

# 1

## Purpose and Need

## **Changes in Chapter 1 Between Draft and Final EIS**

**The Purpose and Need (FEIS Sec. 1.1) has been revised to clarify that the spruce/fir stands may not be outside of the historic range of variation due to extended historic fire intervals.**

**Some of the Forest Plan Direction that is not relevant to this project was removed.**

**Guideline (G7) has been added under Soil and Water Resources in FEIS Sec. 1.5.1.4.**

**The description of properly functioning and desired future conditions for spruce/fir has been clarified under FEIS Sec. 1.1.**

**Descriptions of West Bear Analysis Area Desired Future Conditions under DEIS Section 1.5.1.7 have been incorporated into the Purpose and Need in FEIS Section 1.1.**

# CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

## 1.01 Document Structure ---

The Forest Service has prepared this Environmental Impact Statement in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Impact Statement discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four chapters:

*Chapter 1. Purpose and Need for Action:* The chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

*Chapter 2. Alternatives, including the Proposed Action:* This chapter provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.

*Chapter 3. Affected Environment and Environmental Consequences:* This chapter describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area.

*Chapter 4. Consultation and Coordination:* This chapter provides a list of preparers and agencies consulted during the development of the environmental impact statement.

*Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental impact statement.

*Index:* The index provides page numbers by document topic.

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

## 1.02 Background ---

Following an outbreak of spruce bark beetles in the early 1990's in the Meadow and Humpy Creek areas, and discussions of current aspen and conifer forest conditions, the Evanston Ranger District initiated a landscape assessment of the larger West Bear Drainage. This analysis was completed in February of 2002 (USDA FS 2002). It described existing forest conditions and potential management actions to move the landscape toward a desired future condition.

## 1.1 Purpose and Need ---

The purpose of this project is to move the forested portions of this landscape toward properly functioning condition and to move toward a variety of vegetation types, age classes, and patch sizes covering the landscape. This will provide for healthier watersheds, aquatic and terrestrial wildlife habitats, and recreation environments. It will also produce commodities such as lumber and forage.

This action is needed because the Wasatch-Cache Revised Forest Plan (USDA FS 2003) on Page 4-29 identified a need to treat vegetation within the aspen, aspen/conifer, spruce/fir and mixed conifer forest types on the forest to maintain or move the forests toward properly functioning condition. A forest-wide assessment concluded that aspen communities as well as conifer, sagebrush and several other vegetation types are currently outside the historic range of variation, primarily related to the absence of naturally occurring fire in vegetation types that evolved with repeated fires. Spruce/fir stands are probably not outside the range of variation at the stand level since they have an extended fire return interval that is longer than the fire interval for other conifer types. However, it is less certain that spruce/fir, at the landscape level, has a distribution of age classes that is representative of historical ranges. The

continuous old spruce-fir forests on the landscape may be uncharacteristic due to fire suppression and a resulting poor representation of younger age classes.

The Forest Plan describes the forest-wide desired future conditions for aspen and conifer stands in terms of a variety of age classes across the landscape representing a variety of seral stages in varying patch sizes. Pine and spruce beetle infestations are kept to an endemic level through the use of a variety of management tools including timber harvest, prescribed fire, and wildland fire use (USDA FS 2003, p 4-8).

In the Forest Plan Revision process, it was recognized that aspen is a short-lived species relative to the conifer species it is commonly associated with. In addition to a shorter life span, the characteristic of regenerating from sprouts moves the stands through the various age/size classes faster than the conifer species. To reflect this rapid development through the earlier seral stages and the shorter life span, Forest Plan desired future conditions and modeling used a three age class breakdown: grass/forb/seedling/sapling (0-20 years in the Uinta Mountains), immature (20-70 years), and mature (greater than 70 years). Refer to Forest Plan FEIS pp.3-89 to 3-90, B1-3 (USDA FS 2003b). The old class is undefined for the aspen cover type; it is included in the mature class. The desired age class diversity for aspen is:

- Grass/forb/seedling/sapling: 20-40%
- Immature: 20-40%
- Mature: 20-40%

The subregional assessment of PFC for the Uinta Mountains indicates that at properly functioning condition, 30% of the aspen stands would be in the mature and old class, or older than 70 years (USDA FS 1998). The West Bear Landscape assessment was completed during the Forest Plan revision process and incorporated the above guidelines. It further discussed PFC, including composition objectives for the major forest types in the area. These include:

- Spruce/fir: more than 40% of the trees are Engelmann spruce.
- Mixed Conifer: more than 40% of trees are Engelmann spruce and/or lodgepole pine. Subalpine fir may comprise up to 1/3 of the overstory as stands develop into mature and old age classes.
- Aspen and Aspen/Mixed Conifer: conifer composition would not be more than 15% of the overstory cover in most stands where lodgepole pine is not codominant with aspen.
- Lodgepole pine: more than 80% of the trees are lodgepole pine.

Timber harvest and prescribed fire would create some of the forest structure and patch size characteristics that existed historically. This would reduce the likelihood of bark beetle epidemics. Schowalter and Withgott (2001) describe a situation in southern pine forests that has some relevance in the West Bear analysis area. They state that fire suppression allows seedlings, especially shade-tolerant, fire-intolerant species, to grow thickly under mature pines. This turns what should be an open habitat into a dense and thicketed forest—and produces trees stressed by competition for water and nutrients. The dense forest structure allows pine beetles to spread from one weakened tree to another, across entire stands. In other words he states, the problem is not the beetles per se but rather the overcrowding of host plants caused by fire suppression or other factors. We have unintentionally created a forest that no longer works “ecologically”. In those cases where we cannot afford the fire risks entailed in letting an outbreak run its course, we may need to thin the understory such that we restore forest structures that are resistant to fire, insects, and disease.

Properly functioning condition incorporates changing the Fire Regime Condition Class (FRCC) to bring forests into natural or historic fire regimes (refer to Fire and Fuels Specialist Report, Section 3.5). FRCC is a measure of the departure from the natural fire regime of a landscape, with FRCC1 being low departure (fire regimes are within the natural or historic range), and FRCC3 indicating high departure (fire regimes have been substantially altered and risk of losing key ecosystem components is high). As shown in the Fire and Fuel Specialist Report (Corbin and Padgett 2005), the West Bear landscape is in the upper end of FRCC2 (moderate departure). Bringing the landscape into FRCC1 would involve reducing the density of the forests and creating additional acres of early seral stages (grass/forb and seedling/sapling).

Attainment of PFC/FRCC occurs on two levels. At the watershed scale, properly functioning condition is dependent upon a combination of naturally occurring disturbances and management activities because watersheds include several management prescriptions, some of which permit and some of which limit management activities. To

achieve the reference condition would require over 1,751 and 2,700 acres of early seral acres within the West Bear and Hayden Fork watersheds, respectively. Because of the management prescriptions, that level of treatment would require wildland fire use, which is approved for portions of the Hayden Fork but not within the West Bear analysis area in the WCNF Wildland Fire Use Plan (USDA FS 2005b).

On a smaller scale, management techniques such as harvest and prescribed fire can achieve PFC for portions of watersheds by reducing stand density and creating additional acres of early seral stages. While such activities may have limited affect on PFC and FRCC for the entire watershed or landscape scale, they do alter FRCC and move stands toward PFC within the smaller area. This strategy is particularly useful in areas of the Forest that: (1) receive most of the human activity and are therefore most susceptible to human caused fires, (2) are adjacent to private property or (3) have other resource values that do not permit wildland fire use as a primary tool to achieve PFC. Harvest and prescribed fire treatments that modify stand conditions can create resilient forests and return stands to more natural or historic disturbance regimes for those stands that meet one or more of the above criteria.

It is apparent that developing PFC is a long-term endeavor requiring multiple entries over many decades. The current proposal would not achieve PFC in any of the treated stands. However, treatment would begin to move the stands toward PFC by creating new age classes while taking action to maintain the current large tree character of the forest. Future entries, in the absence of major disturbance, are two or more decades in the future. Nothing proposed in this project would establish a precedent for future entries, and no future proposals exist at this time.

Forest cover type desired future conditions (DFCs) from the West Bear Ecosystem Management Project are discussed in the following sections (See Map 10 in Appendix A).

