DRAFT
THREE FORESTS COALITION
SUSTAINABLE MULTIPLE USE OPTION
DIXIE AND FISHLAKE NATIONAL FORESTS
March 24, 2006

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Biological Components for the Dixie/Fishlake National Forest Plan Revision
FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Ecosystem Processes: Global Warming [1]	
Desired Condition	• Biological values most at risk to the effects of global warming are benefiting from mitigation measures. • Ecosystem conditions are resilient to the effects of global warming. • Ecosystem redundancy, reduced fragmentation, species migration corridors, natural hydrology, and ecosystem functions are supported for maximum resiliency with global warming. • Ecosystems are responding as naturally as possible to global warming and thus minimizing negative effects to the viability of native species. Natural responses to a warming climate include increased insect epidemics in some forests, increased fire activity, changing composition within ecosystems, and shifts between the boundaries of ecosystems.
Objectives (to move from existing to desired)	**Obj. 1** Forest impacts of global warming are identified, prepared for and mitigated as possible **Obj. 2** The need for support of native ecosystems in the midst of global warming is taken into account during management decisionmaking. **Obj. 2** Forest measures to reduce contribution to greenhouse gas emissions are identified and implemented
Guidelines (sideboards for future activities)	**Gdlne. 1** In order to eliminate or minimize undue impacts to native biological diversity, the projected impact of global warming on the Forest resources should be acknowledged for any activity or project being analyzed for its environmental impacts. Activities with such impacts include but are not limited to oil leasing and drilling, timber harvest, livestock grazing, and motorized vehicle use. **Gdlne. 2** In order to reduce contributions to greenhouse gas production, the Forest should pursue opportunities to: ▪ Convert the car, pickup, van and SUV component of the vehicle fleet to low emission hybrid vehicles. ▪ Convert to renewable energy sources through direct installation of power generation facilities (solar panels, wind turbines) or purchase of renewable energy through power purchase options.
Monitoring	Desired Conditions: Monitoring elements • Ecosystem boundary shifts

[1] See, e.g., Walther, et al. 2000 re: the ample evidence worldwide of ecological impacts of recent global warming, such as increased extinction where habitat is fragmented and reinforcement of stresses from human mismanagement.

	• Vegetation and wildlife composition changes • Insect epidemics • Comparisons of impacted sites with reference areas, the variables depending on specific questions
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Ecosystem Processes: Fire and Fuels Management	
Desired Condition	• Wildland fire is a principal factor regulating the structure, pattern, and diversity of ecosystems. • Wildland fire occurs within a range of frequencies, severities, and extents that, to the degree practicable, approximates the natural variability of each ecosystem. • Wildland fires are managed to minimize negative impacts to imperiled and sensitive species and habitats. • Wildland fire does not result in the loss of human life, and is facilitated by a relatively safe landscape context characterized by defensible and prepared at-risk communities.
Objectives (to move from existing to desired)	**Obj. 1** All planned fire and fuels management activities adhere to provisions of the applicable Fire Management Plan. The Fire Management Plan: 1. Adheres to and reflects the: a. Federal Wildland Fire Policy. b. Interagency Strategy for Implementation of the Federal Wildland Fire Policy. c. Interagency Fire Management Plan Template. 2. Maximally facilitates wildland fire use. a. Predetermines the location and perimeters of individual maximum management areas (MMAs) for wildland fire use. Use maximum management areas as the spatial context for management of wildland fire. Within three years of plan adoption, develop wildland fire use plans specific to each MMA specifying protocols for management actions, such as perimeter burning, necessary to facilitate wildland fire use. b. Maximizes Forest acreage included in MMAs. c. Integrates MMAs within fire management units, using one or more fire management unit boundaries as MMAs where feasible. d. Develops predetermined containment / back-burn strategies along MMA perimeters for each MMA. e. Identifies and develops mitigation for values at risk that are compatible with wildland fire use. Values

	at risk may include but are not limited to: i. Habitat for federally listed, sensitive, and other species of concern ii. Fire-vulnerable archeological sites iii. Administrative sites iv. Developed recreation areas f. Where values at risk are incompatible with wildland fire use, develops suppression triggers specifying the fire weather conditions, fuels conditions, and geographic locations in which fire shall initiate suppression actions. Triggers are developed to consider both the potential impacts of suppression and fire under different conditions. g. Develops cooperative agreements with other jurisdictions, including private landowners, to facilitate wildland fire use across ownerships and maximizes the contiguous acreage of areas appropriate for wildland fire use. h. Identifies and prioritizes for acquisition private lands impeding wildland fire use or lands that, if acquired, would increase the contiguous acreage eligible for wildland fire use. i. Avoids land trades that fragment federal ownership in such a way that impedes wildland fire use or decreases the contiguous acreage eligible for wildland fire use. j. Creates conditions, through active fuels reduction, where necessary, to facilitate wildland fire use within each MMA (Fir. Obj. 4). 3. Facilitates integration of fire management planning and wildland fire use with watershed analysis by delineating fire management units (FMUs). 4. Predetermines MMAs using topographic boundaries of one or more 5th order watersheds, or human-made features approximating those boundaries insofar as is practicable. [Objectives continued below]
Obj. 2	Fuels reduction is prioritized to facilitate community defensibility and, where necessary, restoration of fire regimes: 1. Highest priority for fuels reduction is in the Wildland Urban Interface Threat and Defense Zones. 2. Second priority is in forests a. outside the WUI with historical low-severity, high frequency fire regimes (Fire Regime 1) at risk of uncharacteristically severe fire classified, through site-specific determination, as Condition Class 2 or 3. b. Within non-WUI priorities, additional priority is given to: i. Ponderosa pine forests and mixed conifer forests along drier sites (lower elevations, south- and west- facing aspects) that formerly supported more open woodlands dominated by ponderosa pine or Douglas fir. ii. Highest hazard Condition Class 3 areas within MMAs; iii. Areas least likely to result in negative impacts to federally listed or sensitive species. iv. Areas that, if treated, would facilitate wildland fire use across larger areas, preferably entire

	FMUs or MMAs. These areas include FMU or MMA perimeters. v. Habitats for federally listed and species of concern and interest only: 1. in circumstances when applicable recovery or conservation plans call for such treatments. 2. in full compliance with all other aspects of applicable recovery or conservation plans, including monitoring. 3. Third priority is given to Condition Class 2 and 3 lands within municipal watersheds. 4. Fourth priority is given to other Condition Class 3 lands. **Obj. 3** Fire suppression techniques minimize ecological harm to wilderness, roadless areas, old growth and riparian habitats, steep slopes, vulnerable species, rare and relict biotic communities and habitats of species of concern/interest. 1. Fire suppression activities are restricted in areas where fire will cause little to no ecological damage and where it poses little or no threat to life or property. 2. Maps, mitigation measures, GIS data and other information necessary to avoid impacts to federally listed and vulnerable native species are incorporated into incident planning and operations. 3. Ecological advisors are part of incident planning and operations teams to oversee incorporation of biological resource protection and mitigation during incident planning and operations. **Obj. 4** Ecosystems damaged by uncharacteristically severe fire are rehabilitated 1. Forest-specific decision making protocol is developed to guide: a. Determination of whether there is an ecological basis for post-fire rehabilitation treatments b. Selection of materials and techniques that will not cause further ecological harm to burned areas in the short and long terms; c. Inaction when appropriate methods and materials are unavailable or otherwise infeasible. d. Selection and use of Burned Area Emergency Response to ensure timely actions necessary to mitigate effects of severe fires. **Obj. 5** Threshold fire hazard levels among cheatgrass and other flammable grasses are established for restricting recreational motorized vehicles to passenger vehicle roads.
Guidelines (sideboards for future activities)	**Gdlne. 1** When a Wildland Urban Interface Defense Zone consists of private and national forest land, the Forest should coordinate with landowners to facilitate treatment of non-federal lands. **Gdlne. 2** Prescribed burning should not occur outside the Wildland Urban Interface without: • first removing excess fuels from the base of trees older than 120 years • first conducting surveys for species of concern within the subject treatment area and, if species are present • incorporating into project-level planning and implementation. all applicable mitigation measures, standards, and procedures set forth in all applicable recovery and conservation plans **Gdlne. 3** In planning and conducting active fuels reduction outside the Wildland Urban Interface Threat and Defense Zone,

	low thinning in combination with prescribed fire should be used only when: o multiple applications of prescribed fire are unlikely to facilitate desired conditions, or; o multiple applications of prescribed fire are incompatible with air quality or objectives and standards of applicable recovery or conservation plans, or; o are otherwise impractical given time constraints of multiple fire applications • in accordance with priorities identified in Fire Obj. 2 • in accordance with tree cutting objectives and guidelines set forth in the tree cutting section and when surveys for vulnerable species have been conducted within the subject treatment area and all applicable mitigation measures, set forth in all applicable recovery and conservation plans are reflected in project-level planning and implementation. **Gdlne. 4** Fires in wilderness areas and roadless areas should not be suppressed unless there is an immediate threat to lives and property. **Gdlne. 5** Ground disturbing suppression activities should be avoided in wilderness areas and roadless areas **Gdlne. 6** The Forest should avoid directly, indirectly, or cumulatively impacting threatened, endangered, or otherwise vulnerable species and their habitats in planned fire and fuels management activities. **Gdlne. 7** Fire retardant and foam should not be applied within 300 feet of any waterway or habitat of species of concern or otherwise vulnerable species. **Gdlne. 8** All equipment used in fuels and fire management activities should be washed prior to and after use to remove dirt and seeds to prevent the introduction and spread of invasive plants. **Gdlne. 9** Minimum Impact Suppression Tactics should be used except when planning affords greater environmental protections.
Monitoring	Desired Conditions: Monitoring elements • Fire frequencies, severities, and extent by type • Trends in condition class • Comparisons with reference forest types, the variables depending on specific questions Objectives **Mon. 1** Map annual burn perimeters, severities, and timing in GIS. **Mon. 2** Map and report, departure from natural fire regimes every five years, noting: 1. Percentage by ecological system and condition class, and; 2. Percentage by ecological system and condition class within; a. 5th order watersheds; b. Fire management units; and c. Maximum management areas. **Mon. 3** Annually report the type, acreage, and costs of hazardous fuels removal in the Wildland Urban Interface Defense and Threat Zones for each at-risk community

Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Ecosystem Processes: Drought	
Desired Condition	• Droughts occur periodically and are a natural ecosystem process. • Vegetation dieback, increased fire activity, and corresponding changes to ecosystem composition, structure, and landscape pattern are occurring during periodic droughts. • Periodic droughts are causing decreased snow pack, spring and stream flows, lake and reservoir levels, and growth and availability of forage. • Damage to resources, ecosystems, and populations of individual species are minimized as resource use is adjusted to diminished resource availability during drought
Objectives (to move from existing to desired)	**Obj. 1** Drought mitigation strategies triggered by threshold drought conditions are incorporated into all relevant permits, uses, and contracts to adjust levels of use during drought in order to avoid damage to resources. Mitigation measures include: 1. Altering the season, duration, and intensities of use during drought conditions; 2. Conditions triggering non-use. **Obj. 2** Relevant permits, uses, and contacts that include drought mitigation strategies include but are not limited to: 1. Livestock grazing; 2. Food gathering; 3. Seed and other vegetation collection; 4. Fuel wood cutting.
Guidelines (sideboards for future activities)	**Gdlne. 1** Permits, uses, and contracts should be temporarily halted during threshold drought conditions if: ▪ Drought mitigation measures are not in place ▪ Drought mitigation measures are not followed ▪ Threshold resource conditions triggering non-use are exceeded. **Gdlne. 2** Threshold drought conditions triggering mitigation measures are either: 1. When annual water year precipitation is less than 70% of the 30-year average water year precipitation as measured on March 15th each year, or 2. When five-year water year precipitation averages are less than 70% of the 30-year average water year precipitation.

Monitoring	Desired Conditions: Monitoring elements • Adjustments in resource use • Vegetation composition changes • Comparisons with reference sites, the variables depending on specific questions Objectives **Mon. 1** A drought mitigation report is compiled every three years documenting: 1. Adjustments to season, duration, and intensities of uses that resulted form drought mitigation measures. 2. Monitoring results demonstrating that threshold resource conditions triggering non-use were not exceeded for each adjusted permit, use, or contract.
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision
FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Ecosystem Processes: Insects and Diseases	
Desired Condition	• Insect and disease epidemics are playing a critical role in the ecology of forests in southern and central Utah as a principal factor regulating the structure, pattern, and diversity of forests and woodlands. • Insect epidemics are occurring within a range of frequencies, severities, and extents that maintain the long-term resilience of forests, and are often related to climate variability. • Forests and woodlands are experiencing low levels of insect epidemics punctuated by periodic outbreaks. • Forests are in varying stages of recovery from insect epidemics, creating a mosaic of forest patterns and structures. • Periodic insect outbreaks are providing important food source for wildlife, and standing dead and down trees resulting from insect outbreaks are providing habitat for wildlife.
Objectives (to move from existing to desired)	**Obj. 1** Insect and disease irruptions are allowed to play their natural role shaping the structure, composition, and pattern of forest ecosystems. **Obj. 2** An outreach program to educate forest users on the important ecological role of insect and diseases play in forests is developed. This shall at least include focusing on the role of insects and disease (1) shaping forest structure, composition, and pattern (2) forming a wildlife food source, (3) creating wildlife habitat, and (4) interactions between climate (and global warming) and forest insect and diseases. **Obj. 3** Areas of severe insect and disease mortality located in the wildland urban interface threat zone adjacent to communities, campgrounds, administrative sites, developed recreation sites and other areas of high use and high human interest located within a wildland urban interface threat zone are replanted only where and/or in such a way that replanting does not conflict with public safety fire objectives.

Guidelines (sideboards for future activities)	**Gdlne. 1** Other than for hazard tree cutting specified in the tree cutting section, trees should not be cut for purposes related to insect and disease outbreaks
Monitoring	Desired Conditions: Monitoring elements • Insect and disease epidemics on the Forest • Vegetation and wildlife population changes • Comparisons with reference sites, the variables depending on specific questions
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Landscape Linkages	
Desired Condition	Movement, dispersal, and genetic exchange of black bear, wolves, deer, elk, bighorn sheep and other wildlife populations are supported.
Objectives (to move from existing to desired)	**Obj. 1** Permeability is maximized by managing access throughout existing road network to minimize unacceptable hunting/depredation. **Obj. 2** Permeability is maximized across well-used thoroughfares by constructing under/overpasses that facilitate migration and dispersal. **Obj. 3** Appropriate access management criteria exist for each major landscape linkage. **Obj. 4** Forestry practices minimize deforestation of large patches, and create small forest openings, especially those that encourage soft mast production (for bears) in summer and early fall. **Obj. 5** Thick and continuous vegetative cover exist for concealment where appropriate, balancing cover requirements with less cover-dependent species. **Obj. 6** Habitat connections that support ecologically and evolutionarily effective populations of black bear and Mexican gray wolves are maintained. **Obj. 7** For black bear, road densities do not exceed 1.3 mi/mi^2 (Powell et al. 1997). For wolves, road densities do not exceed .64 mi/mi^2 (Wisdom et al 2004).
Guidelines (sideboards for	

future activities)	
Monitoring	
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Native Biodiversity Habitat: Surrogate Species (see FSH 1909.12 Chapter 40 at 43.24)	
Desired Condition	Trends of carefully-selected surrogate animal and plant species are known, providing indication of trends of that habitat's conditions for many other native species.
Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring Elements Population trends of animal species of interest as habitat indicators and selected vegetation indicators. [2]
Suitable Uses	

Table 1. **Surrogate Species which indicate habitat conditions for Dixie/Fishlake National Forest native biodiversity with their associated measures and trigger for management change.**

[2] Regarding the importance of vegetation "surrogate species": "For most species, the only practical quantitative evaluation is assessment of habitat conditions" FSSH 1909.12 Chapter 40 at 43.26)

Veg/Habitat Type Represented (and acres of habitat)	Proposed Surrogate Species	Specific habitat type or affinity within larger vegetation type	Forest Management Activities which may be implicated in downward trends	Measure every 2 years (unless noted)	Trigger for Management Change
Alpine Fishlake: 7,174 Dixie:13,689	Ground cover	Shrubs/grass/forbs	• Livestock • ORV activity • Other recreation (e.g., camping, hiking)	In alpine areas most accessible to livestock or humans: 1) proportion bare ground OR 2) proportion of bare ground likely due to ORV or other use of routes, livestock grazing, hiking, camping or other Forest activities	1) Bare ground increasing 10% or more over 4 year period AND 2) More than 20% of the bare ground increase likely due to Forest uses
Alpine (2nd of 2)	American pipit	Shrubs/grass/forbs	• Livestock • ORV activity • Other recreation (e.g., camping, hiking)	Walking line transects (using distance sampling for visual and audio detections) every year during breeding season, with enough data collected (minimum 60-80 detections) to be extrapolated to density estimations	Densities (no. of detections) exhibit a downward trend. It could take 3-5 years of data collection to detect trend
Spruce/Fir & Mixed Conifer[2] Fishlake 264,244 Dixie 382,498	Old Growth	Mature forest stands	• Logging of mature and old trees.	Number of large, dominant, or co-dominant trees per acres DBH of largest trees Size class differentiation	Management toward Old growth in mature stands for: (1)At least 15 large, dominant or co-dominant trees per acres. AND (2) DBH of largest trees15 inches or more AND (3) At least two size classes in two distinct layers differing by at least six inches DBH (Hamilton 1993)

Spruce/Fir & Mixed Conifer[a] (2nd of 3)	Red-naped sapsucker (lower elevations) OR 3-toed woodpecker (upper elevations)	Primary cavity nesters, use both old growth conifer and aspens, good indicators of later seral stages. 3-toed would be primarily surveyed for in higher elevations, red-naped in lower	• Logging of old growth • Firewood cutting	(1) Walking line transects (using distance sampling for visual and audio detections) every year during breeding season, with enough data collected (minimum 60-80 detections) to be extrapolated to density estimations (2) Snag counts: number of snags per acre	(1) Densities (no. of detections) exhibit a downward trend OR (2) Snag counts are below minimum 3 large (18 inch DBH or larger, at least 30 feet tall) per acre.
Spruce/Fir & Mixed Conifer (3rd of 3)	Northern goshawk	Requires large tracts of mature and old-growth forests for nesting, and either heavily forested or relatively open habitats for foraging	• Tree cutting – especially large trees • Large fires	(1) Nest Monitoring: Number of nests (or occupied "nest areas"), (2) Snag counts in nest areas: number of snags per acre, (3) % canopy closure within nest areas (Reynolds et al 1992)	(1) Downward trend in number of nests/occupied nest areas OR (2) < 3 large (>18 in DBH, >30 ft tall) snags per acre in nest areas OR (3) % canopy closure in mid-aged forest < 50% in nest areas and % canopy closure in mature/old forest < 60% in nest areas (Reynolds et al 1992)
Aspen Fishlake: 149,041 Dixie: 106,103	Aspen stems	Understory	• Livestock grazing and browsing • Elk grazing and browsing • Recreational uses • Tree cutting • Water diversions	Sample of aspen clones in (a) sheep allotments; (b) cattle allotments; (c) recreational areas; and (d)areas inaccessible to livestock: 1) Proportion of understory aspen stems to total stems 2) Proportion of understory sapling above seven feet 3) Proportion browsed/unbrowsed branches on saplings less than seven feet	Consider management change if: (1) Proportion of understory aspen to total stems increasing less than 20% over five years without treatment OR (2) proportion of understory aspen taller than seven feet less than 20% four years after fire or other disturbance Trigger management change if: (1) More than 30% *need review of what percent would spell inability to rise above browse*

					height] browsed branches on saplings of less than four feet tall.
Aspen (2nd of 3)	Ruffed Grouse	Require young aspen poles for cover and mature trees for foraging	• Livestock grazing and browsing • Elk grazing and browsing • Recreational uses • Tree cutting	Drumming log counts in spring	Abundance of males decreases over 10 year period (i.e., change in habitat versus population fluctuation as a result of weather)
Aspen (3rd of 3)	Red-naped sapsucker	Primary cavity nesters, use both old growth conifer and aspens, good indicators of later seral stages.	• Firewood cutting • Tree cutting • Livestock grazing (resulting "fire suppression")	1) Walking line transects (using distance sampling for visual and audio detections) every year during breeding season, with enough data collected (minimum 60-80 detections) to be extrapolated to density estimations (2) Snag counts: number of snags per acre	(1) Densities (no. of detections) exhibit a downward trend OR (2) Snag counts are below minimum 2 large (18 inch DBH or larger, at least 30 feet tall) per acre.
Ponderosa Pine Fishlake 15,662 Dixie 247,225	(1)Old Growth (2) Native grass/forb understory: Diversity and flowering	Mature pine stands and understory	• Tree cutting – especially large trees • Livestock grazing (removal of fine fuels for cool underburns; release of dense pine recruitment) • Removal of snags	Ponderosa pine: (1) Number of large, dominant, or co-dominant trees per acres (2) DBH of largest trees (3) Size class differentiation Understory: (1) Diversity of species: native vs. exotic grasses and forbs (2) Proportion of flowering stems: native grasses and forbs	Management toward Old Growth ponderosa in mature seral stands for: (1) At least 15 large, dominant or co-dominant trees per acre. AND (2) DBH of largest trees of 20 inches AND (3) At least two size classes in two distinct layers differing by at least six inches DBH (Hamilton 1993) Management toward Old Growth ponderosa in mature climax stands for: ; (1) Approximately 7 large, dominant or co-dominant trees per acre AND

					(2) DBH of largest trees of 15 inches Understory management changes triggered by: (1) Exotic grasses and forbs diversity is increasing relative to native forb/grass diversity OR (2) Proportion of flowering stems of the three most common native forbs and grasses shared with the reference area is less than 50% of reference area plants of the same species
Ponderosa Pine (2nd of 3)	Northern Goshawk	Requires large tracts of mature and old-growth forests for nesting, and either heavily forested or relatively open habitats for foraging	• Tree cutting – especially large trees • Livestock grazing (removal of fine fuels for cool underburns; allows dense pine recruitment)	(1) Nest Monitoring: Number of nests (or occupied "nest areas"), (2) Snag counts in nest areas: number of snags per acre, (3) % canopy closure within nest areas (Reynolds et al 1992)	(1) downward trend in number of nests/occupied nest areas OR (2) < 2 large (>18 in DBH, >30 ft tall) snags per acre in nest areas OR (3) % canopy closure < 40% in nest areas (Reynolds et al 1992)
Ponderosa Pine (3rd of 3)	Flammulated owl	Prefers mature pine, especially old growth, and mixed conifer forests with good edge habitat. Secondary cavity nester	• Firewood cutting • Fire suppression • Timber harvest (including clearcutting and removal of mature trees and/or snags)	(1) Identify likely territories through night transects (calling), and then check for presence of nests (2) Snag counts: number of snags per acre	(1) Number of nests decreases by 20 percent or more from previous measuring period AND (2) Snag counts are below minimum 2 large (18 inch DBH or larger, at least 30 feet tall) per acre
Meadow Fishlake: 9,094 Dixie: 13,211	Native forb community diversity	Tall forb/grass stands	• Livestock grazing and trampling • ORV routes and cross-country travel • Camping/hiking • Exotic seedings	(1) Total forb cover (2) Proportion of forb cover by natives and by exotics (3) Number of native forb species present (4) Ave # flowering stems of	Increased protection if: (1) Cover of non-native forbs has increased by at least 20% within four years

				the three most common native forbs	OR (2) Cover of native forbs has decreased by at least 10% within four years OR (3) Less than seven native forb species are present. OR 4) Ave # of flowering native stems of the three most common native forbs shared with the reference area is less than 50% of the same species in the reference area
Meadow	Lincoln's sparrow	Requires healthy and diverse composition of tall forb and grass communities, especially seed producing plants	• Livestock grazing and trampling • Exotic seedings • Recreation	Walking line transects (using distance sampling for visual and audio detections) every year during breeding season, with enough data collected (minimum 60-80 detections) to be extrapolated to density estimations	Densities (no. of detections) exhibit a downward trend. It could take many (3-5 years) of data collection to detect trend
Mountain Mahogany Fishlake: 36,658 Dixie: 9.909	Mahogany leader browse	Shrub stands	• Livestock grazing and browsing • Elk/deer grazing and browsing	Proportion of branches unbrowsed	Unbrowsed proportion is less than 50% of reference area mountain mahogany

Pinyon/Juniper Fishlake 432,325 Dixie 520,358	Cover of perennial native and exotic grasses; diversity of native grasses	Understory	• Livestock grazing • Elk grazing • Chaining/burning	(1) Cover of native grasses AND exotic grasses (2) Diversity of native grasses (3) Proportion of plants of the three most common native grass species with seedheads	(1) Cover or diversity of perennial native grasses is less than 50% of pinyon/juniper reference areas OR (2) Exotic grasses are increasing in cover and native grasses are decreasing OR (3) The three most common native grass species have less than 50% seeded culms of the same native grass species in the reference area
Pinyon/Juniper (2nd of 2)	Juniper titmouse	Pinyon/Juniper stands	• Fire • Chaining/burning	Walking line transects (using distance sampling for visual and audio detections) every year during breeding season, with enough data collected (minimum 60-80 detections) to be extrapolated to density estimations	Densities (no. of detections) exhibit a downward trend. It could take many (3-5 years) of data collection to detect trend
Gambel Oak	Cover of perennial native and exotic grasses; diversity of native grasses	Understory	• Livestock grazing	(1) Cover of Native grasses AND exotic grasses (2) Diversity of native grasses (3) Proportion of plants of the three most common native grass species with seedheads	(1) Cover or diversity of perennial native grasses is less than 50% of gambel oak reference areas OR (2) Exotic grasses are increasing in cover and native grasses are decreasing OR (3) The three most common

					native grass species have less than 50% seeded culms of the same native grass species in the reference area
Sagebrush Fishlake 276,231 Dixie 310,169	Native Grass/Forb Understory of sage grouse breeding habitat	Shrub understory layer	• Livestock grazing/browsing • Elk grazing/browsing • Sagebrush removal • Exotic seedings • Herbicide use • Fire	(Stratified sample of current and historical lek areas) : 1) Height of native perennial grasses at beginning of nesting season 2) Canopy cover of perennial native grasses and forbs	1) Native grasses are less than 7 inches tall during nesting season AND 2) Perennial grass cover is less than 15%
Sagebrush (2nd of 3)	Sage Grouse	An "umbrella" species, as they require a diverse array of sagebrush types ranging from thick cover to scarce cover, and including mesic areas	• Sagebrush removal • Fire • Exotic species invasion • Livestock grazing • Energy development • Roads	(1) Number of active leks, (2) Number of males in each lek	(1) Number of active leks adjacent to or on Forestland decreases OR (2) Number of males in each lek decreases for 2 consecutive monitoring periods
Sagebrush (3rd of 3)	Brewers sparrow	Prefers a mosaic of variably sized sagebrush patches interspersed with native grass	• Livestock grazing • Sagebrush removal • Exotic species invasion, • Seedings	Walking line transects (using distance sampling for visual and audio detections) every year during breeding season, with enough data collected (minimum 60-80 detections) to be extrapolated to density estimations	Densities (no. of detections) exhibit a downward trend

Riparian	Dominant willow species	Shrub layer	• Livestock grazing/browsing • Elk browsing, • Reduced soil moisture from stream incision or water diversions • Lowering of water table due to creek/stream incision or water diversion • Beaver trapping • Beaver dam destruction	(1) Proportion of reproductive branches unbrowsed (2) Diversity of height classes within willow species	(1) Unbrowsed proportion is less than 80% of reference area willows OR (2) Willow reproduction and recruitment is not occurring
Riparian (2nd of 4)	MacGillivray's warbler(lower elevations) OR Lincoln's sparrow (upper elevations)	Requires low dense shrubs and moist thickets along streambanks/Lower Riparian Zone (monitor MacGillivray's in lower elevations, and Lincoln's in upper elevations)	• Livestock grazing • Elk grazing/browsing	Walking line transects (using distance sampling for visual and audio detections) every year during breeding season, with enough data collected (minimum 60-80 detections) to be extrapolated to density estimations	Densities (no. of detections) exhibit a downward trend. It could take 3-5 years of data collection to detect trend
Riparian (3re of 4)	Warbling vireo	Represents mid-canopy and upper canopy layers of riparian zone	• Livestock grazing • In some instances, timber management and fire	Walking line transects (using distance sampling for visual and audio detections) every year during breeding season, with enough data collected (minimum 60-80 detections) to be extrapolated to density estimations	Densities (no. of detections) exhibit a downward trend. It could take 3-5 years of data collection to detect trend

Riparian (4th of 4)	Beaver	Affects instream and bank components of riparian channel, floodplain, water storage, willow, aspen, cottonwood	• Livestock grazing/browsing • Elk grazing/browsing • ORV use • Water diversions • Dams • Roads • Riparian recreation, • Trapping • Destruction of beaver dams	Number active dams/km in potentially suitable habitat (e.g., valley bottom width ≥45 m; valley bottom gradient <3 - 7%)l adequate stream flow (e.g., 0.5 cfs); food (aspen, willow, cottonwood, alder present)	Absence of multiple dams in potentially suitable habitat
Aquatic	Macro-invertebrates	Uses instream channel	• Pollution • Sediments • Nutrients • Temperature changes • Turbidity • De-watering	1) Overall species diversity (2)Presence/ abundance of each selected species	(1) Total species diversity decreases 20% or more from previous measuring period OR (2) Pollution/disturbance tolerant species increase by 30% or more and pollution/disturbance sensitive species decrease 20% or more from previous measuring period.

[a] Including snags and Aspen-Mixed Conifer

Justification of vegetation and wildlife habitat indicators

ALPINE

- *Alpine bare ground* - Alpine areas occupy a small area on the Forest (NatureServe 2005) and are threatened by global warming (McCarty 2001). Trampling by trespass livestock, ORVs, and heavy recreation use are the major Forest activities that threaten the Forest's small alpine areas, and bare ground is an effective and easily-measured indicator of trampling. Alpine areas have a short growing season from to recover from impacts such as trampling.

SPRUCE FIR & MIXED CONIFER

- *Old growth* Approximately 40% of the Forest's spruce-fir forests should be mature (20%) and old growth (20%) (USFS 2000a). Old growth spruce-fir is required by a number of cavity-nesters and northern goshawk. The management of mature spruce-fir forests for old growth forests insures the full complement of spruce-fir communities on the Forest.

- *3-toed woodpecker* – The FLNF FEIS for the 1986 Forest Plan (USFS 1986) discusses in detail the benefits and utility of using this species as an indicator species for the Cavity nesting guild: "a proposed project in old growth timber will require use of species such as the northern 3-toed woodpecker" (FEIS at III-38). The 3-toed woodpecker excavates and abandons nest cavities each year (Jackman and Scott 1975, as cited in FLNF FEIS). As stated in the FLNF FEIS (III-38), "cavities left by this…primary nester are quickly occupied by secondary nesters such as chickadees, bluebirds, and flying squirrels." Moreover, the Uinta National Forest recently added this species as an indicator species. In addition, the 3-toed woodpecker is responsive to firewood cutting, is heavily impacted by logging, and highly responsive to beetle epidemics triggered by drought, disease and climate change (all of which are problems in southern Utah forests). This species is a region 4 sensitive species, and it is wide for the Forest Service to be collecting data on all of its sensitive species.

- *Red-naped* sapsucker - This species is evenly distributed on the Dixie and Fishlake National Forests (personal communication with Frank Howe, UDWR, November 2005). It is a primary cavity nester, using both old growth conifer and aspens. This sapsucker should be responsive to logging (Tobalske et al. 1991, Tobalske 1992) and fire suppression as they very frequently use aspen stands, which are limited when forests engage in substantial fire suppression (Muldavin et al. 1999). Grazing represents a major form of fire suppression. Grazing reduces fire intensity and rate of spread. Heavy grazing can reduce fire line intensity and spread to be as low as one tenth that of ungrazed stands (Bradley, et al. 1992, pp. 70-79).

- *Northern goshawk* – This species typically nests in mature or old-growth forests (Hayward and Escano 1989, Reynolds et al. 1992, Squires and Ruggiero 1996, Squires and Reynolds 1997), with nests generally constructed in the largest trees of dense, old or mature stands with high canopy closure (60-95 percent) and sparse groundcover (Bull and Hohmann 1994, Reynolds et al 1992). The goshawk typically selects larger tracts of forest over smaller tracts. In addition to forest cover type, other habitat attributes such as stand structure, patch size, woody debris, snags, understory vegetation, openings, and canopy closure are important to goshawks and their prey (Graham et al. 1999). The goshawk forages in both heavily forested and relatively open habitats (Beier and Drennan 1997, Younk and Bechard 1992). Timber harvest is the principal threat to breeding populations (Squires and Reynolds 1997). In addition to the relatively long-term impacts of removing nest trees and degrading habitat by reducing stand density and canopy cover, logging activities conducted near nests during

the incubation and nestling periods can have an immediate impact: nest failure due to abandonment (Boal and Mannan 1994, Squires and Reynolds 1997). Following canopy reduction by logging, goshawks are often replaced by other raptors including red-tailed hawk, great horned owl , and Long-eared Owl (Crocker-Bedford 1990, Erdman et al. 1998). Fire suppression, grazing, and insect and tree disease outbreaks can result in the deterioration or loss of nesting habitat (Graham et al. 1999).

ASPEN

- *Aspen Stems* - Aspen stands are second only to riparian areas in support of native biodiversity (Chong, et al 2001). Aspen stands are highly susceptible to invasive species (Chong, et al 2001). In many instances, regeneration following burns or tree-cutting has been prevented by livestock and wild ungulate browsing (see, e.g., USFS 200b). If young ramets are regularly being recruited into the overstory, this indicates (but does not prove) that the understory shrubs, forbs, and grasses are also likely not being excessively consumed. Aspen clones can be rapidly assessed for their regeneration and structure (Otting and Lytjen 2003).

- *Ruffed grouse* – This species requires rather dense forest with deciduous trees, especially early seral stages dominated by aspen (AOU 1983). Young forest provides optimum conditions (Nature Serve 2006). Drumming areas and brood-rearing usually occur in areas with high density of woody stems. Broods select habitats with abundant ground cover (Nature Serve 2006). Ruffed grouse uses aspen stands for both breeding and winter habitat (Parrish et al 2002). They require young aspen poles for cover and mature trees for food sources. Consequently, they represent a good indicator of aspen habitat health, and effects of livestock grazing and browsing, elk browsing, recreational uses, and fire suppression.

- *Red-naped* sapsucker - This species is evenly distributed on the Dixie and Fishlake National Forests (personal communication with Frank Howe, UDWR, November 2005). It is a primary cavity nester, using both old growth conifer and aspens. Although decadent aspen may be beneficial in the short term, lack of regeneration obviously will adversely affect the species in the long term (NatureServe 2006). This sapsucker should be very responsive to fire suppression as the sapsucker frequently use aspen stands, which are limited when forests engage in substantial fire suppression (Muldavin et al. 1999). Livestock grazing represents a major form of fire suppression. Grazing reduces fire intensity and rate of spread. Heavy grazing can reduce fire line intensity and spread to be as low as one tenth that of ungrazed stands (Bradley, et al. 1992, 70-79 pp)

PONDEROSA PINE

- *Old growth and native grass/forb understory* Old growth ponderosa pine has been diminished by selective logging and livestock grazing in the Inter-Mountain region (USFS 2000a). Native grass/forb understory, often heavily grazed, is essential for providing fine fuels for cool underburns; wildlife habitat; and suppression of dense tree recruitment. The presence and recruitment of old growth ponderosa pine (both seral and climax) provide for the ponderosa pine community that is most under-represented.

  Note re: Old growth ponderosa pine/Gambel oak understory – Clear cut logging of ponderosa pine, livestock grazing and fire exclusion have favored oak regeneration. Resulting wildfires have been more severe and have favored oak over ponderosa. Management activities and permitted activities should not move ponderosa/oak towards oak dominance. Logging and grazing should be limited . Fire treatment and wildfires need to be managed in such a way to minimize oak dominance (e.g., biennial summer burns and reseeding with native grasses). (Bradley, et al. 1992, pp. 45-54)

- Flammulated owl – This species is closely associated with extensive stands of old growth ponderosa pine or mixed ponderosa/Douglas Fir (Dobkin 1994). This owl feeds near exclusively on invertebrates, and catches flying insects in flight Dobkin 1994). The flammulated owl is an obligate cavity nester and breeds most successfully in old growth forests (200-400yrs) (Linkhart and Reynolds 1997). They rarely breed outside old growth stands, therefore presence and increasing population estimates will indicate appropriate management of old growth stands. Flammulated owls are secondary cavity nesters (Dobkin 1994), and nesting cavities are a limiting factor for this species (McCallum 1994). As such, snags in old growth stands should be managed to supply enough nesting sites for breeding pairs. Additionally, Flammulated owls avoid cut-over forests and forests younger than 100 years old (Reynolds and Linkhart 1987).

- *Northern goshawk* – This species typically nests in mature or old-growth forests (Hayward and Escano 1989, Reynolds et al. 1982, Squires and Ruggiero 1996, Squires and Reynolds 1997), with nests generally constructed in the largest trees of dense, old or mature stands with high canopy closure (60-95 percent) and sparse groundcover (Bull and Hohmann 1994, Reynolds et al 1982). The goshawk typically generally selects larger tracts of forest over smaller tracts. In addition to forest cover type, other habitat attributes such as stand structure, patch size, woody debris, snags, understory vegetation, openings, and canopy closure are important to goshawks and their prey (Graham et al. 1999). The goshawk forages in both heavily forested and relatively open habitats (Beier and Drennan 1997, Younk and Bechard 1992). Timber harvest is the principal threat to breeding populations (Squires and Reynolds 1997). In addition to the relatively long-term impacts of removing nest trees and degrading habitat by reducing stand density and canopy cover, logging activities conducted near nests during the incubation and nestling periods can have an immediate impact: nest failure due to abandonment (Boal and

Mannan 1994, Squires and Reynolds 1997). Following canopy reduction by logging, goshawks are often replaced by other raptors including red-tailed hawk, great horned owl, and Long-eared Owl (Crocker-Bedford 1990, Erdman et al. 1998). Fire suppression, grazing, and insect and tree disease outbreaks can result in the deterioration or loss of nesting habitat (Graham et al. 1999).

MEADOW

- *Native forb community diversity and flowering* - Meadow sites are often dominated by non-native grasses annual and non-native forbs due to trampling and consumption of native species by livestock; seedings of exotic pasture grasses for livestock; heavy recreation use (e.g., for camping); ease of off-road driving through the gentle terrain of meadows; invasive species spread from roads, routes, livestock concentrations, and developments. Recovery involves the recovery and/or restoration of native grasses and forbs.

- *Lincoln's sparrow* – This species has a strong affinity for wet meadow systems (Dobkin 1994, Zwartjes et al. 2005). The Lincoln's sparrow requires healthy and diverse composition of tall forb and grass communities, especially seed producing plants, as it is a granivore (Nature Serve 2006). Breeding population reductions have been documented in association with livestock grazing (Cicero 1997; Knopf et al. 1988; Schulz and Leininger 1991), and Ammon (1995) documented significantly higher nest desertions in recreational versus nonrecreational forest sites.

MOUNTAIN MAHOGANY

- *Mahogany leader browse*- This vegetative attribute indicates the absence of overbrowsing and allows for recruitment of young mahogany

PINYON-JUNIPER

- *Cover of perennial native and exotic grasses; diversity of native grasses* - Native understory provides wildlife habitat and soil stability; and suppresses excessive pinyon/juniper sprouting.

- *Juniper titmouse* – This species prefers pinyon-juniper woodlands with high overstory cover and senescent trees (Pavlacky and Anderson 2001).

GAMBEL OAK

- *Cover of perennial native and exotic grasses; diversity of native grasses* -Native understory provides wildlife habitat and soil stability.

SAGEBRUSH

- *Forb/grass understory* – This surrogate set of species is compelling as it is a **direct measurement** of the habitat suitability for those species that require native grasses and forbs for cover and forage (including Region 4 sensitive species like pygmy rabbit and sage grouse) even when the species have been locally extirpated. As noted by the Bureau of Land Management (BLM), Idaho, "[We]…assume that habitat needs for other sagebrush obligate species are also being benefited as a result of protection, improvement, and restoration of sage grouse habitat" (Sather-Blair, et al. 2000)

  Grass height of 18 cm (7 inches) or more provides cover for sage grouse, an umbrella species in sagebrush. Understory grass height is an indicator that the sagebrush community is not receiving excessive ungulate use, allowing for ground cover, structural complexity, and diverse native species (Welch and Criddle 2003) This indicator species should be responsive to grazing management, sagebrush removal and other treatments, pinion-juniper expansion, and fire.

- *Sage Grouse* –Sage grouse require heavy sagebrush cover with tall grasses and perennial forbs for nesting/early brood-rearing; mesic meadows, grassy areas, riparian areas, seeps, and springs for late brood rearing; sagebrush above snow in winter; and bare areas surrounded by sagebrush for leks (Connelly, et al. 2000). Sage grouse are an "umbrella" indicator species, since the habitat types needed for the different stages of their life cycle during the year are often 5, 10 even 20 miles apart, and cover diverse habitat niches that service many other sage-dependent and sage-dwelling species. Sage grouse is one of the most studied species of birds in terms of known human-related impacts to its habitat, nesting success, fecundity, population vigor, and many other life history attributes (American Land Alliance et al. 2003). This species is affected by sagebrush removal, fire treatments or suppression, habitat fragmentation, overgrazing, energy development, seedings, and roads and their associated impacts. Sage grouse can be difficult to detect using line transects; other surveying methods should be used (personal communication with Frank Howe, UDWR, November 2005). The Utah Division of Wildlife Resources has some data on sage grouse abundance and distribution which can aid in support of the species on the Forests.

- *Brewer's sparrow* – This species needs relatively dense sagebrush, but will utilize smaller patches of shrubs (personal communication with Frank Howe, UDWR). It's also fairly well distributed in FLNF (Personal communication with Keith Day, UDWR). This sparrow requires a healthy bunch grass/forb understory, as it is a seed-eating bird. However, it has

been found that the number of nests declines in crested wheatgrass plantings (Reynolds and Trost 1980). The brewers sparrow requires tall sagebrush, and is negatively affected by sagebrush control activities (Nature Serve 2006). Wiens and Rotenberry (1985) observed that due to breeding site fidelity, there can be a time lag in response to habitat changes, such as sagebrush control. In fact this species will abandon sites entirely as sagebrush dies out (Schroeder and Sturges 1975). A similar response can occur after fire (Castrale 1982). The Brewer's sparrow should be responsive to changes in grazing management on the Forest, as well as invasive grasses, fire and sagebrush control (Nature Serve 2006).

RIPARIAN AREAS

1. *Beaver* – Beavers are both an ecological engineer and a keystone species affecting ecosystem structure and dynamics (Hammerson 1994; Lowry and Beschta 1994; see FSH 1909.12 Chapter 43.12, Exhibit 01 note re: keystone species and ecological engineers). This species uses both instream and bank components of the riparian channel, as well as the upper riparian zone of the stream corridor, and floodplain. In addition to being a key indicator species in terms of representing both instream and floodplain habitat qualities, this species is an ecological engineer in riparian zones by expanding riparian habitat, increasing water storage, creating fish and duck habitat, and creating wetlands. Protection of recovered populations and proper management of beaver would do much to achieve Forest goals such as riparian restoration and connectivity. Beaver are responsive to a greater variety of management activities than the birds, including grazing, ORV activities, water diversions and impoundment. Global warming (McCarty 2001) makes the water engineering by beaver crucial to long-term watershed health on southern Utah forests.

   Beavers are easier to survey than most mammals, since they are dependently in and near stream corridors, and their sign (digs, dams, lodges, etc.) is easily and independently detectable. Beavers can be monitored by flying or walking transects and counting lodges and active dams (Cooperrider et al. 1986). The presence of "active/stable beaver dams" is part of the "standard checklist" for hydrologic properly functioning condition in the USFS Intermountain Region Properly Functioning Condition Rapid Assessment Process (USFS, 2000). Beaver should be present in potentially suitable habitat (e.g., valley bottom width ≥45 m; valley bottom gradient <3 - 7%)l adequate stream flow (e.g., 0.5 cfs); and food (aspen, willow, cottonwood, alder present). If food is only minimally present, management should consider whether livestock grazing is responsible for suppression of beaver food.

   - *Dominant willow species* – A variety of willow species are sensitive representatives of complex shrub and middle canopy riparian vegetation structure which contribute heavily to the extremely high biodiversity of intact riparian systems, including migratory bird species. Willow presence indicates that mid-level structural complexity is being maintained. Riparian areas, though less than 1% in acreage on the Forest (NatureServe 2005), are perhaps the <u>most productive</u> of native biodiversity and yet are at high risk because of altered hydrology, invasive species, loss of beaver, fragmentation by water impoundments and diversions; road and route locations, recreation, and livestock and elk foraging. Willow reproduction is impeded or prevented by even light livestock browsing in combination with wild ungulate browsing

(Brookshire, et al. 2000; Maschinski, et al. 2001) As willows are preferred browse of livestock and wild ungulates, particularly (but not exclusively) after grasses and forbs are not seasonally available; and are susceptible to trampling by ORV or other heavy recreational activity, Measurements of recruitment of the dominant 2-3 species of willow (which can vary depending on elevation of the riparian zone) serve as the surrogate species. Willow species can be monitored rapidly, with different species being tracked in their appropriate habitats, and trends can move rapidly up or down reflective of riparian management.

- *MacGillivray's warbler* – This species is a riparian specialist, exhibiting a very narrow habitat tolerance compared to other insectivorous birds of riparian habitats (Dobkin 1994). This warbler requires low dense shrubs and moist thickets along streambanks (FLNF Management Plan FEIS, III-38, FLNF's 2005 Life History Reports). It also nests low to the ground (Dobkin 1994). This species is a good indicator species for the low shrub component in the lower elevations on the forest. It should be particularly responsive to grazing management (Mosconi and Hutto 1982).

- *Lincoln's sparrow* - This requires low dense shrubs, especially willows, along streambanks (Dobkin 1994, Zwartjes et al. 2005). It is also a ground nester. This species is a good indicator species for the low shrub component in the upper elevations on the forest, and it is responsive to grazing management Breeding population reductions have been documented in association with livestock grazing (Knopf et al. 1988; Schulz and Leininger 1991, Cicero 1997).

- *Warbling vireo* – This species uses, and nests in, mid-canopy and upper canopy layers of the riparian zone (Dobkin 1994, Zwartjes et al. 2005). The warbling vireo exhibits an association with mixed mature deciduous woodlands along streams, ponds, marshes, and lakes (Gardali and Ballard 2000). Tall, deciduous trees are a requirement of breeding habitat. The species is associated with cottonwood-dominated riparian forests throughout its range (authors cited in Gardali and Ballard 2000). The overall habitat structure consists of large trees with semi-open canopy and well-developed midcanopy (authors cited in Gardali and Ballard 2000; GP 2001). An indicator species representing this particularly critical component of every riparian zone (upper and mid-canopy) is very important.

- *Macroinvertebrates* - Aquatic organisms and their communities reflect current conditions, as well as changes over time and cumulative effects because they cannot avoid unhealthy substances within their aquatic habitat. Some macroinvertebrates are very sensitive to change in water quality making them good indicators of pollution. Other macroinvertebrates are very pollution tolerant and thrive in an otherwise unhealthy environment. Selecting the appropriate organisms and methods can reveal very specific information about the health of streams on the Forest and the management activities surrounding those streams. Currently, many activities are affecting stream health on the Forest. ORV use, roads,

livestock grazing, fire, riparian area recreation, mining, and logging all affect the aquatic environment of streams (PAMS 2004).

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation - General	
Desired Condition	• Over time, all vegetation types are supporting viable populations of native species in increasingly natural patterns of distribution and abundance. • Native shrub and forest communities are supporting native understory. • Native plants dominate in all vegetation communities. • The extent and related effects of exotic and invasive plants are decreasing. • Natural processes help maintain a diverse, native vegetative environment. • Native vegetation provides quality food and habitat for native game and non-game animals, songbirds, raptors, amphibians, and reptiles. • Natural disturbance events, including wildfire and insect and disease outbreaks are allowed to occur. • Snags and large, down woody debris are present for habitat diversity, protection of seedlings and young ramets (aspen), and long-term soil productivity. • Introduced (seeded) plants are locally native. • Biological soil crusts are increasing in all vegetation types in which they are potential.
Objectives (to move from existing to desired)	**Obj. 1** Each ecosystem is managed according to its individual needs. Management includes fire management, eradicating and preventing spread of non-native species, and managing, altering and/or prohibiting activities and uses that impede progress toward desired conditions. **Obj. 2** When discussing plant diversity and vegetation trends, the distinction is drawn between native and non-native plants. **Obj. 3** An accurate GIS-based system is maintained for all ecological systems mapping, including: 1. Alliances 2. Associations 3. Spatial extent 4. Seral/structural stages 5. Fire Regime Condition Class. Crosswalks between these classifications and all other vegetation and ecosystem classifications used by the Forest Service and cooperating agencies are developed or obtained

	Obj. 4 Cooperative interagency agreements that analyze management of vegetation in consultation with local, state, federal, and non-governmental organizations are established for cooperative management of adjacent lands. Examples include adjacent Multiple Species habitat Conservation Plans, Species Conservation Plans, and Fire Management Plans. **Obj. 5** Reference areas are used as an ongoing basis of comparison for management of each ecosystem.
Guidelines (sideboards for future activities)	**Gdlne. 1** Conifers felled within aspen stands as downed wood should be left in place to impede ungulate browsing until 50% of suckers reach a height of 7 feet, and only in circumstances unlikely to damage suckers. **Gdlne. 2** When felling dead trees in aspen stands: up to 30% of standing snags per acre can be felled the largest 30% of standing snags should not be felled only hand fellers (people with saws or chainsaws) should fell trees.
Monitoring	Desired Conditions: Monitoring elements • Trends of structure, age, cover, spatial distribution of native vegetation types, including native understory in relation to Forest uses, management activities, or passive restoration. • Spatial locations and trends of exotic and native invasive species populations, in relation to Forest uses, management, or native species recovery. • Ecological consequences of management actions intended to support native vegetation and reproduction. • Comparisons with reference vegetation sites, the variables depending on specific questions
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: RESOURCE: Vegetation: Alpine Communities	
Desired Condition	• Alpine communities are exhibiting minimal impacts from human uses. • Alpine communities are retaining their native biological diversity. • Contractions in species ranges and populations in response to global warming are not exacerbated by human uses.
Objectives (to move from existing to desired)	**Obj. 1** Fragmentation caused by human activity is minimized. **Obj. 2** Ground-disturbing activities are minimized or eliminated. Within two years, the location of all ground disturbing activities occurring within alpine ecosystems is mapped. **Obj. 3** Those sites where species mixes and site conditions are most likely to facilitate long-term recovery are prioritized for rehabilitation.

	Obj. 4 Non-federal parcels in alpine areas are prioritized for acquisition.
Guidelines (sideboards for future activities)	**Gdlne.** Off trail, route, or road cross-country travel other than over-snow non-motorized travel during winter or for research purposes should be considered unsuitable. Use of over-snow motorized vehicles to designated routes in the alpine should be allowed only when those routes exhibit coverage of at least 6" of firm, packed snow. **Gdlne. 2** The largest 30% of alpine patches should be maintained without roads, routes or trails. Within remaining patches, the aggregate of road, route, and trail density is less than 0.1 mile / square mile. **Gdlne. 3** No new trails, routes, or roads should be established in alpine areas. **Gdlne. 4.** Domestic livestock grazing should not occur in alpine areas.
Monitoring	• Permanent gradient transects are established within the largest 30% of alpine patches in each of the (1) La Sal Mountains, (2) Abajo Mountains, and (3) Wasatch Plateau. Cover by vegetation species to detect changes in vegetation distribution over time is documented every three years.
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Engelmann Spruce – Subalpine Fir	
Desired Condition	• Spruce-fir forests are constantly changing and are highly variable from place to place. • Principal natural disturbances including infrequent, high-severity fires; insect population eruptions; and windthrow are occurring at intensities, extents, and frequencies characteristic of spruce-fir forests. • Spruce fir forests form a mosaic of stands in varying stages of recovery from natural disturbances. • Forests are becoming less fragmented, and aspen is regenerating successfully after disturbance where it is eventually invaded by spruce-fir.
Objectives (to move from existing to desired)	**Obj. 1** Natural recovery from recent insect epidemics is allowed by retaining snags, down logs, and remaining live trees in affected areas outside the wildland urban interface threat and defense zones and where dead trees do not qualify as hazard trees, as specified in the tree cutting section. **Obj. 2** Natural disturbance regimes including fire, insect outbreaks, and windthrow are maintained. **Obj. 3** Projects to fell and leave dead trees in place within and along the perimeter of areas where aspen suckering is occurring within recently burned or beetle-affected areas help impede or discourage ungulate browsing of suckers.

Guidelines (sideboards for future activities)	**Gdlne. 1** Re-planting activities should ▪ use trees grown from local or regional genotypes ▪ be composed of a mix of species that are inappropriate to the site and expected natural regeneration patterns ▪ involve no construction of new roads or reconstruction of old roads ▪ include physical closures of open non-system routes within the subject area. **Gdlne. 2** New or old roads should not be constructed for felling operations.
Monitoring	
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Quaking Aspen Communities	
Desired Condition	• The spatial extent of aspen forests is increasing. • Seral and stable aspen stands are regenerating successfully. • Periodic fires of size and severity sufficient to stimulate regeneration are converting mid- and high-elevation conifer forests to aspen where aspen is seral to those forests. • Conifer invasion is not facilitated by ungulate grazing. • Aspen clones are supporting dense understory of native shrubs, grasses, and forbs. • Old aspen forests are conserved and are providing unique and valuable habitat to a diversity of characteristic wildlife.
Objectives (to move from existing to desired)	**Obj. 1** The overall extent of aspen forests is increased by protecting existing aspen forests and promoting successful recruitment of aspen ramets. **Obj. 2** Mixed and high-severity fires are restored to seral-aspen mixed conifer forests and other forests to facilitate aspen recruitment and regeneration. **Obj. 3** Isolated or degraded aspen stands likely to be lost if burned by wildfire are identified. Appropriate fire mitigation measures are adopted to prevent loss of aspen stands. **Obj. 4** Following fires and other disturbances aspen stands are protected from livestock grazing, and where feasible, wildlife browsing. **Obj. 5** Density reduction of conifers in aspen forests should be linked with exclusion of ungulates in order to

		ensure recruitment of aspen suckers.
	Obj. 6	Aspen suckering occurring within recent fires or insect outbreaks should be identified and protected from overbrowsing.
	Obj. 7	Dead trees should be felled and left in place within and along the perimeter of areas where aspen suckering is occurring within recently burned or beetle-affected areas in order to impede or discourage ungulate browsing of suckers.
Guidelines (sideboards for future activities)	**Gdlne. 1**	Livestock should not be grazed in aspen stands where suckers are not reaching 7 feet height because of browsing.
	Gdlne. 2	Where aspen suckers are present following fires and other disturbances, livestock grazing should be suspended until at least 50% of suckers reach a height of 7'
	Gdlne. 3	Density reduction of small conifers within aspen should be undertaken only in conjunction with alterations of ungulate browsing necessary to ensure successful aspen regeneration
Monitoring	**Mon. 1**	The extent of pure aspen and aspen-conifer stands, including small, isolated patches is mapped.
	Mon.2	Aspen regeneration is monitored every three years at a sampling rate of 10% in aspen stands. Monitoring measures density and distribution of suckers and frequency and likely source of damage to sucker apical meristems among suckers at or below browse height.
Suitable Uses		

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Vegetation: Mixed Conifer	
Desired Condition	• On drier sites, large and old fire adapted trees, such as Douglas fir and ponderosa pine, dominate mixed conifer forests. • On cooler, wetter, and higher elevation sites, mosaics of denser, multi-layered forests in varying stages of recovery from disturbance are dominated by white fir and Engelmann spruce. • Periodic fires, including infrequent crown fires, along with windthrow and insect epidemics, are maintaining the forest mosaic, and creating abundant habitat for wildlife in the form of snags, downed logs, injured trees, and in some locations, new aspen stands. • Non-native plants and animals are either absent or their numbers are declining as they are replaced by native species. • Old growth mixed conifer forests are providing habitat for viable populations of species dependent upon that

	habitat.
Objectives (to move from existing to desired)	**Obj. 1** Permitting, planning, design, and administration of activities and uses in mixed conifer forests maximize the preservation and protection of ▪ large and old trees ▪ large snags ▪ logs ▪ springs ▪ deciduous trees where they occur. **Obj. 2** Priority areas for restoration-based fuels reduction are identified outside the WUI, including drier mixed conifer forests at lower elevations, along south- and west- exposures previously dominated by Douglas fir and/or ponderosa pine woodland. **Obj. 3** Old-growth mixed conifer forests are identified and mapped.
Guidelines (sideboards for future activities)	
Monitoring	
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Ponderosa Pine	
Desired Condition	• Ponderosa pine forests are dominated by large and old trees. • The density and relative abundance of large trees within stands is increasing. • Periodic surface fires are thinning seedlings and small trees, recycling nutrients, promoting understory growth, and creating and maintaining habitat for wildlife as snags, downed logs, and burned out root holes. • Non-native plants and animals are either not present, or their numbers are declining as they are replaced by native species. • Old growth ponderosa pine forests are providing habitat for viable populations of old growth-dependent species. • Old growth forests are identified, mapped, and protected from activities and uses that threaten their integrity and the viability of species who occupy them.
Objectives (to move from existing to desired)	**Obj. 1** Permitting, planning, design, and administration of activities and uses in ponderosa pine forests maximize the preservation and protection of ▪ large and old trees

	▪ large snags ▪ logs ▪ springs ▪ deciduous trees where they occur. **Obj. 2** Outside the WUI zones fuels reduction activities emphasize: • Reducing the threat of crown fire. • Multiple conservative entries using combination of thinning, prescribed fire, and prescribed natural fire to incrementally move the forest toward desired conditions. • Incorporating and building upon valuable existing forest structures such as large trees and groups of trees of any size with interlocking crowns. These features are important for some wildlife species, such as Abert's squirrels and goshawks. • Retaining trees of significant size and age to promote the development of old growth conditions. • Maintaining ecological heterogeneity at multiple scales by designing treatments and projects to reflect natural variability in the landscape, such as leaving denser forests along north slopes and other areas where there is higher soil moisture. **Obj. 3** Old-growth stands of ponderosa pine are identified and mapped. **Obj. 4** Sufficient fine fuels remain within livestock-grazed ponderosa pine stands throughout the year to support low intensity, low severity ground fires.
Guidelines (sideboards for future activities)	
Monitoring	
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision
FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Vegetation: Pinyon Juniper Woodlands	
Desired Condition	• Pinyon juniper woodlands are forming extensive woodlands in lower and mid elevations throughout the Forest. • Woodland structure and composition are highly variable by site and disturbance history. • Periodic droughts are causing dieback among pinyon trees, followed by pinyon recruitment from seed caches and other sources where site conditions and climate are favorable. • In high elevation woodlands mixed with ponderosa pine and other conifers, surface fires are maintaining robust native

	grasses. • Where appropriate, drought and fire killed trees are providing a source of fuel wood for local communities.
Objectives (to move from existing to desired)	**Obj. 1** Permitting planning, design, and administration of activities and uses of pinyon juniper woodlands preserve, protect, and avoid disturbance of important habitat elements such as large snags, native understory, springs, and deciduous trees where they occur. **Obj. 3** Pinyon-juniper woodlands that are priority areas for prescribed burning are identified according to Fire Management Objective 4. **Obj. 4** Natural woodland recovery and tree regeneration are allowed following insect epidemics. **Obj. 5** Biological soil crusts are protected where they occur from uses that would damage them. Uses are managed to promote the recruitment of new soil crusts in areas where there is evidence of degradation or elimination of historical soil crusts. **Obj. 6** The abundance of native understory plants is increased, especially cool season grasses, and decrease the abundance and extent of invasive plants. **Obj. 4** Sufficient fine fuels remain within livestock-grazed pinyon-juniper woodlands throughout the year to support low intensity, low severity ground fires.
Guidelines (sideboards for future activities)	**Gdlne. 1** Aside from the use of prescribed fire in Fire Regime 1 stands., pinyon-juniper woodlands should not be converted into other vegetation types through chaining, herbicide, or other active management **Gdlne. 3** Old pinyon and juniper trees (greater than 120 years) should not be cut during fuel wood and cultural tree cutting activities.
Monitoring	
Suitable Uses	• Prescribed burning is suitable in pinyon-juniper woodlands with site-specific, evidence-based determination of woodlands as Fire Regime 1.

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Vegetation: Mountain Mahogany Woodlands	
Desired Condition	• Mahogany woodlands and shrublands are forming relatively stable vegetation along ridges, rim rock slopes, rocky outcrops and canyon escarpments. • These woodlands occur as relatively small patches, and are contributing to the diversity of the landscapes in which they occur. • Over time, infrequent, small fires are maintaining a mosaic of overstory and native shrubs, grasses and forbs. • Browsing use is at levels within the plants' ability to re-grow and regenerate.

Objectives (to move from existing to desired)	**Obj. 1** Permitting, planning, design, and administration of activities and uses preserve, protect, and avoid disturbance of old mahogany woodlands. **Obj. 2** Browse pressure is reduced sufficiently to regenerate curl-leaf mahogany in stands where it is currently not regenerating. **Obj. 3** The abundance and volume of native grasses and forbs are increased.
Guidelines (sideboards for future activities)	
Monitoring	• Percent reproductive twigs browsed.
Suitable Uses	• Tree cutting, including fuel wood collection, is not permitted in mahogany woodlands and shrublands.

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Gambel Oak Shrublands	
Desired Condition	• Gambel oak shrublands are forming extensive matrix habitats at mid elevations. • Periodic fires are maintaining a mix of seral stages. • The coverage of native understory is increasing, and the frequency and extent of invasive and non-native plants is decreasing. • Oak shrublands are providing important habitat elements, like snags and downed logs for resident, seasonal and migratory wildlife.
Objectives (to move from existing to desired)	**Obj. 1** Large, contiguous patches of Gambel oak shrubland are maintained by prioritizing for closure those routes and roads that fragment Gambel oak shrublands. **Obj. 2** Permitting, planning, design, and administration of activities and uses in Gambel oak woodlands, preserve, protect, and avoid disturbance of important habitat elements such as large snags, logs, springs, and other important ecological attributes where they occur.
Guidelines (sideboards for future activities)	
Monitoring	
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Meadow/Perennial Forb	
Desired Condition	• Tall forb meadows are stable, high elevation communities forming an important part of the subalpine mosaic with spruce-fir forests, aspen, and mixed conifer. • All meadows retain dominance by native perennial grasses and forbs, and more than 85% cover. • Bare ground is decreasing, and the proportion of native forbs is increasing. • As a result, the water table is increasing. • In most patches, visual disturbance to wildlife from motorized use is not occurring. • Over time, the extent of tall forb meadows is increasing, as they replace encroaching conifers destroyed during fires.
Objectives (to move from existing to desired)	**Obj. 1** Coverage of native herbaceous vegetation is increased in tall forb meadows to at least 60% cover. **Obj. 2** The relative abundance of native, decreaser mesic forbs, grasses, and sedges is increased, and the relative abundance and overall extent of increaser native and non-native plants is decreased. **Obj. 3** Tall forb and other meadow patches larger than five acres where bare soil exceeds 50% coverage are identified and mapped. **Obj. 4** Roads, routes, and trails are prioritized for closure within tall forb meadows, emphasizing roads, and routes and trails whose use is likely to result in the greatest visual disturbance to wildlife using tall forb meadows.
Guidelines (sideboards for future activities)	**Gdlne. 1** Ground-disturbing activities should be halted in meadows containing two or more patches $\geq$ 5 acres exhibiting >50% bare ground.
Monitoring	**Mon. 1** The relative abundance of native herbs, grasses, sedges, exotic and native invasive plants and bare ground.
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Mountain Shrub Complex	
Desired Condition	• Mahogany woodlands and shrublands are forming relatively stable vegetation along ridges, rim rock slopes, rocky outcrops and canyon escarpments. • These woodlands occur as relatively small patches, and are contributing to the diversity of the landscapes in which they occur. • Over time, infrequent, small fires maintain a mosaic of overstory and native shrubs, grasses and forbs. • Browsing use is at levels within the shrubs' ability to grow larger and regenerate.

Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	
Monitoring	1. Browse of shrubs (i.e., more than 30% of current years' twigs browsed).
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Desert Shrub Communities	
Desired Condition	• Desert shrub communities protect arid sites from wind and water erosion. • Desert shrub communities provide habitat for native desert shrub plants and wildlife.
Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	
Monitoring	
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Sagebrush Steppe Communities	
Desired Condition	• A variety of native sagebrush species thrive on the Forest as unfragmented and differing plant and wildlife associations, existing on sites of differing moisture, soils, and disturbance. • Perennial grasses, native forbs, and biological soil crusts are increasing, with native composition and cover moving toward reference area conditions. • Adequate native vegetation is rendering the sagebrush communities more resistant to invasion by exotic species. • Passive recovery of impaired sagebrush associations is occurring, acknowledging that long time periods will be required for restoration.

	• Sagebrush wetlands (meadows adjacent to springs, seeps, streams, and ponds) for late brood rearing are not compacted or trampled. • In all sage grouse breeding habitats, sagebrush communities remain undisturbed. • Soil is being retained, and overland flow is decreasing. • Fragmentation of sagebrush habitat is minimal for protection of sagebrush-dependent birds from predators. • Residual grass height is >18 cm (7 inches) and sagebrush height is increasing in nesting areas, resulting in less predation of sage grouse and increased suitability of habitats for several other native sagebrush species.
Objectives (to move from existing to desired)	**Obj. 1** Fire is not used in potential sage grouse breeding habitats dominated by Wyoming big sagebrush and fire is not used in habitats dominated by xeric mountain big sagebrush or other sites susceptible to cheatgrass/exotic invasion post-fire. **Obj. 2** Wildfire is suppressed in all sage grouse breeding grounds. **Obj. 3** A residual native grass height of >18 cm (7 inches) is retained at the end of the pasture grazing period. **Obj. 4** Disturbance is minimized during spring nesting and brood rearing periods. **Obj. 5** Canopy cover and structural complexity of sagebrush are maintained as appropriate to the site and in reference to sagebrush reference areas. **Obj. 6** Native restoration/recovery actions are prioritized within areas treated or disturbed (e.g., by seedings of crested wheatgrass or smooth brome), including sagebrush communities with significant exotic understories
Guidelines (sideboards for future activities)	**Gdlne. 1** Sagebrush should not be converted to other vegetation types. **Gdlne. 1** Only native grasses and forbs should be used when seeding sagebrush communities.
Monitoring	• Browse of sagebrush • Cover and height of understory native perennial grasses and forbs
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Grassland Community	
Desired Condition	• Native plants dominate in all grassland communities. • Some persistent, and/or exotic invasive or rhizomatous grassland plants earlier introduced and/or seeded by users of the Forest (e.g., cheatgrass, Kentucky bluegrass, smooth brome, crested and intermediate wheat grasses), continue to persist, but are declining in area on the Forest relative to native species. • "Decreaser" native grasses and grasslike plants are increasing.

Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	
Monitoring	
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision
FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Riparian Communities: General

Desired Condition	• Riparian vegetation is a diverse mix of native species and structural stages linked to both stream and upland conditions. • Riparian area vegetation includes but is not limited to all ages of native conifers, aspen, willows, box elder, maple, dogwood, birch, alder, cottonwoods, sedges, rushes, and grasses. • Stream edges are shaded by overhanging grasses, forbs and shrubs within 1' of the water surface, providing shading and security habitat for in-stream organisms such as juvenile fish. • Native woody vegetation provides a full range of size/age classes, habitats for aquatic- and riparian-associated wildlife, stream shading, snags and down logs. • Instream flows are sufficient to create and sustain riparian, aquatic and wetland habitats and to retain natural routing of sediment, nutrients and wood. densities, composition, and structure of native vegetation are improving. • Riparian vegetation composition, structure, canopy, bank and ground cover are similar to relevant riparian reference areas. • Streams are reconnected with natural floodplains where possible • Beavers play an increasing role in expansion of riparian and wetland vegetation. • Riparian areas are dynamic and resilient to disturbances in structure, composition, and processes. • Native riparian-associated vertebrate and invertebrate animal species are increasing in number of species and the health (e.g., desirable structure, size) of their populations.
Objectives (to move from existing to desired)	**Obj. 1** A seeps, springs, and ponds riparian vegetation restoration strategy is prepared within six years of Plan implementation. **Obj. 2** Passive methods (e.g., rest from livestock grazing or destabilizing recreational activities) are prioritized over active revegetation to increase native riparian vegetation and decrease non-native riparian vegetation species.

	Obj. 3 The riparian areas of perennial and intermittent streams, seeps, springs, and still water bodies are fully vegetated and stable; ground cover is within 15% of relevant reference areas. **Obj. 4** Vegetation ground cover is at least 70%.
Guidelines (sideboards for future activities)	**Gdlne. 1** For purposes of decisions, monitoring, and insuring riparian health, a riparian area is considered to extend 150 feet on each side of a water body, seep, spring, or water course, unless indicated otherwise on ground (e.g., a cliff may truncate the riparian area; a meadow may extend it)
Monitoring	
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Riparian Communities: Streams	
Desired Condition	• Native riparian plant communities adjacent to perennial, ephemeral, and intermittent streams are reproducing and exhibiting potential height. • Non-native plant species and "increaser" native plant species are decreasing. • Riparian vegetation has sufficient density, root depth, composition, and distribution along the bank and channel bars to develop and maintain, within capacity, stable streambanks and effectively trap fine sediment that is moving through the system. • Riparian vegetation is a diverse mix of native species and structural stages, similar to relevant reference areas. These species may include aspen, willows, box elder, maple, dogwood, birch, alder, cottonwood, sedges, rushes, hydric native grasses and forbs, and appropriate presence of conifers. • Willows are reproducing and tall willows are rising above browse height of wild ungulates. • Cottonwood galleries are established on existing sand/gravel bars and maintained by floods. • Woody overstory vegetation provides a variety of wildlife habitats, stream shading, large wood recruitment, and aesthetic values. • Sufficient and appropriate native riparian vegetation is present to support beaver occupancy in potential beaver habitat in order to increase surface and subsurface water storage, reduce the magnitude and erosive activity of floods, and help mitigate drought.
Objectives (to move from existing to desired)	[See Livestock Grazing and Recreation Objectives]

Guidelines (sideboards for future activities)	
Monitoring	**Mon. 1** A Forest-wide baseline inventory of riparian vegetation surrounding 10% of the Forest's seeps, springs, and ponds is completed within five years.
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Riparian Wetlands (Seeps, Springs, Ponds)	
Desired Condition	• Riparian vegetation is a diverse mix of native species and structural stages, similar to relevant reference areas. • The vegetation may include aspen, willows, box elder, maple, dogwood, birch, alder, cottonwood, sedges, rushes, hydric and mesic native grasses and forbs, and appropriate presence of conifers. • Bare ground and compaction are uncommon. • Habitat for native amphibians, birds, and other native species dependent on wetlands is increasing
Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	**Gdlne 1.** Riparian areas are considered to extend 150 feet on either side of rivers, creeks, seeps, springs, wetlands, and ponds.
Monitoring	
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Rare and Relict Vegetation Associations	
Desired Condition	• Rare and relict vegetation associations are protected as to the degree possible on the Forest as unique and interesting features of Forest, regional, and global life. • Reference areas and other protected areas provide potential for insight into the causes of rarity
Objectives (to move from existing to desired)	**Obj. 1** Where evidence indicates that rarity is due to human activities, restoration is undertaken as possible. **Obj. 2** Public education materials highlight the nature of rare or relict vegetation associations, and the importance of their protection.

Guidelines (sideboards for future activities)	
Monitoring	**Mon. 1** Rare and relict vegetation associations are monitored for evidence of disturbance by Forest users, decline, or expansion
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Native Plant Species of Particular Focus: Federally listed; and Vulnerable Plant Species (e.g., Species of Concern or Interest and native species that are declining on the Forest) **[*Note: The Three Forests Coalition will be primarily adopting the list The Nature Conservancy suggests for plant Species of Concern and Interest, with one major addition: the Surrogate Species of Special Interest as listed in Table 1, above. After we view the TNC list, we may suggest adding particular additional species.***	
Desired Condition	• Populations of plant species of particular focus are stable or increasing. • Habitat conditions favor reproduction in all populations of all native plant species of particular focus • Degraded habitat that historically supported species (or their pollinators) whose population has been reduced or is declining, is recovering. • Population trends of plant species of concern for monitoring are known and indicate movement of that habitat type toward Desired Conditions.

Objectives (to move from existing to desired)	**Obj. 1**	A brief conservation plan is developed for each federally listed or candidate species, and native plant species of concern or interest that have been declining on the Forest, using the best available scientific information. The conservation plan identifies: ▪ habitat historically occupied by the species; ▪ a map of current populations and known occupied habitat; ▪ pollinators, and pollinator habitat needs, if known; ▪ a map of habitat feasible for recovery of well-distributed, multiple populations; ▪ primary human threats to protection or recovery of the species and its pollinators; ▪ measures that have been demonstrated to help protect or recover the species on the Forest or elsewhere; ▪ Forest goals for the species; ▪ management measures that are being or will be used to reduce or eliminate barriers to protection or recovery; ▪ a least-cost monitoring protocol capable of documenting presence and population trends; and ▪ crucial information gaps.
	Obj.2	A list of native plant species (trees, shrubs, grasses, forbs) experiencing population declines on the Forest is maintained.
	Obj.4	Partnerships with The Nature Conservancy, Utah Native Plant Society, and independent botanists extend the capability of the Forest to survey and document sensitive species presence, threats, and potential habitat and identify conservation practices.
Guidelines (sideboards for future activities)	**Gdlne. 1**	If no USFWS conservation/recovery plan exists for a federally listed or candidate species on the Forest, ground-disturbing activities should be avoided in suitable habitat without a Forest-specific recovery plan that uses the best available scientific information.
	Gdlne. 1	For vulnerable plant species present in the area of a proposed project or permit, the project or permit decision should state The probability of expansion or maintenance of the species population size, based on best current scientific evidence, for all alternatives considered A monitoring protocol and schedule capable of detecting declines in the species if the project poses potential threats Independently verifiable evidence of decline that will trigger rescinding or altering the project or permit.
Monitoring	Desired Conditions: Monitoring elements	

	• Population trends and habitat conditions of plant species of focus. • Activities that threaten species of particular focus or degrade their habitat • Results of recovery efforts Objectives **Mon. 1** For each listed, candidate, or vulnerable native species of interest or concern for which distribution and abundance is not current (i.e., the information is older than seven years), survey potentially suitable habitat on the Forest **Mon. 2** For each federally listed and candidate species, monitor population trends (distribution and abundance) on the Forest at least every three years using the simplest, effective protocols recommended by botanists familiar with the species.
Suitable Uses	

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Exotic and/or Invasive Species	
Desired Condition	• The area in which invasive species are present is decreasing on the Forest. • Conditions favoring the introduction, establishment, and spread of invasive species are significantly decreasing. • Those native species that have lost ground to (a) exotic invasive species and (b) native "increasers" are regaining ground. • New invaders are not obtaining any significant footholds in the Forest. • Some persistent and/or invasive exotic plants earlier introduced and/or seeded by users of the Forest (e.g., cheatgrass, Kentucky bluegrass, smooth brome, and crested and intermediate wheat grasses), continue to persist, but are declining in area on the Forest relative to native species.
Objectives (to move from existing to desired)	**Obj. 1** A 50-year plan for prevention and minimization of invasive exotic vegetation within the Forest is prepared. Short-term projects and permits are integrated within the 50-year plan. The long term invasive species plan for the Forest includes: 1. Identification and rough prioritization of the conditions and major activities that cause or favor the introduction, establishment, and spread of invasive species 2. Options for ameliorating those conditions and altering those activities 3. Prioritization of intact ecosystems for protection from invasions 4. Plans for preservation or restoration of historical disturbance regimes 5. Priorities and plans for restoration of the native vegetation via seeding and planting, to increase

	resistance to invasion 6. A general plan for damaged biological soil crusts 7. Options for active vegetation treatments to reduce the abundance of invasive exotic species populations. **Obj. 2** A District-specific list of priority (at least five) exotic, invasive species of highest concern is maintained by each Ranger District. **Obj. 3** Prevention of conditions favoring invasive plant introduction, establishment and spread is primary in watershed analysis; travel management planning; fire and fuels management plans, Burned Area Emergency Recovery Plans; emergency wildfire situation analysis; allotment management plans; annual operating instructions for livestock permittees, and other land management assessments. **Obj. 4** <u>Invasive species prevention: Livestock:</u> Invasive plant prevention measures that help reduce conditions (e.g., bare ground) that favor the introduction, establishment and/or spread of invasive plants are incorporated into annual operating instructions and livestock allotment management plans. Prevention practices may include, but are not limited to: 1. Managing livestock movement patterns to reduce ground disturbance and transport of invasive plant propagules (seeds, root fragments) from invaded areas to non-invaded areas 2. Altering season of use to improve native plant vigor and reduce conditions that favor invasive plants 3. Resting pastures to allow native plants to recover (passive restoration) 4. Retiring the allotment in areas of high populations of invasive plants, areas that are ecologically sensitive, and/or areas of unique ecological value 5. Actively restoring native plant communities by revegetating degraded areas. **Obj. 5** <u>Invasive species prevention: Off-road vehicles:</u> 1. Non-essential roads are closed or obliterated where evidence or roads analysis indicates that a particular route may be a high-risk vector for spread of invasive plants. 2. For actions conducted or authorized by the Forest that will operate outside the limits of the road surface (including public works and service contracts), the cleaning of all vehicles prior to entering the Forest is required. This does not apply to initial attack for fire suppression. 3. For off-road actions conducted or authorized by the Forest (including public works and service contracts), all off road vehicles are cleaned before leaving the project site, when operating in areas where invasive plants are present at a level where transport of invasive plant seed or vegetative propagules (e.g., root fragments) is likely. **Obj. 7** Herbicide treatments are designed to eliminate herbicide drift/adverse effects to threatened, endangered

and vulnerable, declining native species. Site-specific project design (e.g., treatment method, buffers) to reduces the potential for adverse disturbance and/or contaminant exposure.

Obj. 8 Adaptive management techniques respond to monitored effectiveness of passive and active treatments in re-establishing native vegetation.

Obj. 10 Seedings of non-native grasses cease; native grass seeding should be done with grasses native to south-central Utah.

Table 2. Invasive Species Active Treatment Methods Available

METHOD (TOOL)	SCOPE
Manual	All techniques.
Mechanical	Any mechanical tool that is known to be useful for reducing or eliminating invasive plants and restoring native vegetation.
Biological	Agents used would be USDA APHIS and state approved. Agents demonstrated to negatively impact native, non-target organisms would not be used.
Cultural	Grazing animals, addition of fertilizer/soil amendments, competitive planting, or any other cultural practice known to be useful for reducing or eliminating invasive plants and encouraging native vegetation.
Herbicides	Herbicide application methods allowed include wicking, wiping, injection, spot spray, and ground-level and aerial broadcast, as permitted by product label. The use of triclopyr is limited to selective application techniques only (spot spraying, wiping, basal bark, cut stump, injection, etc.). Picloram, sulfonylurea herbicides and acetolactate synthase-inhibiting herbicides are prohibited. Herbicides should be as plant-specific and non-persistent as possible, and must have the capability of being analytically detected at the levels they are harmful to biological organisms.

Guidelines (sideboards for

Gdlne. 1 For all projects conducted or authorized by the Forest seed for pack stock, and straw and mulch should

future activities)	not be brought in if it is not state-certified as weed-free. **Gdlne. 2** Active invasive species treatment project on any site larger than one acre should identify: • existing site condition • long-term vegetation goal • current site activities and conditions that may be favoring invasive plants • steps necessary to transition the site towards the goal **Gdlne. 3** Non-chemical treatments should be used unless shown to be ineffective or infeasible. **Gdlne. 4** Only native seed and seedlings should be used in revegetation of invasive plant sites, fire lines and burned areas unless native seeds/plants are not available. In that case, revegetation projects should rarely be undertaken until native plant seed or plants become available, except as an intermediate step to achieve native restoration, and in that case, only non-persistent, non-native plants should be used. Species that will not be used in revegetation include, but are not limited to, crested wheatgrass (*Agropyron cristatum*), smooth brome (*Bromus inermis*), intermediate wheatgrass(*Elymus hispidus*), timothy (*Phleum pretense*), Kentucky bluegrass (*Poa pratensis*), wild oat (*Avena fatua*) **Gdlne. 5** The Forest should provide a response to Forest users who report invasive species according to Forest guidelines, acknowledging the report and indicating what action, if any, is being taken by the Forest.
Monitoring	Desired Conditions: Monitoring elements • Population trends and habitat conditions of exotic and invasive species. • Comparisons with reference areas Objectives **Mon. 1** Maintain a Forest-wide, GPS-based inventory of: 1. invasive species treatments 2. monitoring records of invasive species treatments
Suitable Uses	• Recreational and other non-essential off-road motorized travel is prohibited away from designated transportation system roads and designated ORV routes. • Application of herbicides is minimized and broadcast spraying is prohibited in riparian areas and in known aquatic and terrestrial amphibian habitat, including breeding, rearing, and overland dispersal areas. Application of herbicides with adverse effects on aquatic species and amphibians is avoided.

FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Vegetation: Native Seed Collection	
Desired Condition	• Native seed is available to the Forest for seeding when a site cannot regenerate native vegetation without active intervention.
Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Native seed by species, site, and pounds available for use by the Forest
Suitable Uses	• Native seed is available to the Forest for seeding when a site cannot regenerate native vegetation without active intervention.

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Wildlife Habitat – General Wildlife Habitat and Vulnerable Species	
Desired Condition	• Existing habitat is maintained for listed, candidate, and vulnerable native wildlife species • Degraded habitat that historically supported listed, candidate, vulnerable, or extirpated species or currently supports diminished populations of listed and candidate species is restored or is otherwise naturally recovering. • Viable populations of listed, candidate, and vulnerable wildlife species are geographically expanding to fill potentially suitable habitat within historic range. • Native amphibians, reptiles, small mammals, and invertebrates are present in healthy, well-distributed, and reproductive populations and habitat that supports these native wildlife species is present. • Degraded habitat that historically supported these native species or currently supports diminished populations of sensitive species is recovering.
Objectives (to move from existing to desired)	<u>Vulnerable native wildlife</u> **Obj. 1** A brief conservation plan is prepared and followed for each wildlife species that is vulnerable to decline, using available habitat integrity tables and the best available scientific information. Subsequent monitoring is

	used to determine whether conservation plan goals are being met. See Appendix A for commitments in existing conservation plans for Dixie/Fishlake wildlife. The conservation plan identifies: • habitat historically occupied by the species • current estimated populations and occupied habitat • habitat feasible for recovery of well-distributed, multiple populations • primary human threats to recovery of the species • mitigation measures that reduce or eliminate these barriers to recovery • measures that have been demonstrated to help recover the species on the Forest or elsewhere • goals for species recovery • a rapid population assessment monitoring protocol or if not available a valid rapid habitat suitability assessment protocol • triggers for management change if population or habitat condition goals are not being met. **Obj. 2** The voluntary efforts of citizens and scientists are encouraged in appropriate activities to identify, monitor, and protect vulnerable wildlife species **Obj. 3** Procedures are developed for volunteers to inventory and monitor vulnerable wildlife species and their habitats. **Obj. 4** Information collected according to Forest procedures by volunteers is used to achieve desired conditions. **Obj. 5** Multi-agency plans or collaborations to restore wolf ecologically functional populations are participated in and supported by the Forest.
Guidelines (sideboards for future activities)	**Gdlne. 1** Permits for commercial, recreational and other activities within occupied and unoccupied suitable habitat of vulnerable wildlife species should be conditioned upon adherence to mitigation or recovery measures specified in the conservation plans.
Monitoring	Vulnerable native wildlife **Mon.1** Distribution and abundance of each vulnerable species using sound survey methodology. **Mon.2** Trend (distribution and abundance) using rapid assessment protocols recommended by biologists familiar with the key indicators of the presence and health of the species. **Mon. 3** A joint vegetation and ungulate monitoring protocol and process is implemented with UDWR.
Suitable Uses	• All species are watchable and researchable (within approved guidelines for protection) • Species are huntable as per UDWR direction.

Biological Components for the Dixie/Fishlake National Forest Plan Revision
FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: : Wildlife Habitat: Threatened, Endangered, and Candidate Wildlife Species

Desired Condition	[See Wildlife Habitat – General]
Objectives (to move from existing to desired)	**Obj. 1** For species without a draft/final recovery plan or conservation agreement, a brief conservation plan is prepared (see Wildlife Habitat-General) for each listed and candidate species using habitat integrity tables and the best scientific information available. **Obj.2.** Voluntary efforts of citizens and scientists are encouraged in appropriate activities to identify, monitor, and protect federally listed and candidate species. **Obj.3.** Procedures for volunteers to inventory and monitor federally listed and candidate species and their habitats are developed. **Obj.4.** Information collected according to Forest procedures by volunteers is used to achieve wildlife habitat desired conditions
Guidelines (sideboards for future activities)	[See Wildlife Habitat – General]
Monitoring	**Mon. 1** Distribution and abundance of each species in suitable habitat using sound survey methodology. **Mon.2** Trend (distribution and abundance) data using rapid assessment protocols recommended by biologists familiar with the key indicators of the presence and health of the species.
Suitable Uses	• All species are watchable and researchable (within approved guidelines for protection)

Table 3. Federally listed wildlife species that occur or could potentially occur on the Dixie and Fishlake National Forests with their primary and secondary habitat associations.

Species (Common Name)	Federal Status	Recovery Plan	Primary / Secondary Habitat
Bald Eagle	T	1986	Lowland Riparian / Agriculture
California Condor (Dixie only)	T	1996	Cliff
Mexican Spotted Owl	E	1995	Cliff / Lowland Riparian
Utah Prairie Dog	T	Recovery Plan 1991, Interim Conservation Strategy 1997	Shrub/Grasslands

Gray Wolf (Mex. / R.M.)[1]	E	1982 / 1987	Mountain Shrub / Mixed Conifer
Lynx[2] (Fishlake only)	T	Conservation Agreement and Strategy 2000*	Sub-Alpine Conifer / Lodgepole Pine

[1] Potentially suitable habitat on both Dixie and Fishlake Forests (Switalski et al. 2002).
[2] Utah Division of Wildlife Resources, map of critical and high value habitat for lynx in Utah, Utah Natural Heritage Program database, 2006, personal communication with George Oliver, March 3, 2006, Durrant 1952, Hall 1981

Table 4. Wildlife Species of concern that occur on the Dixie and Fishlake National Forests

Species (Common Name)	Primary / Secondary Habitat	Reason for Concern	References
Bonneville Cutthroat Trout (G3/G4)	Aquatic / Mountain Riparian	Petitioned for federal listing, globally rare (G3/G4)	Nature Serve 2006, Fishlake and Dixie Life History Reports
Colorado Cutthroat Trout (G3/G4)	Aquatic / Mountain Riparian	Petitioned for federal listing, globally rare (G3/G4)	Nature Serve 2006, Fishlake and Dixie Life History Reports
Yellow-billed Cuckoo	Lowland Riparian / Agriculture	ESA Candidate Species	Nature Serve 2006, Fishlake and Dixie Life History Reports

Table 5. Wildlife Species of Interest that occur on the Dixie and Fishlake National Forests

Species (Common Name)	Primary / Secondary Habitat	Reason for Interest	References
Brian Head Mountainsnail (Dixie only)	Aquatic	UDWR Species of Special Concern	UDWR 2003
Otter Creek Pyrg (Fishlake only)	Aquatic	UDWR Species of Special Concern	UDWR 2003
Leatherside Chub	Aquatic	UDWR Species of Special Concern	UDWR 2003
Bluehead Sucker (Dixie only)	Aquatic	UDWR Species of Special Concern	UDWR 2003

Arizona Toad (Dixie only)	Wetland / Mountain Riparian	UDWR Species of Special Concern	UDWR 2003
Western Toad	Wetland / Mountain Riparian	UDWR Species of Special Concern	UDWR 2003
Greater Sage Grouse	Shrubsteppe	Region 4 sensitive species, and excellent indicator for healthy sage brush stands	Dixie and Fishlake Life History Reports, American Land Alliance et al. 2003
Flammulated Owl	Old Growth Ponderosa Pine and Douglas-fir	Region 4 sensitive species, and excellent indicator for healthy mixed conifer/ponderosa forests	Linkhart 1984, Dixie and Fishlake Life History Reports, Reynolds & Linkhart 1987
Northern Goshawk	Lodgepole Pine / Aspen	Region 4 sensitive species, and excellent indicator for healthy spruce/fir/mixed conifer/aspen forests	Dixie and Fishlake Life History Reports, Squires and Reynolds 1997
Peregrine Falcon	Cliff / Lowland Riparian	Region 4 sensitive species, and included on the US Fish and Wildlife Service's 2002 List of Birds of Conservation Concern	Dixie and Fishlake Life History Reports, USFWS 2002
Three-toed Woodpecker	Sub-Alpine Conifer / Lodgepole Pine	Region 4 sensitive species, and good indicator of healthy later seral conifer forests	Dixie and Fishlake Life History Reports, Spahr et al. 1991
Ferruginous Hawk	Pinyon-Juniper / Shrubsteppe	Requires healthy forest conditions during migration, included on the USFWS List of Birds of Conservation Concern, and included on the Utah PIF priority species list.	Parrish et al. 2002, USFWS 2002
Northern Harrier	Wet Meadow / High Desert Scrub	Requires healthy forest conditions during migration, and included on the US Fish and Wildlife Service's 2002 List of Birds of Conservation Concern	USFWS 2002
Lewis's Woodpecker	Ponderosa Pine / Lowland Riparian	Particularly good indicator of more open, old growth ponderosa stands	*Personal communication*, Frank Howe, UDWR, 1/20/2006

Swainson's Hawk	Agriculture / Aspen	Requires healthy forest conditions during migration, and included on the USFWS (2002) List of Birds of Conservation Concern	USFWS 2002
Golden Eagle	Cliff / High Desert Scrub	Included on the US Fish and Wildlife Service's 2002 List of Birds of Conservation Concern	USFWS 2002
Prairie Falcon	Cliff / High Desert Scrub	Included on the US Fish and Wildlife Service's 2002 List of Birds of Conservation Concern	USFWS 2002
Ruffed Grouse	Aspen/ Mixed conifer	Excellent indicator of healthy and properly functioning aspen stands	AOU 1983, Nature Serve 2006
Burrowing Owl	High Desert Scrub / Grassland	Status currently unknown by Forest, and included on the USFWS (2002) List of Birds of Conservation Concern	USFWS 2002
Short-eared Owl	Wetland / Grassland	Included on the US Fish and Wildlife Service's 2002 List of Birds of Conservation Concern	USFWS 2002
Williamson's Sapsucker	Sub-Alpine Conifer / Aspen	Included on the US Fish and Wildlife Service's 2002 List of Birds of Conservation Concern	USFWS 2002
Gray Vireo	Pinyon-Juniper / Northern Oak	included on the USFWS (2002) List of Birds of Conservation Concern, and included on the Utah PIF priority species list.	Parrish et al. 2002, USFWS 2002
Pinyon Jay	Pinyon-Juniper / Ponderosa Pine	Included on the US Fish and Wildlife Service's 2002 List of Birds of Conservation Concern	USFWS 2002
Virginia's Warbler	Northern Oak / Pinyon-Juniper	included on the USFWS (2002) List of Birds of Conservation Concern, and included on the Utah PIF priority species list.	Parrish et al. 2002, USFWS 2002

Black-throated Gray Warbler	Pinyon-Juniper / Mountain Shrub	included on the USFWS (2002) List of Birds of Conservation Concern, and included on the Utah PIF priority species list.	Parrish et al. 2002, USFWS 2002
Sage Sparrow	Shrubsteppe / High Desert Scrub	included on the USFWS (2002) List of Birds of Conservation Concern, and included on the Utah PIF priority species list.	Parrish et al. 2002, USFWS 2002
Black Rosy Finch	Alpine	Included on the Utah PIF priority species list	Parrish et al. 2002
Brewer's Sparrow	Shrubsteppe / High Desert Scrub	Included on the Utah PIF priority species list, also a good indicator of healthy sagebrush habitat	Parrish et al. 2002, Reynolds and Trost 1980, Schroeder and Sturges 1975, Castrale 1982
Broad Tailed Hummingbird	Lowland Riparian / Mountain Riparian	Included on the Utah PIF priority species list	Parrish et al. 2002
Long-billed Curlew	Grassland / Agriculture	Included on the Utah PIF priority species list	Parrish et al. 2002
American Pipit	Alpine	Excellent management indicator species for alpine habitat	NatureServe 2006
Red-naped sapsucker	Mixed Conifer/Aspen	Excellent management indicator species for old growth/snags, as well as aspen habitat	Tobalske et al. 1991, Tobalske 1992, Muldavin et al. 1999
Lincoln's sparrow	Meadow/Riparian	Excellent management indicator species for meadow and riparian habitats	Knopf et al. 1988, Dobkin 1994, Nature Serve 2006
Juniper titmouse	Pinion-Juniper	Excellent management indicator species for pinion-juniper habitat	Pavlacky and Anderson 2001
MacGillivray's warbler	Riparian	Excellent management indicator species for riparian habitats	Dobkin 1994, Mosconi and Hutto 1982
Warbling vireo	Riparian	Excellent management indicator species for riparian habitats	Dobkin 1994
Big Free-tailed Bat	Lowland Riparian / Cliff	UDWR Species of Special Concern	UDWR 2003

Spotted Bat	Low Desert Scrub / Cliff	Region 4 sensitive species	USFS 1986
Fringed Myotis	Caves/Desert Shrub/Woodlands	UDWR Species of Special Concern	UDWR 2003
Allen's Big-eared Bat	Lowland Riparian / Pinyon-Juniper	UDWR Species of Special Concern	UDWR 2003
Townsend's Big-eared Bat	Caves / Pinyon-Juniper / Mountain Shrub	Region 4 sensitive species	Dixie and Fishlake Life History Reports
Beaver	Aquatic / Mountain Riparian	Keystone species, and excellent indicator of healthy and properly functioning stream systems	Hammerson 1994; Lowry and Beschta 1994
American Pika	Alpine	Populations are declining; Species will be affected by global warming due to alpine habitat; TNC watch species.	Tuhy et al. 2002, Beever et. al. 2003
Snowshoe Hare	Lodgepole Pine/Mixed Conifer/Subalpine Conifer	Populations are declining; TNC watch species; May be affected by drought or global warming; Important Lynx prey.	Tuhy et al. 2002
Pygmy Rabbit	Sagebrush	Region 4 sensitive species	Dixie and Fishlake Life History Reports
River Otter	Aquatic / Mountain Riparian	Populations declining dramatically. Important biological control of invasive crayfish populations in riparian systems.	Bosworth 2003
Cougar	Generalist (i.e. Cliff / Pinyon-Juniper / Mountain Shrub)	Relatively unknown status on Forest; Affected by landscape scale fragmentation; Keystone, foundation, and umbrella species which affects whole Forest system.	UDWR 1999b

Desert, and Rocky Mountain Bighorn Sheep	Desert Scrub / Cliff	Populations have declined from historic levels; TNC target species; Some re-introductions successful, but competition from livestock limit success and *Pasteurella* bacteria from sheep or goats cause massive die-offs; Sensitive to habitat fragmentation.	UDWR 1999a, Tuhy et al. 2002

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Wildlife Habitat: Migratory Birds	
Desired Condition	• Habitat for all migratory birds (including the US Fish and Wildlife Service's 2002 List of Birds of Conservation Concern and priority species identified by Utah Partner's in Flight) potentially existing on the Forest is a priority for passive restoration where it is not currently productive for migratory birds. • During migratory bird breeding seasons, to the degree possible, activities are not conducted in or near breeding habitat to minimize temporary habitat losses, avoid long-term habitat losses, and mitigate unavoidable habitat losses. • Habitat enhancement is in-kind within the watershed of the impacted habitat in suitable breeding areas.
Objectives (to move from existing to desired)	**Obj 1** A suitable protocol is developed with appropriate partnerships (e.g., Audubon Society, UDWR) for determining the presence/absence of migratory birds for which potential suitable habitat exists on the Forest. **Obj 2** All livestock permits, designation of ORV routes, and timber-cutting projects note the proximity/absence of potentially suitable habitat for migratory birds, given best scientific information.
Guidelines (sideboards for future activities)	
Monitoring	**Mon. 1** Presence/absence of US Fish and Wildlife Service's 2002 List of Birds of Conservation Concern and priority species identified by Utah Partner's in Flight in suitable habitat using sound survey methodology.
Suitable Uses	• All species are watchable and researchable (within approved guidelines for protection)

Biological Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Wildlife Habitat: Fish	
Desired Condition	• Forest conditions support expansion and restoration of native fish populations are restored to their historic range. • Proposed management activities consider all existing populations and individuals of conservation agreement species. • Native fish species are given priority over non-native sport fishes and sport fish are not introduced into streams where native fish species occur. • Impacts on native fish populations from activities such as ORV use in stream channels and livestock grazing on stream banks are minimal. • All existing Forest roadless areas remain roadless. • Sediment input from management activities does not exceed a pre-determined acceptable sediment threshold. • Stream banks are undercut, with overhanging canopy (e.g., grasses, willows, trees) for cover.
Objectives (to move from existing to desired)	**Obj. 1** Independently, or with the aid of interested organizations, a map indicating the presence of whirling disease in Forestland streams is created. **Obj. 2** An active file of all populations and individuals of native fishes that are noted in streams and reaches on Forestland is regularly update and includes: o Observations from field technicians o Any observed geographical or population expansion of native fish o Monitored conservation populations o Continued conservation and management proposals, actions, and results (see Hart 2004) from UDWR and the Forest that involve direct monitoring of native fishes or that directly or indirectly affect populations or habitat of native fish species. **Obj. 3** With the collaboration of UDWR and native fish organizations, native fish populations are restored to their historic range within the Forest. **Obj. 4** Riparian and upland systems are managed to reduce in-stream sediment to levels compatible with native fish.
Guidelines (sideboards for	**Gdlne. 1** When native fish are present in any given stream, non-native sport fish should not be introduced. Sport fish should

future activities)	not be stocked in streams containing native fish. **Gdlne. 2** If sediment fines (<6.35mm) are greater than 30% in any given stream, Forest uses surrounding the stream should be managed to drop sediment fines below 30% threshold.
Monitoring	**Mon.1** Extent of native fish populations within the Forest **Mon.2** