

United States Department of Agriculture, Forest Service

Nez Perce National Forest

Route 2, Box 475, Grangeville, ID 83530

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**Route To:**

**Subject: South Fork Clearwater Subbasin Assessment Executive Summary**

**To: Forest Users**

I am pleased to provide you with a copy of the South Fork Clearwater Subbasin Assessment Executive Summary (attached). The Executive Summary contains key findings and highlights from the more detailed and comprehensive Subbasin Assessment, which contains 210 pages and 54 maps. This is the first of 3 assessments that the Forest will complete over the next 2-3 years. We are currently working on the Selway-Middle Fork Clearwater Subbasin Assessment and will begin the Salmon River Assessment in about 6 months. Most of the information presented is not new. What is new and exciting is that this is the first time we have displayed the historic and existing conditions for a major river subbasin in a single document.

This assessment does not constitute a decision. It is not a NEPA document. Instead, the assessment is intended to characterize the historic and existing ecological and social conditions in the subbasin, and to provide a context at the subbasin scale for future forest management decisions on national forest lands. The assessment focuses on the diversity, distribution, and abundance of plant and animal species, watershed conditions, transportation systems, and human uses and trends. In short, the assessment represents a collection of information, findings and trends, rather than a proposal to take a specific management action. Early in the process we asked you to help us to identify historic and existing conditions. This assessment summarizes what we heard from the forest users, as well as what we found from years of monitoring, inventory and survey work.

The assessment also contains a chapter on recommended management themes. The management themes suggested by the interdisciplinary team represent one possible response to the current conditions that exist in the subbasin. It is very important to understand that the recommended management themes are by no means the only strategy, nor do the themes represent a chosen strategy. We believe that there are a number of ways that we can achieve the objective of providing and maintaining a sustainable ecosystem in the subbasin over the long term. The themes presented in this assessment represent the team's best attempt at recommending a balanced strategy that will lead to a lasting, sustainable ecosystem. A basic premise which drove the assessment development was that human uses, values and needs are an integral, important component of the ecosystem in the subbasin.

How will the assessment be used? It will help us prioritize areas in the subbasin where additional, fine-scale data and information are needed to make informed decisions and where existing data will suffice. The assessment will also provide a general idea of where projects should be considered first to make the most efficient use of limited funding. Finally, the data, findings and information will be used as part of the knowledge base for our Forest Plan revision.

This Executive Summary should provide a good overview of the complete assessment package. Although the assessment is printed and bound, it will continue to evolve as new information becomes available. We welcome your comments on the information presented.

If you would like to view the full, two volume South Fork Clearwater Landscape Assessment, it is available upon request. However, there are a limited number of copies available at this time. The publication cost of the complete assessment is quite high. We are currently working on distributing the information using the Nez Perce National Forest WEB page. Also, copies of the full assessment are available for inspection at the Forest Headquarters and

District offices. In order to keep the costs under control, we ask that you consider one of these alternatives prior to requesting a hard copy of the full assessment. If you have questions or wish to receive an update on the WEB status of the assessment, please call Dick Artley, assessment team leader at (208)-983-1950.

All comments, suggestions, data and information received to date, plus those we receive from you in the future will be filed and considered during Forest Plan revision. When we begin the NEPA phase of Forest Plan revision in 2-3 years, your comments will help us define the issues and develop alternatives. I am looking forward to working with you in the future as we proceed together in these preliminary stages leading to the revision of our Forest Plan.

Sincerely,

/s/ Coy G. Jemmett

COY G. JEMMETT

Forest Supervisor

Caring for the Land and Serving People

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## South Fork Clearwater Landscape Assessment

# Executive Summary

Nez Perce National Forest

May, 1998

## Introduction

### Location

The South Fork Subbasin is located in North Central Idaho encompassing an area of approximately 1,175 square miles (or approximately 752,000 acres). The subbasin extends from the headwaters above Elk City to the confluence with the Middle Fork of the Clearwater River at Kooskia (see Map 1). Included in the area are 14 major tributaries, plus numerous face drainages that flow into the mainstem South Fork Clearwater River.

### Landscape Assessment Purpose

The purpose of the assessment is to characterize the ecological and social conditions in the South Fork Clearwater Subbasin, and to provide a context for future forest management decisions on National Forest lands. The assessment focuses on the diversity, distribution, and abundance of plant and animal species, watershed conditions, transportation needs, and human uses and trends on National Forest lands.



The South Fork Clearwater Assessment is the first of three midscale planning assessments for the Nez Perce Forest. The other two, the Salmon River and Selway-Middle Fork, are scheduled for a later date. While the assessments do not result in project decisions, they do provide background information for future planning and management on the Forest.

In 1994, the Forest Service (FS) and the Bureau of Land Management (BLM) initiated the Interior Columbia Basin Ecosystem Management Project (ICBEMP) to determine the status and health of the Interior Columbia Basin ecosystem, an area that includes 145 million acres in 164 subbasins. As part of the study, the two agencies were directed to develop and adopt a scientifically sound ecosystem strategy for managing all FS and BLM lands in the Basin. Descriptions of the status and trends related to the airshed, aquatic ecosystems, vegetation and wildlife, economic activities, and social values are summarized in the *Integrated Scientific Assessment for Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins*, which was published and distributed in September, 1996. The South Fork Clearwater Subbasin Assessment has considered the findings from the Interior Columbia Basin Science Assessment and has incorporated them where appropriate, recognizing the differences in project objectives, data resolution, and spatial and temporal scales.

The South Fork Assessment is not designed to address site specific resource concerns or needs. Instead, the assessment is focused at the landscape level and provides a context for future project analyses and/or ecosystem analyses at the watershed scale (EAWS). The assessment should allow future project analyses to more effectively respond to cumulative effects issues.

## **Public Involvement**

The public involvement plan prepared for the assessment identified the need for continuous communications with forest users and other interested publics. In the early stages of the assessment, public workshops were held at Grangeville, Kooskia, and Elk City. Additionally, letters were sent to over 400 individuals and organizations soliciting information on landscape conditions, resource issues, special places, and expectations for future management. Responses from the public were used to assess and analyze landscape conditions.