#### **Spruce/fir**

Patch size would simulate historic conditions and vary by cover type. "Silviculture, however, does not precisely mimic nature, because nature's ways are far more random and sometimes more catastrophic than silviculturists or society finds acceptable" (Baker 1996). Harvest in spruce/fir stands would simulate natural disturbance such as small windthrow or endemic beetle pockets, with a goal being to reduce risk of spruce beetle epidemics over the long term and ensure areas with old forest characteristics continue to exist. Spruce/fir would be characterized by large patch size, but structure would vary within the patch. An individual patch would be uneven-aged, with scattered large trees (> 24" diameter), scattered small openings ranging from ¼ to ½ acre in size predominately occupied by spruce seedlings, and the intermediate sizes well represented. Spruce/fir stands that are available for management would be managed to achieve 10% of the area in both grass/forb and seedling/sapling, and 20% of the area in each of the young and old classes. The first entry could achieve the 10% grass forb and 10% seedling classes but achieving the total balance of age classes would take 3 or 4 more entries over time. Future management would determine the frequency and design of these entries. Spruce beetle occurrence would be more likely to be limited to endemic activity following these future entries. Proactive management in the spruce/fir cover type would reduce the hazard rating of the stands by reducing total basal area and the basal area of the larger, more susceptible trees.

#### **Mixed Conifer and Lodgepole Pine**

In the mixed conifer and lodgepole pine cover types the patch size would simulate the larger disturbances that occurred in these types. Where spruce and subalpine fir is the predominant species within the Mixed Conifer type, small openings of ½ to 1 acre within the larger patch would occur. Where lodgepole pine is the predominant species, large, even aged patch sizes of up to 250 acres would prevail.

Spruce beetle and mountain pine beetle occurrence would be limited to endemic activity in the future forest. Proactive management in the mixed conifer cover type would reduce the hazard rating of the stands by reducing total basal area and the basal area of the larger, more susceptible trees.

#### **Aspen and Mixed Aspen/Conifer**

In the stands of mixed aspen and conifer the patch size would vary from 30 to 400 acres. Smaller patch sizes tend to subject aspen suckers to intensive browsing and grazing pressure. The grass/forb and seedling/sapling classes would comprise 20 to 40% of the stands, with 20 to 40% in young, and 20 to 40% in mature age classes. The current trend of aspen conversion to conifer would be reversed in the future forest. To perpetuate aspen/mixed conifer, treatments

will be needed before succession moves the stand into the mid-aged conifer condition. Beyond that stage, aspen would tend to be eliminated from the stand by competition from longer-lived spruce and fir. Bartos (2001) states that there are numerous situations where aspen are being replaced by less desirable vegetation types such as subalpine fir. In turn, these type conversions are modifying the sites dramatically. In most areas of the West, these modified aspen clones should be given top priority for treatment. Aspen would be regenerated in large patches through fire and harvest treatments.

Timber harvest will continue to be a management objective in the West Fork Bear River landscape, and will serve as an important tool to achieve other management objectives both within and outside of the suitable timber base. The amount of timber harvested in any decade will be driven by identified needs and the blended desired future conditions of all resources. Managing the forest vegetation to maintain wildlife corridors, reduce insect risk, increase the aspen component, and create a more balanced distribution of size classes will provide and sustain a timber output.

This action responds to the goals and objectives outlined in the Wasatch-Cache Revised Forest Plan, and helps move the project area towards desired conditions described in that plan. The West Fork Bear Ecosystem Management Plan identified desired future conditions for the West Fork Bear landscape and management actions that could help to progress toward those conditions.

**Photo 1.1.1 Gradual Replacement of Aspen by Conifers.** Proposed Unit 34, outlined in the photo, lies slightly left and above the center of this photo, surrounded by conifers. A dense understory of sapling and larger subalpine fir has developed in this old aspen clone. The Whitney Reservoir road is visible in the lower portion of the photo.



## 1.2 Proposed Action

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The action proposed by the Forest Service to meet the purpose and need includes timber harvesting, prescribed burning, construction of temporary roads, intermittent service roads, and minor reconstruction of existing system roads. Treatment would involve group selection harvest in spruce/fir and mixed conifer stands, small (1 to 5 acre) patch cutting in mixed aspen/conifer stands, conifer removal and prescribed burning in aspen/conifer stands, and

burning within aspen stands. The proposal includes retaining green trees and snags for wildlife habitat and puts riparian no harvest zones along stream to protect aquatic habitats. Approximately 1,686 acres within 38 units would be treated under the proposal. Harvests would be accomplished using ground-based systems, and in conformance with Forest Plan Standards and Guidelines. Approximately 10,220 hundred cubic feet (ccf) would be harvested. Approximately 523 acres of aspen and mixed aspen/conifer would be burned following removal of conifers on those acres. Access to the timber would require the construction of approximately 7.8 miles of temporary roads, 0.9 miles of intermittent service system roads, and relocation of approximately 0.6 miles of existing system roads to reduce sedimentation to lakes and streams and improve road drainage. All temporary roads would be recontoured / rehabilitated after harvest. Proposed reconstruction or relocation of existing roads would emphasize improving drainage design of the roads near stream crossings and relocating or improving drainage where the roads are near stream channels. No harvest or road construction would take place in inventoried roadless areas. Firelines would be constructed where needed prior to burning to reduce the probability of fire escaping the boundaries. Approximately 1.8 miles of firelines would be needed.

### 1.3 Project Area

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The West Bear Ecosystem Management Project analysis area covered private and National Forest System land in the West Fork of the Bear River and its tributaries (Meadow Creek, Humpy Creek, Deer Creek, Coyote Hollow, Road Hollow, and Mill City Creek). After reviewing logical and needed aspen treatments in the area, the Interdisciplinary team decided to add several unnamed tributaries on the west side of the Hayden Fork of the Bear River to the general analysis area for the West Bear Vegetation Management Project EIS analysis area (See Appendix A, Map #1). The additional proposed treatment area lies between Highway 150 and Mill City Creek.

Although no treatments are proposed in roadless areas, the entire West Bear River drainage and the entire drainages of the unnamed tributaries of the Hayden Fork including roadless areas but excluding private land are included in the general analysis area. For purposes of accurate effects analysis, analysis areas for some resources such as water resources are different from the general analysis area. Any differences are described in the appropriate resource section in Chapter 3. Cumulative effects analysis areas are described as well.

### 1.4 Decision Framework

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Given the purpose and need, the Forest Supervisor reviews the proposed action, the other alternatives, and the environmental consequences in order to decide whether and how to manage the forested areas in the West Bear project area in accordance with Forest Plan goals, objectives and desired future conditions. This decision will include:

- The location and design of timber harvest and prescription burning, fireline locations, road construction and reconstruction, and silvicultural practices;
- The estimated timber volume, if any, to make available from the project area at this time (and the number and size of the individual timber sales); and
- Mitigation measures and monitoring requirements.

### 1.5 Relationship to Revised Forest Plan

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The 2003 Revised Forest Plan sets forth management direction for managing the land and resources of the Wasatch-Cache National Forest. The Forest Plan is the result of programmatic analysis, which is addressed in the Forest Plan FEIS. The West Bear Vegetation Management EIS is a project-level analysis; its scope is confined to addressing the significant issues and possible environmental consequences of the project. It is being analyzed under the transitional language of the 2005 Planning Rule. Where appropriate, the West Bear Vegetation Management EIS tiers to the Forest Plan FEIS, as encouraged by 40 CFR 1502.20.

#### 1.5.1 Revised Forest Plan Management Direction

Chapter 4 of the Revised Forest Plan contains Forest-wide as well as area-specific management direction. The components of this direction that are pertinent to the West Bear Vegetation Management EIS are summarized below. Full descriptions of these can be found in the Revised Forest Plan available online at [www.fs.fed.us/r4/wcnf/projects/feis/revised\\_forest\\_plan.pdf](http://www.fs.fed.us/r4/wcnf/projects/feis/revised_forest_plan.pdf).

### 1.5.1.1 Forest Wide Desired Future Conditions

#### ***Air Quality and Smoke Management***

Ambient air quality and visibility values across the Forest are within Federal and state standards for particulate matter and visibility.

#### ***Soil, Water, Riparian, and Aquatic Resources***

Desirable riparian vegetation occupies the historical floodplain. Riparian areas provide for fish, wildlife, and water quality requirements. The amount, distribution, and characteristics of habitats are present to maintain viable populations of historically present and desirable non-native species. Habitat conditions contribute to the delisting of species under the Endangered Species Act, and prevent further listing of species under the Act, or adding species to the Forest Service sensitive species list. Restoration activities have resulted in maintaining necessary water temperatures, reducing pollutants such as sediment, and removing barriers to fish passage to enhance population and habitat connectivity where genetic contamination to native fish species from exotic species is not an issue. Degradation of soil quality and loss of soil productivity is prevented. Soil-hydrologic function and productivity in riparian areas is protected, preserving the ability to serve as a filter for good water quality and regulation of nutrient cycling. Soil productivity, quality, and function are restored where adversely impaired and contributing to an overall decline in watershed condition.

