Chapter 3
Introduction

PURPOSE AND CONTENT

Chapter 3 describes the physical, biological, and human dimension resources of the environment that may be affected by the alternatives presented in Chapter 2, as well as the effects that the alternatives may have on those resources. Affected environment and environmental effects have been combined into one chapter to give the reader a more concise and connected depiction of what the resources are and what may happen to them under the different alternatives. The environmental effects analysis forms the scientific and analytic basis for the comparison of alternatives that appears at the end of Chapter 2.

This introductory section to Chapter 3 is divided into four basic parts:

1. **Ecosystem Management –** presents the ecosystem management framework that was used in the description and analysis of resources and issues in Chapter 3, and introduces the reader to key components and concepts of the framework.

2. **Physical and Biological Setting –** gives a brief overview of the key physical and biological components of the Ecogroup area.

3. **Social and Economic Setting –** gives a brief overview of the key social and economic components of the Ecogroup area.

4. **Chapter Organization –** describes how the affected environment and environmental effects are presented under the issue-related resources of Chapter 3.

ECOSYSTEM MANAGEMENT

In 1992 the Forest Service adopted ecosystem management (EM) as an operating philosophy (Overbay 1992). Ecosystem-based management has been described as "scientifically based land and resource management that integrates ecological capabilities with social values and economic relations to produce, restore, or sustain ecosystem integrity and desired conditions, uses, products, values, and services over the long term" (ICBEMP 1997a). An ecosystem management approach shifts management emphasis from traditional, single resource or species focus to a focus on ecosystems and landscapes. Ecosystem management also strongly considers the interactions between humans and ecosystems.

The Ecogroup Ecosystem Management Framework

For forest plan revision, the Southwest Idaho Ecogroup will consider the components that form the foundation of ecosystem management. The Ecogroup Ecosystem Management Framework borrows from and builds on: (1) the current Forest Plans, (2) The Forest Service Region 4 *Desk Guide, Bridge to Revision* (USDA Forest Service 1993), and (3) *A Framework for Ecosystem Management in the Interior Columbia Basin* (ICBEMP 1996a). The intent of the framework is to integrate ecosystem elements with human needs to strengthen the essential link between economic prosperity, social continuity, and ecosystem processes and functions. We assume that use of the framework will help ensure ecosystem resistance and resilience over time and space. We also recognize that our current understanding of various aspects of the framework may change as new science and information becomes available.

Ecosystem management recognizes that people are part of ecosystems and that collaborative stewardship may be able to address the complexity and controversy inherent in public land management. Furthermore, the framework will use adaptive management to improve our knowledge about environmental effects or the results of management actions, and incorporate this knowledge into future decisions and actions.

Framework Components

The four basic components of ecosystem management are physical, biological, social, and economic, as well as all the diversity and connections contained therein. These components can be further broken down into elements. Examples of these elements include:

- **Physical Diversity** – the elements that comprise the basic building blocks of ecosystems, including geology, landforms, climate, air, water, soil, and hydrologic and soil processes.

- **Biological Diversity –** the elements that comprise life forms that live within ecosystems, including bacteria, fungi, plants, and animals.

- **Social Diversity –** the elements that describe how humans interact with ecosystems and how that interaction influences societies and cultures. These elements include human demographics, social organizations, attitudes, beliefs, values, and lifestyles.

- **Economic Diversity –** the elements that describe how humans generate goods and services from ecosystems and how those products influence economics. These elements include zone of influence, occupational status, economic dependency, and populations.

These components represent the range of resources considered under the ecosystem management framework in this document, and most resources represent some combination of these components. For example, the timber resource manages tree vegetation (biological) to provide goods and jobs (economic) to support local community values and lifestyles (social). The tree vegetation, in turn, depends on productive soils, oxygen, and water (physical) to grow. Indeed, most social and economic resources related to Forest management are heavily dependent on the biophysical resources for long-term sustainability. Put another way, sustainable goods and services are the product of healthy, properly functioning ecosystems. Thus, ecosystem management focuses on maintaining or restoring the biophysical components of ecosystems in order to sustain economic opportunities and support social and cultural values.

