

Part One: Vision Desired Conditions

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Part One: Vision Desired Conditions

1. Introduction

Desired condition statements describe the preferred state of the Dixie and Fishlake National Forests. The statements try to paint a “word picture” of a desired condition. In some instances, the desired condition may be described as a desired range of conditions. The statements are written in the present tense; however, in many cases, the desired condition does not currently exist and may take many decades to reach.

Desired conditions are aspirational. Desired conditions are interrelated and provide support for each other. Nevertheless, they occasionally conflict. In such a situation, a project-specific evaluation may be used to resolve the conflict or identify priorities. The desired condition statements are written at a forest scale, and may provide various levels of details. In some cases desired conditions will be refined and additional details identified at the project level. In those situations the additional detail should be within the context of the condition described in the Land Management Plan. For example, if the desired condition describes “a diverse composition of plant species and structures,” site-specific analysis may be needed to determine what species and structures are reasonable to expect at that location.

Identification of gaps between existing conditions and desired conditions can inform possible management actions. However, desired conditions do not drive or compel action. Those decisions are a combination of site-specific project analysis, available resources, priorities, and other factors weighed by the Responsible Official.

The following desired conditions apply to both the Dixie and Fishlake National Forests except where otherwise noted.

2. Soils

The soil resource consists of layers of mineral and organic horizons. The soil profile generally acquires its unique properties as a direct result of physical and chemical weathering along with the biological alteration of its geologic source materials. In addition, the actual process of creating soil material includes a combination of factors such as climate and topography. All soils continue to form over time.

The semi-desert, upland, mountain, high-mountain, and sub-alpine landscapes on the Dixie and Fishlake National Forests have sufficient protective ground cover commensurate with the soil type and site potential. Ground cover consists of vegetation, coarse woody debris, surface litter, and rocks. In addition, perennial canopy

cover provides a protective shield to underlying soils. Soil resources have favorable properties and site characteristics that allow for long-term soil productivity, nutrient cycling, and adequate hydrologic function. Riparian zones and wetland areas are protected from uncharacteristic ground disturbances, preserving the integrity of these fragile areas to serve as filters for water quality and sponges that store and release water. An adequate amount of organic matter occurs in most forested locations. These organic materials, in different stages of decomposition, limit accelerated soil movement and erosion losses from the dynamic splash associated with raindrop impact. The duff layer of decomposed organic material is also sufficient to provide for microbial activities related to the process of nutrient-cycling.

The degradation of soil quality from disturbances such as displacement, puddling, compaction, and severe burning are prevented or mitigated when necessary. Soil productivity, overall site quality, and hydrologic function are restored in a timely manner when natural events or management-induced disturbances impact and contribute to an overall decline in watershed conditions. Physical, chemical, and biological processes indicate that soil properties have not been detrimentally disturbed.

Where natural site conditions allow, biological soil crusts are present, protected, or encouraged to reestablish, especially within semi-arid areas. Biological soil crusts bind soil particles bound together by organic materials that limit erosion, contribute to soil fertility, and encourage the establishment of perennial grasses and forbs.

3. Watershed

The key watershed desired conditions are summarized as follows:

- Watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. The drainage network is generally stable. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are predominantly functional in terms of supporting beneficial uses (FSM 2521.1).
- Range, forest, riparian, and wetland ecosystems are diverse, resilient, and functioning at their site potential.
- Management activities do not have negative effects on overall stream channel stability, soil productivity, soil-hydrologic function, or native aquatic species sustainability.
- All ground and surface waters meet State water quality standards to fully support State designated beneficial uses, and are maintained as high quality waters.¹
- Favorable conditions of water flow occur in watersheds, streams, lakes, springs, wetlands, and aquifers to fully support existing multiple uses, biological resources, and a range of flows that maintain natural channel dimensions, sediment transport, and vegetative composition.

¹ Category I waters are designated by the State of Utah. Under Utah state law, streams within National Forest boundaries are designated "Category I, High Quality Streams."

3.1. General Watershed

Watersheds, stream channels, riparian areas, and wetlands have a level of stability that can absorb and reduce the impacts from floods and other disturbances (including management activities) without producing accelerated erosional changes in the system or in the channel type. Sites of accelerated erosion such as gullies and head cuts are stabilized or recovering. Upland watershed, soil, and vegetative conditions help contribute to proper functioning riparian areas, wetlands, and stream channels. Physical, chemical, and biologic conditions indicate that soil, riparian, and wetland systems are functioning as a “sponge and filter” to absorb, clean, store, and release water. Watershed processes operate within their perceived natural range of variability and recover from disturbances with an improving trend in a reasonable time period. Surface and groundwater resources are free of contaminants that would degrade water quality and the support of beneficial uses.

3.2. Riparian and Wetland Areas

Riparian and wetland plant communities found in conjunction with perennial, ephemeral, and intermittent waters (including vernal pools) are functioning properly relative to their natural potential condition. Plant communities are healthy and self-perpetuating, with a diverse composition of desired native species and age classes. These communities are resistant and resilient to rapid change from large disturbances such as floods and wildland fire, and are capable of maintaining themselves during periods of drought and dry summer months. Key herbaceous and woody species are present and have high vigor. Native vegetative species are dominant and exotic species or noxious weeds are rare or absent. Riparian and wetland systems have achieved their natural potential extent and are maintained by a persistent water table at or near the surface.

Riparian areas and wetlands store and release enough water to maintain favorable conditions of water flow. Natural patterns of recharge and discharge provide groundwater levels and flows that are critical for riparian and wetland integrity. Beaver play a role in maintaining and creating riparian and wetland areas by elevating water tables, connecting streams to the valley floor and floodplain, providing fish and amphibian habitat, increasing over-bank floods, and dissipating flood flows. Vegetative cover on channel banks, wetland areas, and shorelines is sufficient to catch sediment, limit excessive erosion, stabilize stream banks, and promote floodplain development. Woody riparian vegetation is also present in a variety of size classes to provide terrestrial and aquatic habitats, stream shading, in-channel woody material, aesthetic values, and other ecosystem functions. See also the Ecosystem Diversity Desired Conditions beginning on page 1b-7.

3.3. Stream Channels and Floodplains

Stream channels and floodplains are in proper functioning condition consistent with the existing climate, basin morphology, geology, soil, and vegetation. Stream channels are

connected to their floodplains to the extent possible. Seasonal water elevations include bank-full and over-bank flows that access the floodplain regularly. These high water elevations recharge riparian aquifers, alleviate spring flood effects, and provide late season stream flows and the cool water temperatures necessary to fully support designated beneficial uses (Heffner and Winward 2002). Sediment deposits from over-bank floods perpetuate floodplain development and the propagation of flood dependent species such as cottonwood. Channel characteristics including width-to-depth ratio, entrenchment ratio, slope and sinuosity commensurate with the inherent valley and channel type, vegetative composition, and capability of the stream.

Although stream channels and floodplains are dynamic and continually changing, they are resistant and resilient to accelerated changes from management activities or other disturbances. The water balance between each stream channel and its watershed allows for the natural timing, frequency, and magnitude of base flows, bank-full flows, and peak flows. These various flow levels allow for natural rates of erosion and sediment transport, the creation and maintenance of aquatic habitats, and the maintenance of natural channel type and dimensions. Historically disturbed and degraded stream channels recover through floodplain development, increased riparian vegetation, and improved channel geomorphic characteristics.

3.4. Aquatic Habitats and Biota

Water flow conditions in streams, lakes, springs and seeps, and aquifers fully support functioning habitats for a variety of aquatic and semi-aquatic species, including desired fish, amphibian, macroinvertebrate, and periphyton communities. Physical habitat characteristics such as bank stability, pool/riffle ratio, pool depth and cover, water temperature, and substrate composition support and sustain all life stages of desired aquatic species. Groundwater levels and flow to groundwater-dependent aquatic ecosystems are maintained through natural patterns of recharge and discharge.

Aquatic habitats and watershed conditions support the long-term sustainability of native aquatic species including Bonneville and Colorado River cutthroat trout. Stream systems with meta-populations of native trout species are well connected, which allows for recolonization after disturbance, gene flow, and life history function (e.g., movement from summer holding to fall spawning areas). These stream systems are free of permanent human-constructed migration barriers unless a barrier is desired to separate native and non-native species or is already permitted for other uses. Isolated populations of native trout are reintroduced to additional areas with high quality habitat.

Habitats necessary for the long-term survival and recovery of endangered and threatened species are free of non-native species that compete, hybridize, and prey upon native species. Stream bank stability is functioning at site potential. Vegetative cover along stream channel margins and shorelines is sufficient to stabilize stream banks and prevent excessive erosion and sedimentation, particularly in channel types that are most sensitive to management-induced disturbances. Vegetative species composition along stream banks consists of native deep-rooted hydric species with root

masses that anchor the soil together. Stream crossings provide passage for desired fish species and aquatic organisms. Aquatic habitats promote and maintain native species composition. Aquatic nuisance species and whirling disease are rare or absent.

Aquatic habitats that contain other important aquatic communities (e.g., state sensitive species, trophy and recreational fisheries, desired non-native species, or unique aquatic community structure) fully support the long-term sustainability of these unique aquatic resources. Cold water fisheries habitat sustains the desired fish species.

3.5. Municipal and Culinary Water Sources

Municipal and culinary water supply sources provide high quality water for designated communities and beneficial uses. Multiple uses within these watersheds are compatible with desired water quality. Water diversion and conveyance facilities are maintained and have appropriate access with limited effects on watershed, stream channel, and biological processes. Surface water resources are not altered or adversely affected by withdrawals from water supply wells.

4. Ecosystem Diversity

The key ecosystem diversity desired conditions are summarized as:

- The composition, structure, and function of vegetative conditions ensure resilience to natural role disturbances.
- Human-caused disturbances emulate natural role disturbances and are planned within known resilience limits.
- Vegetation composition and structure are managed to provide defensible space around local communities and agency structures.
- The composition, abundance, and patchwork of vegetative conditions provide high quality water to local communities.
- Vegetative conditions provide self-sustaining levels of products such as forage or wood fiber for public needs at local and regional levels consistent with other desired conditions and ecosystem capabilities and processes.
- Diversity of structure, species composition, and successional stages provides habitat for a variety of wildlife species.

4.1. Specific Ecosystem Groups

4.1.1. Aspen

Aspen ecosystems contain a variety of age classes and structural components distributed across the landscape. Mature and old aspen forests are less than 150 years old. Old forests comprise about 30 percent of the aspen forest landscape. Young, mid-age, and mature aspen forests occur on about 30 percent of the aspen forest

landscape. The remaining approximately 40 percent of the aspen forest is in the grass and forb, seedling, and sapling stages. Less than 15 percent of the area is succeeding to other cover types.

Diverse aspen conditions support a large variety of animals. Associated herbaceous and woody vegetation are well developed and highly variable. Perennial grasses and forbs dominate ground cover with a range of shrubs resulting in minimal bare ground within aspen systems. Site productivity generally determines individual stand densities. Aspen regeneration success is achieved through integrated sprout protection.

Landscape patterns, structural components, and species composition are within historical ranges. Corridors are present and functional. Fire is used to influence distribution of structural classes and patterns across both the sub-regional and landscape levels. Fuels are usually more moist in aspen stands than in surrounding forests and fires burning from adjacent forest types often drop to the surface in aspen. Aspen stands provide limited availability of large ground fuels (>3 inches in diameter) but fire can spread through litter and live fuels (grasses, shrubs, and/or conifer recruitment). The fire regime in aspen is a lethal fire regime burning on a 20-100 year cycle.

Aspen is the dominant tree species where it is associated with Engelmann spruce and subalpine fir. Where aspen is associated with mixed conifer or with ponderosa pine, it is either co-dominant or occurs in patches as the dominant tree species.

4.1.2. Pinyon and Juniper

The extent of pinyon and juniper ecosystems is reduced to approach historical levels (O'Brien 1999). Areas dominated by pinyon and juniper are beginning to be restored to grass, forb, and shrub systems. Increases in grasses, forbs, and shrubs contribute to improved watershed conditions (Arno and Fiedler 2005, Bates et al. 2000, Belsky 1996). See also the Watershed Desired Conditions beginning on page 1b-4. Mature and old structure conditions account for about 3-5 percent of pinyon and juniper acres. These acres are generally located within areas of reduced fire risk comprised of shallow, rocky soils and rough topography where fuels are sparse (Waichler et al. 2001). The remaining acres occur in earlier successional stages containing a patchwork of desired shrubs, grasses, and forbs interspersed with pinyon and juniper distributed across the drier landscapes.

Natural and human disturbances (generally fire) encourage an ever-changing patchwork that restricts pinyon and juniper from becoming dominant within sagebrush systems. Stand densities are generally low. A variety of successional and structural stages promote habitats for a variety of species. See also the Aquatic Habitats and Biota section of the Watershed Desired Conditions beginning on page 1b-6 and the Species Diversity Desired Conditions beginning on page 1b-17.

Landscape patterns are within historical ranges. Corridors are present and functional. Open (sparse) stands are maintained at the sub-regional and landscape level. The timing and scale of disturbance limits the spread of pinyon and juniper into other vegetation types. Ground fuels are generally sparse in mature pinyon and juniper stands and fire is spread through spotting and from tree to tree. In areas that are currently young pinyon and juniper, live fuels are dominated by grasses and shrubs. Fire regime is generally stand replacing with variability in mean fire return intervals depending on the moisture and elevation of the specific site (Floyd et al. 2004).

4.1.3. Sagebrush, Grass, and Forb

Sagebrush (including basin big sage, mountain big sage, Wyoming big sage, silver sage, and black sage), along with a variety of grasses and forbs, presents a range of successional stages, sizes, and ages across the landscape. In these sagebrush systems, 20-40 percent of the acres are in mid seral or late seral stages within the landscape of the particular sagebrush species. Herbaceous layers are well developed when pinyon and juniper levels are kept below approximately 20 percent crown cover (Huber et al. 1999). This cover type is an irregular patchwork of successional stages. Highly palatable plants such as historic bunchgrasses (e.g., bluebunch wheatgrass) are present and increasing.

Landscape patterns are within the historical range. Multiple ages of shrubs, forbs, and native grasses are present. Stand replacement is the dominant fire process that burns in a mosaic pattern across the landscape. Live fuels (grasses and shrubs) dominate and may lead to rapid fire spread. Fire regime is dependent on the particular sagebrush species. Disturbance intervals less than 50-60 years generally limit pinyon and juniper invasion within basin big sage, mountain big sage, and Wyoming big sage systems (Tausch and Tueller 1977).

4.1.4. Mountain Brush

Mountain brush communities (combinations of curl leaf mountain mahogany, birch leaf mountain mahogany, serviceberry, manzanita, currant, ceanothus, nine bark, bitterbrush, cliffrose, Gambel oak, Sonoran scrub oak [*Quercus turbinella*], maple, and sagebrush of various species), along with a variety of grasses and forbs, consist of multiple vegetation layers with a balance of shrub and herbaceous understory components. Alternating prominence of shrub and herbaceous components relate to disturbance history. Sprouting species such as oaks dominate where they are present. Soil type, elevation, precipitation patterns, and disturbance histories influence specific combinations of species present. Ground cover, characterized by vegetation, moss, litter, and naturally occurring rock, stabilizes soil and minimizes surface runoff.

Foliage, fine woody material in the shrubs, and dead woody material may lead to fast moving fires and contribute to fire intensity. Fire drops to the ground at low wind speeds

or at openings in the stands. Fire regime ranges from mixed severity to stand replacement, which results in a very patchy mosaic across the landscape.

4.1.5. Meadows

Meadows (generally open tree-less herbaceous community types dominated by grasses, forbs, and sedges) are restored, enhanced, or protected. Meadows encompass a broad environmental spectrum including wet meadows (perennially saturated), dry meadows (only wet early in growing season), alpine meadows (high elevation), bogs (always wet, somewhat stagnant), fens (groundwater fed, peat forming), and seeps. Ground cover provides protection from erosion. Meadow communities are dominated by native grasses, forbs, and sedges.

Cured grasses lead to rapid rates of fire spread during dry periods and prevent the encroachment of conifers. Fire regime varies with altitude and moisture from infrequent to frequent with mixed or high severity.

4.1.6. Engelmann Spruce and Subalpine Fir

Engelmann spruce and subalpine fir communities are composed either of pure Engelmann spruce or mixed stands of spruce and subalpine fir. Pure Engelmann spruce stands generally only occur above 10,500 feet in elevation. The mature and old structure components represent about 40 percent of either pure Engelmann spruce or spruce and subalpine fir systems. The remainder of the structural components are about 20 percent in the grass, forb, seedling, and sapling stages and about 40 percent in young and mid-aged structural classes distributed across the landscape (Reynolds et al. 1992, Graham et al. 1999). Localized insect or disease outbreaks are generally confined by a variety of structural and successional stages.

Aspen is the dominant tree species where it is associated with Engelmann spruce and subalpine fir.

Landscape patterns are within historical ranges. Wildlife corridors are present and functional. The role of disturbance is to influence the distribution of structure classes, composition, and pattern across the sub-regional level. Bark beetle outbreaks tend to have more influence on Engelmann spruce dynamics than does fire.

The cool and moist environment in subalpine fir stands slows the decomposition of organic matter and allows fuels to accumulate, though rocky terrain allows for areas of discontinuity (A. D. Revill Associates 1978). Fire spread is generally slow in the compact needle litter but crown fires are common when fire moves into the canopy (Taylor and Fonda 1990). Fire regime ranges from mixed severity to stand replacement producing landscape scale vegetation mosaics due to the patchy nature of the fire.

4.1.7. Mixed Conifer

Mixed conifer ecosystems are pure or mixed stands of Douglas-fir, subalpine fir, white fir, ponderosa pine, Colorado blue spruce, limber pine, Engelmann spruce, and aspen. Specific species composition is generally controlled by elevation, aspect, soil type, and disturbance history. Mixed conifer forests are a variety of age classes, densities, and successional stages in varying patch sizes. Mature and old structure represents about 40 percent of conifer systems across the landscape. The remainder of the structural components are about 20 percent in the grass, forb, seedling, and sapling stages and about 40 percent in young and mid-aged structural classes distributed across the landscape (Reynolds et al. 1992, Graham et al. 1999). Sporadic defoliator and bark beetle outbreaks contribute to structural and species composition diversity.

Landscape patterns are within historical ranges. Wildlife corridors are present and functional. Fuels in these stands are characterized by concentrations of dead woody material. Litter accumulation allows for slow to rapid fire spread. Fire activity varies from cool surface fires to torching of individual trees and crown fires. Fires are of low to moderate severity in open, seral stands of ponderosa pine and Douglas-fir, which limits white fir to a minor component.

4.1.8. Ponderosa Pine

Ponderosa pine dominated systems generally occur at mid elevations on drier sites with ponderosa pine comprising more than 75 percent of the tree species composition. The mature and old structure components represent about 40 percent of the ponderosa systems. The remainder of the structural components are about 20 percent in the grass, forb, seedling, and sapling stages and about 40 percent in young and mid-aged structural classes distributed across the landscape (Reynolds et al. 1992, Graham et al. 1999). Insect and disease populations are generally at endemic levels with sporadic insect outbreaks contributing to structural diversity. A variety of structural and successional stages generally confines localized outbreaks of insects. Stand densities vary depending upon stand-level objectives and site productivity. Low intensity disturbances occur at relatively short intervals.

Patterns are within historical ranges. Corridors are present and functional. The role of fire is to maintain both seral and climax stands of ponderosa pine. Fuels in these stands are characterized by concentrations of dead woody material. Litter accumulation allows for slow to rapid fire spread. Fire activity varies from cool surface fires to torching of individual trees and limited crown fires. Periodic fires can create uneven-aged stands comprised of groups of trees that vary in age from group to group. Fire regime is non-lethal with a mean fire return interval of 5-25 years.

4.1.9. Riparian

Riparian area vegetation is a diverse mix of species and structural stages. Riparian areas comprise a small percentage of the landscape but a majority of the biotic diversity. Riparian area vegetation includes, but is not limited to, conifers, aspen, willows, box elder, maple, dogwood, birch, cottonwoods, shrubs, sedges, rushes, and grasses. The stream substrate, gradient, elevation, and disturbance history contribute to plant occurrence. Plant communities are healthy and self-perpetuating. In response to disturbance, woody vegetation provides a diversity of size and age classes, riparian-associated wildlife habitats, stream shading, snags and down logs, and aesthetic values, and supports other ecosystem functions (see also the Species Diversity Desired Conditions beginning on page 1b-17). Riparian areas are dynamic and resilient to disturbances in structure, composition, and processes as a result of interactions among geology, soil, water, and vegetation. See also the Watershed Desired Conditions beginning on page 1b-4.

Landscape pattern sizes and distribution are within historical ranges and maintain hydrologic functions. Corridors are present and functional. Although dynamic, plant communities and hydrologic functions persist and recover rapidly after disturbances that are within a historic range.

Fuels consist of cured grasses, shrubs, and litter. Fire regime is highly variable dependent on the particular vegetation composition of the individual system.

4.1.10. Unique Vegetation

Unique or small population communities such as bristlecone pine or tall forb display diversity in age and structure over the range of the community. These unique communities are sustainable. Management considers site-specific analysis and applies the most current knowledge. Restoration of historic unique plant community sites occurs where site features and availability of local genetic stock make projects feasible.

Bristlecone pine occur in open forests to woodlands, canopies do not close, and trees are distributed in sparse stands or widely spaced clumps of trees. Fuels are discontinuous, although vegetation may allow fire to burn in localized patches. Fire regime is mixed severity with individual trees burning as a result of lightning and more intense fire from surrounding fuels.

In tall forb communities, grass is mostly inconspicuous and seldom comprises more than 10 percent of the community composition. Shrubs are few in number and only dominant in patches in terms of cover or weight.

4.1.11. Noxious Weed Infestations

Established noxious weed² infestations do not increase in number or size, occur at low densities, and are reduced or removed. Through a process of early detection and rapid response, new infestations of noxious weeds are contained, reduced, or eradicated.

4.1.12. Non-native Species

Native plants from local genetic sources dominate landscapes. However, the use of non-native species may be used to rebuild soils, limit invasive species expansion, inhibit noxious weed expansion, or minimize soil erosion until native species can reoccupy the area. Non-native species may also be used in areas where native plants are likely to be poor competitors (e.g., campgrounds, rock pits, frequent disturbance areas, road banks or other heavy use areas) or fire breaks (e.g., in the wildland urban interface) to help modify fire behavior. Some non-native plants (e.g., Kentucky bluegrass, smooth brome, crested wheat grass) may continue as significant components where established even though they may impede full development of native communities.

4.1.13. Invasive Species

Invasive species are those that have been accidentally or intentionally introduced, though they are not considered noxious species. These species are known to negatively impact native species communities and reduce biodiversity (Brooks and Pyke 2001, Harrod and Reichard 2001, Burdick 2005).

Invasive species are managed to limit negative impacts to and influences on native plant community relationships and composition, soil organic process, changing fire regimes, or modifying moisture relationships. Examples of invasive species that can impact native species communities and reduce biodiversity include cheatgrass, red brome, and Japanese brome.

4.1.14. Caves

Significant caves on federal lands are an invaluable and irreplaceable part of the Nation's natural heritage and the Forests' ecological diversity. The feature, characteristic, or value resulting in the significance designation is protected. Significant caves are managed in accordance with 36 CFR 290.

Non-significant caves are managed without modifications or facilities to aid or impede use. Generally, cave entrances are not signed. Locations of significant caves or of caves nominated for designation are confidential.

² Official noxious weeds are listed on State of Utah, individual county, and Regional Forester lists.

Entrances of significant and non-significant caves may be gated for public safety or to protect cave resources. The gates allow airflow and passage of cave-dependant plants and animals. Caves provide quality habitat for cave-dependant species.

4.2. Air Quality

Air quality is affected by both natural and human-caused events. Natural events include smoke from wildland fires and wildland fire use; human-caused events include smoke from prescribed burning, recreational campfires and dust from unpaved roadways and other activities. Areas affected by smoke from prescribed fires, wildland fire use, and other management activities meet the federal air quality standards to protect public health through coordination with the Utah Interagency Smoke Management Program, a part of the Utah Division of Air Quality (see also the Disturbance Process Desired Conditions below).

The National Ambient Air Quality Standards (NAAQS) are not exceeded by prescribed fires. Wildland fire use and prescribed fires are coordinated with the Utah Interagency Smoke Management Program as implemented by the Smoke Program Coordinator. Impacts to air quality meet Clean Air Act standards.

5. Disturbance Processes

Disturbance events such as native insects and diseases, fires, winds, and floods are essential elements of dynamic and sustainable ecosystems. Disturbance processes perform their natural roles in timing, intensity, duration, and scale. Human-initiated disturbances (e.g., tree harvest, prescribed fire, or mechanical fuels reductions) are designed to emulate natural disturbances and operate within known resilience limits. Product removals are sustainable within site capabilities while meeting desired conditions. The natural disturbance processes or events may be limited due to considerations of critical ecological conditions (e.g., threatened or endangered species) or social or economic considerations (wildland urban interface or air quality standards).

5.1. Specific Disturbances

5.1.1. Fire

Ecosystems are restored and maintained consistent with land uses and historical fire regimes through wildland fire use, prescribed fire, and other treatments. Human life (firefighter and public safety) is always the highest priority. Restoring fire to fire-dependent plant communities contributes to long-term resiliency, integrity, and sustainability of ecosystems. Reintroducing fire to its natural role requires careful and appropriate application of wildland fire use and prescribed fire to achieve desired conditions. Social concerns such as the proximity to structures, smoke management

requirements, or public health and safety may limit the scale of fire relative to historical levels.

Accidental or arson fires are considered unwanted wildfires and are appropriately suppressed. An appropriate management response is determined for each ignition. Natural ignitions are suppressed when the area does not meet appropriate wildfire fire use criteria or when specified conditions are unattainable. The full range of suppression responses is available forest-wide, consistent with management objectives.

Fuel conditions are considered hazardous when they lead to a high probability of ignition and make resistance to control difficult (due to size, arrangement, volume, condition, or location of fuels) (Hardy 2005). Evaluating fuel hazard includes ecological and socio-economic considerations due to potential impacts, including smoke, destruction of life or property, and risk to ecosystems. Restoring and providing resilient ecosystems implies that fuel conditions do not contribute to uncharacteristic timing, intensity, duration, or scale of fire.

Hazardous fuels are reduced around values at risk, wildland urban interface areas, and ecosystems where fuel conditions may inhibit achieving desired conditions. Forest staff collaborates with cooperators and communities through the Community Wildfire Protection Plan process to address local wildland urban interface concerns. Wildland urban interface treatment areas retain some ecological functions such as soil protection, some habitats, and nutrient cycling. Defensible fire space is used to create a fuel break for fire traveling from developed areas onto National Forest System lands as well as for influencing fire spread from National Forest System lands to adjacent private land. Wildland urban interface areas receive periodic maintenance to retain defensible space characteristics. Prescribed fire and mechanical fuels reduction are appropriate tools to achieve or move towards desired conditions in accordance with project level assessments or other assessments such as wilderness management plans. These actions are in compliance with standards for air and water quality, public safety, or other requirements.

Natural disturbance processes shape vegetative composition and structure where possible. Management activities such as prescribed fire, wildland fire use, and mechanical treatments emulate natural processes. Disturbance regimes such as fire, beetle infestations, and floods maintain a mosaic of structural and age variances over time. Disturbance regimes move toward their historical frequency and magnitude.

5.1.2. Insects and Disease

Many insects, diseases, fungi, bacteria, and viruses are essential to ecosystem processes, including pollination, decay processes, nutrient cycling, food for other organisms, provide habitat, or natural control agents of forest defoliators. Ever-changing landscapes providing a variety of species composition, structural, and successional stages (along with adequate snags and down wood and debris) assure continuation of these essential insects, diseases, and associated processes.

Outbreaks of bark beetles and defoliators occur in cycles generally linked to stand density, age, and species composition, and are often triggered by climatic influences. Localized outbreaks of bark beetles or defoliators are generally confined by a variety of structural and successional stages. In some situations social considerations, such as impacts to critical watersheds or where the infestation may lead to an increased wildfire hazard, may trigger treatments. Outbreaks of bark beetles or defoliators that have the potential to impact recovery of threatened or endangered species may also trigger treatments.

Several native diseases (wood decay fungi) have the potential to impact desired conditions especially related to timber management or wildlife habitat objectives. Management actions based on site-specific objectives can minimize the spread or influence of native diseases (e.g., tomentosus and annosus).

Dwarf mistletoe, a parasitic plant that is generally host specific, continues to be part of ecosystems providing habitat and a food source for wildlife. Dwarf mistletoe may be controlled when infestation levels have the potential to impact site-specific objectives.

There are no known exotic diseases within the Dixie or Fishlake National Forest. If exotic diseases are identified, prompt evaluation is required to determine potential impacts on desired conditions followed by appropriate and timely treatments if necessary.

A number of insect biological control agents have been introduced in Utah for the purpose of controlling specific species of noxious weeds. Release of new biological control agents in Utah is subject to obtaining the appropriate permits from USDA Animal Plant Health Inspection Service (APHIS). New agents released within Utah are evaluated for field efficacy of the released biocontrol agent.

5.1.3. Floods

Floods play a natural role in stream channel and floodplain development and maintenance and riparian vegetation propagation and structure. Riparian areas and stream channels are resilient towards flood events due to healthy plant structure and the ability of the channel to naturally pass flood flows. See also the Watershed Desired Conditions beginning on page 1b-4.

5.1.4. Human Disturbances

Human influences play major or substantial roles in plant community composition, structural distribution, and disturbance intensities, patterns, and duration. Human activities (such as timber harvest, prescribed fire, mechanical fuels reduction, forage treatment, or recreation) are designed to meet desired conditions, move toward desired

conditions, or at least to not impair desired conditions. Associated product removal does not exceed sustainable capabilities.

6. Species Diversity

6.1. Species Selection Process

Species-level diversity is an important component of ecosystem diversity. Most species diversity can be addressed through provision of ecological conditions (see also the Ecosystem Diversity Desired Conditions beginning on page 1b-7). However, for some situations, it may be necessary to consider individual species. This concern was addressed in the Final Planning Rule (71 Federal Register 5124).

Criteria identified in the Forest Service Directives (FSM 1921.7; FSH 1909.12, sec. 43) were utilized as a selection format for potential Species of Concern (SOC) and Species of Interest (SOI). Draft lists and categorization of species for consideration under the screening directive were generated using two sources of information:

1. Baseline information concerning species global, state, and taxa risk obtained from the NatureServe website (NatureServe 2005), and
2. Known species locations obtained by The Nature Conservancy using Utah Natural Heritage Program's species database and The Nature Conservancy's species database.

Additional species' location information was obtained from other sources including U.S. Geological Survey (USGS) Breeding Bird Surveys (BBS), individual Forest species locations, and available literature.

Further screening of species involved assessing potential risk and security under the Proposed Land Management Plan. Federally-listed Threatened and Endangered species, species proposed for federal listing, Species of Concern, and Species of Interest discussed in this document are derived from a draft list of species considered for effects to the plan. These species were identified because ecological conditions needed to support species may not be sufficiently provided by direction for ecosystem diversity.

Table 1b-1. Threatened and Endangered Species, Species of Concern, and Species of Interest on the Dixie and Fishlake National Forests

Common Name	Scientific Name	Taxonomic Group	Occurs on National Forest ¹	
			Dixie	Fishlake
Threatened and Endangered Species				
Last Chance townsendia	<i>Townsendia aprica</i>	Plant		X
Maguire daisy	<i>Erigeron maguirei</i>	Plant		X
San Rafael cactus	<i>Pediocactus despainii</i>	Plant		X
Virgin River chub	<i>Gila seminuda</i>	Fish	X	
Woundfin	<i>Plagopterus argentissimus</i>	Fish	X	
Mojave Desert tortoise	<i>Gopherus agassizii</i>	Reptile	X	
Bald eagle	<i>Haliaeetus leucocephalus</i>	Bird	X	X
California condor	<i>Gymnogyps californianus</i>	Bird	X	
Mexican spotted owl	<i>Strix occidentalis</i>	Bird	X	X
Utah prairie dog	<i>Cynomys parvidens</i>	Mammal	X	X
Species of Concern				
Angel cinquefoil	<i>Potentilla angelliae</i>	Plant		X
Aquarius paintbrush	<i>Castilleja aquariensis</i>	Plant	X	X
Aquarius penstemon	<i>Penstemon parvus</i>	Plant	X	X
Arapien stickleaf	<i>Mentzelia argillosa</i>	Plant		X
Arizona willow	<i>Salix arizonica</i>	Plant	X	X
Beaver Mountain groundsel	<i>Senecio castoreus</i>	Plant		X
Claron pepperplant	<i>Lepidium montanum</i> var. <i>claronense</i>	Plant	X	
Creeping draba	<i>Draba sobolifera</i>	Plant		X
Dana's milkvetch	<i>Astragalus henrimontanensis</i>	Plant	X	
Guard milkvetch	<i>Astragalus zionis</i> var. <i>vigulus</i>	Plant	X	
Jones golden-aster	<i>Heterotheca jonesii</i>	Plant	X	
Mount Belknap draba	<i>Draba ramulosa</i>	Plant		X
Navajo Lake milkvetch	<i>Astragalus limnocharis</i> var. <i>limnocharis</i>	Plant	X	
Neese's pepperplant	<i>Lepidium montanum</i> var. <i>neeseae</i>	Plant	X	
Nevada willowherb	<i>Epilobium nevadense</i>	Plant	X	X
Peculiar moonwort	<i>Botrychium paradoxum</i>	Plant	X	
Peterson catchfly	<i>Silene petersonii</i>	Plant	X	
Pine Valley goldenbush	<i>Haplopappus crispus</i>	Plant	X	
Pinyon penstemon	<i>Penstemon pinorum</i>	Plant	X	
Podunk groundsel	<i>Senecio malmstenii</i>	Plant	X	
Rabbit Valley gilia	<i>Gilia caespitosa</i>	Plant		X
Red Canyon beardtongue	<i>Penstemon bracteatus</i>	Plant	X	
Reveal paintbrush	<i>Castilleja revealii</i>	Plant	X	
Rock tansy	<i>Sphaeromeria capitata</i>	Plant	X	
Table Cliff milkvetch	<i>Astragalus limnocharis</i> var. <i>tabulaeus</i>	Plant	X	
Tushar gilia ²	<i>Gilia (Ipomopsis) tridactyla</i>	Plant	X	X
Tushar paintbrush	<i>Castilleja parvula</i>	Plant		X
Tushar Range beardtongue	<i>Penstemon caespitosus</i> ssp. <i>suffruticosus</i>	Plant		X
Utah phacelia	<i>Phacelia utahensis</i>	Plant		X
Ward beardtongue	<i>Penstemon wardii</i>	Plant		X

Common Name	Scientific Name	Taxonomic Group	Occurs on National Forest ¹	
			Dixie	Fishlake
Widtsoe wild buckwheat	<i>Eriogonum aretioides</i>	Plant	X	
Yellow-white catseye	<i>Cryptantha ochroleuca</i>	Plant	X	
Bifid duct pyrg	<i>Pyrgulopsis peculiaris</i>	Invertebrate		X
Brian Head mountainsnail	<i>Oreohelix parawanensis</i>	Invertebrate	X	
Otter Creek pyrg	<i>Pyrgulopsis fusca</i>	Invertebrate		X
Colorado River cutthroat trout	<i>Oncorhynchus clarki pleuriticus</i>	Fish	X	X
Flannelmouth sucker	<i>Catostomus latipinnis</i>	Fish		X
Leatherside chub	<i>Gila copei</i>	Fish	X	X
Virgin spinedace	<i>Lepidomeda mollispinus mollispinus</i>	Fish	X	
Arizona toad	<i>Bufo microscaphus</i>	Amphibian	X	
Peregrine falcon	<i>Falco peregrinus</i>	Bird	X	X
Allen's big-eared bat	<i>Idionycteris phyllotis</i>	Mammal	X	X
Species of Interest				
Aspen ³	<i>Heterotheca jonesii</i>	Plant		X
Pinnate spring-parsley	<i>Haplopappus crispus</i>	Plant		X
Rabbit Valley greenthread	<i>Lepidium montanum</i> var. <i>claronense</i>	Plant		X
Bonneville cutthroat trout	<i>Oncorhynchus clarki utah</i>	Fish	X	X
Boreal toad	<i>Bufo boreas boreas</i>	Amphibian	X	X
Brewer's sparrow	<i>Spizella breweri</i>	Bird	X	X
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>	Bird	X	X
Gray vireo	<i>Vireo vicinior</i>	Bird	X	X
Greater sage grouse	<i>Centrocercus urophasianus</i>	Bird	X	X
Northern goshawk	<i>Accipiter gentilis</i>	Bird	X	X
Three-toed woodpecker	<i>Picoides tridactylus</i>	Bird	X	X
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	Bird	X	X
Pygmy rabbit	<i>Brachylagus idahoensis</i>	Mammal	X	X
Spotted bat	<i>Euderma maculatum</i>	Mammal	X	X
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Mammal	X	X

¹ Species occurring on the Fremont River Ranger District, including Dixie National Forest lands administered by the Fishlake National Forest, are attributed to the Fishlake National Forest.

² Tushar gilia occurs on both Forests, but SOC status only applies to the Dixie National Forest.

³ Aspen occurs on both Forests, but SOI status only applies to the Fishlake National Forest and lands administered by the Fishlake National Forest.

6.2. Species and Ecological Desired Conditions

The Dixie and Fishlake National Forests contribute a range of ecological conditions that supports the long-term persistence of native and desired wildlife, fish, and plants. Within the range of landscape capability and sustainability, forested and non-forested vegetation contains a variety of structural conditions and characteristics that support species life history requirements.

Within the capability of the landscape, ecological processes reflect conditions, dynamics, and disturbance regimes to which native species are adapted. Management

actions are designed to encourage conditions that are within the historical range of variability or regional and local properly functioning conditions. Actions remain within the variability of size, intensity, and frequency of native disturbance regimes characteristic of the subject landscape and ecological processes. Within disturbed ecosystems, management actions are designed to be consistent with restoration objectives. Native plant communities dominate the landscape and consist of a mosaic that varies in age, structure, and patch size. Vegetative management treatments in forested cover types provide for a full range of seral stages, by forested cover type, that achieve a mosaic of habitat conditions and diversity. Each seral stage contains a strong representation of early seral tree species necessary to maintain ecosystem resilience to perturbations. See also the Ecosystem Diversity Desired Conditions beginning on page 1b-7.

Habitats are connected to allow species movements at scales appropriate to support population interactions and genetic interchange. Unique landscape features such as springs, wetlands, organic bogs, seeps, meadows, caves, and lava and talus fields provide suitable conditions to support species dependent upon these resources. Key areas such as primary feeding, reproductive, and rearing areas, seasonal ranges, migration corridors, and animal concentration areas are available and provide the characteristics necessary to function in these roles.

Forest management maintains or enhances habitat effectiveness to support species persistence. Habitats for Threatened, Endangered, and Proposed species, Species of Concern, and Species of Interest are maintained or enhanced through habitat improvement, restoration, and agency cooperation. Management of systems, processes, and ecological features is adaptive and incorporates the best science and considers local conditions.

Native plant species from locally adapted seed sources are utilized in management activities. The use of non-native species is accepted when their use is important to maintain or restore a cover type moving toward properly functioning condition.

Riparian areas maintain a variety of vegetative vertical structure and patch sizes commensurate with site capabilities. Waterbodies, riparian vegetation, and adjacent uplands provide habitats for self-sustaining aquatic communities including fish, amphibians, invertebrates, plants, and other semi-aquatic species. Aquatic habitats are diverse, with channel characteristics and water quality reflective of the climate, geology, and natural vegetation of the area. Stream reaches and associated areas of influence are connected to allow movement of organisms unless barriers are necessary to prevent the spread of non-native species or are permitted for other uses. See also the Watershed Desired Conditions beginning on page 1b-4.

6.2.1. Threatened, Endangered, and Proposed Species

Forest management practices promote the recovery of species listed as Threatened and Endangered, as well as species proposed for listing (Proposed species).

Where the landscape is capable, habitat conditions are managed as described in recovery plans, conservation strategies and agreements, U.S. Fish and Wildlife Service consultations, and the best available science. Management actions are consistent with elements necessary for persistence and recovery of listed and proposed species. Management strategies for individual Threatened, Endangered, and Proposed species are in Part Two, Strategy, in the Program Area Emphasis section under Species Diversity. Information about the status and current conditions of federally-listed species can be found in the *Draft Comprehensive Evaluation Report: Species Diversity* (USDA 2006a). Additional information about desired conditions for Threatened, Endangered, and Proposed species habitat may be found in recovery plans and conservation strategies and agreements

Last Chance Townsendia, Maguire Daisy, and San Rafael Cactus (Fishlake National Forest only)

Lands on the Fishlake National Forest contribute to persistence, recovery, and de-listing of the Threatened Last Chance townsendia and Maguire daisy, and the Endangered San Rafael cactus. Threats to these species are minimized. Ecological conditions and processes that support suitable habitats are retained or restored within potentially occupied areas.

Virgin River Chub and Woundfin (Dixie National Forest only)

The Dixie National Forest supports water quality and flow regimes that are within or moving toward properly functioning condition to support habitats for these Endangered species. See also the Watershed Desired Conditions beginning on page 1b-4 for further descriptions.

Mojave Desert Tortoise (Dixie National Forest only)

Potential habitats within the Dixie National Forest contribute conditions that support the recovery and delisting of the Mojave Desert tortoise, a Threatened species. Natural recesses suitable for use as dens are maintained. Potential and suitable habitats are within or moving toward properly functioning condition. Potential threats to potential and suitable habitats are minimized.

Bald Eagle

National Forest System lands contribute to reestablishing and maintaining self-sustaining populations of bald eagles, a Threatened species, in suitable habitat within the Northern States Recovery Region. Management of essential habitats, including roosting and forage sites, emphasizes retention and development of suitable habitat characteristics and minimizing human disturbance.

California Condor (Dixie National Forest only)

Lands on the Dixie National Forest with cliff faces retain the character of existing cavities to provide habitat for this Endangered Species. Tree and snag sizes, densities, and distribution are within or moving toward properly functioning condition.

Mexican Spotted Owl

Because of the disjunct distribution pattern, dispersal among subpopulations of this Threatened species is an important consideration. Therefore, maintaining connectivity at the landscape scale is desired. Forest conditions within potential habitat contribute to protecting conditions and structures used by spotted owls where they exist and set other stands within potential habitat on a trajectory to grow into replacement nest habitat or to provide conditions for foraging and dispersal.

Utah Prairie Dog

The Forests contribute habitats suitable for establishing and sustaining populations of Utah prairie dogs, a Threatened species, within the West Desert, Paunsaugunt, and Awapa Plateau Recovery Areas. Potential habitats, including swale type formations with well-drained soils, contain moist herbage available even during drought periods since these animals derive water only from plant material.

Vegetation within established or prospective colony sites is generally low, giving prairie dogs the ability to scan the surrounding environment for predators. Fire or other disturbances remove shrubs and pinyon and juniper woodlands that have encroached on historically suitable habitat. Disturbances also retain the local landscape in grass and forb conditions through time. Suitable National Forest System lands are available for transplant of colonies. The desired condition of vegetation components within potential Utah prairie dog habitat is shown in the following table.

Table 1b-2. Recommended Vegetation Composition for Utah Prairie Dog

Vegetation Type	% of Ground Cover	Additional Requirements
Warm-season grasses	3-10	If warm-season grasses are less than 3% of ground cover, forbs must be 11-20% of ground cover.
Cool-season grasses	12-40	A minimum of three species are required, with at least one native species present.
Forbs	1-10	Non-annual, and a minimum of 1% of forbs are species as defined in the Definitions section of the Utah Prairie Dog Interim Conservation Strategy.
Shrubs	0-3	None.

Source: Utah Prairie Dog Recovery Implementation Team 1997.

6.2.2. Species of Concern

Forest management practices contribute to stable or increasing habitat trends and maintain or expand the distribution of habitat for SOC. Ecological conditions that support the persistence of these species are not limited by management activities, while the processes that developed or currently maintain suitable conditions are perpetuated.

Management activities maintain or enhance habitat, site suitability, and distribution. Appropriate management for SOC follows conservation strategies and agreements, formal recommendations, and the best available science. Restoration activities are designed to sustain or improve conditions within capable lands. Human-caused disturbance occurs at levels that do not affect species persistence. Management strategies for individual SOC are identified in Part Two, Strategy, in the Program Area Emphasis section under Species Diversity. Information about the status and current conditions of SOC can be found in the *Draft Comprehensive Evaluation Report: Species Diversity* (USDA 2006a). Additional information about desired conditions for SOC habitat may be found in recovery plans and conservation strategies and agreements

Plant Taxa

The individual SOC plants are listed in Table 1b-1 on page 1b-18. National Forest System lands contribute specific habitat characteristics that support SOC plant taxa. Management actions are consistent with retaining species persistence and distribution. Ecological conditions and processes that support suitable habitats are retained or restored within areas potentially occupied by SOC plants.

Bifid Duct Pyrg and Otter Creek Pyrg (Fishlake National Forest only)

Existing conditions that contribute to bifid duct and Otter Creek pyrg species persistence at known sites on the Fishlake National Forest are perpetuated. Known sites are identified and buffered from impacts. Suitable habitat conditions are maintained and restored at known sites. The desired conditions of suitable habitat is further described in the Watershed Desired Conditions beginning on page 1b-4.

Brian Head Mountainsnail (Dixie National Forest only)

Existing conditions that contribute to species persistence at known sites on the Dixie National Forest are perpetuated. Known sites are identified and buffered from impacts. Suitable habitat conditions are maintained and/or restored at known sites.

Colorado River Cutthroat Trout

The Forest Service Intermountain Region is a party in a conservation agreement and strategy pertaining to Colorado River cutthroat trout (CRCT Task Force 2001). Desired conditions generally include establishing self-sustaining metapopulations, maintaining areas that currently support abundant Colorado River cutthroat trout and managing

other areas for increased abundance, maintaining genetic diversity, and increasing the distribution of Colorado River cutthroat trout where ecologically and economically feasible (CRCT Task Force 2001). The desired condition of suitable habitat is further described in the Watershed Desired Conditions beginning on page 1b-4.

Flannelmouth Sucker (Fishlake National Forest only)

National Forest System lands contribute to downstream conditions that support flannelmouth sucker. These conditions are further described in the Watershed Desired Conditions beginning on page 1b-4.

Leatherside Chub

The desired condition of suitable habitat is described in the Watershed Desired Conditions beginning on page 1b-4.

Virgin Spinedace (Dixie National Forest only)

Lands on the Dixie National Forest exist in or are moving toward proper functioning stream and flow conditions, thereby contributing to downstream conditions that support Virgin spinedace. These conditions are further described in the Watershed Desired Conditions beginning on page 1b-4.

Arizona Toad (Dixie National Forest only)

Lands on the Dixie National Forest contribute to the persistence of the Arizona toad. Specific habitat components including willows, cottonwoods, and suitable bank conditions are retained where Arizona toads are known to occur. Desired conditions pertaining to aquatic and semi-aquatic habitats are further described in the Aquatic Habitats and Biota section of the Watershed Desired Conditions beginning on page 1b-6.

Peregrine Falcon

Potential peregrine falcon foraging sites (primarily marshes and lakes) are managed to continue providing a potential prey base. Habitats in proximity of nest sites (primarily cliff faces) are generally free of human disturbance in excess of those that occurred historically at the site.

Allen's Big-eared Bat

Potential maternity sites such as abandoned mines, caves, and potentially suitable rock formations are relatively free of disturbance and alteration. Ponderosa pine snags are available through time in sizes and densities that reflect properly functioning condition. Desired condition of desert shrub, pinyon and juniper, mountain brush, oak woodland, ponderosa pine, and mixed conifer forests are further described in the Ecosystem Diversity Desired Conditions beginning on page 1b-7. Desired condition of riparian vegetation (habitat utilized by Allen's big-eared bat for foraging) is further described in

the Riparian and Wetland Areas section of the Watershed Desired Conditions beginning on page 1b-5, and in the Riparian section of the Ecosystem Diversity Desired Conditions beginning on page 1b-12.

6.2.3. Species of Interest

Forest management practices contribute ecological conditions that sustain the distribution of suitable habitats for SOI and restore degraded habitats for SOI while recognizing that other management priorities may take precedence locally.

Habitat trends of SOI terrestrial and aquatic species are generally stable or increasing at the landscape level. Appropriate management for SOI follows conservation strategies and agreements and the best available science. Restoration activities are designed to sustain or improve conditions within capable lands. Management strategies for individual SOI are in Part Two, Strategy, in the Program Area Emphasis section under Species Diversity. Information about the status and current conditions of SOC can be found in the *Draft Comprehensive Evaluation Report: Species Diversity* (USDA 2006a). Additional information about desired conditions for SOI habitat may be found in recovery plans, conservation strategies, or conservation agreements.

Plant Taxa

The individual SOI plants are listed in Table 1b-1 on page 1b-18. National Forest System lands exist in or are moving toward habitats in properly functioning condition within potentially suitable habitat. Where SOI plants are considered locally rare or isolated, management actions support taxa distribution and favorable habitat trends.

Bonneville Cutthroat Trout

The Forest Service Intermountain Region is a party in a conservation agreement and strategy pertaining to Bonneville cutthroat trout (Lentsch et al. 1997). Stream reaches on both Forests have been identified as Bonneville cutthroat trout streams under the conservation agreement and strategy.

On both Forests, potential habitat for Bonneville cutthroat trout remains in or is moving toward proper functioning condition. The desired condition of suitable habitat is further described in the Watershed Desired Conditions beginning on page 1b-4.

Boreal Toad

Both Forests contribute to the persistence of boreal toads. Specific habitat components (e.g., water with shallow perimeters within emergent vegetation or submerged grasses, organic substrate, and gently sloping banks) are retained where this species is known to occur or is likely to occur. Breeding sites and adjacent upland areas exist in properly functioning condition. Desired conditions pertaining to aquatic and semi-aquatic

habitats are further described in the Aquatic Habitats and Biota section of the Watershed Desired Conditions beginning on page 1b-6.

Brewer's Sparrow

Shrubsteppe communities move toward properly functioning condition while emphasizing retention and development of large, contiguous blocks of sagebrush on the landscape.

Broad-tailed Hummingbird

Upland habitats adjacent to riparian sites, most notably those capable of supporting flowering plants, retain or are moving toward proper functioning condition. Areas capable of supporting communities of native flowering plants are managed for continued retention of native plant species composition. Desired conditions pertaining to riparian habitats are further described in the Riparian and Wetland Areas section of the Watershed Desired Conditions beginning on page 1b-5, and in the Riparian section of the Ecosystem Diversity Desired Conditions beginning on page 1b-12.

Gray Vireo

Areas with high potential for this species are identified and favorable habitat conditions are retained or restored. Movement of pinyon and juniper communities toward properly functioning condition occurs at the landscape scale. Gray vireo habitats are recognized as a priority for retention on the landscape.

Greater Sage Grouse

Forest Service management activities retain and restore characteristics of suitable sage grouse seasonal habitats (Connelly et al. 2000) and minimize disturbance to breeding. The desired characteristics of sage grouse habitat are shown in the following table.

Table 1b-3. Characteristics of Sagebrush Rangeland Necessary for Productive Sage Grouse Habitat

Type	Breeding		Brood-rearing		Winter ^a	
	Height (inches)	Canopy (%)	Height (inches)	Canopy (%)	Height (inches)	Canopy (%)
Mesic sites^b						
Sagebrush	16-31.5	15-25	16-31.5	10-25	10-14	10-30
Grass-forb	> 7 ^c	≥ 25 ^d	variable	>15	N/A	N/A
Arid sites						
Sagebrush	12-31.5	15-25	16-31.5	10-25	10-14	10-30
Grass-forb	> 7 ^c	≥15	variable	>15	N/A	N/A
Area ^e	>80		>40		>80	

Source: Connelly et al. 2000.

^a Values for height and canopy coverage are for shrubs exposed above snow.

^b Mesic and arid are defined on a local basis and consider annual precipitation, herbaceous understory, and soils.

^c Measured as "droop height," the highest naturally growing portion of the plant.

^d Coverage should exceed 15% for perennial grasses and 10% for forbs; values should be substantially greater if most sagebrush has a growth form that provides little lateral cover.

^e Percentage of seasonal habitat needed with indicated conditions.

Northern Goshawk

Diverse forest cover types with strong representation of early seral tree species dominate the landscape. High quality habitat patches are no more than 60 miles apart (preferably less than 20 miles apart) and exist throughout landscapes. Forest landscapes have 40 percent of the area dominated by well-distributed large trees. Large trees are defined relative to the average for the cover type and site potential. Habitat components (e.g., snags, down woody, cover) are present to meet prey species needs. A variety of structural stages are present (Reynolds et al. 1992).

Where mature and old structural groups are below the desired percentage of the landscape, management actions are designed to maintain or enhance the characteristics of these structural stages.

Three-toed Woodpecker

Tree and snag sizes, densities, and distribution in spruce-fir and mixed-conifer-aspen forests are within or moving toward properly functioning condition. Ecological disturbances such as insect outbreaks and wildfire in forested communities exist in or move toward the scope and dynamics characteristic of properly functioning systems.

Williamson's Sapsucker

National Forest System lands contribute to the development and retention of ponderosa pine and aspen snags that are at or moving towards properly functioning conditions, preferably in a clustered distribution, to meet the needs of this species.

Pygmy Rabbit

Habitats with potential for this species are maintained or restored to reflect suitable conditions (e.g., dense, tall stands of sagebrush [particularly big sagebrush], which serve as both food and cover). Suitable habitats are distributed across the landscape to facilitate interchange between populations.

Spotted Bat

Potential roost sites (cliff faces) are free of high intensity human-caused disturbance, such as seismic testing, mining, or use of explosives, during the breeding period. Vegetation communities that provide foraging habitat exist or are moving toward properly functioning condition.

Townsend's Big-eared Bat

Habitat conditions at maternity and hibernacula sites remains favorable for continued use by big-eared bats. Human disturbance to known maternity colonies and hibernacula is limited. Vegetation communities that provide foraging habitat exist or are moving toward properly functioning condition.

6.2.4. Species with Sport Considerations

The summer, winter, and transition ranges for deer and elk are available in a mix of forage, cover, water, and security areas. Within the capability of the land, these habitats contribute toward meeting population objectives approved by the Utah Wildlife Board, while recognizing that there may be site-specific instances where management for other species or desired ecological conditions would take precedence.

Impacts of open roads and motorized trails are generally low within important seasonal ranges. Mule deer winter ranges contain cover and high quality forage, including a mix of seral stages and age classes of sagebrush, oak, and other winter forage species that reflect properly functioning condition (see also Ecosystem Diversity Desired Conditions beginning on page 1b-7). Motorized access within critical big game winter range is generally precluded during the period of big game winter use.

High quality sport fishing opportunities are present across the Forests. Native and non-native salmonid populations contribute to these angling opportunities. Presence of non-native salmonid species is appropriate and encouraged, except where effects associated with competition or hybridization with native cutthroat trout is undesirable.

The recreational value of species with sport considerations is recognized. Access for hunting and fishing consists of a variety of opportunities, ranging from easy access by motor vehicle to opportunities where horse or foot travel is necessary.

6.3. Wildlife Viewing and Education

Unique ecosystems and restored habitats, particularly for federally-listed species, are interpreted with signing and through other education media.

7. Social and Economic

Social and economic conditions are often interrelated, and many times it is difficult to discuss them separately. Some economic factors can be tied to quantifiable values (e.g., commercial revenues), but there may also be a social factor related to jobs in a small community. Even though many social and cultural values are not easily quantifiable, they are very important to many people. For those reasons, social and economic desired conditions are discussed within the same section.

The Dixie and Fishlake National Forests contribute to the sustainability of the social and economic systems in southern and southcentral Utah. The Dixie and Fishlake National Forests do not independently sustain a social and economic system, but are critical contributors to that system. Forest managers understand how their decisions may affect current and future social and economic conditions. Responsible officials reach objective decisions considering science, balanced multiple uses, sustainability, and desired conditions.

Forest users understand how their actions may affect others. This understanding is supported by cooperative education programs. The Forests help forest users be good stewards of the land and exhibit responsible behavior.

7.1. Social and Economic Opportunities

Many communities, groups, and individuals are strongly connected to the land. Among other things, National Forest System lands provide wood for homes and fuel, water, forage for livestock, mineral production, food sources, recreation, and settings for traditional activities and family events. These and other traditional social and economic linkages with the Forests and their associated activities are given consideration in the decision-making process. The following bullet statements describe the desired conditions of the more significant contributions (though this list does not include all contributions):

- **Timber.** The Forests provide timber and wood products that are made available to the local and regional economies. A healthy timber industry that provides local jobs and necessary services to the Forests benefits the Forests and local communities. Timber harvest can further management goals for fuels reduction, wildlife habitat improvement, scenic integrity, and other desired conditions.
- **Livestock Grazing.** Livestock grazing continues to be an appropriate land use. The livestock grazing program maintains the long-term productivity of the forage and water resources. Livestock grazing opportunities are supported by a

combination of federal and private range. Thus, development of open space is minimized and there is reduced risk of habitat fragmentation caused by future land development. Livestock grazing continues to be an important thread to communities' social fabric.

- **Recreation.** A wide variety of opportunities are available for both commercial and non-commercial recreation. The opportunities continue to be widely available to local, regional, and national visitors. These opportunities are in harmony with long-term resource sustainability. User conflicts are minimized, and zoning of conflicting uses may occur. Forest recreation opportunities may complement rural economic development plans.
- **Minerals.** The exploration, development, and production of mineral and energy resources occur in response to meeting local, state, and national demand. In turn, the energy and mineral extractive industries have the potential to provide employment opportunities for the communities. Most of the Forests remain open to mineral activities. Energy exploration and development is compatible with ecosystem capabilities and other resource values. Facilities and landscape modifications may be visible but are reasonably mitigated to blend and harmonize with natural features. Surface disturbance from mineral and energy development are restored through effective reclamation techniques. Upon cessation of mineral and energy activities, disturbed sites are returned to a condition consistent with desired conditions and objectives. The development and production of mineral materials (e.g., gravel and cinders) emphasizes Forest Service, other government agency, and personal uses over commercial uses.
- **Culture.** Historic and cultural values are respected and integrated into decisions and actions. These values reflect the prehistoric and historic occupants of the area and are sustained for current and future generations' enjoyment and education.
- **Quality of Life.** The Forests continue to be part of the context for life in southern and southcentral Utah. The Forests are a source of clean air, water, recreation, wildlife habitat, livestock grazing, timber, open space, and energy and mineral resources, all of which can contribute to the Nation's and local communities' standard of living and quality of life. The Forests provide visually pleasing landscapes and their existence increases the quality of rural life.
- **Water.** Many communities exist within close proximity of the Forests and are dependent upon water resources developed within or impacted by National Forest management. Existing water rights are recognized. Communities' future water needs are considered.
- **Tribal.** The special sovereign nature of the Tribes is recognized and respected through a government-to-government relationship. This relationship is incorporated into the decision-making process. Culturally important resources continue to be available under Tribal rights.
- **Paleontological Resources.** National Forest System lands are open to paleontological research. Scientifically significant paleontological resources are inventoried and collected by qualified scientists, curated by accredited institutions, and made available for study by other qualified scientists.

Opportunities to acquire reproductions (e.g., virtual images or casts) are made available to local and other interested institutions and museums.

7.2. Planning

Planning for the Dixie and Fishlake National Forests is conducted in a collaborative manner. The planning process builds trust, reaches substantial agreement, and encourages a sense of stewardship to achieve the stated desired conditions. The public is a welcomed partner in the planning process. Local and state governments are recognized for their unique partnerships. Tribal governments participate through their government-to-government relationship with the federal government. Forest Service officials retain their delegated decision-making authority; however, their decisions result from an open, established, and accepted process. Knowledge and learning are shared among all partners.

7.3. Plan Implementation

Land management plan implementation is coordinated with other federal, state, and local agencies and governments, and other planning partners. Effective communication channels are maintained. Partnerships and agreements cooperatively implement strategies described in the plan. The Forest Service and the public, including neighboring communities and other planning partners, cooperatively share resources, planning goals, and expertise to achieve desired conditions across the landscape. The Forest Service fosters a relationship of mutual respect with forest users and their various links to the Forests.

8. Recreation

The overall guiding vision for recreation desired conditions on the Dixie and Fishlake National Forests is that activities are consistent with Recreation Opportunity Spectrum and Scenery Management System direction, as shown on the following maps:

- *Dixie National Forest – Recreation Opportunity Spectrum* map on page 1b-37.
- *Fishlake National Forest – Recreation Opportunity Spectrum* map on page 1b-38.
- *Dixie National Forest – Scenic Integrity Objectives* map on page 1b-39.
- *Fishlake National Forest – Scenic Integrity Objectives* map on page 1b-40.

Areas of sufficient size and configuration are maintained to avoid conflicts between various users. A designated trail network is appropriately maintained. A balance of safe, efficient, and environmentally responsible outdoor recreation opportunities are available to people of all interests and abilities.

Both Forests' diverse landscapes offer a variety of settings for a broad range of both summer and winter recreation activities. These landscapes include primitive settings

where there are opportunities for solitude, risk, and challenge, to more modified settings where there are opportunities for social interaction and comfort. Local communities, partnerships, and volunteers are actively involved and benefit from their roles in providing recreational opportunities. Forest users understand the potential for impacts to resources and the potential for conflict with other users, and actively assist in caring for the land and resolving conflicts.

The Dixie National Forest is characterized by contrast. The forested high country, mountain lakes, and relatively cool climates stand out in stark contrast to nearby desert metropolitan areas including St. George, Las Vegas, and Southern California. As a part of the world-renowned landscapes of southern Utah, the Dixie National Forest provides a backdrop and also serves as a gateway to surrounding high visibility national parks and monuments. Within its boundaries the Forest is marked by extreme landform contrast ranging from low elevation Mojave Desert scrub to desert mountains to red rock canyons and high-elevation plateaus and lakes. Nationally-recognized highways and trails course through the Forest and provide ready access to the unique natural highlights of the Dixie National Forest.

The Dixie National Forest's location near state parks, national parks, and national monuments suitably complements and appropriately contrasts these internationally popular attractions. From the protective restrictions associated with national park and monument use, opportunities extend to the multi-faceted range of less-structured activities and access throughout the Forest. Key travel corridors link to these parks and monuments and associated outlying communities. Quality developed recreation opportunities are located along these corridors to highlight unique natural and cultural features.

Named after Fish Lake, the largest lake on the Forest, the Fishlake National Forest has open, accessible landscapes inviting visitor use. A quality system of motorized and non-motorized routes, traversing long distances and linking with one another, create a web of corridors that provide easy access to the Forest. The nationally known Paiute ATV Trail system is an extension of routes from the local communities. The scenic landscapes of the Fishlake National Forest reveal secrets and stories of past settlements and civilizations while providing a modern day backyard for today's towns and communities. Routes and trails on the Fishlake National Forest are a means to access dispersed opportunities such as camping, hunting, fishing, and wildlife viewing.

The relatively open and remote landscapes of the Fishlake National Forest offer unparalleled OHV opportunities that provide both challenge and solitude. These opportunities span all four seasons. Other popular activities include camping, hunting, and fishing. Quality developed recreation sites are strategically located at key destinations to accommodate concentrations of use and provide staging areas for entrance into more remote areas.

The Fishlake National Forest offers a variety of dispersed recreation opportunities. Dispersed camping, particularly in large family groups, is popular during the summer

and fall hunts. Other public lands (including state lands and national parks and monuments) complement these dispersed opportunities by providing more structured settings and services. Partners are also critical in carrying out the well-managed recreation programs on the Fishlake.

8.1. Developed Recreation

The Forests offer a balance of safe, efficient, and environmentally responsible developed recreation experiences and opportunities. Developed recreation facilities are constructed and managed to meet established national and regional direction. Priorities for management of developed recreation facilities are defined in the Recreation Facility Master Plan for each Forest. Recreation facilities and visitor centers are designed to provide the most current information and interpretation.

On the Dixie National Forest, several scenic highways, including the designated All-American Highway (Highway 12, a National Scenic Byway), are the backbone to an access system that provides a range of opportunities for visitors. Interpretation of the unique natural, cultural, and historical setting occurs at facilities along the scenic highways. Access includes through-travel to the nearby parks and monuments and travel to a range of recreation attractions on the Dixie National Forest.

Developed recreation areas on the Fishlake National Forest are primarily located along the scenic byways and backways of the Forest and surrounding destination lakes. Concentrated use occurs in developed facilities, offering a more structured visit. Fish Lake Basin and the historic Fish Lake Lodge have a long tradition of this type of use.

8.2. Dispersed Recreation

Partners are critical in carrying out well-managed recreation programs on the Forests. The Forest Service works in concert with groups and other agencies to educate visitors about potential resource impacts, user responsibilities, and user ethics by teaching visitors to be respectful of other resources and forest uses through appropriate interpretive activities, signage, and other means.

Visitors respect each other and minimize their impact by removing trash and camping debris. They are particularly aware of the harmful effects of leaving human and animal waste and take steps to reduce the evidence of these substances on the Forests.

Dispersed campsites are on native material. Expanding or establishing new sites is discouraged to preserve vegetation and soil. Some sites are evaluated for potential hardening or closure. Some sensitive areas of the Forests (e.g., riparian areas or cultural sites) may be limited to designated campsites only. Campsites are generally not located in riparian areas. People use existing fire rings and refrain from establishing new ones.

Outfitters and guide management is consistent across each Forest. Capacity for outfitter and guide permits is determined through formal site-specific analysis.

Dispersed recreation opportunities on the Dixie National Forest are available for a wide variety of users. A majority of forest visitors drive for pleasure and enjoy relaxing and viewing scenery. Many visitors to the Dixie National Forest hike, fish, hunt, mountain bike, ski, and ride OHVs. Dispersed camping is popular, although limited in some areas due to resource concerns, activity conflicts, or overuse.

The Fishlake National Forest provides an array of dispersed recreation opportunities for hunting, fishing, wildlife viewing, and OHV use. Dispersed camping, particularly in large family groups, is popular in the summer for family reunions or group outings and during the fall hunts. The Forest is open to camping in undeveloped areas unless otherwise closed for resource protection or public safety.

8.3. Non-motorized Recreation

Non-motorized areas are of sufficient size and configuration to minimize disturbance from other uses. The non-motorized trail network on each Forest is appropriately maintained and accesses locations of interest for a variety of users. Collaboration and education with other agencies and user groups results in associated ethical behavior most effectively reinforced by peers. Through use of education and enforcement, motorized users do not use non-motorized trails.

The Dixie National Forest provides a respite from the desert heat and the noise and stress of urban and suburban communities for visitors, and they find a relative sense of solitude in the high plateaus and the day-use wilderness areas.

A non-motorized backcountry setting on the Fishlake National Forest is used by equestrians and hikers. Viewing scenery and wildlife are important components of this setting.

8.4. Motorized Recreation

Motorized recreation is a suitable use of both Forests; however, for vehicles other than over-snow vehicles, use is restricted to designated routes and areas. Varying degrees of challenge, user comfort, and social interaction continue to characterize motorized recreation opportunities.

Over-snow vehicles are allowed in areas with adequate snow cover. Over-snow vehicle use may be restricted, however, in specific areas due to resource considerations or user conflicts.

Local communities, partnerships, and volunteers are actively involved and benefit from their roles in providing motorized recreation opportunities. The Forest Service works with other agencies and groups to communicate with recreation visitors about potential

resource impacts and user responsibilities or ethics. Accordingly, recreation visitors actively assist in caring for the land and in resolving associated concerns.

A suitable designated route network exists for a variety of uses in all seasons. Routes are well marked to encourage proper use and facilitate meaningful law enforcement. Maps that clearly display the designated routes are readily available. Routes access surrounding communities where amenities such as lodging, gas, and food are available. The motorized route system provides points of access to non-motorized trails.

On the Fishlake National Forest, recreation visitors commonly travel via motorized routes to participate in dispersed activities such as fishing, hunting, hiking, and wildlife viewing. There is a sense of “getting away” for discovery or adventure. A challenging and scenic riding adventure is provided by the nationally recognized Paiute ATV Trail, as well as by the Great Western Trail. Additional connector trails create a model OHV trail system of over 1,000 miles. Concentrated dispersed camping areas serve as staging areas and support the trail system. Interpretation and education opportunities are provided at key locations.

9. Heritage Resources

The Dixie and Fishlake National Forests are home to a variety of important heritage resources. Heritage sites are managed with respect in coordination with applicable laws and regulations. Heritage resource sites continue to exist in an undisturbed condition; however, erosion and weathering (both natural and human-caused) often pose the greatest threat to these resources.

Popular sites are interpreted to help visitors understand and enjoy the heritage resources on the Dixie and Fishlake National Forests. The public is afforded access to sites that have been stabilized and are maintained for interpretation of the cultural history of the area. Vandalism of sites is reduced by continued law enforcement presence and public awareness of the problem. Prosecution of vandals is a priority for agency law enforcement personnel.

Native Americans continue to be provided access to those sites of a sacred nature to their communities and people. Working in partnership, the governments of the Tribes and the Forest Service ensure continued access is maintained.

10. Transportation

The transportation systems on the Dixie and Fishlake National Forests provide safe and efficient public and agency access to National Forest System lands. They are economically viable, environmentally compatible, responsive to public needs and desires, and efficiently managed. Each system provides a balanced mix of road and trail access for recreation, special uses, management, and fire protection activities while

supporting forest management objectives. User experience, safety, and resource protection are emphasized in transportation system planning, design, and operation. Transportation facilities are properly signed according to Forest Service policy.

Management of the transportation system is commensurate with road maintenance objectives and environmental sensitivity, and is prioritized within available funds emphasizing safety, resource protection, economic viability, and user experience. Unnecessary roads and trails are decommissioned or new roads may be added as supported by science-based analysis and prioritized to meet forest management objectives. Over the planning period, the total mileage of Forest Roads and trails is expected to decline slightly. Environmental impacts from Forest Roads and trails are reduced. The total number and impacts from unauthorized routes are reduced. The development and proliferation of new unauthorized routes is minimized.

The transportation system is efficiently interconnected to state, county, local public, and other federal roads and trails through collaborative access and travel management planning. Access to National Forest System lands responds to public needs, facilities, and planned resource activities. Rights-of-way are provided to efficiently access inholdings and to cross the Forests where needed.

The transportation system provides the access needed to maintain facilities and infrastructure such as buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, vegetation treatments, mine sites, oil and gas wells, electronic and communication sites, utility corridors, transmission lines, and gas and water lines.

11. Facilities

Facilities on the Dixie and Fishlake National Forests may include visitor centers, restrooms, rental cabins, offices, bunkhouses, barns, maintenance buildings, water and wastewater systems, and dams. Facilities are maintained in a neat, clean, orderly fashion that reflects well on the general Forests' appearance. Facilities are efficiently managed to be economically viable and environmentally compatible while still being responsive to agency and public needs and desires. Management and maintenance of these facilities is in accordance with direction contained in the Facility Master Plans for fire, aviation, and other facilities, and the Recreation Site Facility Master Plans for recreation facilities.

Over the planning period, the number of facilities is expected to decline slightly. Facilities with high costs associated with maintenance, deferred maintenance, or leases are eliminated or replaced. Collocation with other federal agencies is encouraged and pursued.

Dixie National Forest – Recreation Opportunity Spectrum (dnf_ros.pdf)

- JPEG (XX KB)
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Fishlake National Forest – Recreation Opportunity Spectrum (fnf_ros.pdf)

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Dixie National Forest – Scenic Integrity Objectives (dnf_sio.pdf)

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Fishlake National Forest – Scenic Integrity Objectives (fnf_sio.pdf)

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