#### ***Wildlife Resources***

The amount, distribution, and characteristics of vegetation (live and dead) are present at levels necessary to maintain habitat for viable populations of native and desired non-native wildlife species. Species abundance and distribution change by management activities and naturally occurring events that alter structure, composition, processes, and patterns of vegetation. Management actions move habitat conditions toward Historic Range of Variability (HRV), contribute to recovery of listed species, and maintain or improve conditions for sensitive species. Human activities are at a level that allows species to maintain desired distribution during critical life stages. Habitat conditions support populations of species for recreational, traditional and cultural significance.

#### ***Vegetation***

Historical Range of Variability (HRV) and Properly Functioning Condition (PFC) are used to characterize vegetation, based on an array of potential vegetation groups or cover and community types. HRV and PFC represent desired ranges, and management activities result in resource conditions that remain within or more toward these desired ranges. Managed forest stands are dominated by seral tree species. In other areas, forests move through successional stages toward climax conditions, interrupted only by natural disturbance events. Aspen is managed to provide wildlife habitat, recreational opportunities, livestock forage, wood products, aesthetic values, and plant and animal diversity. Conifer forests contain a variety of age classes and successional stages in varying patch sizes. Spruce and pine beetle infestations are kept to an endemic level through the use of a variety of management tools, including timber harvest, prescribed fire, wildland fire use. Mature forests are maintained at sizes, which are functionally adequate for supporting dependent species. Connectivity between forested stands is maintained at different scales to provide linkages and corridors for movement. Timber harvests occur in areas suited for timber harvest at sustainable levels, with protections provided for other ecosystem components. Native species are present in amounts and distribution similar to historical patterns, including species that were once listed, or proposed for listing, as threatened or endangered under the ESA, or listed as sensitive by the Regional Forester.

#### ***Botanical Resources***

Native species are present in amounts and distribution similar to historical patterns, including species that were once listed, or proposed for listing, as threatened or endangered under the ESA, or listed as sensitive by the Regional Forester. Populations of non-native plant species are reduced or eradicated in rare plant actual and potential habitat.

#### ***Non-Native Plants***

Established noxious weed infestations are not increasing or reduced to low densities. Native plants dominate most landscapes that have been rehabilitated.

#### ***Fire Management***

Fire—both prescribed and wildland—is used as a tool to enhance ecosystem resiliency and to maintain desired fuel levels. Fire plays its natural role where appropriate and desirable, but is actively suppressed where necessary to protect life, investments, and valuable natural resources. Effects of wildland fire are acceptable, and fire operates within historical (within the last 500 years) fire regimes appropriate to the vegetation type.

#### ***Recreation Resources***

People visiting the National Forest find opportunities for a wide spectrum of recreation experiences that are harmonious with predominantly natural settings. A balance of diverse landscapes offer a variety of settings for a wide range of activities, including primitive settings where there are opportunities for solitude, risk and challenge, to more modified settings where there are opportunities for social interaction, comfort and less risk.

#### ***Scenic Environment***

The Wasatch-Cache National Forest provides a balance of diverse landscapes and natural settings. The high scenic quality in areas of outstanding value, and other highly used recreation areas and corridors are protected or enhanced.

#### ***Tribal Rights and Interests***

Lands within the Forest serve to help sustain American Indians' way of life, cultural integrity, social cohesion, and economic well being.

#### ***Social and Economic***

Sustainable and predictable levels of goods and services are provided contributing to community resiliency. Firewood, post and poles, sawlogs, forage, oil and gas, and other products are provided consistent with management direction. Local economic development goals are considered when developing National Forest land uses and management strategies.

### **1.5.1.2 Forest Wide Goals**

#### ***Air Resource***

Ensure National Forest management activities result in meeting state and federal air quality standards, and comply with local, state and federal air quality regulations and requirements.

#### ***Watershed Health***

Maintain and/or restore overall watershed health (proper functioning of physical, biological and chemical conditions). Provide for long-term soil productivity. Watershed health should be addressed across administrative and political boundaries.

#### ***Biodiversity and Viability***

Provide for sustained diversity of species at the genetic, populations, community and ecosystem levels. Maintain communities within their historic range of variation that sustains habitats for viable populations of species. Restore or maintain hydrologic functions. Reduce potential for uncharacteristic high-intensity wildfires, and insect epidemics. To achieve sustainable ecosystems, meet properly functioning condition (PFC) criteria for all vegetation types that occur in the Wasatch-Cache National Forest. Focus on approximating natural disturbances and processes by restoring composition, age class diversity, patch sizes, and patterns for all vegetation types.

#### ***Fire and Fuels Management***

Wildland fire use and prescribed fire provide for ecosystem maintenance and restoration consistent with land uses and historic fire regimes

#### ***Recreation***

Manage for an array of recreation opportunities and settings to improve the quality of life for a variety of Forest recreation users. Balance growth and expansion of recreation by managing within the capability of sustainable ecosystems found on the Forest for today and the future.

#### ***Social/Economic Contributions***

Contribute to the social and economic well-being of local communities by promoting sustainable use of renewable natural resources and by participating in efforts to devise creative solutions for economic health (diversity and resiliency). Provide timber for commercial harvest, forage for livestock grazing, exploration and development opportunities for mineral resources, and settings for recreation consistent with goals for watershed health, sustainable ecosystems, biodiversity and viability, and scenic/recreation opportunities.

### **1.5.1.3 Forest Wide Objectives to Achieve Desired Conditions**

#### ***Vegetation Management***

- 3.b. Stimulate aspen regeneration and reduce other encroaching woody species in aspen by treating (fire use and/or timber harvest) approximately 3,200 acres average annually for a 10-year total of 32,000 acres.
- 3.c. Restore natural disturbance patterns and increase age-class diversity in conifer cover types by treating (timber harvest and/or fire use) approximately 850 acres average annually for a 10-year total of 8,500 acres.

#### 1.5.1.4 Forest Wide Standards and Guidelines

Standards (S) are binding limitations to be placed on management activities within the Plan area; they are within the authority and ability of the Forest Service to enforce. Adherence is mandatory. A project that varies from a relevant standard may not be authorized unless the Forest Plan is amended to modify, remove, or waive application of the standard.

Guidelines (G) are statements describing a preferred or advisable course of action that is generally expected to be carried out. Deviation from compliance does not require Forest Plan amendment, but the rationale for such deviation shall be documented in the project decision document.

##### ***Air Resources***

(G1) Minimize the amount and impact of smoke from “fire use” activities by identifying smoke-sensitive areas, using “best available control measures,” monitoring smoke impacts, and following guidance in State smoke management plans.

##### ***Soil and Water Resources***

(S1) Allow no ground-based skidding and oil and gas surface occupancy on slopes greater than 40%.

(S2) Apply runoff controls during project implementation to prevent pollutants including fuels, sediment, oils, from reaching surface and groundwater.

(G4) At the end of an activity, allow no more than 15% of an activity area (defined in Forest Plan Glossary) to have detrimental soil displacement, puddling, compaction and/or to be severely burned.

(G5) Do not allow activities that could result in water yield increases that would degrade water quality and impact beneficial uses.

(G7) Manage Class 1 Riparian Area Greenlines for 70% or more late-seral vegetation communities as described in Intermountain Region Integrated Riparian Evaluation Guide. Manage Class 2 Riparian Area greenlines for 60% or more late-seral vegetation communities. Manage Class 3 Riparian Area Greenlines for 40% or more late-seral vegetation communities.

(G8) In stream channels naturally occurring debris shall not be removed unless it is a threat to life, property, important resource values, or is otherwise covered by legal agreement.

(G9) Avoid soil disturbing activities (those that remove surface organic matter exposing mineral soil) on steep, erosive, and unstable slopes, and in riparian, wetlands, floodplains, wet meadows, and alpine areas.

(G11) Use Best Management Practices and Soil and Water Conservation Practices during project level assessment and implementation to ensure maintenance of soil productivity, minimization of sediment discharge into streams, lakes and wetlands to protect of designated beneficial uses.

(G12) Locate new actions (such as incident bases, fire suppression camps, staging areas, livestock handling facilities, recreation facilities, roads and improvements including trails) outside of Riparian Habitat Conservation Areas. If the only suitable location for such actions is within Riparian Habitat Conservation Areas, sites will be located to minimize resource impacts.

