential effects of the action on habitats or individuals, and not on the status of the entire local population/watershed. I = Improve, M = Maintain, D = Degrade, N = No Influence
- c. Effects that "Maintain" or "Improve" indicators are compliant with Pacfish and Infish objectives (see USFWS 1998 for crosswalk).
- d. Evaluated against local criteria where appropriate and available

### Effects Common to All Alternatives

Both mechanical fuel reduction and prescribed fire has the potential to impact fisheries and other aquatic organisms. Forest harvest activities can influence both upland erosional processes and the way the that forest streams process sediment in their channels (Chamberlin et al. 1991). The degree of influence varies with geology, slope, climate, vegetation, treatment type and amount of disturbance.

Roads can affect streams directly by accelerating erosion and sediment loadings, by altering channel morphology, and by changing runoff characteristics of watersheds. These processes interact to cause secondary changes in channel morphology (Furniss et al.).

Road management has a high potential to affect the fishery resource. As indicated in the Hydrology Section, roads are the cause of existing elevated levels of sediment delivery. RCA roads have a higher likelihood of sediment delivery because of their close proximity to the channel. High RCA road densities are usually commensurate to the amount of effects that are associated with a particular segment. Effects consist of soil erosion and transportation to the stream via the road system, which acts as a conduit in transporting sediment.

Once sediment enters a channel, downstream routing and effects on fish habitat are determined by channel morphology, quantity and size of sediment, and frequency and magnitude of flow events (Swanston 1991). Excessive sediment delivery to streams can modify the stream channel configuration, decreasing the depth and number of pools and reducing the physical space available to rearing fish (Furniss et al. 1991).

## **Alternative 1 – No Action**

This alternative does not propose any new management activities. Therefore, no effect on management-induced sediment yields. Current management induced sediment yield for the analysis area, as modeled by BOISED, is 0% over natural. Current sediment yield from roads as modeled by WEPP is: 15.8 ton/year (t/y) for Clear Creek, 14.6 t/y for Upper Granite Creek, and 16.6 t/y for Lower Granite Creek. These sediment delivery rates and associated effects to the fisheries resource would remain unchanged, current road density would remain at 4.84 mi/mi<sup>2</sup> and RCA road density would remain at 6.86 mi/mi<sup>2</sup> within the project area.

**Sediment** – Since no action would occur, erosional processes and sediment transport rates would remain unchanged and associated effects to fisheries habitat would remain elevated.

**Road Density** – Since no actions would occur, road density/RCA road density would remain unchanged.

## **Alternatives 2 and 3**

### **Sedimentation from Vegetation Management**

The potential for management induced surface erosion within the Star Ranch project area is directly related to the amount of bare and compacted soil exposed to rainfall and runoff. Hence, road surfaces, landings, skid trails, and disturbed cut and burned areas can contribute sediment to stream channels.

BOISED model predicts the harvest and prescribed fire activities proposed for alternatives 2 and 3 would result in a short-term increase in sediment yield. This would be an immeasurable increase throughout the watersheds and would not have a measurable affect on water quality (Watershed Environmental Consequences, Chapter 3). Therefore, effects to fisheries and fisheries habitat would likely not have a measurable affect.

Impacts to fisheries and other aquatic organisms due to prescribed vegetation management would be limited. Burning within the Riparian Conservation Areas has the potential of backing down to the channel and killing riparian vegetation. Prescribe fire backing into the Riparian Conservation Areas would be of low to moderate intensity and little mortality is expected. Impacts to tree root structure would therefore be minimal and have minor effect of slope stability and width to depth ratios

### **Road Management Sedimentation**

Road maintenance would improve on the existing condition. Several roads within the project area are heavily rutted and eroding the surface. Timber sale contract provisions require that all roads be maintained before, during, and after harvest activity. The maintenance provisions include blading roads, dust abatement, maintaining drainage structures, and adding drainage structures such as cross ditches where needed. Road maintenance would improve the existing condition.

Dust would be minimized on roads by using water. Water would be drafted from perennial non-fish bearing streams or fish bearing streams with required screening when needed for blading operations and/or dust abatement. Hauling and equipment operations would be restricted if conditions are wet enough to cause rutting.

Decommissioned roads would restore natural hillslope processes and allow these areas to revegetate. This is particularly important for RCA roads were sediment delivery rates are usually

higher and no vegetation is growing. Long-term benefits are expected with reduced sediment delivery rates and future large woody debris recruitment. The WEPP model predicts a decrease of sediment delivery over existing rates with implementation of any action alternative (Watershed Environmental Consequences, Chapter 3).

Approximately 1.2 miles of new road construction is planned for Alternative 2. This road and all landings would be built to standards that would minimize sediment delivery to area streams. Watershed effects evaluation (Water Quality-Chapter 3) concluded that no measurable erosion or sediment delivery to streams would probably occur as a result of this activity. Therefore, no measurable effects to fisheries or fisheries habitat would likely occur.

BOISED and WEPP models reflect that implementation of any action alternative would result in a short-term increase in sediment yield with short and long-term net reductions (tables 3-5 and 3-6, Water Quality-Environmental Consequences). Therefore, no measurable effects to fisheries habitat is expected from implementation of Alternative 2 or 3 and effects to fisheries are expected to be minimal.

### Road Density/RCA Road Density

Alternative 2 would construct 1.2 miles of new road and add 1.5 miles of existing non-system road, decommission 4.8 miles of road and close and stabilize 1.7 miles of non-system road. Implementation of alternative 2 would have a net reduction of 3.7 miles of road. Table 3-9 below displays the changes between alternatives. Implementation of an action alternative, Clear Creek 6<sup>th</sup> field HUC would have the largest improvement with over 9% reduction in RCA road density.

Implementation of Alternative 2 would reduce road density from 4.84 mi/mi<sup>2</sup> to 4.73 mi/mi<sup>2</sup> and RCA road density from 6.86 mi/mi<sup>2</sup> to 6.49 mi/mi<sup>2</sup> at the 5<sup>th</sup> field HUC. This would be a change of 2.1% and 5.5% respectively and improve the trend but leave road density and RCA road density at Functioning at Unacceptable Risk.

Alternative 3 would have no new road construction, add 1.5 miles of non-system road, decommission 4.8 miles of road and close and stabilize 1.7 miles of non-system road. Implementation of Alternative 3 would reduce road density to 4.71 mi/mi<sup>2</sup> and RCA road density to 6.48 mi/mi<sup>2</sup> at the 5<sup>th</sup> field HUC. This would be a change of 2.6% and 5.6% respectively and would improve the trend but leave road density and RCA road density at Functioning at Unacceptable Risk.

Table 3-9 Road Density/RCA Road Density changes by Alternative

	Alternative 1		Alternative 2				Alternative 3			
	Road Density	RCA Road Density	Road Density		RCA Road Density		Road Density		RCA Road Density	
	mi/mi <sup>2</sup>	mi/mi <sup>2</sup>	mi/mi <sup>2</sup>	% change						
<b>Granite Creek 5<sup>th</sup> Field HUC</b>	4.84	6.86	4.73	-2.1	6.49	-5.5	4.71	-2.6	6.48	-5.6
Lower Granite Creek 6 <sup>th</sup> Field HUC	5.32	8.44	5.23	-1.6	8.13	-3.7	5.23	-1.6	8.13	-3.7
Clear Creek 6 <sup>th</sup> Field HUC	5.92	7.01	5.80	-2.0	6.35	-9.4	5.73	-3.1	6.32	-9.7

Upper Granite Creek 6 <sup>th</sup> Field HUC	2.53	4.09	2.43	-3.8	4.09	0.0	2.43	-3.8	4.09	0.0
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**Fish Passage** – Alternatives 2 and 3 would replace three culverts and improve 7.6 miles of fish habitat. Therefore, implementation of any action alternative would improve this indicator to Functioning at Risk.

### **Cumulative Effects**

Cumulative effects analysis was considered to include the Granite Creek 5<sup>th</sup> field HUC. This was an area that measurable effects to fisheries could be considered.

Past and present activities that affect water quality are timber harvest, roads, grazing, mining, recreation, new housing developments, and fires. Past activities within the watershed, especially road related, have increased sedimentation over natural levels. These sediment levels would remain the same for Alternative 1.

Implementation of any action alternative would reduce sediment (Water Quality-Chapter 3), road density, and fish passage barriers that would maintain or improve the trend of fisheries habitat. Therefore, no negative cumulative sediment impacts to fisheries or fisheries habitat are expected to occur as a result of implementing the any action alternative.

## **Threatened, Endangered, Sensitive and MIS Species Determination**

**Bull Trout:** Bull trout of the Columbia River Distinct Population Segment are listed as threatened under the Endangered Species Act. Currently, bull trout are only found in the upper section of Mores Creek within the Boise-Mores 4<sup>th</sup> field HU.

A “No Effect” determination for bull trout and proposed critical habitat for bull trout has been reached for all alternatives. This determination has been reached because no bull trout have been documented in Grimes Creek and it is over 21 river miles to proposed critical habitat located in Mores Creek. Design elements/mitigation measures, best management practices, and Riparian Conservation Areas and standards and guidelines are intended to minimize potential effects. BOISED model reflects that implementation of any action alternative would result in a temporary increase in sediment yield with short and long-term reductions.

### **Project Record**

This Environmental Analysis hereby incorporates by reference the Fish Specialist’s Report in the Project Record (40 CFR 1502.21). This report includes the Fisheries Biological Evaluation and Assessment for the Star Ranch Fuels Reduction Project and contains the detailed data, methodologies, analysis, references, and other technical documentation used in the assessment.

## **Noxious weeds**

### **Issue Statement**

Project activities may lead to an increase in noxious weeds.

## Affected Environment

Rush skeletonweed is a noxious weed that has become established in the project area. Currently, skeletonweed infests less than ten per cent of the project area. (Star Ranch Fuels Reduction Skeletonweed Infestations Map, Project Record). However, Leafy spurge, Dalmation toadflax and Spotted knapweed are located in adjacent areas making it a likely candidate for spread to the project area sometime during the life of the project. High road densities, new modern methods of vehicular travel and increased recreation use are the biggest reasons for the increased spread of noxious weeds.

## Environmental Consequences

### Alternative 1

There would be no direct, indirect or cumulative effects associated with alternative 1.

### Alternatives 2 and 3

All soil disturbing, prescribed burning activities and the opening up of forest stands and roads to increased sunlight favor the establishment and nurturing of invasive species. Therefore, the project area will be at risk for the continued spread of noxious weeds by all project activities. The proposed mitigation measures design features described in Chapter 2 would minimize the risk of spreading noxious weeds and the area would be monitored for new infestations. If new infestations were discovered, they would be treated through the District's noxious weed control program.

### *Cumulative Effects*

Because noxious weeds are very prolific and mobile, population centers within the Boise Basin have been included in the analysis area for determining cumulative effects relative to noxious weeds. This is because contractors and administrators will be traveling to and from weed infested population centers within the Boise Basin and the project area. In the short and long term, it is expected that prescribed burning will be utilized in the project area to maintain low fire resistance and keep fuels levels low. This continued use of fire would similarly increase the risk of noxious weed infestation and spread. Similar mitigation measures as those prescribed for this project will be needed to control potential spread with any future project activities.

### Project Record

This Environmental Analysis hereby incorporates by reference the Noxious Weeds Specialist's Report in the Project Record (40 CFR 1502.21). The Noxious Weeds Specialist's Report contains the detailed data, methodologies, analysis, references, and other technical documentation used in the assessment.

## Range Management

### Issue

Project activities and plantation protection could interfere with and displace livestock grazing for up to ten years.

## Affected Environment

The Star Ranch Fuel Reduction Project area lies entirely within the boundaries of the Boise Basin Sheep & Goat Allotment. This allotment covers everything on the Idaho City Ranger District west of Idaho State Highway 21. This allotment is permitted for approximately 2000 head of ewes & lambs (lambs less than 6 months old) for which seasonal use occurs annually between the months of June and October. There are approximately 253,000 total acres within the Boise Basin S&G Allotment. 152,000 acres are Forest Service System Lands, and 101,000 acres are Bureau of Land Management, State of Idaho and private ownership

## Environmental Consequences

### Alternative 1

There would be no change or direct or indirect effects to the range resource or to the grazing operations associated with alternative 1, as a result there would be no direct, indirect or cumulative effects associated with alternative 1.

### Alternatives 2 and 3

Tree thinning, tree planting and prescribed burning activities could displace and interfere with livestock routing and grazing for several years. This is because these activities could take up to ten years to complete with five years of plantation protection. This situation could create a bottleneck since the project area is bordered by State of Idaho and private land to the south and over-mature nearly impassable brush stands to the north. The combination of terrain and property ownership will make it difficult to re-route livestock. Range mitigations detailed in Chapter 2 are designed to minimize or reduce this impact.

The project activities will benefit livestock grazing by opening up the Douglas-fir and ponderosa pine stands, thus encouraging development of a greater quantity of desirable forage.

### **Cumulative Effects**

The cumulative effects area for range resources includes the immediate area surrounding the project boundary. There is a possibility for conflict if this project and other planned timber and prescribed burn projects in the future become too numerous and create routing problems. The area to the south of the Star Ranch Fuels Reduction Project is mostly State of Idaho and private land, and the area to the north is nearly impassable over-mature brush. New vegetation management projects might possibly open up and improve forage conditions and accessibility of the existing brush fields to the north of the project area.

### Project Record

This Environmental Analysis hereby incorporates by reference the Range Resources Specialist Report in the Project Record (40 CFR 1502.21). The Range Resources Specialist Report contains the detailed data, methodologies, analysis, references, and other technical documentation used in the assessment.

## Soil Resource

### Issue

Project activities would reduce long-term woody debris and disturb and compact soil resulting in a loss of soil productivity.

### Indicators

- Percent detrimental soil disturbance
- Percent total soil resource commitment
- Tons/acre of coarse woody debris

**Background:** Soil productivity includes the inherent capacity of a soil under management to support the growth of specified plants, plant communities, or a sequence of plant communities. Soil productivity may be expressed in terms of volume or weight/unit area/year, percent plant cover, or other measures of biomass accumulation.

Detrimental soil disturbance (DD) is the alteration of natural soil characteristics that results in immediate or prolonged loss of soil productivity and soil-hydrologic conditions. DD can occur from soil that has been displaced, compacted, puddled or severely burned. Determination of DD excludes existing or planned classified transportation facilities, dedicated trails, and landings, mining dumps or excavations, parking areas, developed campgrounds, and other dedicated facilities.

Total Soil Resource Commitment-TSRC is the conversion of a productive site to an essentially non-productive site for a period of more than 50 years. Examples include classified or unclassified roads, inadequately restored haul roads, designated skid roads, landing areas, parking lots, mining dumps or excavations, dedicated trails (skid trails also), developed campgrounds, other dedicated facilities, and some stock driveways.

Coarse Woody Debrid-CWD. Pieces of woody material having a diameter of at least 3 inches and a length greater than 6 feet

## Affected Environment

### Detrimental Disturbance (DD)

The activity area used to calculate detrimental disturbance is a harvest unit or burn unit within the project area.

Harvest activities that occurred within the past ten years were used to calculate current soil productivity. It was assumed that impacts to soil productivity from harvest and prescribed fire would be negligible within ten years due to the effects of natural re-vegetation that would restore any disturbed soil conditions.

There have been no timber sales within the past 10 years. Existing detrimental disturbance for all units within the project area is 0 % and meets the Forest Plan soil standard: SWST02: - *Management activities that may affect soil detrimental disturbance (DD) shall meet the following requirements:*

a) In an activity area where existing conditions of DD are below 15 percent of the area, management activities shall leave the area in a condition of 15 percent or less detrimental disturbance following completion of the activities.

b) In an activity area where existing conditions of DD exceed 15 percent of the area, management activities shall include mitigation and restoration so that DD levels are moved back toward 15 percent or less following completion of the activities. (USDA Forest Service, 2003)

### **Total Soil Resource Commitment (TSRC)**

The activity area used to calculate TSRC is the project area.

Roads, skid roads, landings, campgrounds, and other areas that are converted to an essentially non-productive site for more than 50 years were used to calculate TSRC.

Existing TSRC is predominantly due to roads and is 2.1 %. This meets the following Forest Plan Standard for TSRC: SWST03 *In an activity area where existing conditions of TSRC are below 5 percent of the area, management activities shall leave the area in a condition of 5 percent or less TSRC following completion of the activities.* (USDA Forest Service, 2003)

### **Coarse Woody Debris (CWD)**

Coarse woody debris (CWD) is necessary to prevent the risk of increased mineral soil erosion, reduced soil nutrient cycling, and loss of soil productivity. The Forest Plan recommends CWD over 15" DBH to provide the most benefit to wildlife and soil productivity. The recommended amount of CWD to leave after timber harvesting to maintain forest productivity in the Idaho, dry ponderosa pine, Douglas-fir habitat types (PVG 1) is 3-10 tons/acre and 4-14 tons/acre in warm, dry Douglas-fir-moist ponderosa pine (PVG 2). Many areas within the units are below the recommended amounts of CWD.

## **Environmental Consequences**

### **Alternative 1**

There would be no effect on soil productivity from this alternative and would meet Forest Plan Standards. Existing detrimental disturbance would remain at 0% and TSRC would remain at 2.1 %. The amount of coarse woody debris (CWD) would not be affected.

### **Alternatives 2 and 3**

None of the action alternatives would exceed the Forest Plan Soil Productivity Standards. Table 3-10 presents the results of soil productivity calculations for Forest Plan Standards.

*Table 3-10. Forest Plan Soil Productivity Calculations by Alternative*

<b>Standard</b>	<b>Alternative 1 (Existing)</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
<b>Detrimental</b>	0 %	6 %	5%

<b>Disturbance</b>			
<b>Total Soil Resource Commitment</b>	2.1 %	1.9 %	1.8

The complete soil productivity calculations and list of formulas and assumptions used can be found in the Star Ranch Hydrology Specialist Report located in the Star Ranch project file.

This alternative would meet Forest Plan Standards. Detrimental disturbance would increase from 0 % to 6% (alternative 2) and to 5% (alternative 3) due to vegetation management. (see table 3-10 above) TSRC would decrease from 2.1 % to 1.9% (alternative 2) and 1.8 % (alternative 3) due to road decommissioning

Broadcast burning would have no effect on total soil resource commitment. There is a slight risk of detrimental disturbance from the creation of hydrophobic soils. The risk is slight because low intensity prescribed burning is not expected to create hydrophobic soils.

Low intensity burns could result in a slight negative impact by reducing the amounts of CWD (> 15" dbh) present for maintenance of soil productivity. The risk is low because low intensity burns are intended to reduce fine fuels less than 3 inches in diameter although some larger and older dead material would be consumed. The harvest would produce younger CWD material that probably would not be consumed by fire in amounts greater than the older dead CWD that might be consumed by prescribed fires. This would result in no change or an increase in CWD. In addition, the CWD prescriptions as part of the project design would enhance soil productivity and move towards meeting the Forest Plan Standard.

### **Cumulative Effects**

The area used to assess soil productivity is the project area. All proposed soil productivity impacts are contained within this area. None of the alternatives would cause the Forest Plan soil productivity standard to be exceeded. There are no other foreseeable future actions proposed that would impact soil productivity.

Therefore, no cumulative soil productivity impacts are expected to occur as a result of implementing the proposed Star Ranch project.

### **Project Record**

This Environmental Analysis hereby incorporates by reference the Soil Resources Specialist Report in the Project Record (40 CFR 1502.21). The Soil Resources Specialist Report contains the detailed data, methodologies, analysis, references, and other technical documentation used in the assessment.

## **Transportation Management**

### **Issue**

Changes in access and road management could affect the degree of public access in the area.

**Indicator:** Changes in the transportation system, open and closed roads.

## Affected Environment

There are approximately 64 miles of classified roads and an estimated 4 miles of unclassified roads within the analysis area.

*Table 3-11. Miles of classified and unclassified roads in the Star Ranch project area (rounded to the nearest mile).*

Road Status	Ownership	Miles
Classified	Public	14
	Private	5
	Forest Service	45
Unclassified		4
Total (miles)		68

Road Maintenance is defined as the ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective. Road maintenance is classified in terms of *Road Maintenance Levels*. Table 3-12 gives a brief description of the maintenance levels and shows the number of miles by maintenance level in the analysis area.

*Table 3-12. Classified road miles by maintenance level in the Star Ranch project area (rounded to nearest mile).*

Maintenance Level	Miles	Description
1	10	Closed, custodial care to prevent resource damage
2	4	Open, closed seasonally, normally passable with standard pickup
2	36	Open year long, normally passable with standard pickup
3	14	Open, seasonally graded, normally passable with a passenger car
4	0	Open, consideration for a moderate level of comfort
5	0	Open, consideration for a high level of comfort
Total Miles	64	

## Environmental Consequences

Effects to the current transportation system are tied primarily to proposed changes in road management, specifically the decommissioning or closing of roads and new road construction.

A project level Roads Analysis Process was applied to the area. The Star Ranch Fuels Reduction Project Roads Analysis, 2004 is incorporated as part of the project record. Alternative 2 incorporates the recommendations for the minimum transportation system for the area from that

analysis. Alternative 3 was developed in response to a concern with constructing additional roads in the area.

*Table 3-13. Change in road management by alternative*

Road Management Activity	Alternative 1 Current	Alternative 2	Alternative 3
Seasonal Closure miles	3.8	5.2 miles additional	5.2 miles additional
Year-long closure miles	10.3	No change	No change
Road Decommission	0	4.8 miles	4.8 miles
Temporary Road Construction	0	0.5 mile increase	No increase
Permanent Road Construction (seasonally closed)	0	1.2 miles increase	No increase
Convert unclassified road to classified status	0	1.5 miles converted	1.5 miles converted
Unclassified Road Closure	0	2.2 miles closed	2.2 miles closed

*Table 3-14. Road Management by Alternative*

Road Management Activity	Alternative 1 Current	Alternative 2	Alternative 3
Open Miles (excludes seasonal closures below)	31.7	25.3	25.3
Seasonal Closure total miles	3.8	8.1 miles	6.9 miles
Year-long closure miles	10.3	10.3	10.3
Road Decommission	0	4.8 mile	4.8 mile
Unclassified Road Closure	0	2.2 miles closed	2.2 miles closed

### **Alternative 1**

There would be no change in the current road management. Access within the lands of the project area would remain the same.

### **Alternative 2**

Alternative 2 has an overall net reduction in open road miles of 6.4 miles. This is due to additional seasonal closures and road decommissioning. Roads identified for decommissioning were roads that were indicated with high resource risks and correspondingly low inherent values in the Roads Analysis Process. Alternative 2 adds 0.5 miles of temporary and 1.2 miles of new road that is needed to access vegetation by ground based equipment for thinning and fuel reduction. The 1.2 mile of new road segment would be seasonally closed as would 5.2 miles of existing road. Approximately 2.1 miles of existing seasonally closed road would be decommissioned. With the net reduction of road miles there would be slightly fewer

opportunities for public access in the area.

### Alternative 3

Alternative 3 also has an overall net reduction in open road miles of 6.4 miles. This is due to additional seasonal closures and road decommissioning. Roads identified for decommissioning were roads that were indicated with high resource risks and correspondingly low inherent values in the Roads Analysis Process. With the net reduction of road miles there would be slightly fewer opportunities for public access in the area. Alternative 3 does not construct any new permanent or temporary roads. Alternative 3 has similar road decommissioning and existing road seasonal closures as alternative 2. There will be an increase in the area that is accessed by helicopter rather than ground based systems for fuel reduction, there would be fewer areas administratively accessed by road for fuels reduction, prescribed fire control, wildfire control.

### Cumulative effects

The cumulative effects analysis area is the same as that used for direct and indirect effects. There are no other planned changes in the transportation system. The cumulative effects would be the same as that for direct and indirect effects discussed under the alternatives.

## Wildlife Resources

### Issues

Issue # 1: Project activities may affect listed TEPCS wildlife species

**Indicator:** Habitat or populations of TEPCS Species affected.

Issue # 2: Project activities may affects listed management indicator species MIS)

**Indicator:** Habitat or populations of MIS Species affected

Issue #3: Project activities may affect big game species of mule deer or elk.

**Indicator :** Habitat or populations of mule deer or elk affected

### Affected Environment

There is no suitable habitat either in the Granite Creek 5<sup>th</sup> level HUC or the project area for the following species: Bald Eagle, Canada Lynx, Peregrine Falcon, Boreal Owl, Greater Sage Grouse, Great Gray Owl, White Headed Woodpecker, Northern Three-toed Woodpecker, Spotted Bat, Fisher, and Wolverine. These species will not be further analyzed, and the determination is “No Effect” or “no impact to individuals or populations” Refer to table 3-15.

*Table 3-15. Summary of Effects: Wildlife Listed/Sensitive Species*

WILDLIFE LISTED/SENSITIVE SPECIES		DETERMINATION For Action Alternatives
Bald Eagle	(USFWS Listed Species)	NE
Canada Lynx	(USFWS Listed Species)	NE

Gray Wolf (USFWS Listed Species)	MANJ
Peregrine Falcon	NI
Northern Goshawk	MIIH
Boreal Owl	NI
Great Gray Owl	NI
Flammulated Owl	BI
Greater Sage Grouse	NI
Mountain Quail	NI
White-headed Woodpecker	BI
Northern Three-toed Woodpecker	NI
Spotted Bat	NI
Western Big-eared Bat	MIIH
Fisher	NI
Wolverine	NI
Spotted Frog	MIIH

**NE** = No Effect

**NLAA** = May affect, not likely to adversely affect

**MANJ** = May affect, not likely to jeopardize the species or adversely modify proposed critical habitat

**NI** = No impact to 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.

**WIFV** = Will impact populations or habitat and may contribute to a trend towards Federal listing or cause a loss of viability to the populations or species.

**BI** = Beneficial impact to the species or habitat.

### Threatened, Endangered, and Sensitive Species

#### Gray Wolf (*Canis lupus*)

Estimated Wolf Numbers in the Central Idaho Recovery Area as of the 2002 Field Season

Indicator	1999	2000	2001	2002
Estimated Number of Packs	12	15	17	19
Breeding pairs	10	10	14	10
Estimated Number of Individuals	141	192	261	282

\*Source: USDI Fish and Wildlife Service annual wolf recovery reports, 1999, 2000, 2001, 2002.

The recovery goal for wolves in central Idaho is 10 breeding pairs for three consecutive years (USDI 1994). At this point, it appears that recovery is occurring at a faster rate than expected. This trend is likely to continue over the short term due to high prey populations, relatively low road densities across a large portion of southwest Idaho, and the formation of new packs.

Within the Central Idaho recovery area, wolves are increasing and exceeding the recovery goal numbers and time frames under current conditions. However, before this species can be de-listed, the states of Idaho, Montana and Wyoming must have wolf management plans in place that have met the approval of the U.S. Fish and Wildlife Service. Idaho's portion of a draft was developed by the State during 2000 and 2001. Public comments were gathered on the draft plan during the summer of 2000. The U.S. Fish and Wildlife Service responded to the draft in the spring of 2001. After consideration of the comments by the Idaho Legislative Wolf Oversight Committee, the draft plan was sent to the Idaho Legislature for approval. The plan has now been approved by the legislature and steps are underway for the State of Idaho to take over responsibility for wolf management

According to wolf recovery personnel (Curt Mack, Nez Perce Tribe, and Carter Neimeyer, U.S. Fish and Wildlife Service, personal conversations, spring 2004), within the Granite Creek 5th Field HUC, there are no known denning sites, rendezvous sites, or other evidence of wolf breeding. However, there have been several reports in the last 2 or 3 years of wolves in the area, mostly from the public. No doubt wolves are moving into the area from nearby occupied habitats, and will set up breeding territories in the near future. The most likely area for wolf expansion in the Granite Creek HUC in the near term is along the Hawley Mountain Ridge on the west side of the HUC. This area joins areas to the north and east which have known wolf populations, and from where disbanding wolves can be expected to occur.

#### **Goshawk (*Accipiter gentilis*)**

There are no known population trends for goshawks within the Boise National Forest, but some annual nest monitoring has been occurring in selected locations. Almost all areas within the Granite Creek 5<sup>th</sup> Field HUC may contain suitable goshawk habitat of one sort or another. However, due to the requirement for large trees with fairly dense canopy cover, nesting habitat may be a limiting factor. According to the "Vegetation Assessment for the Granite Creek 5<sup>th</sup> Level HUC", there are approximately 385 total acres of habitat which goshawks could use for nesting areas. These acres correspond to the moderate and high canopy closure large tree stands within PVG's 1, 2, 3, 4, and 7 as outlined in the "Vegetation Assessment for the Granite Creek 5<sup>th</sup> Level Watershed" document associated with this project. Within the Star Ranch Fuels Reduction Project, goshawks have been observed within the Star Ranch Subdivision and nest locations have been identified adjacent to the project area, along the Boise Mountains Ridge in the vicinity of Harris Creek Summit. There are no known nest locations known within the actual project boundaries, however suitable habitat for nesting does occur in some scattered stands with relict large trees present. Within the Star Ranch Fuels Reduction Project there could be portions of 2, and possibly 3, goshawk territories overlap at least a portion of the project area. As noted before, the best habitat lies along the west side of the project area, so goshawk territories, if present, would tend to be centered in that area.

#### **Flammulated Owl (*Otus flammeolus*)**

Flammulated owls are present on the Boise National Forest only during the breeding season and migrate off the Forest to winter. The habitat components considered most important for flammulated owls are: a) mature and old forests of Douglas-fir, ponderosa pine, mixed conifer, including lodgepole pine and aspen; b) a moderate density of large trees, and c) snags used for nesting habitat created by larger woodpeckers and sapsuckers (Spahr et al., 1991, Groves et al. 1997). Thirty acres encompass the entire home range of a flammulated owl pair during the breeding and nesting period.

The Idaho Conservation Data Center records show 49 flammulated owl records for the Boise, Payette, and Sawtooth National Forests. This species is ranked a species of concern by the state

of Idaho. Within the Granite Creek 5<sup>th</sup> Field HUC there are approximately 788 acres of potentially suitable flammulated owl habitat. This number is based upon the amount of “Large Tree” acres under all three canopy closure classes (low, moderate, and high) within PVG types 1, 2, and 3 as detailed in “Vegetation Assessment for the Granite Creek 5<sup>th</sup> Level Watershed” which is part of the project file for Star Ranch Fuels Reduction Project. Because flammulated owls appear to occur in a range of tree canopy closure habitats, all three canopy classes were considered as suitable habitat.

#### **White-headed Woodpecker (*Picoides albolarvatus*)**

White-headed woodpeckers are found mainly in open and mature ponderosa pine and mixed ponderosa pine/Douglas-fir forests in Idaho (Frederick and Moore 1991, Groves et al. 1997). They feed on conifer seeds during the fall and winter. Cone crops are different from year to year, and large trees usually produce more cones than small trees. During other times of the year, flying insects are important. Nests are usually excavated in large-diameter snags that have a moderate degree of decay (Bull et al. 1986, Bull et al. 1997). Nesting snags need to be greater than 20 inches in diameter (Wisdom et al. 2000). Nesting stands of ponderosa pine used by white-headed woodpeckers have a low canopy cover, generally less than 30 percent (Frederick and Moore 1991). Based on studies done in Idaho, little migration occurs, and they are considered year-round residents. Territory sizes are fairly large, up to 75 or more acres in size (Bull et al. 1986), thus small isolated patches of apparently suitable habitat may not be sufficient to sustain white-headed woodpeckers in an area.

The habitat that white-headed woodpeckers occupy has been affected during the last hundred years by human activities (Morgan and Parsons 2001, Sloan 1998). Major changes in habitat have occurred within the Boise National Forest from selective harvesting of large-diameter ponderosa pine, snag removal in harvest areas, extensive areas of ponderosa pine mortality from wildfires during the last 15 years, and a change in composition and density of remaining stands because of long-term fire exclusion (Geier-Hayes 1995, Morgan and Parsons 2001, Sloan 1998, Wisdom et al. 2000). These and other changes have reduced habitat of white-headed woodpeckers in terms of quality, quantity, and distribution. Because of reductions in late structural ponderosa pine forest and changes in their remaining habitat, this species has been designated as a Management Indicator Species on the Boise National Forest.

Within the Granite Creek 5<sup>th</sup> Field HUC there are approximately 592 acres of currently suitable white-headed woodpecker habitat, comprised of canopy closure classes low and moderate within the large tree class of PVG's 1 and 2. However, it is expected that not all of the acres of habitat shown are actually occupied due to the white-headed woodpecker's need for fairly large contiguous areas of habitat, rather than small, isolated patches. Also, snag density may be a limiting factor in this area, as most stands are relatively young and do not have sufficient large trees from which to recruit large snags. This species will be further analyzed in the section to follow.

#### **Spotted Frog (*Rana pretiosa*)**

Spotted frogs have been documented on the Boise National Forest in habitats that have standing or slow-moving water through the summer. There are no known population trends for spotted frogs within the Boise National Forest, but they are commonly observed in areas of shallow standing and ponded water during the spring and summer. Within the Granite Creek 5<sup>th</sup> Field HUC, as well as the Star Ranch Fuels Reduction Project, spotted frogs are expected to occur along larger streams and in ponds. They have been observed within the Star Ranch Fuels Reduction Project in Ophir Creek.

## **Management Indicator Species**

The Boise National Forest Plan established two wildlife management indicator species that occur in the vicinity of the Star Ranch Fuels Reduction Project, the white-headed woodpecker and the pileated woodpecker. The white-headed woodpecker is also a sensitive species and the effects to this species is discussed under TEPCS species discussion that precedes this section.

### **Pileated Woodpecker (*Dryocopus pileatus*)**

The pileated woodpecker requires mature forest habitats with numerous large live trees greater than 20 inches dbh, at least 14 snags per 100 acres greater than 20 inches dbh, a closed forest canopy, and understory dead woody material. In addition, pileated woodpeckers require contiguous habitats of at least 320 acres (Bull et al. 1986). Within the Granite Creek 5<sup>th</sup> Field HUC area there are scattered stands of trees meeting the above noted habitat parameters. A total of 385 acres of moderate to closed canopy large tree stands occur within the HUC (same habitat as outlined for goshawk nesting habitat). However, there are no contiguous stands of 300 acres or more meeting these parameters. Therefore, it is doubtful that any viable pileated woodpecker territories are located within the project area at this time. In addition, under the Star Ranch Fuels Reduction Project, none of the stands to be thinned are classified as “large tree, high canopy cover”, and only 6 acres of “large tree, moderate canopy cover” are to be thinned.

## **Other Species of Concern**

### **Mule Deer (*Odocoileus hemionus*)**

Mule deer are common throughout the Granite Creek 5<sup>th</sup> Field HUC. For the most part, the area is all summer range. Most deer migrate away into the Payette River Valley during the winter months. In spring deer return to the area to fawn and raise young during the summer, and breed in fall. Deer hunting is an important recreational activity within the area during the fall. Deer prefer early successional vegetative types for foraging, but require good cover for fawning and hiding from predators. Within the Star Ranch Fuels Reduction Project area mule deer can be expected to occur in all habitat types.

### **Rocky Mountain Elk (*Cervus canadensis*)**

As with mule deer, elk mostly inhabit the Granite Creek 5<sup>th</sup> Field HUC during the spring, summer and fall months, migrating out of the area during the winter into the Payette River Valley. However, a few may overwinter in suitable locations at the lowest elevations, especially on south-facing slopes where snow melts off rapidly and grasses and shrubs are accessible for forage. Elk on the Idaho City Ranger District tend to be “dispersed” in their choice of calving areas, rather than concentrating in certain areas. In the Granite Creek 5<sup>th</sup> Field HUC calving can occur anywhere appropriate conditions exist. Within the Star Ranch Fuels Reduction Project, elk are common in all vegetative types, and elk hunting is a major recreational activity in the fall.

### **Migratory Land Birds**

The Idaho Bird Conservation Plan, published January, 2000 by the Idaho Partners in Flight group, outlined migratory birds and associated habitats in Idaho whose status was a concern from a population trend standpoint. These high priority birds were lumped into associated habitats, which were then also assigned priority status. Four habitat types were singled out as “priority” habitats due to current vrs historical abundance as well as number of priority bird species associated with them. Two of these habitats, dry Douglas fir/ponderosa pine and riparian, occur within the Star Ranch Fuels Reduction Project area. Of the two, dry Douglas fir/ponderosa pine is by far the largest in extent, encompassing most of the project area, mainly as PVG types 1 and

2. Riparian habitat represents much less area, but the number of priority bird species associated with it is far greater. For dry Douglas fir/ponderosa pine, the two priority bird species listed in the Idaho Bird Conservation Plan are flammulated owl and white-headed woodpecker. For riparian, out of the 13 species listed as priority species, blue grouse, black-chinned hummingbird, calliope hummingbird, rufous hummingbird, willow flycatcher, dusky flycatcher, black-billed magpie, American dipper, yellow warbler, and MacGillivray's warbler are all species which may occur within the Star Ranch Vegetation Management Project area boundaries.

## Environmental Consequences

For analysis of the action alternatives, there was considered to be no measurable difference between them from an effects analysis standpoint. The proposed action includes about 3 miles of new road, some of which is new construction and some of which is existing road which will be added to the road system. For the species analyzed below, this amount of new road will not change the overall wildlife effects analysis in a measurable way. Thus, the two action alternatives will be treated together in the analysis to follow.

### Threatened Endangered and Sensitive Species

#### Gray Wolf

##### Alternative 1 – No Action

Under the no action alternative there would be no direct impacts to wolves. If at some point in time wildfire were to occur in the area due to increasing buildups of fuels, wolves could be indirectly affected for the short term (5 years or less) by reductions in deer and elk numbers within the burn areas. If, at some point in time, wolves establish a territory with denning/rendezvous areas within the project area, effects of wildlife would be more direct, including direct mortality from fire and potential disturbance from fire-fighting activities.

##### Determination

Due to the robust expansion of wolves throughout Idaho and the fact that wolf re-introduction in central Idaho has exceeded goals, the loss of individual wolves or even a whole pack in this area due to wildfire is not likely to jeopardize the continued existence of the species.

##### Alternatives 2 and 3

Wolves are most vulnerable to disturbance while denning and rearing pups. However, there are no known denning or rendezvous site within or adjacent to the Star Ranch Fuels Reduction Project area.

The abundance of prey is also an important consideration for allowing wolves to recover and maintain themselves. Elk are believed to be a primary prey species for wolves in this part of Idaho (IDFG 1999). Within the Star Ranch Fuels Reduction Project area, the effects on deer and elk are expected to be positive from the standpoint of increased forage, so at the least elk and deer numbers within the area should remain at current levels.

Implementation of the proposed action alternatives will lead to some slight risk of direct mortality due to increased traffic, prescribed fire, and other associated activities. A slight increase in mortality risk will occur under alternative 2 where some additional roads (1.7 miles) are to be constructed.

## Cumulative Effects

The cumulative effects to Gray wolves would be the same as those addressed under direct and indirect effects for alternatives 2 and 3.

## Determination

Implementation of the Federal Action will not compromise the recovery and de-listing of the species. Gray wolf population trends in the Central Idaho Recovery Area are exceeding recovery objectives at this time. The Federal Action will have no adverse short or long-term impacts on prey availability. The Federal Action accommodates the 10(j) rule. Any wolves occurring within the area at the time of project activities (thinning, prescribe fire, road construction, reconstruction, etc) will easily be able to avoid activity areas. Thus the action alternatives are “not likely to jeopardize the continued existence of the species.”