## **Ecosystem Management Goals**

This assessment assumes that the overall purpose of ecosystem management is to restore and maintain ecological integrity and socioeconomic resiliency. Ecosystem integrity is the degree to which all components of an ecosystem are represented and functioning. Resiliency is the ability to adapt to change. More specific goals that can be used as benchmarks in assessing ecosystem condition are:

- Maintain evolutionary and ecological processes. In order to maintain these processes, we must first understand the basic biophysical conditions and processes within an area, and their associated disturbance regimes.
- Manage with an understanding of multiple ecological domains and evolutionary time frames. This means considering the broad spatial and temporal context in which management actions occur.
- Maintain viable populations of native and desired non-native species. Sustaining viable populations is essential to maintaining ecosystem function.
- Encourage social and economic resiliency. Resilient communities are adaptable to change and tend to have a diverse economic base and a cohesive sense of community.
- Manage for places with definable values. Understanding how different people define special places can help reduce conflict.

O Manage to maintain the mix of ecosystem goods, functions, and conditions that society wants. Some goods are commodities, some are experiences, some are valued for their existence, and some are functions like nutrient cycling that sustain a system's ability to produce other goods.

## **Key Issues**

At the beginning of the assessment process, public meeting participants and Forest employees were specifically asked what issues should be addressed by the assessment. From their responses, key issues were identified. The issues served as a focal point for use of existing data, synthesis, and analysis. The most frequently cited issues included the following:

- O Water Quality - Protect, maintain, and restore watershed conditions and fish habitat
- O Timber Supply - Provide for sustainable levels of timber harvest
- O Public Access - Reduce road related effects. Minimize road and trail restrictions and closures
- O Vegetation - Maintain vegetation conditions within a range consistent with sustainable ecosystems and long term disturbance processes
- O Forest Uses - Protect traditional uses and special places

# **Biophysical and Social Concepts Used**

## **Biophysical Environments**

Biophysical environments are the geologic, climatic, and landform settings that constrain ecological processes (ICRB Science Assessment). They describe ecosystems that behave in a similar manner. This helps interpret and predict patterns of plant communities, wildlife habitats, stream channels, and dominant disturbance processes and successional pathways. In this assessment, landforms, climate, habitat type groups (potential vegetation), geology, and valley bottom morphology were used to build classification systems that help interpret and predict the varied conditions and responses in a diverse landscape like the subbasin.

## **Historic Range of Variability**

Ecosystems are not static and their conditions vary over time and space. The historic range of variability describes the dynamic nature of ecosystems. The historic range of conditions found in a given setting is used to understand the likely range of conditions found under natural disturbance regimes. A key assumption of this concept is that when systems are pushed outside their normal range, there is increased risk that biological diversity and ecological function may not be sustainable. In the South Fork Assessment, existing landscape conditions were compared to their historic range. Historic was defined as the time period prior to 1850. Since documentation covering the historic period is limited for the subbasin, it was necessary to estimate the range of historic conditions by extrapolating from more recent documentation and photos and applying scientific principles related to what we know about disturbance regimes.

## **Plant Succession**

Succession is the progression in which plant species dominate a plant community over time after a major disturbance. Typically, many species will invade a site after a wildfire or harvest, but some, like fireweed or lodgepole pine will assert dominance early in plant community development. Later, other species will assume

dominance, like subalpine fir or grand fir. Subsequent major or minor disturbances may retain a plant community in its current successional state (like a low severity fire), return succession to an early state (like a stand replacing fire) or affect some plants differently than others (like root disease which may kill grand fir and leave western white pine).

## **Landscape Disturbance**

A disturbance is an event that causes a significant change from the normal pattern in an ecosystem; examples include fire, flood, or drought. Disturbance regime refers to the frequency, severity, scale, and other attributes of a recurring disturbance.

Plant and animal species have typically evolved adaptations to survive in the disturbance regime typical of their environment. When humans add an additional disturbance regime such as timber harvest, road building, fire suppression, grazing, and other impacts on streams, and apply that regime across most of the landscape, the scale and ubiquity of disturbance may dramatically alter the environment to which some fish, wildlife and plant species are adapted. Understanding the effects of changed disturbance regimes for terrestrial and aquatic systems is emphasized throughout the assessment. Restoration of the pattern of disturbance appropriate to a given setting was a key consideration in developing management themes and recommendations.

This assessment considers the following events as recognized disturbances that have shaped landscape conditions in the subbasin:

**Natural Disturbance:** fire, volcanic ash deposition, floods, insects and diseases.

**Human Disturbance:** timber harvest, road building, fire suppression, mining, residential development, agriculture and grazing.

# **Historic and Existing Conditions**

## **Summary of South Fork Subbasin Conditions**

The South Fork Clearwater Subbasin is a unique mixture of social and ecological conditions, functions and processes. From the review of historical and existing data, a summary of landscape conditions and trends is provided below.

### **Disturbance Processes**

O Fire frequency has decreased to less than 10 percent of historical occurrence. Risk of severe fire has increased in some areas because of greater fuel quantity or continuity. Fires affected almost 6,000 acres per year before 1930. Since then, only about 400 acres have burned annually.

O Presettlement disturbances like fire affected the pattern of vegetation because fires tended to vary in size, frequency, severity, and distribution; both randomly and in response to terrain and conditions before the fire. This pervasive disturbance produced both some predictable patterns and great heterogeneity. Fire suppression has reduced this heterogeneity. Timber harvest has created some age class diversity, but not to the degree that fire did. Further, the uniformity of harvest treatments and harvest unit size has resulted in less diversity at the landscape and stand level.

O Timber harvest has replaced fire as the dominant vegetation disturbance process, but this harvest has not sustained landscape pattern; specifically for elements like large pine, larch, and snags. Susceptibility to certain pathogens (root rots and spruce budworm) has increased with increases in grand fir and subalpine fir.

O Predominantly pulse disturbances of fire and flood have been replaced by wide scale press disturbances of timber harvest and road-related sediment regimes that have impacted aquatic integrity.

O Historical sediment delivery and water yield were highly dependent on natural fire regimes. Current sediment delivery and water yield are more closely aligned with disturbances associated with road construction, timber harvest, mining, and grazing.

### **Aquatic Habitat Conditions**

O Physical aquatic conditions in the South Fork Subbasin have changed substantially since the initiation of significant human disturbances in the 19th century.

O The most impactful alterations of upland conditions are probably the road development throughout most of the subbasin and the conversion to agricultural crops in the lower part of the subbasin.

O Stream channel and riparian conditions have also changed substantially, due to impacts that vary in extent and magnitude. These changes include wider, shallower channels, more fine sediment, reduction in fish habitat diversity, reduction of streamside shade and warmer summer water temperatures.

O The most significant impact in the upper part of the subbasin is probably the dredge mining that occurred in most of the major upper tributaries, as well as the upper mainstem South Fork.

O Encroachment by roads and other developments are another significant impact on stream and riparian condition, as well as changes in streamflow and sediment regimes.

O There are still significant areas within the South Fork Subbasin where upland watershed, riparian, and stream conditions are relatively intact.

### **Aquatic Species Conditions**

O The South Fork Subbasin contains a significant amount of habitat with high to very high potential to support the fish species assessed. The subbasin is an important area for fish species within the Columbia River Basin.

O The fish species remain widely distributed throughout the subbasin. Their current distribution is probably very similar to the historic distribution in the subbasin.

O The abundance of all fish species has declined significantly from historic levels. The most conspicuous declines have been in the anadromous fish species and the larger fluvial resident fish.

O The greatest loss of habitat condition has been in the very high potential habitat in the upper subbasin, which is also the area with the greatest alteration of historic disturbance regimes.

O The viability of the aquatic species in the subbasin is at risk, based on factors both within the subbasin and downstream (for anadromous fish).

### **Vegetation Conditions**

O Conversion of foothills grassland on prairie and hill slopes to cropland, hay, and pasture, has been extensive on private lands.

- O Annual grasses and noxious weeds have become established on grassland habitat types on low elevation, steep, south facing slopes.
- O Forest succession, fire suppression, and timber harvest have resulted in declines in large open-grown ponderosa pine. Early seral, intolerant species like lodgepole pine and western larch have also declined with fire suppression.
- O Patch sizes are smaller on lodgepole sites and larger on moist grand fir sites, when compared to historic conditions.
- O Whitebark pine is in serious decline from blister rust, fire exclusion and mountain pine beetle. Western white pine, never abundant in the subbasin, has also declined from blister rust.
- O Grand fir, Douglas-fir, and subalpine fir have increased.
- O Early seral structural stages, including forest openings, seedling and sapling, and pole stands, with snags and down wood, have decreased because of fire suppression. Medium and large tree classes have increased in most areas, except larch and ponderosa pine forests.
- O Large patches of fire-killed snags have declined with fire suppression. Large diameter snags have declined where timber harvest has occurred.

#### **Wildlife Conditions**

- O Several wildlife species have been extirpated from the South Fork Clearwater Subbasin in the last century, including Columbian sharp-tailed grouse, burrowing owl, and grizzly bear. Several more, such as mountain quail, white-headed woodpecker, and gray wolf have been nearly extirpated.
- O In the South Fork Subbasin, the current departures of wildlife habitat occurrence from historic times are similar to those described in the ICRB Science Assessment. In general, the habitats with the greatest departures from historic are ranked as follows: 1) reduced burned timber and early seral community types, 2) reduced fire-climax ponderosa pine, 3) reduced early seral habitats for elk in montane types, and 4) increased late seral habitats (pileated woodpecker, goshawk, fisher) .
- O The most important changes in forested wildlife habitats are due to the loss of fire-killed trees resulting from suppression of stand replacing fires, the loss of fire-climax ponderosa pine forest resulting from suppression of ground fires and timber harvest, reductions in early and late seral habitats, and loss of wildlife security areas resulting from road and trail access.
- O The species most affected by the changes in forested habitats include: black-backed woodpecker (lack of fire-killed/weakened trees), flammulated owl and white-headed woodpecker (loss of climax and old growth ponderosa pine), black-backed woodpecker, lynx, bald eagle and elk (reduction or quality loss of early seral habitats), and elk/lynx/fisher (concern for wildlife security due to human disturbance or mortality risks related to road and trail densities). The changes are consistent with the broad landscape characteristics and risks to ecological integrity recognized in Forest Cluster 3 (ICRB Science Assessment).

#### **Socioeconomic Conditions**

- O Timber harvest has and continues to play an important economic role in supporting local communities.

- O Recreation use of public lands is increasing and the need to maintain scenic integrity is high.
- O Recreation use is mostly associated with dispersed recreation activities such as hunting, fishing, camping, wildlife viewing, driving for pleasure and recreational mining.
- O Developed recreation facilities are mostly concentrated along the mainstem South Fork Clearwater and Red Rivers.
- O Most of the subbasin's recreation users are from north central Idaho. However, in the fall, a significant percentage of the hunters using the subbasin are from out-of-state or other parts of Idaho.
- O There are often conflicting requests for public access. Current processes for establishing road and trail restrictions may not be meeting the needs for resource protection or public use.

## **Management Themes**

### **Theme Development and Use**

In response to the findings on historic and existing conditions, both functional and area themes were developed for the subbasin. The theme intent, terms and definitions are conceptually similar to those described in the ICRB Science Assessment planning effort, where management emphases were assigned to forest and range clusters in the Basin, except that the South Fork themes apply at a finer scale. The themes used for the South Fork Assessment are designed to either conserve or restore landscape elements, functions, and/or processes. Generally, a Conserve theme is assigned to areas where existing conditions are ecologically sustainable. The objective is to perpetuate existing conditions. A Conserve theme does not always imply a hands-off approach to management. A Restore theme is applied where conditions are less than desirable and improvement is needed to achieve long term ecological stability and sustainability.

If implemented, the recommended themes would provide one possible set of pathways or solutions for achieving a range of desirable and sustainable landscape conditions through time. In terms of future planning processes, the South Fork themes will help to define and develop the purpose and need statement for Forest Plan revision. In addition, the themes will assist in establishing an ecological context for future project planning and analyses, and to prioritize and schedule work including Ecosystem Analysis at the Watershed Scale (EAWS).

Notwithstanding the recommendations, and treatment objectives presented, it is important to emphasize that the entire South Fork Subbasin is Nez Perce Tribal ceded lands. As such, under Article 3 in the Nez Perce Treaty of 1855, tribal members are secured the rights of taking fish in all usual and accustomed places, erecting temporary buildings for curing, hunting and gathering and pasturing cattle and horses upon open and unclaimed land.