(G13) Any long-term crossing of stream channels containing fish habitat will provide for desirable aquatic passage.

##### ***Biodiversity and Viability/Terrestrial and Aquatic Habitats***

(S8) In Lynx Analysis Units with current habitat at 30% or more in unsuitable condition (defined in Forest Plan Glossary), allow no vegetation management activities that would result in a further increase of unsuitable conditions.

(S9) Timber management projects shall not change more than 15% of lynx habitat within a Lynx Analysis Unit to an unsuitable condition.

(S12) Prohibit forest vegetation treatments within active northern goshawk nest areas (approximately 30 acres) during the active nesting period.

(S13) At least 20 percent of each forested cover type by ecological section (McNab and Avers 1994) shall be maintained with old forest landscape structure with patch sizes of at least 10 acres. These old forest areas are dynamic, changing location as disturbances occur.

(G14) Manage vegetation for properly functioning condition at the landscape scale. Desired structure and pattern for cover types of the Wasatch-Cache National Forest are as follows except in the Wildland Urban Interface, where vegetation structure and pattern should be managed to reduce threat of severe fire to property and human safety.

**Table 1.5.1. Desired Structure and Pattern for Cover Types**

Cover Type	Landscape Structure	Landscape Patterns
Engelmann Spruce-Subalpine Fir	Balanced Range: Grass/Forb about 10% Seedling/Sapling about 10% Young Forest about 20% Mid Aged Forest about 20% Mature Forest about 20% Old Forest about 20%  40% of the stands have multiple canopies. Stand Density Index (SDI) not greater than 335 and Basal Area less than 150	Patterns are within historical ranges. Pattern sizes, shapes and corridors are maintaining processes. The role of fire is to maintain a heterogeneous pattern of species and structure classes. A mixed severity fire regime produces vegetation mosaics due to patchy nature of the fire, preventing development of large continuous blocks of homogeneous ages and species.
Aspen	Balanced Range: Grass/Forb and Seedling/Sapling = 40 % Young, Mid Aged and Mature forests = 30% Old Forests = 30%  Stand Density Index not greater than 300 and Basal Area less than 140.	Patterns are within historical ranges. Pattern sizes, shapes and corridors are maintaining processes. The role of fire is to influence distribution of structural classes and patterns across landscapes.
Mixed Conifer (Uinta Mountains)  This cover type is not listed in the Regional PFC document.	Balanced Range: Grass/Forb about 10% Seedling/Sapling about 10% Young Forest about 20% Mid Aged Forest about 20% Mature Forest about 20% Old Forest about 20%	Patterns are within historical ranges. Pattern sizes, shapes and corridors are maintaining processes.
Lodgepole Pine	Balanced Range: Grass/Forb about 10%	Patterns are within historical ranges. Pattern sizes, shapes and corridors are maintaining processes. The role of fire is to

Cover Type	Landscape Structure	Landscape Patterns
	Seedling/Sapling about 10% Young Forest about 20% Mid Aged Forest about 20% Mature Forest about 20% Old Forest about 20%  20% of the stands have multiple canopies. Stand Density Index (SDI) not greater than 350 and Basal Area less than 90 sq. ft.	maintain a heterogeneous pattern of age and size classes across the landscape.
Riparian	Amount and type of vegetation community types present that maintain riparian-dependent resources and provide a high rate of recovery following disturbance.	Plant community type compositions and accompanying riparian ecosystem functions maintain proper ground water recharge, storage, delivery, water tables, channel morphology and bank stability.

(G15) In goshawk habitat design all management activities to maintain, restore, or protect desired goshawk and goshawk prey habitats including foraging, nesting and movement.

(G16) When treating vegetation in the following cover types, maintain or restore snag and woody debris habitat components at the stand level (where they are available distributed over each treated 10 acres). If the minimum number of snags is unavailable, green trees should be substituted. If the minimum size is unavailable, then use largest trees available on site.

**Table 1.5.2. The snag and woody debris requirements for spruce/fir, mixed conifer, Douglas fir, lodgepole, aspen-lodgepole and aspen forest types.**

Forest Type	Snags			Woody Debris		
	Minimum Diameter (Inches)	Retention Density (minimum snags per 10 acres)	Minimum Snag Height (feet)	Minimum Coarse Debris (≥ 3 inches) Tons (per 10 Acres Down Logs)	Minimum Down Logs (per 10 acres)	Minimum Log Size diameter/length (midpoint or largest available)
Spruce/fir	18	30	30	100	50	12 inch/8 feet
Mixed Conifer	18	30	30	100	50	12 inch/8 feet
Douglas Fir	18	30	30	100	50	12 inch/8 feet
Lodgepole	8	30	15	50	50	8 inch/8 feet
Aspen-Lodgepole	8	30	15	50	50	8 inch/8 feet
Aspen	8	200	15	30	50	6 inch/8 feet

(G17) Where snags or coarse woody debris are below the desired range, the felling of snags and transport of felled snags or coarse wood off-site including firewood gathering will not be allowed, except to reduce hazards to humans or property along roads, trails, and in or adjacent to developed facilities.

(G18) In Lynx Analysis Units design all management activities to maintain, restore, or protect desired lynx and lynx prey habitats including foraging, denning and movement.

(G19) In Lynx Analysis Units with less than 10% denning habitat well-distributed, retain disturbance areas smaller than 5 acres with tree mortality that could contribute to denning habitat.

(G20) In Lynx Analysis Units maintain or restore (defer action) denning habitat in patches larger than 5 acres comprising at least 10% of habitat.

(G21) For projects that may affect Forest Service Sensitive species, develop conservation measures and strategies to maintain, improve and/or minimize impacts to species and their habitats. Short-term deviations may be allowed as long as the action maintains or improves the habitat in the long term.

(G22) Use native plant species, preferably from genetically local sources (harvesting seed from a project area's native species prior to project implementation), in revegetation efforts to the extent practicable. If no native seed of suitable origin is available, then certified weed free non-persistent non-natives may be used.

(G23) Avoid actions on the Forest that reduce the viability of any population of plant species classified as Threatened, Endangered, Sensitive or recommended sensitive. Use management actions to protect habitats of plant species at risk from adverse modification or destruction. For species that naturally occur in sites with some disturbance, maintain the appropriate level of disturbance.

(G24) Management activities that negatively affect pollinators (e.g., insecticide, herbicide application and prescribed burns) should not be conducted during the flowering period of any known Threatened, Endangered, and Sensitive plant populations in the application area. An exception to this guideline is the application of *Bacillus thuringiensis*.

(G25) Integrated weed management should be used to maintain or restore habitats for threatened, endangered, proposed and sensitive plants and other native species of concern where they are threatened by noxious weeds or non-native plants. When treating noxious weeds comply with policy in Intermountain Region's Forest Service Manual 2080, Supplement #R4 2000-2001-1 (Appendix III).

### ***Roads, Trails, and Access Management***

(S20) When constructing or maintaining roads, trails and facilities, use Best Management Practices to minimize sediment discharge into streams, lakes and wetlands.

(G44) When constructing and reconstructing roads, trails, and facilities minimize potential effects on habitat of plant species at risk and key big game winter and spring ranges.

(G45) Access routes for heavy equipment should be selected to limit disturbance to riparian vegetation and to limit the number of stream crossings.

(G46) Specify and control locations for water supply points, service areas, and any other needs for road and facility construction projects.

(G47) Waste material should be handled in a manner to avoid sidcasting materials to areas where they may enter a stream.

### ***Scenic Resources***

(S22) Management actions that would result in a scenic integrity level of Unacceptably Low (defined in Forest Plan Glossary) are prohibited in all Landscape Character Themes.

(G59) Manage Forest landscapes according to Landscape Character Themes, and Scenic Integrity Objectives as mapped. (See Forest Plan Chapter 4, A.7. Scenery Management for definitions).

(G60) Resource management activities should not be permitted to reduce Scenic Integrity below Objectives stated for Management Prescription Categories.

(G61) For management activities viewable from Concern Level 1: (defined site-specifically) Scenic Byways (viewshed corridors 0-4 miles) and use areas, travelways, and Scenic Backways (viewshed corridors <1/2 mile) apply the Landscape Character Theme in which the management activity occurs and apply a Scenic Integrity Objective of high.

(G62) For management activities viewable from Concern Level 2: (defined site-specifically) use areas and travelways (viewshed corridors <1/2 mile) apply the Landscape Character Theme in which the management activity occurs and apply a Scenic Integrity Objective of at least moderate.

(G63) Duration of visual impacts to allow for herbaceous and woody plants are established will be determined during project planning by the following criteria:

- Capability of the landscape to recover.
- The relationship of management activity to the seen area of sensitive, use areas and travel ways.

(G64) Establishment of herbaceous vegetation may extend to 3 years after project completion for foreground and middleground in Concern levels 1 and 2 use areas and travel ways. Consider immediate initiation of reseeding in these areas where natural recovery is questionable.

### **Timberland Resources**

(G65) The choice of silvicultural system should be one that allows emulation of the pattern (including size), timing, and frequency of natural disturbances found in the landscape being treated (For emphasis, FSH 2409.26).

(G67) Timber cutting on other than suitable lands may occur for such purposes as salvage, fuels management, insect and disease mitigation, protection or enhancement of biodiversity or wildlife habitat, or to perform research or administrative studies or scenic-resource management consistent with other management direction.

(G69) Apply the following appropriate silviculture systems by Forest Cover Type

**Table 1.5.3. Management activity appropriate by forest cover type.**

<b>Management Activity</b>	<b>Engelmann Spruce/ Subalpine Fir</b>	<b>Lodgepole Pine</b>	<b>Interior Douglas-Fir and White Fir</b>	<b>Aspen</b>	<b>Mixed Conifer</b>
<b>Silvicultural System – EVEN-AGED</b>					
Clearcut with Reserves	N	A	WJ	A	WJ
Shelterwood	A	A	A	N	A
Seedtree	N	N	WJ	N	WJ
Coppice	N	N	N	A	N
<b>Silvicultural System – TWO-AGED</b>					
Irregular Shelterwood	A	A	A	N	A
Coppice with Standards	N	N	N	A	N
<b>Silvicultural System – UNEVEN-AGED</b>					
Group Selection	A	A	A	A	WJ
Single-tree Selection	A	N	A	N	WJ
<b>Stocking Control: (thinning)</b>					
Precommercial	A	A	A	N	A
Commercial	A	A	A	N	A
Salvage of Dead Material	A	A	A	A	A
<b>Reforestation</b>					
Site Preparation	A	A	A	WJ	A
Planting	A	A	A	N	WJ
Seeding	N	N	N	N	N
Natural	A	A	A	A	A
Regeneration Protection	WJ	WJ	WJ	WJ	WJ
Tree Improvement	WJ	WJ	WJ	WJ	WJ
A = Acceptable, WJ = When Justified, N = Not Acceptable					

(G70) When trees are harvested on suitable lands, the cutting must be in such a way that units are adequately restocked within five years after final harvest. Minimum restocking levels are defined in the following table.

**Table 1.5.4. Minimum trees restocking level by tree species, with percent area meeting minimum stocking level.**

<b>Species</b>	<b>Minimum Stocking (Trees/Acre)</b>	<b>Percent of Area Meeting Minimum Stocking</b>
Lodgepole pine	150	70
Douglas-fir	150	70
Mixed Conifer	150	70
Spruce/fir	150	70
Aspen	300	70

### ***Heritage***

(S32) Review undertakings that may affect cultural resources to identify potential impacts. Compliance with Sections 106 and 110 of the National Historic Preservation Act shall be completed before the responsible agency official signs the project decision document.

(G88) Design any mitigation measures necessary to resolve adverse affects to sites in such a way that they provide the maximum public benefit that the sites (or the information derived from them) can offer.

### **1.5.1.5 Management Prescriptions**

The Revised Forest Plan includes multiple map layers with accompanying definitions and management direction. The primary maps are Management Prescriptions (MP), Recreation Opportunity Spectrum (ROS), Winter Recreation (WR), and the Scenery Management System (SMS). See Maps 4, 12, and 14 in appendix A. Management Prescriptions define the primary land use allocation with the other three maps further defining intended management for a given land area. *Emphasis* as used in these Prescriptions is defined as focus or highlighting, not exclusive or “dominant” use. In the event of a conflict between uses, resolution will be based on the specific merits of the situation rather than assuming that the Prescription implies a “trumping” of one resource over another. Each Prescription includes a set of standards and guidelines showing activities that are not allowed, and parameters within which activities that are allowed should be conducted.

**Timber Harvest** refers to commercial removal of vegetation for a variety of purposes including providing raw wood materials, improving wildlife habitat, adjusting age class distribution to mimic historic disturbance regimes, providing fire-resistant landscapes and commercial thinning. Timber harvest may be used to salvage trees or stands substantially damaged by wind, fire, or other significant disturbance; reduce susceptibility to insects and disease; or to develop stand structures that meet the desired future conditions, provided this can be done in harmony with the management emphasis for the area.

**Vegetation/Fuel Treatment** refers to a host of activities including, thinning, seeding; planting; mechanical treatments such as cutting by hand with chainsaws, cutting using tracked equipment or equipment on wheels for roller-chopping, chaining, crushing, or chipping; chemical application; and biological treatments (i.e., specialized grazing regimes). These are methods used to achieve a broad range of multiple-use objectives including maintaining or restoring healthy ecosystems, reducing likelihood of unwanted wildfire, removing public safety hazards, reducing potential for high-intensity wildfires and resulting erosion, improving forage or browse production, restoring native plant communities, improving or restoring watersheds, and providing for specific elements of terrestrial or aquatic wildlife habitats.

**Prescribed Fire** refers to any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and site-specific NEPA analysis requirements must be met prior to ignition. Prescribed fire plans are documents prepared by qualified personnel, approved by the agency administrator, and include criteria for the conditions under which the fire will be conducted (a prescription). Prescribed fire activities include actually lighting a fire using a fire accelerant with ground or aviation equipment and personnel; and may include the following: removal or piling of vegetation to secure perimeter lines, clearing areas for helicopter operations, clearing holding lines to bare mineral soil using hand tools or heavy equipment (i.e., bull dozers), using fire resistant foam or water on holding lines, constructing temporary camps for base operations, using aviation

resources for fire retardant or water drops to reduce high-intensity fire behavior, closing areas to livestock grazing before and after burning, and closing roads and areas to the public before and after burning.

**Road Construction** refers to activity that results in the addition of forest classified or temporary road miles. Road is defined as a motor vehicle travelway over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary. (FSM 7705)

While there are six management prescription categories mapped within the West Bear Vegetation Treatment Analysis Area, only four have treatments within them. There are no treatments/activities proposed in Management Prescriptions 2.6 and 3.1A. The management emphasis and associated standards and guidelines for each of these follows:

**Table 1.5.5. West Bear Analysis Area Management Prescription Categories (MPC)**

MPC	Total Acres
2.5	680
2.6*	1,955
3.1A*	1,277
4.4	375
5.1	8,311
6.1	3,611
Pvt*	103
Total	16,312

\* No Forest Service management activities are proposed under any of the alternatives in MPCs 2.6 or 3.1A or on private lands.

**2.5 Scenic Byways:** Manage Scenic Byways to protect and maintain their outstanding scenic quality. Scenic Byway Corridor Management Plans may be developed for designated Byways to further define desired conditions and tailor management direction.

(G2.5-1) Timber harvest, vegetation/fuel treatments, prescribed fire and wildland fire use are allowed when these activities are necessary to maintain or enhance the scenic setting for the long term.

(G2.5-2) Grazing is allowed and managed for compatibility with other elements of Scenic Byway Corridor Management Plans.

(G2.5-3) Road building, new recreation development, and new trail construction are allowed for purposes of enhancing use and enjoyment of the scenic byway corridor, while maintaining or enhancing the scenic setting.

**4.4 Emphasis on Recreation Motorized Settings:** These areas provide recreation opportunities within a range of semi-primitive to rural settings. Visitors may be able to obtain a moderate degree of solitude, but this prescription area provides opportunities for increased social interaction. Access to and within these areas is primarily through the use of motorized trails and roads. Sights and sounds of others may be noticeable throughout the area. Management of recreation impacts range from semi-primitive to rural depending on the ROS category at the specific area and visitor desires for convenience. Impacts to natural resources are dealt with through various management techniques and regulations. Management visibility is moderate to high with ranger patrols focusing on education, user ethics, and enforcement.

(G4.4-1) Timber harvest, vegetation/fuel treatment, road construction, prescribed fire and wildland fire use are allowed to mimic historic conditions, to restore ecosystem functioning, and to protect property in the wildland urban interface, and are designed to be compatible with motorized recreation, but must not detract from the recreation setting over the long term.

(G4.4-2) Grazing is allowed on open allotments to meet site-specifically defined desired conditions.

(G4.4-3) New recreation development and new trail construction are allowed.

- 5.1 Emphasis on maintaining or restoring forested ecosystem integrity while meeting multiple resource objectives.** Emphasis is on properly functioning conditions. Emphasis is not on timber growth and yield. Instead it is on maintaining or restoring vegetation composition, structure and patterns within the historic range of variability.

(G5.1-1) Timber harvest, vegetation/fuel treatment, prescribed fire and wildland fire use are allowed to maintain or restore proper functioning conditions, for hazardous fuel reduction, to protect property in the wildland urban interface, and to provide for commodity and non commodity outputs and services.

(G5.1-2) Road construction, new recreation development and new trail construction are allowed.

(G5.1-3) Grazing is allowed on open allotments to meet site-specifically defined desired conditions.

- 6.1 Emphasis on maintaining or restoring non-forested ecosystem integrity while meeting multiple resource objectives.** Emphasis is on non-forested vegetation properly functioning conditions (i.e., vegetation composition, structure and patterns within the historic range of variability). Management encompasses the full range of land and resource treatment activities.

(G6.1-1) Timber harvest, vegetation/fuel treatment, prescribed fire and wildland fire use are allowed to maintain or restore proper functioning conditions, for hazardous fuel reduction, to protect property in the wildland urban interface, and to provide for commodity and non commodity outputs and services.

(G6.1-2) Grazing is allowed on open allotments to meet site-specifically defined desired conditions.

(G6.1-3) Road construction, new recreation development, and new trail construction are allowed.

### 1.5.1.6 Western Uintas Management Area Setting Description

Located in the Northeastern corner of Utah, next to the Southwestern border of Wyoming in the Uinta Mountains, this area rises in elevation from 6,800 in the foothills to 12,718 feet on Ostler Peak. This Management Area contains four ecological subsections: West Flank Uintas, High Uintas, North Slope Outwash and Monte Cristo-Weber Valley Hinterlands and is managed by two Ranger Districts, Kamas and Evanston. The Western Uintas Management Area includes diverse landscapes of open sagebrush flats, aspen, and coniferous forests, high mountains, semi-circular cirque basins, deep U-shaped river valleys, grassy meadows, alpine tundra and an abundance of lakes, streams and wetlands. The high amount of wetlands in the area is a unique feature compared with other areas in the intermountain west. It offers a wealth of recreation opportunities such as backcountry hiking and horseback riding, ATV trails, fly-fishing, scenic driving, rock climbing, backpacking, mountain biking, hunting, peak bagging, large group/family camping, snowmobiling, snowshoeing and cross-country skiing. Cattle or sheep can be seen grazing in portions of the area, as well as elk, deer, and moose.

Created by glaciers, this landscape is composed of broad vistas of deep U-shaped valleys coursed by mountain streams that tumble down steps of hard quartzite stone, and meander through open grassy meadows with lush riparian borders. At the heads of these U-shaped valleys are majestic domed peaks and stacked blocked ridgelines whose concave bases are blanketed with conifer and patches of aspen. Large and small lakes that reflect the surrounding peaks are scattered across the landscape. Rolling uplands provide large open snowfields mingled with conifer and aspen stands in winter that in summer provide a vivid display of colorful wildflowers. Campgrounds, trailheads and visitor pullouts follow the gentle weaving alignment of Mirror Lake Scenic Highway as it climbs from broad valleys through the Upper Provo River Canyon to the summit. There, Bald Mountain is at the headwaters of four of the most important river systems in Utah (Duchesne, Provo, Bear, and Weber) and swirled quartzite originally arising from ancient ocean bottoms has been polished smooth by Pleistocene Glaciers. Bald, Murdock, Hayden and many other peaks stand on the horizon as sentinels with coats of talus and craggy cliff bands.

***Watershed Desired Future Conditions:***

**Whitney Area** – Watershed impacts (lack of ground cover, soil erosion and compaction, and loss of soil productivity) from destruction of vegetation (caused by ATV use and past sheep grazing) will be reduced. Roads and user created travel ways not needed as part of the road system will be closed and restored to production of vegetation and protection of watersheds. Tall forb communities will be improved in their composition.

Around Whitney Reservoir and Beaver Lake adverse resource effects from concentrated use areas will be reduced by actively managing where vehicles are allowed to drive and park.

**Hayden Fork** - Streambanks damaged by historical (tie hacking) activities will be stabilized.

#### ***Biodiversity/Viability Desired Future Conditions:***

##### ***Vegetation and Disturbance Processes***

**Areawide** - Aspen with encroaching conifers on uplands and in riparian areas will be restored to seral aspen with a variety of age classes. Also see Forestwide desired future conditions for rangelands. Native seed collection areas will be identified and used on a rotational basis so seeds are available for revegetation/rehabilitation projects in this management area.

**Whitney Area (West Fork of the Bear River)** – Forests of the Whitney area are characterized by a variety of forest types. There are stands of mixed aspen and conifers in the lower to mid elevations and stands of spruce and lodgepole pine with a subalpine fir component throughout the area. These forested areas are interspersed with large and small meadows throughout the mid and lower elevations with a few open parks on ridges. The age and density of the spruce and lodgepole pine stands makes them susceptible to bark beetle epidemics. A combination of tree mortality from forest insects and fire has undoubtedly been the historically most important disturbance processes in this area. The disturbances from these agents in the Whitney area have probably been on a smaller scale than those farther to the east due to wetter climate and the naturally fragmented nature of the landscape. Therefore, the patch sizes tend to be smaller. The presence of aspen in some areas indicates a relatively more frequent fire history than would have occurred in the upper elevations where spruce predominates. The aspen and lodgepole pine stands in the area are dependent on periodic disturbance to remove encroaching subalpine fir and spruce and to regenerate new age classes of these species. Aspen regenerate through sprouting from roots following fire. Lodgepole pine cones opened by the heat of fires spread seed to regenerate a new forest of lodgepole pine, while stands of mixed species regenerate and proceed through successional stages at a slower rate following the less frequent fires at higher elevations. Although spruce are a long-lived species, they become susceptible to spruce bark beetles as they age and have a much longer regeneration cycle. Spruce bark beetles reached an epidemic level in the Humpy and Meadow Creek drainage in the early 1990's. Stands in these areas were treated by removing individual infested trees, felling trap trees, and installing pheromone baited traps. Spruce beetles have stayed at an endemic level throughout the area since then.

The Spruce cover type which can be important habitat for the boreal owl, lynx, and marten will be maintained by managing stand densities and structures to keep spruce beetles at less than epidemic levels. Aspen and lodgepole pine stands will be managed to rejuvenate and increase age class diversity in patch sizes similar to those that occurred historically and in a manner that maintains connectivity for wildlife movement through the landscape.

**Bear River Drainage including the Hayden Fork, Stillwater, East Fork, and Mill Creek** - The forests of the Bear River drainage excluding Whitney are characterized by mixed aspen and lodgepole pine stands in the lower elevations, some pure lodgepole pine stands in mid-elevations and mixed lodgepole pine, subalpine fir and Engelmann spruce in the higher elevations. These forests are dependent on disturbance to maintain a properly functioning condition. Aspen regenerate through sprouting from roots following fire while lodgepole pine cones opened by the heat of fires spread seed to regenerate a new forest of lodgepole pine. Stands of mixed species regenerate and proceed through successional stages at a slower rate following the less frequent fires at higher elevations. The fires historically responsible for these processes varied in frequency and intensity. Mixed lodgepole pine and aspen regenerated concurrently following fires with mixed regimes (some stand replacing and some ground fires). Most of the pure lodgepole pine type appears to have regenerated following large, stand replacing fires. Upper elevation stands appear to have a relatively infrequent fire history that is probably due in part to the wetter conditions during the fire season. These upper elevation stands are frequently in smaller patch sizes with changes in species composition dependent on how large and intense the fire was and how long the succession from seral

lodgepole pine to subalpine fir and Engelmann spruce has been progressing. The role of fire in the ecosystem has been replaced to some extent by timber harvest over the last 100+ years. Extensive tie-hacking around the turn of the century produced uneven-aged stands in some areas and even aged stands where it was followed by fire. Extensive overstory harvesting on railroad lands intermingled with National Forest System land as well as some of the same type of harvesting on National Forest System land in the Mill Creek area has resulted in considerable acreage of 30 to 40 year old stands with mixed species and scattered relic overstory trees. More recent timber harvest on National Forest System land has resulted in primarily even aged lodgepole pine stands intermingled with mature forest.

The area will be managed for aspen, mixed lodgepole pine and aspen, and lodgepole pine in patch sizes, species composition and stand structure and ages similar to what fire historically created. These treatments will be accomplished through timber harvest, mechanical treatment, and prescribed and wildland fire use consistent with management prescriptions.

Restoration of aspen in riparian areas where conifers have encroached will be emphasized to improve habitat for a variety of species including beaver. Beaver are an essential ecosystem component due to their important effects on watershed and wetland functions.

The highest priority for treatment will be the mixed aspen and conifer stands where conifers are gradually replacing the aspen. There is not as much risk of losing the aspen component in stands composed predominantly of aspen at lower elevations.

#### ***Botanical Threatened, Endangered, and Sensitive Species Protection/Recovery***

Management activities within rare plant habitats will maintain or restore and provide for recovery of populations of current and proposed Sensitive plant species and plant species at risk. Livestock grazing intensities will be managed at a level that maintain rare plant habitat dynamics and provides for the maintenance of pollinator habitat and diversity. Riparian and aquatic plant habitats and species will be protected from trampling and overuse by recreational users and grazing wildlife and livestock. Activities associated with timber harvest will maintain or restore habitat for current or proposed Sensitive species and will support a diversity of pollinators. Cliff, crevice, and ledge habitats will be protected and provide for a variety of cliff species balanced with recreational climbing opportunities. Forest users will become aware of the fundamental importance of plant species to society, plant conservation, and biodiversity.

#### ***Wildlife Habitat***

The western-most boundary of the Western Uintas is an important linkage for biodiversity maintenance. It connects wildlands to the north and west with the rest of the Uinta Mountains running east-west and also linking to wildlands in Colorado. All management activities will take the priority for a functioning corridor into full consideration.

Big game winter ranges (generally below 7,000 feet) in the Kamas Valley will be protected and enhanced, recognizing these become more valuable and important as urban encroachment continues into previously undeveloped areas. Browse species here will be maintained with a higher proportion of older age classes than elsewhere to provide browse above snow for big game.

Big game use will be monitored in cooperation with the Utah Division of Wildlife Resources to ensure population management prevents habitat deterioration.

**Whitney Area** – Wildlife travel and migration corridors will be protected. Spruce/fir will be managed to provide habitat, maintaining healthy mature stands with a spruce component for boreal owl, snowshoe hare, lynx and marten.

#### ***Terrestrial Threatened, Endangered, and Sensitive Species Protection/Recovery***

In Lynx Analysis Units, recreation and vegetation management will conform to objectives, standards and guidelines identified in the Lynx Conservation Assessment Strategy. The Goshawk Conservation Strategy will be incorporated into all management activities.

***Aquatic Conditions*** (Fish habitat, amphibians and invertebrates habitat, Threatened, Endangered, and Sensitive Species protection/recovery)

**Areawide** - Trout Habitat - Aquatic habitats will be managed to maintain cool, clear water and well-vegetated stream banks for cover and bank functioning. Instream cover, in the form of deep pools and structures such as boulders and logs, will be maintained and their value recognized. Water temperature will be preserved through stable well-vegetated banks. Natural reproduction will be maintained through minimizing sediment input from roads, trails and campgrounds and providing for instream flows. Recreation facilities will be constructed and maintained to protect water quality and stream/riparian habitat. Hardened access points to water will be identified and placed to provide for an enjoyable recreational experience and at the same time ensure proper watershed functioning.

**Areawide** - Amphibian Habitat - Marshy edges of ponds or lakes and springs will be protected to allow for the development of in-water and riparian vegetation. Soils around water bodies will not be compacted and will allow for burrowing and over wintering of amphibians. River rehabilitation designs will incorporate toad and amphibian habitat needs. Spotted frogs have been found in this area. Access trails will be designed to minimize development in riparian habitat conservation areas (300 feet on each side of the channel). The values of springs will be recognized and protected. The values of instream flows for aquatic and semi-aquatic species will be recognized and protected. Non-native fish will be maintained through natural means in streams. Stocking will provide the majority of angler demands in lakes and reservoirs along the Mirror Lake Highway. Management will emphasize conservation of the Bonneville cutthroat trout population in the headwaters of the Bear River, Beaver Creek in the Weber River Drainage, and Boulder Creek in the Provo River Drainage. Bonneville cutthroat populations in the upper Bear River Drainage will be expanded and strengthened in coordination with the State of Utah.

**Beaver Creek, Mill Creek, and West Fork Bear** – The fish community is very diverse in this area. This diversity will be maintained.

#### ***Recreation Desired Future Conditions:***

Management specifically for recreation is emphasized in the Mirror Lake Highway, Spring Canyon, Echo Lake, Iron Mine, Gardners Fork, Whitney, and East Fork and Stillwater Fork of the Bear River with Management Prescription Category 4.0.

**Areawide** - Recreation opportunities will be maintained as primarily general public use. Recreation facilities will be constructed and maintained to protect water quality and stream/riparian habitat. Hardened access points to water will be identified and placed to provide for an enjoyable recreational experience and at the same time ensure watershed functions. Fishing experiences will vary from easily accessible lakes, reservoir and rivers, to remote lakes and streams.

**Bear River Area** - Protection of scenery along the Scenic Byway and heavily developed recreation use areas will be provided. Dispersed areas will be defined or designated to better integrate developed and dispersed opportunities, while reducing resource impacts. A wide variety of easily accessible recreation opportunities (winter and summer motorized and non-motorized) will continue to be present in the Bear River Drainage. Intensively managed summer and winter opportunities in the Lily Lake/Wolverine Trail system area will be continued as will the Bear River snow park. Partnerships with governments and private and volunteer interests to provide a balance of recreation opportunities will be continued. The high quality backcountry values currently present will be maintained. Large organizational camp opportunities will be maintained and education efforts will be supported with Forest Service programs when possible.

#### ***Scenery Management***

The outstanding scenic quality of the Mirror Lake Scenic Byway will be maintained and protected. The following landscape character themes will be found in the management area as mapped: Natural Evolving in Wilderness and Natural Appearing in all other Prescription areas with scenic integrity objectives of Very High for Wilderness and High for all others.

#### ***Timber Management Desired Future Conditions:***

Treatments will emphasize restoring properly functioning condition, maintaining species composition and stand structure, and where possible within intermingled ownerships, managing for patch sizes that would have occurred historically. Because of past harvesting in roaded areas and the heavy recreational use of the area, most of these treatments will be on a small geographic scale with a low level of disturbance per acre.

In the Hayden Fork area traditional forest products such as Christmas trees, posts and poles, firewood and teepee poles will continue to be provided.

### **1.5.1.7 West Bear Analysis Area Desired Vegetation Conditions**

Descriptions of West Bear Analysis Area Desired Future Conditions that were developed in the West Bear Ecosystem Management Project are summarized in the Purpose and Need at the beginning of this Chapter.

### **1.5.1.8 West Bear Analysis Area Forest Plan Consistency**

The Proposed Action has been designed to meet all Forest Plan Standards and Guidelines and to move the vegetation towards the desired future condition in the area. The analysis area contains six Forest Plan Management Prescription Categories (MPCs). The management emphasis and associated standards and guidelines for each of these are described in Section 1.5.1.5.

## **1.6 Public Involvement**

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A Notice of Intent to Prepare an EIS for the West Bear Vegetation Management Project was published in the Federal Register on March 20, 2002. Public scoping was initiated on March 19 with a comment period ending on April 19, 2002. An open house to discuss the West Bear Vegetation Management Project was held on March 28, 2002. The East Fork Fire that took place during the following summer changed priorities, so a notice was published in the Wasatch-Cache NF quarterly update deferring the West Bear Vegetation Management Project. A new notice of the proposed project was published in the Wasatch-Cache Schedule of Proposed Actions (SOPA) beginning in January 2005 (USDA FS 2005). A Revised Notice of Intent to prepare an EIS was published on February 11, 2005. Public scoping was re-opened on February 5 with a comment period ending on March 7, 2005. Twenty-one comments were received during the second comment period. Using the comments from the public and other agencies, the interdisciplinary team developed a list of issues to address. A notice of availability of the Draft Environmental Impact Statement (DEIS) was published in the Federal Register on July 22, 2005. A revision of notice was published in the Federal Register on September 16, 2005 extending the comment period from September 5, 2005 to September 30, 2005. Comments received from the public and other agencies were considered and were used to improve the analysis and to clarify documentation in the Final Environmental Impact Statement. Changes in each chapter are listed on the back of the cover page for the chapter.