Framework Concepts

Some of the important concepts used in ecosystem management, as well as the environmental analysis conducted in this document, are described below.

Scale - Scale is important to understand both in terms of space and time, but it is often difficult and challenging for resource managers to represent and analyze. Relationships viewed on a small scale or over a short time period can be very different when viewed over large scales or for a longer time period. For example, the immediate aftermath of a large fire may appear to be highly destructive, but the same fire viewed in terms of long-term landscape dynamics, may provide many ecological benefits.

Spatial Scale – Spatial scales can be described using a variety of classification systems. We have adapted the National Hierarchical Framework (Bailey 1995) to help describe scales within the ecosystem management framework (Table 3-1). The hierarchical framework is a systematic method for stratifying and classifying land based on combinations of the ecosystem management components. The hierarchy may be used to provide information at appropriate scales for ecosystem mapping, environmental analysis, desired future conditions, and monitoring.

Table 3-1. Hierarchical Relationships Between Scales and Ecosystem Management Components

Traditional Planning Scales	Physical and Biological Components		Social and Economic Components		Typical Issues
	Terrestrial	Aquatic	Social	Economic	
Resource Planning Act	- Division - > 10,000 sq. mi.	Zoogeographic Region	Nation	International Markets	Neo-tropical birds Climate changes
	- Province - 1,000 to 10,000 square miles	River Basin	State	National Markets	- Wide-ranging species (salmon, wolf, lynx...) - Roadless Areas - Wilderness Areas - River Basin Health
Regional Guides	- Section - Subsection - 10 to 1,000 sq. mi.	Subbasin	Zones of Influence	Labor Force Areas	- Biodiversity, Coarse Filter - Subbasin Health - General Fire Management Needs
Forest Plans	- Landtype Associations - 1 to 10 sq. mi.	- Watershed - Subwatershed	Community	County	- Timber Volume - Watershed Health - Biodiversity, Coarse Filter - Vegetation Patterns
- Area Plans - Project Plans	- Landtype - 1 sq. mi. or less	- Subwatershed - Valley Section	Neighborhood	Efficiency Analysis Area	- Biodiversity, Fine Filter - Specific Vegetation Management Design - Soil Compaction

Coarse and Fine Filters – In this document, vegetation is grouped by coarse and fine filters to represent scale. Coarse filter units generally represent ecosystems that are described using a variety of classification systems for vegetation groups, cover types, or communities. Fine filter units are represented by individual species or specific aspects of ecosystems that are uncommon or rare.

Time Scale – Time scales can be used not only to display effects, such as short versus long term, but also to establish reference conditions. Reference conditions are used most often to provide information about pre-settlement conditions. They can therefore establish a context for comparing current and desired conditions. This document uses Historical Range of Variability (HRV) and Properly Functioning Condition (PFC) both as reference conditions against which we compared current conditions, and also as desired conditions for some resources.

Different time scales are also used in the effects analysis to provide a temporal context and comparison for the way conditions may change through time as a result of management activities or natural events. Three general time frames are used: (1) temporary, (2) short-term, and (3) long-term. Unless otherwise stated, temporary effects are generally expected to last anywhere from 0 to 3 years. Short-term effects can include temporary effects but can last up to 10 to 15 years, or the period of time between Forest Plan revisions. Long-term effects generally last longer than 10 to 15 years, or begin to occur after the first 10 to 15 year planning period.

Historical Range of Variability – Over time, ecosystem attributes related to composition, structure and function fluctuate within some range of variability, given a similar set of natural succession and disturbance processes. The term "Historical Range of Variability", or HRV, has been used to describe these fluctuations in attributes, using pre-Euro-American settlement as a reference point (Morgan et al. 1994, Morgan and Parsons 1998). The pre-Euro-American time period is thought to most closely represent the natural cycles, processes, and disturbances under which ecosystems evolved.

Ecosystems operating within the HRV are considered to be more resistant and resilient to disturbances, and therefore the effects of disturbances are more predictable. Conversely, ecosystems operating outside of the HRV tend to be affected by disturbances in ways that are much different than those conditions under which plants soils, animals, and other ecosystem elements evolved. Disturbance effects become much less predictable, and the risk of losing resiliency and compositional, structural, and functional elements of ecosystems increases.

Properly Functioning Condition – Ecosystems are in Properly Functioning Condition (PFC) when they are dynamic and resilient to disturbances that can affect their biological and physical components (USDA Forest Service 1996). PFC is not an end-point but rather represents a range of conditions based largely on HRV and biological and physical potential. PFC can be assessed using a process that compares the current condition of "subject areas" against an established range of PFC. Criteria representing attributes and processes are used to describe PFC. Subject areas are assessed to be either within PFC or outside of PFC and therefore at some relative degree (low, moderate, high) of departure and risk. Departure and risk are based on the ability of an ecosystem to maintain key attributes or processes, and to return to or move toward PFC after disturbance. Subject areas that are highly departed from PFC are at high risk of losing critical attributes or processes to disturbances such as fire, insects, disease, compaction, and competition, and will likely have a much more difficult time moving toward PFC following disturbance than those areas assessed to be at lower risk.

As part of the revision process, the Ecogroup Forests developed criteria for, and conducted PFC assessments on 27 different subject areas in order to better understand the current condition of resources. The assessments were initially conducted at the landscape scale, looking at subbasins or groups of subbasins, and then the information was "stepped down" to the Management Area scale. District specialists familiar with the assessment areas evaluated the subject areas.

Desired Conditions – Desired conditions for most biophysical resources of the Ecogroup Forests were developed using HRV and PFC as a foundation or starting point. However, these desired conditions were often tempered by the desired conditions of the social and economic resources, and by the fact that HRV or PFC may never be fully attained in some instances.

A good example of this compromise is the influence of Forest roads. Roads have indisputable impacts on biophysical resources, and the Forests can reduce those impacts by reducing the amount of roads and improving existing roads. However, current conditions will never fully simulate pre-road historical conditions, because that goal is neither desirable nor achievable from a social or economic perspective. People desire and demand access to their public lands. Consequently, the desired condition attempts to balance ecosystem management components by providing and improving road access, while reducing road-related concerns to other resources where necessary. Management actions to address these concerns may include decommissioning roads that are not needed for the long-term transportation system, closing roads seasonally to reduce wildlife vulnerability, replacing culverts to enhance fish passage, or improving road surfaces and drainage to reduce impacts to soil and water and increase user safety and comfort.

Other changes to the historical landscape—such as recreational facilities, non-native plants, fire exclusion, timber harvest, water impoundments, and livestock grazing—have also created conditions such that HRV or PFC may be impossible to achieve in the short or long term. The desired conditions developed for the Ecogroup recognize and incorporate these circumstances, while operating on the principle that the closer we can approach HRV or PFC for biophysical resources, the better those resources will be able to provide for sustainable, diverse, and functional ecosystems. And those ecosystems, in turn, will be able to provide sustainable goods, experiences, and opportunities for the diverse needs and desires of people.

Ecological Disturbances - Weather, fire, insects, disease, floods, and other natural and human-induced disturbance agents can affect ecosystems. Typically, these agents alter ecosystem attributes related to composition, structure, and function. Timber harvest, for instance, can change large tree structure to openings or young forest, and thereby change the habitat for terrestrial species that live in the area. Floods can change the structure of stream channels and the structure and composition of riparian habitat. The variety of organisms or conditions found across the landscape is related in part to the extent, timing, and severity of these disturbances. Historically, the disturbance agent that has had the most impacts on vegetation patterns and distribution across the Ecogroup landscapes is fire.

Fire – Ecosystems in the Ecogroup have evolved with fire, and many species have developed adaptations that allow them to persist in communities over time in the presence of fire. Historically, fire was a primary disturbance that altered or controlled vegetative composition, density, and vertical structure, particularly in warmer, drier environments (Agee 1990, Steele et al. 1986, Daigle 1996, Barrett et al. 1997). Fire affected all vegetative layers, including trees, shrubs, forbs, and grasses. Fire affected litter, duff, and coarse wood development, created snags, and helped recycle organic debris. In colder, moister environments, fire primarily influenced vegetation development, patterns, and distribution.

Fire Regimes – Fire regimes describe the type of fire that generally occurs in an ecosystem. The common fire regimes for the Ecogroup are summarized in Table 3-2. More detailed descriptions of each regime can be found in the *Fire Management* section in this chapter.

Table 3-2. Ecogroup Fire Regimes

Regime	Fire Interval	Fire Intensity	Vegetation Patterns (from Agee 1998)
Non-lethal	5 – 25 years	10 percent or less mortality	Relatively homogeneous with small patches generally less than 1 acre of different seral stages, densities, and compositions created from mortality.
Mixed1	5 – 70 years	10 – 50 percent mortality	Relatively homogeneous with patches created from mortality ranging in size from less than 1 to 600 acres of different seral stages, densities, and compositions.
Mixed 2	70 – 300 years	50 – 90 percent mortality	Relatively diverse with patches created by mixes of mortality and unburned or underburned areas ranging in size from less than 1 to 25,000 acres of different seral stages, densities, and compositions.
Lethal	100 – 400 years	90+ percent mortality	Relatively homogeneous with patches sometimes greater than 25,000 acres of similar seral stages, densities, and compositions. Small inclusions of different seral stages, densities, and compositions often result from unburned or underburned areas.

For some vegetation groups in the Ecogroup, particularly the warmer and drier groups, fire regimes have shifted rather dramatically from what they were historically. This shift has generally been from non-lethal and mixed1 regimes to mixed2 and lethal regimes, and is primarily due to an increase in fuel loadings, stand densities, and climax species associated with fire exclusion. This shift is reflected in the current vegetative conditions and hazards, and has management implications that are analyzed by alternative in this chapter.

Biodiversity - As noted in Chapter 1, a number of concerns related to biodiversity were identified in the *Preliminary AMS Summary* (USDA Forest Service 1997). Because biodiversity basically encompasses all of life and its interconnections, the revision team chose not to address this topic in this EIS as a separate resource or issue; but rather present current conditions and analyze effects on key components of biodiversity throughout the resource sections of Chapter 3.

PHYSICAL AND BIOLOGICAL SETTING

Issues related to biophysical resources are analyzed in detail in this chapter. These resources include Air, Soils, Water, Riparian, Aquatic Habitat and Species, Terrestrial Habitat and Species, Vegetation Diversity, Vegetation Hazard, Botanical Resources, Non-native Plants, and Fire. A more general description of the biophysical setting for the Ecogroup appears below.

Climate

Climate within the Ecogroup strongly influences human uses and resources, and ecological processes such as biological productivity, fire regimes, soil erosion, and stream flow. The Ecogroup area located north and east of the Snake River lies within the “Northern Rockies” transitional climate zone. The “Snake River Plateaus” continental climatic zone encompasses the rest of the Ecogroup located in southern Idaho and northern Utah.

Northern Rockies

Climate patterns are typically moist and cold in the winter and early spring, and warm to hot and dry during the summer and early fall. The winter climate is influenced by mountain ranges that block most arctic air from entering the Ecogroup. The Snake River and Salmon River valleys, however, can funnel dry arctic air into the basin where it often stagnates. In the late spring and summer, moisture from the Gulf of Mexico may move north and combine with warm temperatures and steep topography to produce brief but high-intensity thunderstorms. Late spring events generally have more precipitation, with 24-hour accumulations often greater than one inch. Dry lightning is more common during summer and fall.

Winter temperatures average between 29 and 9 degrees Fahrenheit. Snowfall ranges from about 55 to 70 inches, with greater amounts at higher elevations. Despite cold winter temperatures, occasional marine intrusions enter the area, with rainfall occurring mainly at elevations below 5,000 feet. These intrusions can produce rain-on-snow events that can trigger floods and landslides. Increased exposure to the maritime air masses creates moister vegetation regimes as one moves progressively north within the area. Average summer temperatures can reach over 100 degrees in lower elevations, with higher elevations in the 80s to 90s. Growing seasons vary greatly, from less than 30 days in the highest alpine areas to over 150 days in the lower valleys.

Snake River Plateaus

Climate patterns are influenced by a variety of climatic zones. This area is influenced by mountain ranges that block arctic air from entering the Ecogroup area. However, artic air can spill over from the Northern Rockies east of this area, and winter inversions may trap this cold air for extended time periods. In the late spring and summer, moisture from the Gulf of Mexico may move north into this area and combine with warm temperatures and steep topography to increase brief but high-intensity thunderstorms. Also, hot unstable air from the Great Salt Lake region can increase thunderstorm and lightning development over the upper plateaus. Dry lightning is common during summer and early fall.

This is the driest part of the Ecogroup and supports various high desert landscapes. This area does not have the same susceptibility to marine intrusions as the northern Rockies. Although rain-on-snow floods are rare in this region, when they occur they are more destructive and of greater magnitude than spring floods. Winter temperatures average between 31 and 12 degrees. Seasonal snowfall typically ranges from 16 to 50 inches. Average summer temperatures generally reach the mid 90s at lower elevations, with the higher elevations in the mid 80s to 90. Growing seasons vary greatly, from less than 50 days in high sub-alpine areas to over 120 days in lower valleys and hill slopes.

Geology and Topography

Elevations vary greatly across the Ecogroup, from 1,600 feet in the Snake River Canyon to over 12,000 feet atop Hyndman Peak east of Sun Valley. This wide range of elevations encompasses a great diversity of geology, flora, and fauna. At least six major landforms have resulted from past geomorphic processes:

- High-elevation distinctive mountains and valley formed from alpine glaciation,
- More subtle high-elevation topography formed by freezing and thawing processes,
- Lands with sharply defined drainage patterns formed by stream-cutting action,
- Depositional lands formed from eroded materials from higher lands,
- Lands formed by volcanic flows,
- High-elevation desert plateaus featuring rolling hills, arid plains, and intermittent mountain ranges.

Geologically, the large northern section of the Ecogroup is dominated by Columbia River basalts to the west, Idaho Batholith granitics in the middle, and Challis volcanics to the east. Major mountain systems include the Sawtooth and Boise Ranges, and portions of the Boulder, Pioneer, Salmon River, and Seven Devils Ranges. Much of the area lies within the Idaho Batholith, the largest contiguous batholith in the United States. The batholith features steep slopes of coarse-textured soils that readily take in and transmit water. Unless these soils are disturbed, surface runoff is rare except during high-intensity storms or rain-on-snow events.

The smaller, southern section of the Ecogroup is a series of high-elevation islands of complex geology located within the dry plains of the Columbia Plateau and Basin and Range Provinces. Mountain ranges here include Albion, Black Pine, and Raft River.

For the purposes of effects analysis and management considerations, the Ecogroup has been broken out into groupings of landtype associations that feature similar geology and topography. These groupings are listed and described in Soil and Water Technical Report.

Water

Watersheds on the Ecogroup provide a continuous supply of water to the Snake and Salmon River Basins. The water resource has many beneficial uses, including aquatic habitat, recreation, irrigation, hydropower, and domestic water supply. The Ecogroup has almost 25,000 miles of stream, and 28,000 acres of lakes and reservoirs, and contains important portions of the Snake, Salmon, Payette, Boise, Big Wood, and Weiser River systems.

For the purposes of effects analysis and management considerations, the Ecogroup has been broken out into groupings of subbasins, watersheds, and subwatersheds that follow the national system for watershed delineation. These are listed and described in the Soil and Water Technical Report.

Vegetation

The wide range of landforms, elevation, and climate across the Ecogroup has produced a wide variety of vegetative conditions. About 70 percent of the Ecogroup lands are considered forested, or capable of supporting trees. Common tree species include ponderosa pine, Douglas-fir, aspen, lodgepole pine, subalpine fir, Engelmann spruce, and whitebark pine. Grand fir and western larch only grow in the northwestern portion of the Ecogroup where conditions are somewhat moister, and pinyon and juniper are limited to the drier, southern end of the Ecogroup. An estimated 28 percent of the Ecogroup is considered non-forested, or dominated by grass, forb, or shrub species. Much of the non-forested vegetation is found at low elevation, on dry southern aspects, or in high-elevation alpine settings.

For the purposes of effects analysis and management considerations, the Ecogroup has been broken out into forested, woodland, shrubland, grassland, and riparian vegetation groups. These general groups are described in the *Vegetation Diversity* section of Chapter 3. The main components of the groups are described in detail in *Appendix A* of the Forest Plans, and in the Vegetation Technical Report.

Terrestrial and Aquatic Species

The Ecogroup area provides habitat for over 300 terrestrial and aquatic species. Elk and deer are the most common large animals, although moose, mountain goat, bighorn sheep, black bear, and cougar are also present. Gray wolves have been recently re-introduced and populations are currently expanding. Other wide-ranging carnivores include wolverine, lynx, and fisher. Bird species include bald eagle, peregrine falcon, great gray owl, northern goshawk, sage grouse, and many migratory land birds.

An estimated 50 species of fish are found in Ecogroup streams and lakes, including about 20 species that have been introduced or moved to areas where they are not native. Native species include anadromous sockeye salmon, currently listed as endangered under the Endangered Species Act, and chinook salmon, steelhead trout, and bull trout, which are currently listed as threatened. Other native species of special concern include westslope cutthroat, Yellowstone cutthroat trout, and Wood River sculpin.

SOCIAL AND ECONOMIC SETTING

Issues related to socio-economic resources are analyzed in detail in this chapter. These resources include Recreation, Scenic Environment, Roads, Roadless Areas, Wilderness, Wild and Scenic Rivers, Tribal Interests and Rights, Timber, and Range. The social and economic effects of these resources are also analyzed on local counties and communities. A more general description of the social and economic setting for the Ecogroup appears below.

Counties and Communities

For analysis purposes, the socio-economic Zone Of Influence (ZOI) for the Ecogroup includes 17 counties and 19 communities in southwestern and south-central Idaho. The 17 counties are Ada, Adams, Blaine, Boise, Camas, Canyon, Cassia, Custer, Elmore, Gem, Gooding, Idaho, Lincoln, Power, Twin Falls, Valley, and Washington. The 19 communities are Cascade, Challis, Council, Crouch/Garden Valley, Emmett, Fairfield, Gooding, Hailey/Bellevue, Idaho City, Ketchum/Sun Valley, McCall/Donnelly, New Meadows, Oakley Valley (Oakley), Raft River Valley (Almo-Malta-Elba), Riggins, Stanley, Treasure Valley (including but not limited to Boise, Eagle, Meridian, Kuna, Nampa and Caldwell), Twin Falls, and Weiser.

For analysis purposes, these counties and communities have been grouped into three categories: urban, urban-adjacent, and rural. Urban counties and communities have little if any Forest System lands, have diversified economies, and are not very dependent on Forest resources. However, urban populations do use the Forests, and they are they are both interested in, and exert a strong influence on, Forest lands and their management. Urban-adjacent counties and communities are those located near or strongly influenced by urban centers. Because many inhabitants are commuters, second-home owners, or retirees, these areas tend not to be heavily dependent on Forest resources, although the counties contain a substantial amount of Forest System lands, and interest in Forest management is high. Rural counties and communities tend to be much more dependent on Forest resources, and therefore Forest management decisions and actions can have substantial social and economic effects.

The populations of the urban and urban-adjacent areas have been growing rapidly and are predicted to continue this growth pattern through the next planning period. Rural areas, on the other hand, have been fairly static, and populations are predicted to remain so or increase at a much slower rate. The social and economic analysis will look at potential effects from the alternatives on populations, community employment and income, lifestyles, land use patterns, social organization, and attitudes, beliefs, and values.

American Indian Tribes

Although no American Indian reservations are located within the Ecogroup area or the Ecogroup’s economic zone of influence, the Nez Perce, Shoshone-Bannock, and Shoshone-Paiute Indian Tribes have off-reservation treaty rights to hunt, fish, and gather on certain federal lands, including the Ecogroup National Forests.

A primary concern of these tribes is the availability and sustainability of resources (plant, animal, fish) that they have traditionally hunted or gathered on what are now National Forest System lands. The issue is the availability of resources in sufficient quantities to allow harvest to satisfy the ceremonial, subsistence, and traditional needs of the tribes, while still providing for the conservation needs of the species.

CHAPTER ORGANIZATION

The remainder of Chapter 3 is organized by resource, focusing on those resources that are related to major issues described in Chapter 1. The resources and issues are presented in a manner that essentially follows the ecosystem management framework, starting with physical and biological components and moving into social and economic components. Each resource section is organized and presented in the format described below. The first three elements of this format define the affected environment, and the last three elements define the environmental consequences.

Affected Environment

Issues and Indicators – This section is divided into three parts for each resource-related issue: (1) a brief issue statement, (2) a background section that describes the origin and various aspects of the issue in detail, and (3) the indicators used to measure effects from the alternatives on the issue.

Affected Area – Briefly describes the geographic area or areas affected for the resource-related issues. Areas may differ for direct, indirect, and cumulative effects. Affected areas may also vary in size depending on the resource, issue, or anticipated activities.

Current Conditions – Describes the current conditions of the resources related to the issues and indicators. This section may also include history, development, past disturbances, natural events, and interactions that have helped shape the current conditions.

Environmental Consequences

Effects Common to All Alternatives – Describes the general type of effects that may occur to the resource from implementation of the alternatives, including any mitigating effects from Resource Protection Methods.

Direct and Indirect Effects – Analyzes the amount and intensity of direct and indirect effects by alternative on the resource-related issues and indicators. Direct effects are caused by an action and occur at the same time and place as that action. Indirect effects are caused by an action but occur later in time or farther removed in distance. This section also looks at the relationship of temporary (1-3 years), short-term (3-10 years), and long-term (>10 years) effects.

Cumulative Effects – Analyzes the cumulative effects to the resource that may result from the incremental impacts of the alternatives when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the other actions (40 CFR 1508.7 and .8).

Analysis Calculations

In the modeling and analysis included throughout Chapter 3, the numbers for Management Prescription Categories, road miles, acres of timber harvest, etc. are all best estimates based on the latest available information. The modeling and analysis conducted for this EIS are intended and designed to indicate relative differences between the alternatives, rather than to predict absolute amounts of activities, outputs, or effects.

MPC-based Analysis

The Forest Plans and the EIS alternatives do not authorize implementation of management activities described in the effects analyses. The Forest Plans set the stage for what future management actions are needed to achieve desired outcomes (desired conditions, goals, and objectives), and they provide the sideboards (standards and guidelines) under which future activities will operate in order to manage risks to biophysical resources and the social and economic environments.

To actually implement site-specific projects, project-level planning, environmental analysis, and decisions must occur. For instance, the Forest Plans may contain direction to close or obliterate roads in order to benefit biophysical resources and to increase management efficiency, but a site-specific analysis and decision must be made for each proposal that involves any specific road closures or obliteration. This process is referred to as “staged decision-making” because a series of decisions are necessary to carry out projects as site-specific needs, priorities, locations, conditions, and public concerns become evident.

Each EIS alternative provides a different mix of management prescriptions (MPCs). The mix of management prescriptions (MPCs) provides an indication of the management goals (i.e., desired outcomes) that subsequent site-specific projects would strive to meet or move toward. Thus, the mix of MPCs allocated under each alternative is often used in the EIS effects analyses as a means to differentiate between and compare alternatives. The MPC-based effects analyses compare potential effects from various management activities that could occur under various combinations of MPCs represented by the alternatives. These effects are modeled based on assumptions about the type, amount, and intensity of management activities that would be allowed or emphasized under each MPC. As stated above, the modeled effects in the EIS are designed to show relative differences in alternatives—not to accurately predict the amount or location of management activities that would occur during the planning period should that alternative be selected for implementation.