## Sensitive Species

### Northern Goshawk (*Accipiter gentilis*)

#### Alternative 1 - No Action

For the northern goshawk, there would be no direct effects under the no action alternative. For indirect effects, two processes would potentially affect the goshawk. First, over time tree stands in the Granite Creek 5<sup>th</sup> Field HUC would continue to increase in age and density. For goshawks, this means an increase in suitable nesting habitat as time passes. On the negative side, however, current stand structure within the Granite Creek 5<sup>th</sup> Field HUC is somewhat monotypic, being dominated by medium size tree classes (see “Vegetation Assessment for the Granite Creek 5<sup>th</sup> Level Watershed”, Project Record). This condition will not improve with age, as the medium tree size stands will turn into large tree stands, but will still be the dominant structure, reducing the diversity of age class structures that goshawks require for foraging (Reynolds et al, 1992). Goshawk nesting habitat will increase over time, but foraging territory diversity will not improve. Second, should fuel levels build up and lead to stand replacing fire, a large amount of goshawk habitat, especially nesting habitat, could be adversely impacted, and will not recover for 50 years or more (in the case of nesting habitat).

#### Alternatives 2 and 3

The limiting habitat factor affecting goshawk distribution is nesting habitat. This species requires larger trees in fairly dense stands for nesting habitat. There are patches of habitat within the Star Ranch Fuels Reduction Project area that meet this criteria. However, only 6 acres of suitable nesting habitat is proposed for entry (large tree, moderate to high canopy cover). A patch this size is too small to support a goshawk nesting area (they require 20 or more acres of contiguous nesting habitat). Therefore, no reduction in goshawk nesting habitat will occur as a result of implementation of this project.

Regarding the distribution of different age-class tree stands within potential goshawk territories, there should be no problem maintaining a diversity of age and structure classes within the Granite Creek 5<sup>th</sup> Field HUC. Currently all vegetation structures are well represented with the exception of the large tree classes in all PVG types (information from “Vegetation Assessment for the Granite Creek 5<sup>th</sup> Level Watershed”). The Star Ranch Fuels Reduction Project will lead to an increase in large tree classes (approximate 300 acres increase across all PVG types). The result will be an increase in diversity of stand structure classes overall, which will be beneficial to goshawk habitat diversity. While some disturbance may occur during silvicultural and prescribed

fire activities, this is expected to be minimal due to the fact that no known nesting sites or suitable nesting habitat will be entered by this project.

### **Cumulative Effects**

Goshawks are habitat generalists, so past activities affecting timber stands within the Granite Creek 5<sup>th</sup> Field HUC have not all been detrimental to this species. The one potential limiting habitat factor, suitable nesting habitat, has probably been reduced over the past century by logging and mining activities. Under alternatives 2 and 3, there is no proposals to change current suitable goshawk nesting habitat to unsuitable, as no “large tree, high canopy” stands are scheduled for treatment. Therefore alternatives 2 and 3 do not lead to increased cumulative effects on goshawks.

### **Determination**

Alternatives 1, 2 and 3 “*May Impact, Individuals or Habitat, But is Not Likely to Contribute to a Trend Toward Federal Listing or Cause a Loss of Viability to the Population or Species*” for the northern goshawk.

### **Flammulated Owl**

#### **Alternative 1 - No Action**

Under the no action alternative there will be no direct effects on flammulated owls. For indirect effects, two processes are in effect. First, over time, tree stands in the HUC will increase in age and density. For flammulated owls, this has both positive and negative implications. Increased age of stands can mean overall increased tree size, and increased levels of large snags. However, increased density may reduce the suitability of the stand for flammulated owls, as they prefer more open stands, although not to the same extent as white-headed woodpeckers do. Second, from the fire and fuels standpoint, under the no-action alternative fuel levels will continue to build up, which at some point could lead to stand-replacing fires. If that occurs, flammulated owl habitat will be eliminated in those areas affected by stand-replacing fire and will probably not return to suitability for 50 years or more.

### **Determination**

The determination for this species under the no action alternative is “*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.*”

#### **Alternatives 2 and 3**

This species habitat will benefit from the goals of this project including increasing the extent of large ponderosa pine and Douglas-fir and reducing tree densities. Restoration and fire use emphasis also benefits this species, because thinning and non-lethal fire use will reduce tree densities. This increasing habitat trend should decrease the risk of continued persistence and improve viability for this species. The vegetation analysis section in Chapter 3 of this EA shows that there will be an increase of approximately 300 acres in the “large tree, low canopy closure” stand type post-treatment. This represents an increase of approximately 30% over the current condition (current suitable acres = 643; post treatment suitable habitat acres = 943).

### **Cumulative Effects**

Previous activities in the area, particularly logging and other activities during the gold rush period

and later, have greatly reduced suitable habitat for this species within the Granite Creek 5<sup>th</sup> Field HUC. A review of the previous, on-going, and proposed projects within the Granite Creek 5<sup>th</sup> Field HUC indicate a number of previous projects which have affected flammulated owls and their habitat in one way or the other. From a cumulative effects standpoint, previous activities within the Granite Creek 5<sup>th</sup> Field HUC have reduced suitable flammulated owl habitat by at least 1600 acres over the last 18 years or so. However, if the timescale is increased beyond 1986, it can be said with a good bit of confidence that human activities over the last 100 years or more have severely reduced flammulated owl habitat within this HUC, as well as the Boise National Forest as a whole (Morgan and Parsons, 2001; Sloan, 1998). Out of 15,000 plus acres of Forest Service administered lands within this HUC, there are only 643 acres of currently suitable habitat, according to current stand data and landsat data. Pre-settlement conditions would have been very different, with perhaps 50% or more of the total acres within PVG types 1 and 2 (the majority of the project area) consisting of large, open-canopied ponderosa pine stands suitable for this species (Sloan, 1998). Additional habitat for this species would have occurred in PVG types 3 and 4, where large trees were present. Thus current suitable habitat acres within this HUC represent only a small fraction of the potential habitat available, due almost entirely to previous activities and events (timber harvest and large-scale wildfires). The cumulative effects of the action alternatives on this species would be a positive trend with increased suitable habitat, but the overall amount suitable habitat would remain well below the estimated pre-settlement condition.

### **Determination**

The action alternatives 2 and 3 will have a “Beneficial Impact“ for the flammulated owl.

### **White-headed Woodpecker (Sensitive and MIS species)**

#### **Alternative 1 - No Action**

Under the no action alternative there would be no direct effects on white-headed woodpeckers. However, acres of suitable white-headed woodpecker habitat would continue to decline as large-tree dominated stands became denser over time, further reducing overall habitat suitability for white-headed woodpeckers in the Granite Creek 5<sup>th</sup> Field HUC. In addition, should fuels build ups lead to stand replacing fire, any large tree habitat eliminated by wildfire would take 75 years or more to re-grow to suitable white-headed woodpecker structure (large trees and snags). This would be a relatively long-term adverse effect on white-headed woodpecker habitat and population numbers. Selection of this alternative will continue the on-going trend identified by Wisdom, et al. (Wisdom, 2000) of reductions in available habitat for this species due to increasing density of mature stands within the ponderosa pine zone of the Interior Columbia River Basin.

### **Determination**

Based upon this information, the finding for white-headed woodpeckers under this alternative is “*Will impact populations or habitat and may contribute to a trend towards Federal listing or cause a loss of viability to the populations or species.*”

#### **Alternatives 2 and 3**

No currently suitable white-headed woodpecker habitat is entered for mechanical treatment (logging or precommercial thinning) under these alternatives. Thus no surveys were conducted specifically for white-headed woodpeckers in any cutting units. The proposed thinning of stands with the goal of leaving large trees while removing smaller ones under the two action alternatives should in the long term increase the amount of suitable habitat for this species within the project

area. The vegetation analysis section in Chapter 3 of this EA shows that there will be an increase of approximately 300 acres in the “large tree, low canopy closure” stand type post-treatment. This represents an increase of approximately 50% over the current condition (current suitable acres = 592; post treatment suitable habitat acres = 943). In addition, there will be no adverse short-term effects to this species as none of the proposed thinning occurs within currently suitable habitat. Some temporary disruption of breeding could occur in areas where prescribe fires are run through stands with suitable habitat. However, that disturbance will be short-lived (one or 2 days at any one site). There could be some loss of nest trees during prescribe fire activities when snags catch fire during spring prescribe fires. However there is only a small amount of suitable habitat where prescribed fire is planned, so this should be a minor impact.

For snag retention, Boise National Forest Plan, Appendix A desired ranges for PVG’s 1 and 2 are to maintain a minimum of 0.8 snags per acre, of which half (0.4) should be 20” or more in diameter (USDA, Forest Service, 2003). This minimum fits well with the white-headed woodpeckers requirements (45 snags per 100 acres 20” or more in diameter, or 0.45 per acre). For purposes of this analysis, the Forest Plan desired range minimums will be considered adequate to meet the needs of white-headed woodpeckers. These snag retention guidelines will apply to the 300 acres of stands noted above which will be converted to suitable white-headed woodpecker habitat through treatment activities.

Over the longer term, assuming repeated entries into stands to maintain desired open canopied stand conditions, addition acres of suitable habitat will develop in areas thinned in this project as stands mature and trees increase in size. In addition, prescribed fire activities will also work to thin stands somewhat and decrease the long-term risk of stand replacing wildfire. As tree stands age and individual tree size increases, the recruitment base for large snags will increase as well (more large live trees = more trees of a sufficient size to die and form suitable snags).

### **Cumulative Effects**

Past activities within the Granite Creek 5<sup>th</sup> Field HUC have been almost all detrimental to this species. A review of the previous, on-going, and proposed projects within the Granite Creek 5<sup>th</sup> Field HUC indicate a number of previous projects which have affected white-headed woodpeckers and their habitat in one way or the other. From a cumulative effects standpoint, previous activities within the Granite Creek 5<sup>th</sup> Field HUC have reduced suitable white-headed woodpecker habitat by at least 1600 acres over the last 18 years or so. However, if the timescale is increased beyond 1986, it can be said with a good bit of confidence that human activities over the last 100 years or more have severely reduced white-headed woodpecker habitat within this HUC, as well as the Boise National Forest as a whole (Morgan and Parsons, 2001; Sloan, 1998). Out of 15,000 plus acres of Forest Service administered lands within this HUC, there are only 643 acres of currently suitable habitat, according to current stand data and landsat data. Pre-settlement conditions would have been very different, with perhaps 50% or more of the total acres within PVG types 1 and 2 (the majority of the project area) consisting of large, open-canopied ponderosa pine stands suitable for this species (Sloan, 1998). Thus current suitable habitat acres within this HUC represent only a small fraction of the potential habitat available, due almost entirely to previous activities and events (timber harvest and large-scale wildfires). The cumulative effects of the action alternatives on this species would be a positive trend with increased suitable habitat, but the overall amount suitable habitat would remain well below the estimated pre-settlement condition

## **Determination**

The action alternatives 2 and 3 will have a “Beneficial Impact“ for the white-headed woodpecker.

### **Western Big-eared Bat**

#### **Alternative 1 - No Action**

Under the no action alternative there would be no direct effects on Western big-eared bats. However, over the long term, if fuel build-ups lead to stand-replacing wildfires, potential effects would include loss of foraging habitat over the short term (3-5 years as vegetation recovers and insect populations rebound) and disturbance from the fire itself and fire suppression activities. Given that only a few mine shafts and tunnels are known to occur in the project area, which may or may not be occupied by these bats, the overall impact to the species should be minor even if wildfire were to occur.

#### **Alternatives 2 and 3**

Under the two action alternatives, there will be no reduction in current habitat (abandoned mines, caves, tunnels). Some potential short-term disturbance to this species may occur if mechanical treatment activities or prescribed fire activities occur very near abandoned mines or caves. However, there is no reason to believe that these activities will lead to people entering mines or caves (forbidden by Forest Service policy to anyone other than mining engineers and geologists) so the chances of bats being disturbed from roost sites are extremely low. From a foraging habitat standpoint, the activities proposed under these two alternatives will not reduce insect (moth) populations upon which these bats feed. Prescribed burning and to some extent mechanical timber stand treatment should result in increased moth populations as they respond to increase growth of annual and perennial vegetation upon which they feed.

#### **Cumulative Effects**

Past activities in the area have not adversely affected western big-eared bat habitat, and have in fact probably increased the amount of suitable roosting habitat in abandoned mine shafts and tunnels. Cumulative effects would be the same as the effects described under direct and indirect effects.

## **Determination**

Based upon the discussion above, the determination for Western big-eared bat for alternatives 1, 2 and 3 is “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.”

### **Spotted Frog**

#### **Alternative 1 - No Action**

For spotted frogs, there will be no direct effects associated with the no action alternative. For indirect effects, spotted frogs could be negatively impacted if fuels were allowed to build up to a point where severe wildfire were to occur. In that case spotted frog habitat would be severely affect over the short term (5 years or less) as riparian areas slowly recovered. Spotted frogs would slowly re-colonize burned areas as riparian vegetation recovered.

#### **Alternatives 2 and 3**

This species is for the most part a riparian-dependent species. As such, there should be little or

no impacts from activities associated with the Star Ranch Fuels Reduction Project as there will be little or no active treatment of these areas. Some prescribed fire may back into the riparian areas, but not would not affect water quality or overall cover. Guidelines for RCA's (riparian conservation area zones) will be followed which protect the integrity of these areas. Some individual spotted frogs may be affected by mechanical treatment or prescribed fire as they disperse away from riparian areas during the late spring during wet weather. These individuals could be killed by the activities mentioned.

### **Cumulative Effects**

The main activity affecting spotted frogs over the years has been mining activities related to dredge mining and hydraulic mining. Both these methods negatively impacted spotted frog habitat throughout the Granite Creek 5<sup>th</sup> Field HUC during the gold rush period. The area has been slowly recovering from these effects over the last 50 or more years. Under the no action alternative, this recovery process will continue. Cumulative effects for alternatives 2 and 3 would be the same as those described for direct and indirect effects.

### **Determination**

Alternatives 1, 2, and 3. "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."

### **Management Indicator Species (MIS)**

#### **Pileated Woodpecker**

##### **Alternative 1 – No Action**

Under this alternative there would be a gradual increase of suitable pileated woodpecker habitat over time as timber stands age and become more dense, with larger trees, and more large snags. However it is doubtful that these habitats could be sustained over time, as the potential for stand replacing wildfire would increase at the same time. At some point wildfire would occur, which would eliminate pileated woodpecker habitat from most all burned areas for an extended period of time (75 years or more) as the stands slowly recovered to pre-fire conditions. Thus the no action alternative would have positive effects on pileated woodpeckers until such time as stand replacing wildfire took place, and then would be wiped out for an extended period of time from these habitats.

### **Cumulative Effects**

A review of the previous, on-going, and proposed projects within the Granite Creek 5<sup>th</sup> Field HUC indicate a number of previous projects which have affected pileated woodpecker habitat in one way or the other. Historically most of the Granite Creek 5<sup>th</sup> Field HUC within PVG types 1 and 2 would not have existed as pileated woodpecker habitat due to the more open canopied structure of these stands prior to European settlement. It is most probable that pileated woodpeckers have never been an important component of most of the timber stands within the HUC, and certainly not within the Star Ranch Fuels Reduction Project area, so any past cumulative effects would have been minor to the species at best.

### **Alternatives 2 and 3**

Under the Star Ranch Fuels Reduction Project, none of the stands to be thinned are classified as "large tree, high canopy cover", and only 6 acres of "large tree, moderate canopy cover" are to be thinned (refer to "Vegetation Assessment for the Granite Creek 5<sup>th</sup> Level Watershed" prepared for

this project EA). Thus, no suitable pileated woodpecker habitat will be affected by this project proposal, nor does any exist within the project area. Therefore, no surveys were conducted for pileated woodpeckers, since no suitable habitat was identified. It should be noted that this project contains mostly PVG groups 1 and 2, both ponderosa pine dominated habitats which historically were dominated by open canopied stands most suitable to white-headed woodpeckers. Therefore, the pileated woodpecker is not a good fit as a management indicator species for this particular project. The goals of this project (and Boise National Forest Plan goals for PVG's 1 and 2 overall) are to create more open canopied, large tree stands. As noted above, this favors white-headed woodpeckers while reducing any pileated woodpecker habitat which may be present. The effects of these alternatives on pileated woodpeckers would be to prevent the formation of suitable habitat within the acres activities are proposed for the foreseeable future. Thus, this proposal will not lead to increases in population trends for the species on the Boise National Forest.

### **Cumulative Effects**

Cumulative effects associated with alternatives 2 and 3 would be the same as those discussed above for direct and indirect effects.

### **Other Species of Concern**

#### **Deer and Elk**

##### **Alternative 1 – No Action**

For deer and elk, no direct effects are associated with the no action alternative. For indirect effects, increased tree density and size as stands age over time will result in reductions in forage opportunity for both deer, and to a lesser extent, elk. However, hiding cover would increase. From a fire standpoint, increasing fuel loading could lead to severe wildfire, which would have temporary (1-2 years) negative impacts to deer and elk foraging opportunities, followed by short and longer term increases in forage as burned areas recover. Hiding cover, especially for elk, would be reduced over the short-term (5-10 years) as new tree and brush growth slowly grew to heights needed to provide sufficient cover for elk.

##### **Alternatives 2 and 3**

#### **Mule Deer**

Mule deer summer habitat should see an improvement over the current situation with implementation of the Star Ranch Fuels Reduction Project. Especially beneficial will be the prescribed burning efforts, as this is a well known method of improving mule deer forage availability, palatability, and nutritional quality. Some mule deer fawn mortality may occur as a result of spring burning. It is hard to determine just how many fawns could be affected, but due to the scattered nature of the burns and the relatively few acres treated in any one year, the effects should be minimal, and no reduction in the overall deer herd is expected from spring burning. The overall impact of increased forage should override any negative effects of fawn mortality. The proposed thinning of denser timber stands will also have some benefit, as this will allow for increased herbaceous growth within these areas, providing additional forage for mule deer. Thus, the overall effect of the proposed project will be positive for mule deer.

#### **Rocky Mountain Elk**

As with mule deer, elk should benefit from the activities proposed under this project. Prescribed fire will lead to increases in grass growth and will regenerate aspen stands where they occur.

Thinning of timber stands will improve grass growth in those areas also. A minor temporary and short-term reduction in hiding cover will occur with the thinning of some timber stands and removal of brush stands by prescribed burning. However, sufficient hiding cover will remain after the project implementation to meet the needs of elk. As noted above, hiding cover is currently abundant in the area, somewhat to the detriment of foraging areas. The result of the proposed action alternatives will be to bring these two components of elk habitat into more of a balance. New road construction (approximately 1.2 miles) will be more than balanced out by the decommissioning of 4.8 miles of classified road and closing/obliterating 2.2 miles of unclassified roads within the project area, leading to an overall increase in elk security cover. Again, as with mule deer, some mortality of elk calves may occur during spring prescribed burning. As with mule deer, this effect is not expected to lead to measurable reduction of elk numbers in the area. Thus, the overall effect of the proposed project will be positive for elk.

### **Cumulative Effects – Deer and Elk**

A number of timber sales have occurred within the HUC over the last 20 or 30 years. These activities have somewhat balanced the trend of the timber stands in the area of becoming more dense over time. Most mid-aged and mature stands in the area are now fairly dense due to fire suppression over the last 100 years. This has led to more than adequate hiding cover for deer and elk in most areas but also has decreased foraging opportunities. The proposed Star Ranch Fuels Reduction Project should serve to balance this situation out somewhat, and should reduce the potential for large, stand replacing wildfire, which could destroy much of the hiding cover now present.

### **Migratory Landbirds**

#### **Alternative 1**

From a habitat standpoint, Alternative 1, the no action alternative, will have no adverse direct or short-term effects on either riparian or dry Douglas fir/ponderosa pine habitats, as conditions would be expected to remain relatively constant. However, over the long term, two factors would come into play. First, under the no action alternative tree stands in the dry Douglas fir/ponderosa pine sites would continue to increase in size and density. Since white-headed woodpeckers (one of the priority species associated with this habitat under the Idaho Bird Conservation Plan) prefer more open, large tree stands, over time habitat for this species would be further reduced from current levels, which are already below historical levels in this area. Flammulated owls, the other priority species for this habitat under the Idaho Bird Conservation Plan, would not be quite so negatively impacted as they can utilize denser tree stands than white-headed woodpeckers do. Second, continuing buildup of fuels in these areas will lead to increased chances of stand-replacing wildfire. Should such an event occur, there would be a major, long term (70-80 years or more) adverse effect on the dry Douglas fir/ponderosa pine habitat relative to white-headed woodpeckers and flammulated owls, the priority species for that habitat. Further detail relative to flammulated owl and white-headed woodpecker is contained in the preceding discussions under Sensitive Species in this EA chapter, as well as in the wildlife BE contained in the project record. For riparian species, the effect of stand-replacement wildfire would not be as long-term, since riparian vegetation would grow back in a relatively short period of time (5 years or less).

#### **Alternatives 2 and 3**

Alternatives 2 and 3 would impact the habitats and species mentioned above in 2 ways. First, from a habitat condition standpoint, the objective of the proposed project is to restore dry Douglas fir/ponderosa pine habitat to more natural conditions, where large ponderosa pine trees are favored, overall canopy closure and stand density is reduced, and the potential for stand-

replacement wildfire is reduced. All of these factors tend to favor white-headed woodpeckers, and to a lesser extent flammulated owls, within this priority habitat type. For the riparian species, there would be less of an impact as few of the proposed activities (pre-commercial and commercial thinning, prescribed fire) are slated to occur within these sensitive zones. The second way in which the 2 action alternatives will affect the species noted above is through direct effects. Some thinning activities will occur in the spring season (April through June). Most of the prescribed fire activity associated with this project will occur during the spring months (March, April, and May). During this time period, all bird species, including the ones mentioned above are nesting. Activities associated with this project which occur during April to June will result in a certain amount of adverse direct effects in the form of disturbance of nesting birds, temporary removal of vegetation in the vicinity of nests, and the outright destruction of nests and associated eggs and hatchling birds in some instances. This is unavoidable during the spring months. Cavity nesting and crown nesting species such as woodpeckers and owls are less susceptible to both the disturbance and loss of nests than are bush and ground nesting species, most of which will be associated with the riparian areas. While there are no plans to ignite prescribed burns within the riparian zones, there will be some effect from fire backing down into these areas from surrounding uplands which are being subject to prescribed fire, thus some nests of riparian nesting species will be lost.

From an overall standpoint, the positive effects of the Star Ranch Fuels Reduction Project outweigh the negative impacts noted above, particularly within the dry Douglas fir/ponderosa pine habitats. According to the Idaho Bird Conservation Plan, the overall goals are to:

1. Identify locations and prevent additional loss of old-growth ponderosa pine forests.
2. Maintain and restore a minimum of 10% of the original distribution of dry ponderosa pine/Douglasfir/grand fir forest in Idaho.
3. Achieve natural disturbance (or suitable alternative) regimes in original and restored ponderosa pine forests.
4. Provide suitable habitat for target species and document their use and abundance.
5. Monitor original forests and restoration areas for achievement of goals outlined in this document.

The proposed Star Ranch Fuels Reduction Project meets or moves in the direction of all the goals stated above. In addition, according to the North American Landbird Conservation Plan published by Partners in Flight in 2004, for the Intermountain West Avifaunal Biome it is recommended to “Manage dry Ponderosa pine forest to restore historic characteristic. In general for other forest types, retain old-growth stands and snags, thin dense stands of younger trees, and restore the role of fire” (pg 54). The proposed activities under the Star Ranch Fuels Reduction Project meet the intent of these recommendations as well.

While there will be some short-term adverse effects, including destruction of nests, nesting habitat, and loss of young, to migratory land birds during the implementation of the Star Ranch Fuels Reduction Project, the overall effect will be positive, especially to species associated with dry Douglas fir/ponderosa pine habitats.

## **Project Record**

This Environmental Analysis hereby incorporates by reference the Wildlife Resources Specialist Report and the Wildlife Biological Assessment-Biological Evaluation for the Star Ranch Fuels Reduction Project in the Project Record (40 CFR 1502.21). These reports contain the detailed

data, methodologies, analysis, references, and other technical documentation used in the assessment.

## Financial Assessment

### Introduction

This section will assess potential costs by treatment method (i.e., underburning, pre-commercial thinning, etc.) and revenues generated from commodity values by alternative. The full range of non-timber costs and priced benefits (as used to determine management area allocation) is appropriate at the forest plan level. Non-commodity values are difficult to assess, especially on projects of this scope. An analysis of this type at the project level would suffer from a lack of information and is not essential to the decision being made.

#### Indicators:

Revenue generated by alternative, implementation costs by alternative, and wildfire suppression costs by alternative.

### Affected Environment

A number of environmental value and amenities occur within and adjacent to the analysis area, including visual, recreational, and wildlife resources. Although no attempt has been made to assign a monetary value to these amenities or to include them in this financial assessment, discussions relative to many of these aspects of the social environment are addressed elsewhere in this document. In addition, the FEIS completed for the Boise Land and Resource Management Plan includes a comprehensive socioeconomic analysis of timber harvest on the communities in southwestern Idaho, including effects on non-commodity resources. Reference the Southwest Idaho Ecogroup Land and Resource Management Plans FEIS, Chapter 2, pages 123 through 131, and Chapter 3, pages 887 through 970 for detailed information.

The wood products industry is an important component of Boise County. Fuel reduction activities associated with stewardship contracts such as pre-commercial thinning, commercial timber harvest, and road construction affect employment opportunities in the local communities. The Forest Service and the BLM received new authority to implement stewardship contracting and agreements in the 2003 appropriations act (Public Law 108-7). This new authority allows exchange of goods for services, requires contracts to be awarded based on “best value”, and facilitates land restoration and enhancement efforts by using value of traded goods for important work on the ground. Wood products, government, construction, and recreational services are influenced by Forest Service actions. Additional indirect economic impacts are generated as the wood products businesses and local governments, etc. seek additional goods and services from other businesses to complete their work for forest vegetation management related activities.

The analysis used for this project uses current estimated costs for each fuel reduction treatment. The Transaction Evidence appraisal (TEA) system, estimated net sale volumes, costs and appraised values was used to estimate potential revenues generated from commodity products. Costs associated with the environmental analysis (NEPA) are a combination of costs already

incurred as well as projected expenditures. Contract preparation and harvest administration costs were estimated based on historic expenditures for similar activities.

This financial analysis is based on current information in a fluctuating market and is provided to show a relative difference between alternatives. A variety of influential factors could fluctuate unexpectedly and significantly increase or decrease the value of any alternative.

## **Environmental Consequences**

### **Alternative 1**

Alternative 1 would not harvest any timber. No expenses would be incurred for contract preparation or harvest administration. Costs associated with NEPA analysis have already been incurred. Given the incurred costs, the total expenditure to implement this alternative would exceed the revenue generated by \$50,000 (table 3-16). This alternative increases the risk of a large-scale stand replacing wildfire. In this event(s) large amounts of money would go towards fire suppression and rehabilitation efforts. The Boise National Forest Fire Management Plan(FMP 2004) states that if a wildland fire escapes initial attack and reaches a size of 100 acres, the incident is very likely to continue to grow in size and complexity requiring a Type 2 or 1 Incident Management Team(IMT). The fires requiring these teams are often burning in the same fuel types and terrain that are present in the Star Ranch area. The suppression costs for these incidents on the Boise National Forest are staggering. A 2003 fire in similar fuel type and in the wildland-urban interface that burned 6950 acres cost approximately \$3,780,000 to suppress. This cost is only the expense for suppression activities and does not account for lost resource values, rehabilitation or private structures that would be in jeopardy. This incident and those associated costs are used as the comparative basis for estimating wildfire suppression costs associated with no action (table 3-16 Other Costs). Costs associated with potential property loss are difficult to assess due to the unpredictability of wildfires and wildfire suppression success. Nevertheless with the immediate adjacency of the Placerville and Star Ranch subdivision areas, private property lost due to a wildfire could easily reach substantial figures.

### **Alternative 2**

Alternative 2 would harvest an estimated 3.8 MMbf of timber and generate an estimated revenue of \$284,000 (Table 3-16). Sawlogs and other wood products, as well as employment opportunities associated with this alternative, would help sustain local sawmills and economies (P.R., ? , Financial Assessment). This revenue would offset some of the other fuel reduction activities (pre-commercial thinning & prescribed burning). Approximate costs of contract preparation and harvest administration (\$30,000); appropriated expenditures to decommission roads and watershed improvement (\$15,000), would total roughly \$45,000. Pre-commercial thinning costs total approximately \$681,000. Prescribed burn costs total approximately \$336,000.

Future costs associated with fuels/vegetation management and fire suppression would be reduced in the area between Trail Creek and Canyon Creek due to the improved access. The new road accesses a previously untreated and high risk area immediately adjacent to private lands. The road provides for important long-term access for future fuels treatment as well as improving access for wildfire suppression and lowering risks to private property.

Wildfire Suppression costs in the treated project area would be will be substantially less than with the current vegetation conditions. The treated project area would have reduced “resistance to control” for firefighters giving them a better opportunity to contain a fire in the initial attack phase. The costs associated with initial attack fires are in the thousands of dollars, as apposed to extended attack fires requiring IMT’s which can easily run in the millions of dollars.

Projected wildfire suppression costs are expected to be low based on the assumptions that an ignition (lightning strike or human caused) would result in a surface fire burning in condition class 1. These conditions would allow for the fire to be suppressed with minimal acres lost and high suppression success.

It is also expected that potential private property loss, or risks of loss, from wildfire would be substantially reduced compared to the no action alternative due to less “resistance to control” which would provide greater success in suppression efforts, and likelihood of earlier containment and control.

### **Alternative 3**

Alternative 3 would harvest an estimated 3.8 MMbf of timber and generate an estimated revenue of \$45,000 (Table 3-16). This alternative treats more acreage with helicopter harvest systems and fewer acres with conventional harvest systems. This substantially reduces the revenue generated from the commercial harvest. Sawlogs and other wood products, as well as employment opportunities associated with this alternative, would help sustain local sawmills and economies. Approximate costs of sale preparation and harvest administration (\$30,000); non-essential KV and/or appropriated expenditures to decommission roads and watershed improvement (\$15,000), would total roughly \$45,000. Pre-commercial thinning costs total approximately \$689,000. Prescribed burn costs total approximately \$341,000. These costs are slightly higher in this alternative when compared to Alternative 2 due to the reduced access.

Future costs associated with fuels/vegetation management and fire suppression in the area between Trail Creek and Canyon Creek would be higher than with Alternative 2 due to reduced accessibility. Risks to private property loss would be difficult to assess but would be likely be slightly higher than alternative 2 due to the lack of access in a critical area adjacent to private lands. Projected wildfire suppression costs are expected to be slightly higher than Alternative 2 based on the assumption that an ignition (lightning strike or human caused) would result in a surface fire burning in a condition class 1 setting which should favor low suppression costs and high suppression success. The resulting increased cost is due to the fact that fire crews must hike in to the fire or be flown by helicopter, resulting in slower initial attack time and a increase in helicopter costs. If a wildfire were to occur in the project area suppression costs would be substantially reduced after fuel reduction work is completed.

**Table 3 -16 Financial Comparison**

<b>Economic Indicator</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>
Estimated net volume (Mbf)	0	3800	3800
Gross Revenue (Appraised Value)	\$0	+\$372,000	+\$133,000
Projected NEPA costs	-\$50,000	-\$50,000	-\$50,000
Reforestation costs	0	-\$38,000	-\$38,000
<b>Total estimated revenue from commodity products</b>	<b>-\$50,000</b>	<b>+\$284,000</b>	<b>+\$45,000</b>

<b>Implementation Costs</b>			
Projected contract preparation and admin. costs	\$0	\$30,000	\$30,000
Estimated road decommissioning and watershed improvement costs	\$0	\$15,000	\$15,000
Estimated pre-commercial thin costs (approximately 2400 acres)	\$0	\$681,000	\$689,000
Estimated prescribed burn costs: includes underburning, broadcast, handpile and machine pile burning (approximately 4480 acres)	\$0	\$336,000	\$341,000
<b>Total Costs</b>	<b>0</b>	<b>\$1,062,000</b>	<b>\$1,075,000</b>

<b>Other Costs</b>			
Wildfire Suppression Costs	Highest	Lowest	Slightly higher Alt.2
Property loss costs	Highest	Lowest	Slightly higher than Alt.2

### **Cumulative Effects**

There are no past, ongoing, or foreseeable future projects that would affect the financial assessment or revenue generated by any of the alternatives. The potential influence of other projects currently being analyzed on adjacent districts or forests are unpredictable at this time.

Therefore no cumulative effects are anticipated on the financial aspects or net revenue/expenditure ratios of this project.

## Balancing of Short- and Long-Term Effects

Section 106 (c),(3) of the Healthy Forests Restoration Action of 2003 addresses the need to consider and balance the impact to the ecosystem likely affected by the project relative to short- and long-term effects against the short- and long-term effects of not undertaking the agency action.

The primary short and long term effects of no action consists of vegetative conditions that would continue to move away from historical conditions and continue to present risks of uncharacteristic wildfire to the adjacent communities of Star Ranch and Placerville. Stand species composition; structure and density would continue to move away from historical conditions. Overstocked stands would continue to increase in density and fuel build up, and develop increased understory ladder fuels, resulting in conditions more favorable for uncharacteristic (lethal) wildfire. When wildfire returns to these stands, it will most likely be a stand replacement fire, potentially threatening the adjacent communities. High stand densities and high fuel loadings will preclude the use of prescribed burning as a tool to reduce the high fire hazards to homes, property and forest values in the Star Ranch area. (EA Chapter 3, pages 3-3,4,6,7).

The primary short and long term effects of the proposed action are the beneficial impacts related to the reduction of wildfire risk. The planned vegetation treatments will move the project area to a condition of more historic components resembling condition class one. Stand densities will be significantly lower and species composition will be more historic with the promotion of early seral species that are fire resilient. This will reduce fire intensity and severity within the project area adjacent to the communities of Placerville and the sub-division of Star Ranch. A reduction of fuel loads and the movement of the project area toward condition class one will reduce resistance to control and provide for safety of firefighters and the public. The vegetation characteristics of reduced densities and reduced fuel loading, maintained over time, will effectively reduce the threat of crown fire initiation and propagation throughout the area. The risk of uncharacteristic wildfire to the adjacent communities of Placerville and Star Ranch will be reduced (EA Chapter 3, pages 3-4 through 3-8).

Other potential negative impacts are primarily associated with temporary impacts to air quality and temporary and short-term impacts of sedimentation. Predicted particulate mater (PM2.5) concentrations within a 24 hour average is less than 3 micrograms/cubic meter. This is well below the National Ambient Air Quality Standards (NAAQS) threshold for air quality of 65 micrograms/cubic meter within a 24 hour time period (EA Chapter 3, pages 3-10 through 3-20). Sedimentation modeling related to road features in the project area show a very slight temporary increase in road related sediment and much greater short and long- term sediment reduction. There would be temporary and short-term increases in sedimentation related to vegetation management activities but such increases would be an immeasurable increase throughout the watersheds and would not have a measurable affect on water quality (EA Chapter 3, pages 3-20 through 3-25). Other short and long term effects are described in Chapter 3.

# Chapter 4: Consultation and Coordination

## Public Involvement

### Scoping

The Council on Environmental Quality (CEQ) defines scoping as "...an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). In addition to the following specific activities, the Star Ranch project has been listed on the Boise National Forest Schedule of Proposed Actions since October of 2003. To date, the public has been invited to participate in the project in the following ways.

### Public Mailing

In March of 2004, a letter providing information and seeking public comment was mailed to approximately 316 individuals and groups. This included federal and state agencies, Native American groups, municipal offices, businesses, interest groups, and individuals. A total of 36 responses were received.

### Local News Media

Announcements about the project were printed in the Idaho Statesman, the Idaho World, and posted in various locations in the surrounding communities.

### Public Meetings

A public meeting was held in Placerville, Idaho on March 30, 2004 to provide project area information, present the proposed action, and discuss local concerns and interests that should be addressed in the Star Ranch project analysis. Approximately 30 people attended the meeting.

### Other Coordination and Collaboration

The planning for the Star Ranch Fuels Reduction Project also involved the coordination and collaboration with the Placerville Volunteer Fire Department and the Star Ranch/ Placerville Private Property Owners to obtain grant funding for hazardous fuels reduction on private property in the Star Ranch and Placerville area. Subsequently a grant has recently been obtained through the Idaho Department of Lands by the Placerville Fire Protection District for hazardous fuels reduction. Potential treatment area covers approximately 2000 acres and is expected to begin implementation during the fall of 2004 using similar fuel reduction strategies as employed in the Star Ranch Fuels Reduction Project.

During the planning of Star Ranch Project there was active consultation and collaboration with the Bureau of Land Management, Lower Snake River District Office relative to the Star Ranch proposal and potential future fuel reduction proposals by the BLM relative to BLM administrative lands in the vicinity of the communities of Quartzberg, Placerville, Centerville, and Pioneerville. The objective would be to reduce fuel hazards on adjacent BLM administered lands to compliment the current Star Ranch planned actions covered under this EA, as well as the planned

private land fuel reduction efforts that will be funded through a recent grant acquisition by the Placerville Fire Protection District.

## List of Organizations, Agencies, and Persons Consulted

The Forest Service consulted the following individuals, Federal, state and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

### Tribal Authorities:

Shoshone-Paiute Tribes  
Shoshone-Bannock Tribes  
Nez Perce Tribe

### Federal Agencies and Officials:

Office of Sen. Larry Craig  
Office of Sen. Mike Crapo  
Office of Rep. Mike Simpson  
Office of Rep. Butch Otter  
Federal Highway Administration  
Army Corp. of Engineers  
Bureau of Land Management

### State/Local Agencies and Officials:

Office of the Governor  
Boise County Commissioners  
Idaho City Mayors Office  
Idaho Dept. of Parks and Recreation  
Idaho DEQ  
Idaho Dept. of Fish and Game  
Idaho Department of Lands  
Idaho State Historic Preservation Office  
Placerville Fire Protection District.  
City of Placerville

### Organizations:

Blue Ribbon Coalition  
Idaho Conservation League  
Idaho Rivers United  
Idaho Sporting Congress  
Intermountain Forest Industry  
National Audubon Society  
National Wild Turkey Federation  
Nordic Voice Ski Association  
Sierra Club  
The Ecology Center Inc.  
The Wilderness Society  
Treasure Valley Trail Machine

### Private Citizens and Businesses:

29 individuals attended a public meeting held in Placerville  
Letters were mailed to 346 individuals, trusts, or places of business.

## List of Document Preparers

### **Charles Swearingen**

Position: Range Technician  
Contribution: Range, Noxious weeds analysis

### **Dana Flatter**

Position: Archaeologist  
Education: M.A. Anthropology  
Contribution: Cultural resource analysis

### **Daniel Schlender**

Position: Forest Landscape Architect  
Education: B.S. Landscape Architecture  
Contribution: Scenic Environment Assessment, NEPA analysis

### **Edwin V. Wessman**

Position: Wildlife Biologist  
Education: B.S. Wildlife Science  
Contribution: Wildlife analysis

### **Jason Butler**

Position: Natural Resource Specialist(Fuels Management)  
Education: B.S. Aquatic Biology  
Contribution: Fuels/Prescribed Fire Analysis, Air Quality Analysis

### **Irv Baldwin**

Position: Civil Engineering Technician  
Contribution: Transportation Analysis

### **Kay Beall**

Position: Botanist  
Education: B.S. Natural Resources Planning & Interpretation  
Contribution: TES plants analysis,

### **Hana West**

Position: Hydrologist  
Education: M.S. Watershed Management  
Contribution: Watershed analysis

### **Herbert Roerick**

Position: Fisheries Biologist  
Education: A.A. Natural Resource Management

Contribution: Fisheries analysis

**Larry Whitehead**

Position: Supervisory Forester

Education: B.S. Forest Resource Management

Contribution: Team Leader, Economic Analysis

**Ray Eklund**

Position: District Silviculturalist

Education: B.S. Forest Management

Contribution: Vegetation Analysis

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