### **Functional and Integrated Themes**

Functional themes were assigned to four specific resource groups (vegetation, wildlife, aquatics, and recreation) for each of the 12 Ecological Reporting Units (ERUs) and their subdivisions within the National Forest in the subbasin (see Theme Table - Attachment #1 and Map 2). The themes were also prioritized between ERUs, according to their importance (significance of the action) and urgency (timing). A higher priority was assigned to those areas where the action or theme was considered locally and/or regionally important and urgent. During the functional theme development, no attempt was made to integrate the themes. As would be expected, in a few cases, functional theme conflicts surfaced, where execution of actions consistent with the intent of one theme would be inconsistent with the objectives of another theme.

Area themes were developed by integrating and prioritizing the functional themes. Consideration was given to the magnitude and direction of ecological departures, the ability to affect recovery and restoration, the biophysical capabilities to achieve sustainable conditions, and the need to balance recovery both spatially and functionally across the subbasin. The recommended area theme describes the primary emphasis for an ERU or ERU subdivision in terms of one or more functional themes (see Map 5). Although the area theme may emphasize one functional theme, the other themes are still important. For example, restoring aquatic processes through road reduction, road drainage treatments and other upland sediment source reduction needs to occur concurrently with restoring open stands of large ponderosa pine in the South Fork Canyon.

Road themes are a product of integrating functional themes. Road themes address future road maintenance and development in terms of socioeconomic needs and conserving/restoring biophysical processes, functions, and elements.

## **Conflicting Theme Objectives**

The assigned functional themes for an ERU may not be compatible in all situations. Having several functional themes with differing objectives adds complexity to developing specific solutions for an area or project. When there is a conflict between the different functional themes (e.g. vegetation and aquatics), the manager is encouraged to fall back to the area theme with the aid of site specific information for overall guidance in the ERU. In general, aquatic conditions have been more altered in the subbasin than terrestrial. Aquatic cumulative effects have reduced the capacity of the mainstem South Fork and its tributaries to sustain healthy populations of native fish. Given this, an overarching theme for the subbasin is aquatic restoration even though some ERU area themes have a terrestrial emphasis.

## **Functional Theme Descriptions**

**Aquatic Themes:** The aquatic management themes are organized into two general groups, 1) Conserve Existing Aquatic Function, and 2) Restore Aquatic Processes. The Conserve theme is recommended for areas that are believed to have aquatic processes and conditions within the range and frequency of natural processes and conditions. These are areas considered to be in good condition. The Restore theme is recommended for areas where the processes and conditions are not within the natural range and/or frequency of natural processes and conditions. These are areas where the aquatic processes and conditions are considered to be degraded by human activity or extreme natural events. The theme priorities are based on the importance of the area for conservation and recovery of aquatic species at risk and key human uses.

**Vegetation and Wildlife Themes:** The vegetation and wildlife management themes are organized into three general groups: 1) Restore, 2) Conserve, and 3) Produce. The Restore theme is recommended for areas where natural processes or patterns are outside the range of historic, and where continued traditional management approaches threaten loss of habitats, communities or populations. The Produce theme also applies to areas where recent management has resulted in short supply of some important habitat elements, such as snags and early seral structural stages. The Conserve theme is recommended for areas that are believed to have terrestrial processes and conditions within the range and frequency of natural processes and conditions. These are areas considered to be in good condition. Conserve may require introduction of some disturbance (fire or timber harvest) to maintain conditions within the natural range. The theme priorities are based on the degree of departure from historic ranges and the resulting risk of loss.

**Road Themes:** Road themes have been developed to provide road management focus to the ERUs within the subbasin. The road themes facilitate integration of the resource themes and are themselves an integration product (see Map 4). They do not resolve all road concerns and conflicts between resource themes and uses. However, if implemented as recommended at the ERU scale, the road themes should reduce the risks to ecological processes while preserving most of the beneficial uses associated with roads.

An important concept associated with road system repatterning is the ephemeral road system. In an ephemeral road system, the transportation system consists of a permanent road system that persists through time, that is fed by a

network of temporary roads that exist for defined purposes, typically vegetative management. By managing access under this ephemeral concept, some of the long-lived press disturbances (i.e. sedimentation) associated with roads can be avoided. The roads theme definitions applicable in this subbasin are shown below.

**Defer New Roads** - In general, additional road development is not anticipated in a 10-15 year time frame. This theme applies to ERUs where aquatic potential and integrity are high and where there are few existing roads.

**Maintain a Core Road System and Reduce Adverse Effects Throughout** - The existing road system (miles and distribution) is at a level where it generally provides sufficient access for the next 10 -15 years. In some subwatersheds, the existing road system may be more than is needed. Many of the existing routes will be retained, although this theme does not preclude removal of local roads that through watershed analysis and transportation planning can be identified as excess to the transportation system. Conversely, this theme recognizes that construction of local roads, primarily temporary, may also be required.

**Reduce Adverse Effects with an Emphasis on Reducing Overall Densities** - In general, this theme applies to ERUs where fewer roads are needed for the next 10 -15 year timeframe. Road densities can be reduced to reduce risks to both the terrestrial and aquatic resources. Transportation plans should reflect the ephemeral road concept. While some road segments may need to be reconstructed or relocated, the overall goal is a net reduction in road densities (primarily native surfaced roads) over time.

**Develop and Maintain the Road System. Focus on Maintaining the Existing Road System** - This theme applies where additional road development may be needed in the 10 -15 year timeframe to treat vegetation. These roads may be either temporary or permanent and should consider the ephemeral transportation concept. This theme applies only to the Lower Silver Creek and Lower (east and west) Wing - Twentymile Creek ERUs.

**Wilderness...Roads not Applicable** - This theme was applied to ERUs where most of the area is within designated Wilderness.

**Recreation Themes:** The recreation themes are premised on the fact that a wide variety of recreational opportunities exist in the subbasin, and in order to maintain and enhance such opportunities, different management emphasis may be needed in different areas. In some cases, some recreational pursuits may not be consistent with others. The application of the recommended recreation themes is intended to reduce conflicts where possible, take full advantage of the past and existing uses and characteristics of an area, and to assure that the full range of recreational opportunities is available in the future. Where the characteristics are unique, the themes will help to assure that they persist. Where certain recreation opportunities are in short supply, or are being over used, the themes will address increasing facilities where possible.

## Subbasin Summary

### Overview

The South Fork Clearwater Subbasin encompasses about 752,000 acres, of which 515,000 acres are under National Forest management. The historic landscape varied from the grassland steppe of the Camas Prairie, to pine forested low elevation canyons, to mid elevation uplands like the Elk City Township, to high elevation glaciated slopes like the Gospel-Hump area. Streams in the subbasin support spawning and rearing habitat for Chinook Salmon, Steelhead, Bull Trout, and West Slope Cutthroat Trout. Two rivers (South Fork Clearwater and Johns Creek) are eligible for Wild and Scenic classification. An active mining history has resulted in both cultural legacies and lasting ecological impacts to some streams. Plant communities were shaped by recurrent wildfire, which was instrumental in sustaining the diversity of habitats and species in the landscape. Fire and climatically related hydrologic events caused aquatic habitat conditions to vary over time at any one place, but well connected patches of suitable habitat were maintained throughout the subbasin over time.

Fire frequency has decreased to less than 10 percent of historical occurrence. Timber harvest has replaced fire as a dominant vegetation disturbance process, but has not sustained the diversity of pattern, composition, or structure of communities and habitats. Map 3 shows the timber stands that have been harvested since 1950. The stands shown on this map were harvested using a variety of silvicultural treatments/logging systems and are in various stages or regrowth, depending on their harvest date.

The most important changes in forested wildlife habitats have been the loss of fire-killed trees due to suppression of stand replacing fires, loss of fire-climax ponderosa pine forest due to suppression of ground fires, reductions in early and late seral habitats, and loss of wildlife security areas from road and trail access.

Departures from historic aquatic conditions have occurred over large areas in the subbasin, and are most apparent in landscapes which were highly dependent on large, infrequent disturbances found in the mid to upper elevation area of the subbasin. These areas are now more closely associated with small to moderate scale, frequent disturbances associated with road systems and timber harvest. There are also large areas of low development in the subbasin, where aquatic conditions are similar to historic conditions (see Map 3). Fish species at risk are still well distributed throughout the subbasin and their habitats are physically connected. However, fish populations are depressed and their habitat is degraded. In addition, a reduction in the number of migratory fish has caused a loss of population connectivity, thus, increasing the risk of local extirpation.

Isolation and fragmentation of terrestrial habitats have occurred with the loss of extensive continuous areas of open ponderosa pine along the canyon. Isolation and fragmentation of aquatic habitats has been more extensive, particularly in the mainstem tributaries including Red River, Crooked River, American River and Newsome Creek.

Introduction of nonnative species has most significantly altered bunchgrass and shrub steppe communities. Conversion of grassland steppe on prairie and hill slopes to cropland, hay, and pasture, has been extensive on private lands. Annual grasslands and noxious weeds have become established on grassland habitat types on low elevation steep south facing slopes. Blister rust has highly altered whitebark pine communities. Introduced brook trout have become established in several streams.

Several wildlife species have been extirpated from the South Fork Clearwater Basin in the last century, including Columbian sharp-tailed grouse, burrowing owl, and grizzly bear. Several more, such as mountain quail, white-headed woodpecker, and gray wolf have been nearly extirpated.

Timber harvest has and continues to play an important economic role in supporting local communities. Recreation use is increasing and the need to maintain scenic integrity is also high in the subbasin. Recreation use is mostly associated with dispersed recreation activities such as hunting, fishing, driving for pleasure, and camping.

## **Summary of Recommendations for the Subbasin**

**Vegetation:** These recommendations summarize the themes and how they address the major changes identified in this assessment: alteration of disturbance regimes, declines in certain terrestrial communities and habitats, and the introduction and expansion of nonnative species.

O The restore ponderosa pine theme emphasizes a pattern of low to mixed severity, very high and high frequency disturbance to low elevation forests, at small to moderate scales. This theme addresses the loss of open stands of large old pine and bunchgrass communities on dry aspects, and loss of diversity of stand structure and declines of pine or larch on north aspects. Burning, thinning or low to moderate intensity harvest, and weed treatments are needed to recover these elements and provide for species including flammulated owl. Some early seral habitat would also be provided, and historic levels of old growth recovered or maintained. Priority for scheduling treatment is high.

O The restore whitebark pine theme emphasizes a moderate to low frequency disturbance regime (usually fire) in high elevation forests that supported whitebark pine. Inventory, collection, protection, and propagation of

whitebark pine are needed to reduce its serious decline. This would also produce some early seral habitat and reduce encroachment by spruce-fir forest which has increased beyond historic extent. Priority for scheduling treatment is very high.

O The restore vegetation pattern theme emphasizes low frequency, mixed severity and broad scale disturbances in interior mid-elevation forests. This theme addresses the decline in lodgepole pine and larch, and increases in spruce-fir forest above historic levels. Moderate intensity harvest with burning would provide more early seral habitat, including extensive snag patches. The infrequency of disturbance would better provide for aquatic recovery and wildlife security. Old growth would be maintained at historic levels. Priority for scheduling treatment is moderate.

O The conserve existing condition theme emphasizes a pattern of mixed severity, low frequency disturbance to mid elevation moist forests, at small to moderate scales. This theme addresses issues of wildlife security, mesic old-growth dependent species, and retention of forest age class and species diversity suited to this climatic setting. Old growth would be maintained at historic levels. Priority for scheduling treatment is moderate.

**Snags and Coarse Down Woody Material:** Forest Plan standards for snags are inadequate. Snag standards were based on minimum requirements of certain indicator species (like pileated woodpecker), but monitoring of timber harvest units indicates that adequate numbers of snags may not be designated for retention, may be cut down for safety reasons during harvest, may be lost during slash treatment, may fall shortly after harvest, or may be cut for firewood. The large patches of snags that once occurred as a result of periodic wildfire, either do not occur due to fire suppression or are often lost to post-fire salvage harvest. Standards for coarse down woody material were not developed for the current Forest Plan, although the importance of this material is well recognized. The intent of the recommendations discussed in Appendix D of the full assessment is to provide for numbers of snags, replacement snags, and coarse woody debris at levels more closely approximating historic levels to sustain dependent species and soil productivity.

**Old Growth:** Old growth standards in the current Forest Plan do not consider differences in old growth type, natural patterns of old growth in the landscape, and disturbance regimes that sustained certain old growth types, like open ponderosa pine. The extent, distribution and kinds of old growth resulting from minimum compliance with existing old growth standards fall well below historic levels for certain old growth types (like ponderosa pine or moist grand fir). The intent of the recommendations for old growth shown in Appendix F of the full assessment is to provide kinds, amounts, and distribution of old growth closer to historic levels that sustained dependent species. Restoration of the disturbance regimes that maintained certain types of old growth (low and mixed severity fire) is also needed. Timber harvest may sometimes be compatible with restoration of certain old growth types.

**Road Management:** While there is no real natural equivalent to roads, the goal of the 4 road management recommendations in the South Fork subbasin shown below is to better align, to the extent possible, the disturbances attributable to roads and their uses, with the historic natural disturbance pattern. It is assumed that, to the extent that these road disturbances can be aligned and made compatible with the frequency and scale of natural disturbances, the roads represent less of a risk to ecosystem function and best provide for long term sustainability.

**1) Design Road Development Activities and Carry Out Road Management Strategies within the Context of Landscape Setting and Historic, Natural Disturbance Regimes:** Road development activities and road management in the subbasin should be conducted under a variety of transportation concepts that fit the disturbance regime for the area. The two roading strategies presented below represent the bounds of the road management spectrum for the landscapes in the subbasin. The rest of the subbasin, from a roading standpoint, should be treated as a continuum between these two bounds.

O In the lower subbasin, the historic natural fire regime was frequent with low severity. The recommended transportation concept for these areas uses a comparatively large percentage of permanent roads, with some temporary roads associated with specific site objectives.

O In the upper subbasin, the historic natural fire regime was infrequent, but affected much larger areas. The magnitude and scope of the current aquatic press disturbance in the upper subbasin, which contains some of the highest aquatic values in the area, should be reduced in order to transition to a more infrequent, pulse type disturbance regime. In this area, the transportation concept is one that uses a comparatively large percentage of temporary roads, referred to as ephemeral roads. From a network of permanent access roads, large blocks of vegetation should be treated with primarily temporary roads that are removed after that treatment. Due to the importance of the aquatic resources and their potential, the recommended management goal is to focus on areas with high road densities, implement needed vegetation treatments, and aggressively remove excess roads from the area when the treatments are completed. This strategy should not be misinterpreted as a recommendation to construct roads and treat vegetation in the few remaining blocks where development is minimal or has not occurred. The key is to focus on areas with high existing road densities. This recommendation for large block treatments in high road density areas, and the use of mostly temporary roads in the upper subbasin is not a casual recommendation made without understanding the significance of the changes that will need to occur in order for this to be implemented. Public input, understanding and acceptance will take time.

**2) Use Ecosystem Analysis at the Watershed Scale (EAWS) to Develop Site Specific Road Management Plans:** Through EAWS, these road themes should be verified and more specific transportation recommendations developed. The EAWS scale of assessment (usually at the 5th code HUC) is an appropriate scale for evaluating existing road and transportation networks, and allows transition to the future transportation strategy described previously. The EAWS scale evaluation of the transportation system allows for integration of functional objectives and public desires that is not possible at the finer, timber stand scales, and also, provides the context for the establishment of specific road management objectives at the project level.

**3) Decommission or Obliterate Unneeded Roads:** Throughout the subbasin, there are many roads that could be considered excess roads to the current management objectives and public access needs. Many of these roads are the result of older access used for timber harvest and mineral investigation. A preliminary analysis indicates that up to thirty percent of the existing roads may be excess to the long term system needs. These roads should be evaluated by an interdisciplinary team, as part of ecosystem analysis at the watershed scale (EAWS), to determine their benefits and risks. Public involvement in this evaluation is very important to ensure that current and future uses and needs of these roads are not overlooked. For roads declared excess, appropriate measures should be taken to remove all or part of these roads. Scheduling and final obliteration plans should reflect the aquatic conservation strategy.

**4) Emphasize Road Maintenance and Reducing Road-Related Effects:** Timely and efficient road maintenance of existing roads is critical to the proper performance and function of the road system. Recent research has identified the importance of timely surface grading to control rut depth in reducing erosion. Maintenance of a properly functioning drainage system also remains paramount to ensuring the stability of road system components, including cutslopes, fill slopes, and the travelled way. Particular road maintenance emphasis should be placed on assuring recreation access, while at the same time, minimizing aquatic impacts.

Reducing road related effects should be a prime consideration in road reconstruction as well. Reconstruction activities, as identified through the EAWS process, will allow for improvements in the road network to address ecosystem needs, particularly aquatic function. EAWS should, in particular, give consideration to: 1) upgrading stream crossings to provide for fish passage and additional flow considerations, 2) providing a suitable surface to accommodate recreation traffic and minimize erosion from the travelled way, and 3) slope stability treatments on cutslopes and fillslopes to minimize potentials for initiation of mass wasting events.

**Recreation Facilities:** The South Fork subbasin provides a wide variety of developed and dispersed recreation opportunities. Most developed campsites are found near the South Fork Clearwater River in the South Fork Canyon ERU. Elsewhere, dispersed campsites, trailheads, and historical and cultural feature interpretations can be found. As recreation use grows, development of additional sites (both developed and dispersed) and trailheads should be explored. Big game hunting is an important use throughout the subbasin in the fall. Snowmobiling and cross country skiing are popular in the winter months. During the summer, the beaches and campgrounds adjacent to the South Fork Clearwater River are quite popular. Hiking, fishing, wildlife viewing and recreational mining are also favored activities in the late spring, summer and early fall. The Gospel-Hump Wilderness can be accessed via several key trailheads located near the southern boundary of the subbasin.

Both roaded and trail recreation opportunities are available throughout the South Fork subbasin. Roaded recreation opportunities are available primarily in the lower elevation portions of the subbasin, while trail recreation dominates the higher areas of the subbasin. In some areas, motorized recreation would have seasonal or yearlong restrictions to protect resource concerns. The dramatic increase in off-road-vehicle (ORV) use (including motorcycles, 4-wheelers and snowmobiles) should be closely monitored, to assure that quality ORV experiences and opportunities are maintained, while at the same time, reducing potential conflicts with other uses and resources.

The South Fork Clearwater River and Johns Creek are identified in the Nez Perce Forest Plan as eligible waterways for recreation and wild status respectively. A suitability study will be completed at a later date. In the meantime, no management activities will be carried out that would alter the potential classification of the eligible waterways.

**Aquatics:** The aquatic resources of the South Fork Clearwater Subbasin are recognized as uniquely valuable, despite often being overshadowed by the high quality aquatic conditions that exist in the nearby Selway Subbasin. The inherent aquatic species potential of the South Fork Clearwater Subbasin probably exceeds that of the adjacent Selway Subbasin, given the greater amount of low relief uplands and associated high potential, instream habitat. The Nez Perce Forest Plan (effective October, 1987) established high expectations and objectives for most of the South Fork Clearwater Subbasin. This assessment is principally a reinforcement of those conclusions about species potential and aquatic restoration objectives. The historic disturbance pattern has been used as a template for these recommendations, and consequently the functional objectives are consistent. The recommendations presented here include both the integrated and aquatic resource specific recommendations:

- O In areas where there has been large amounts of human activity, the pattern of human disturbance in the subbasin should be altered to more closely align with the pattern of historic disturbance (i.e. less frequent, wider extent disturbances in the upper subbasin and more frequent, maintenance-type disturbances in the lower subbasin). The transition from the current condition using this management approach is fundamental to restoration of the aquatic resources. Implementation of the vegetation and road themes for the subbasin, particularly the restoration of vegetative pattern and use of the ephemeral approach to roads in the upper subbasin, is central to aquatic restoration in these areas.
- O Active rehabilitation of aquatic resource function, particularly the major tributaries of the upper basin, and a reduction in the effects of the existing road system, are also recommended to conserve the aquatic species in the subbasin. For anadromous fish species, downstream threats will also have to be corrected to stop the decline in these species.
- O There are large areas of low development in the subbasin, particularly in the southern portion. These areas are strongholds for steelhead, bull trout and westslope cutthroat trout. In these areas, conservation of existing aquatic function is critical to the conservation of these aquatic species. Conservation of these high quality areas should not be considered the only requirement for long-term species well being, but as short-term refugia for the species, while areas essential to their long-term persistence (particularly in the upper subbasin) are restored. The aquatic themes express this restoration priority.
- O In areas of the subbasin where the vegetation themes are emphasized more than the aquatic in the integrated area theme recommendation, restoration of aquatic function should also occur. Projects in these areas should be an integrated effort that recognize the need for aquatic restoration throughout the subbasin, as it relates to conditions in the mainstem South Fork.
- O Ecosystem analysis at the watershed scale (EAWS) is recommended for areas with high to very high aquatic restoration priority in the subbasin, to complete the higher resolution, finer scale planning needed to organize and accomplish the aquatic restoration. Transportation planning should be an important part of these EAWS efforts, integrating the variety of resource objectives and human perspectives.

O Partnerships are an essential ingredient in the successful restoration of aquatic resources in the subbasin. Cooperative work across the range of agencies, governments, industries, and individuals will be needed. The resources necessary to establish or strengthen these partnerships should be identified and focused on this effort.

**Fire Management:** Natural wildfire was a keystone process in the subbasin, affecting the pattern of forest vegetation, wildlife habitats, and aquatic states. Fire suppression from about 1935 to the present has highly altered those patterns, while road construction, mining, grazing and timber harvest have had substantial effects, but have seldom simulated the spatially patchy and episodic effects of fire.

Current risk of severe fire has probably increased in the low elevation ponderosa pine areas of the lower subbasin and the lodgepole pine areas of the upper subbasin as a consequence of successful past fire suppression. This risk poses threats to private property and safety, and, in some situations, may result in unnaturally severe fires that could cause habitat degradation outside the natural range.

There are some conditions under which timber harvest can successfully be used to restore vegetation structure and pattern. In some of these situations, fire will be needed in concert with harvest to treat fuels, reduce risk of more severe fire, provide snags, or favor regeneration of fire-dependent species.

It is important to recognize that there are areas where road construction and timber harvest are not likely to be appropriate given the sensitivity or condition of the watershed. Prescribed fire may be suitable in some instances where timber harvest is not appropriate, either because road construction or harvest is not allowed (wilderness) or because the impacts are not tolerable. Non-wilderness areas where vegetation treatment using prescribed fire should be evaluated in lieu of timber harvest and roading are: 1) areas of high riparian habitat conservation area (RHCA) density, 2) areas of high substratum erosion hazard and areas with steep slopes, 3) areas of high debris torrent hazard, and 4) watersheds in which the road theme is defer new roads, or reduce road density

Restoring fire to areas where timber harvest and road construction are not acceptable alternatives is probably fundamental to sustaining the full complement of plant communities, wildlife habitats, and aquatic states in the subbasin. It may be thought that allowing fire to play a larger role in the subbasin may pose risks in that fire may have less predictable outcomes than building roads and conventional harvest. However, the findings in this assessment indicate that while it is possible to control the location of roads and harvest unit boundaries, it is much more difficult to adequately control their cumulative negative effects. This is true particularly for effects on streams and their dependent species. Fire, even severe fire, may pose less risk than continuance of past management.

The current condition of some watersheds is such that there may be little tolerance for added fire disturbance until road effects have been reduced and watershed condition is improved. These conditions and risks suggest that fire management in the subbasin should be integrated with efforts to:

O Restore watershed conditions to the state that natural and prescribed fire do not represent intolerable risks to streams and fish.

O Delineate the areas where vegetation treatment is needed, their priority for scheduling, and the realistic treatment options (harvest or fire). Use the information in this assessment (including watershed sensitivity, area and resources themes, vegetation response units, soil hazard ratings, disturbance history and existing vegetation condition) to specifically identify areas where fire treatment is needed and appropriate.

**Noxious Weeds:** Because noxious weed invasion is increasing at an alarming rate, the following recommendations are presented below. The treatment of noxious weeds will require some careful coordination with road building, timber harvest, and fire strategies, especially in the lower and mid elevations.

O When ground disturbing or habitat altering actions are proposed, assess the risk of introducing or spreading noxious weeds. For actions that have a moderate to high risk of spreading weeds, identify and implement control and/or prevention measures as part of the management prescription.

- O Treat noxious weeds along transportation corridors that could act as a founder population for new infestations.
- O Biological control agents should be released and managed in areas where the target weed can be tolerated and future spread is acceptable, or where other control methods are not feasible.
- O Monitor management activities within susceptible habitats for changes in exotic plant populations. Control and eliminate (where possible) all new invasive plants through aggressive and timely treatment.
- O Ensure that desirable vegetation is quickly reestablished after disturbances. Favor the use of native species where the native species can accomplish the site objectives and costs are not excessive. Limit the use of long-lived exotics plants in erosion control where the invasiveness of the species is unknown
- O All seed purchased for use on National Forest lands within the subbasin, should be tested for noxious weeds, based on the "all-state noxious weeds list" compiled by the Idaho State Seed Laboratory, Boise Idaho.
- O Maintain an inventory of all noxious weeds and selected exotic plants. Stand exams, botanical surveys, range analysis and other resource inventories should identify and record noxious weeds as part of the inventory process.

## Attachment #1

### Management Themes - South Fork Clearwater Subbasin

Location or ERU	Aquatic Theme	Aquatic Priority	Veg Theme	Veg Priority	Wildlife Theme	Wildlife Priority	Rec Theme	Rec Priority	Road Theme	Proposed Area Theme
South Fk Canyon - Lower	Rap	M	Rpp	H	RppPesh	VH/VH	Pdr/Csi	VH	2	Rpp/Csi
Upper	Rap	M	Rvp	M	Pesh	VH	Csi	VH	2	Rvp/Csi
Meadow Ck - Lower	Rap	H	Rpp	H	Rpp	VH	Prr/Ptr	M	2	Rap/Rpp
Upper	Rap	H	Cevc	M	Ewls/Clsh	M/L	Prr	L	3	Rap
Cougar-Peasley - Lower	Rap	M	Rpp	H	Rpp/Pesh	VH/VH	Prr/Ptr	M	2	Rpp
Upper	Rap	M	Cevc	L	Clsh	L	Prr/Ptr	M	3	Cevc/Clsh
Silver Ck - Lower	Ceaf	M	Rpp	H	Rpp/Pesh	H/VH	Ptr	M	4	Rpp
Upper	Ceaf	M	Cevc	L	Clsh/Ewls	L/M	Ptr	M	1	Cevc
Newsome Ck - Lower	Rap	VH	Rvp	M	Clsh/Ewls	M/M	Prr	M	3	Rap
Upper	Rap	VH	Cevc	L	Clsh/Ewls	M/M	Prr	M	3	Rap
American River - Lower	Rap	H	Rvp	M	Pesh	VH	Prr	M	3	Rap
Upper	Rap	H	Cevc	L	Pesh	M	Ptr	VH	2	Rap
Red River - Lower	Rap	VH	Rvp	M	Pesh	VH	Pdr/Ptr	VH	3	Rap
Middle	Rap	VH	Rpp	M	Pesh	VH	Csi	H	3	Rap
Upper	Rap	VH	Rwbp/Rvp	VH/M	Pesh	VH	Prr	M	2	Rap/Rwbp

<b>Crooked River</b> - Lower	Rap	VH	Rvp	M	Pesh	M	Prr	H	2	Rap
Upper	Ceaf	VH	Rwbp/Rvp	VH/M	Pesh	H	Prr	M	1	Ceaf/Rwbp
<b>Tennile Ck</b> - Lower	Ceaf	VH	Rvp	L	Clsh	M	Prr	L	1	Ceaf
Upper	Ceaf	VH	Rwbp	VH	Clsh/Pesh	M/M	Ptr	H	5	Ceaf/Rwbp
<b>Wing-20 Cks</b> - Lower East	Ceaf	H	Rvp	M	Clsh	L	Ptr	L	4	Ceaf/Rvp
Lower West	Ceaf	M	Cevc	L	Clsh	L	Ptr	L	4	Ceaf/Cevc
Upper	Ceaf	H	Rwbp	VH	Clsh	L	Ptr	H	1	Rwbp
<b>Johns Ck</b> - Lower	Ceaf	VH	Rpp	H	Rpp/Pesh	VH/VH	Ptr	H	1	Ceaf/Rpp
West	Rap	H	Rpp	H	Rpp/Clsh	H/M	Prr	M	2	Rap/Rpp
Upper	Ceaf	VH	Rwbp	VH	Pesh/Clsh	VH/M	Ptr	VH	5	Ceaf/Rwbp
<b>Mill Ck</b> - Lower	Rap	H	Rpp	H	Rpp/Pesh	VH/H	Prr	M	2	Rap/Rpp
Upper	Rap	H	Cevc	M	Clsh/Ewls	M/L	Ptr	M	2	Rap

**Vegetation and Wildlife**

Rpp = Restore ponderosa pine  
 Rwbp = Restore whitebark pine  
 Rvp = Restore vegetation pattern  
 Cevc = Conserve existing vegetation conditions  
 Clsh = Conserve late seral habitat  
 Pesh = Produce early seral habitat  
 Ewls = Enhance wildlife security

**Aquatics**

Rap = Restore aquatic processes  
 Ceaf = Conserve existing aquatic function

**Recreation**

Csi = Conserve scenic integrity  
 Pdr = Provide developed recreation  
 Ptr = Provide trail recreation  
 Prr = Provide roaded recreation

**Roads**

1 = Defer new roads  
 2 = Maintain core road system and reduce adverse effects throughout  
 3 = Reduce adverse effects with an emphasis on reducing overall road densities  
 4 = Develop and maintain the road system. Focus on maintaining the existing road system  
 5 = Wilderness...roads not applicable

**Priority** describes the importance and urgency in implementing the theme relative to other actions within a specific resource group ( i.e aquatics).

VH=very high, H=high, M=moderate, L=low

**Proposed Area Themes** are recommendations which describe the primary emphasis for an area after integrating and considering all functional resource themes.