## **1.7 Issues**

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The Forest Service separated the issues into two groups: significant and non-significant issues. Significant issues were defined as those directly or indirectly caused by implementing the proposed action. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations explain this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)...". A list of non-significant issues and reasons regarding their categorization as non-significant is available in the project file.

As for significant issues, the Forest Service identified the following issues during scoping:

### **Table 1.7.1. Significant Issues**

<p><b>Consolidated Public and Forest Service Issue Statements</b></p>	<p><b>Measure (FEIS Section that addresses the issue)</b></p>
<p><b>Water Resources Issue Statement</b> Forest canopy removal and erosion following log skidding, prescribed burning, and road construction could lead to adverse effects on runoff quantity/timing/peak flow, water quality, wetlands and flood plains.</p>	<ul style="list-style-type: none"> <li>• Water yield increase (3.1)</li> <li>• Timing of increased runoff (3.1)</li> <li>• Increase in peak flow (3.1)</li> <li>• Water Quality, WEPP modeling (3.1, 3.2)</li> <li>• Effects on wetlands (3.1)</li> <li>• Effects on floodplains (3.1)</li> </ul>
<p><b>Soils Issue Statement</b> Log skidding, prescribed burning, and road construction could lead to detrimental soil disturbance including soil displacement, soil erosion, compaction, and soil hydrophobicity (water repellence) due to severe fire effects.</p>	<ul style="list-style-type: none"> <li>• Wepp modeled erosion (3.2)</li> <li>• Effects on soil compaction (3.2)</li> <li>• Effects of burning - hydrophobic soils (3.2)</li> <li>• Productivity (3.2)</li> </ul>
<p><b>Aquatic Habitat Issue Statement</b> Forest tree removal, log skidding, prescribed burning, and road construction could lead to adverse effects on aquatic species, stream, wetland, and riparian habitat from reduced shade, woody debris recruitment and sedimentation.</p>	<ul style="list-style-type: none"> <li>• Acres within the Riparian Habitat Conservation Area (RHCA) disturbed by the project (3.3)</li> <li>• Effects on amphibians (3.3)</li> </ul>
<p><b>Threatened, Endangered and Sensitive Aquatic Species Issue Statement</b> Timber harvest, prescribed burning, and road construction could affect Bonneville cutthroat trout and their habitat.</p>	<ul style="list-style-type: none"> <li>• Determination of Effects on Threatened, Endangered and Sensitive Aquatic Species and their habitat. (3.3)</li> </ul>
<p><b>Aquatic Management Indicator Species Issue Statement</b> Timber harvest, prescribed burning, and road construction could affect Bonneville cutthroat trout and their habitat.</p>	<ul style="list-style-type: none"> <li>• Effects on Forest-wide trend in population of Bonneville cutthroat trout. (3.3)</li> </ul>
<p><b>Properly Functioning Condition Issue Statement</b> The forest in this area may still be in a properly functioning condition. If it is not, timber harvest may not be the best means of restoring properly functioning forest conditions and may intervene in natural disturbance processes and result in additional fragmentation and loss of biological diversity and ecological integrity.</p>	<ul style="list-style-type: none"> <li>• Desired Conditions (1.5.1.7)</li> <li>• Discussion of fire vs. timber harvest disturbances and limits on fire (3.4, 3.5).</li> <li>• Discussion of effects on fragmentation, biological diversity, and ecological integrity. (3.3, 3.4, 3.6)</li> <li>• Discussion of effects on disease and insect infestations (3.4)</li> <li>• Acres and percentage of forest type in fire regime condition classes. (3.5)</li> </ul>
<p><b>Old Forest Issue Statement</b> The cumulative effects of past, present, and future timber harvest could reduce the amount of old forest.</p>	<ul style="list-style-type: none"> <li>• Acres of old forest in the ecosection. (3.4)</li> <li>• Acres of old forest in the analysis area. (3.4)</li> </ul>
<p><b>Noxious Weeds Issue Statement</b> Timber harvest, prescribed burning, and road construction could increase noxious weed invasion.</p>	<ul style="list-style-type: none"> <li>• Known existing populations and proximity of noxious weeds in the analysis area. (3.4)</li> <li>• Effects on noxious weeds. (3.4)</li> </ul>
<p><b>Sensitive Plants Issue Statement</b> Timber harvest, prescribed burning, and road construction could affect sensitive plants in the area.</p>	<ul style="list-style-type: none"> <li>• Results of plant survey. (3.4)</li> <li>• Effects on sensitive plants. (3.4)</li> </ul>
<p><b>Wildlife Issue Statement</b> Timber harvest, prescribed burning, and road construction could increase noise disturbance, create barriers to wildlife movement, fragment forest habitat, and have adverse effects on migratory birds and their habitat.</p>	<ul style="list-style-type: none"> <li>• Changes in forest habitat from timber harvest and prescribed burning. (3.4, 3.6)</li> <li>• Effects of roads on noise, barriers to movement, fragmentation. (3.6)</li> <li>• Effects of harvest and roads on migratory birds. (3.6)</li> </ul>

<b>Consolidated Public and Forest Service Issue Statements</b>	<b>Measure (FEIS Section that addresses the issue)</b>
	<ul style="list-style-type: none"> <li>• Presence/absence of wildlife species of concern such as sage grouse. (3.6)</li> </ul>
<p><b>Threatened, Endangered and Sensitive Terrestrial Species Issue Statement</b></p> <p>Timber harvest, prescribed burning, and road construction could affect Canada lynx denning and foraging habitat and prey species, bald eagle roosting habitat, wolverine foraging habitat, goshawk nesting and foraging habitat, three-toed woodpecker nesting and foraging habitat, boreal owl nesting and foraging habitat.</p>	<ul style="list-style-type: none"> <li>• Effects on Threatened, Endangered and Sensitive Terrestrial Species and their denning, nesting, and foraging habitat. (3.6)</li> </ul>
<p><b>Terrestrial Management Indicator Species Issue Statement</b></p> <p>Timber harvest, prescribed burning, and road construction could affect goshawk nesting and foraging habitat, snowshoe hare cover and foraging habitat, beaver dam building material and other beaver habitat.</p>	<ul style="list-style-type: none"> <li>• Effects on Terrestrial Management Indicator Species and their denning, nesting, and foraging habitat. (3.6)</li> <li>• Effects on Forest-wide trend of Terrestrial Management Indicator Species (3.6)</li> </ul>
<p><b>Browsing/Aspen Issue Statement</b></p> <p>Browsing by wildlife and domestic livestock could retard or eliminate aspen regeneration in timber harvest and prescribed burn units.</p>	<ul style="list-style-type: none"> <li>• Results of monitoring of browsing impacts on past aspen treatment. (3.6)</li> </ul>
<p><b>Recreational Use Issue Statement</b></p> <p>Timber harvest, prescribed burning, and road construction could affect or conflict with recreational use in the analysis area.</p>	<ul style="list-style-type: none"> <li>• Effects on timber harvest on dispersed camp sites. (3.8)</li> <li>• Effects of noise from timber harvest operations. (3.8)</li> <li>• Effects of truck traffic on recreational traffic. (3.8)</li> <li>• Effects of road relocation on recreational use. (3.7, 3.8)</li> <li>• Effects of harvest operations on snowmobiling. (3.8)</li> </ul>
<p><b>Economic Efficiency Issue Statement</b></p> <p>Alternative combinations of timber harvest, prescribed burning, and road construction as well as size and timing of offerings and size of material available for harvest could have different levels of economic efficiency in returns to the government and in efficiency of operations for timber purchasers.</p>	<ul style="list-style-type: none"> <li>• Economic efficiency and present net value comparison of alternatives. (3.9)</li> <li>• Anticipated timber sale size. (2.1, 3.9)</li> <li>• Anticipated timber sale scheduling. (2.1, 3.8, 3.9)</li> <li>• Anticipated size categories of timber to be offered. (2.1)</li> </ul>
<p><b>Timber Utilization Issue Statement</b></p> <p>Prescribed burning without removal of merchantable timber on accessible ground could result in a loss of timber values and difficulty in achieving objectives of the burn.</p>	<ul style="list-style-type: none"> <li>• Volume of timber burned (3.9)</li> <li>• Comparison of prescribed fire effects with and without fuel from conifer tops and limbs. (3.5)</li> </ul>

## Other Related Efforts

A science based roads analysis for the West Bear Vegetation Management Project analysis area has been completed. The roads analysis (USDA FS 2005a) is contained in the project record and available for public review.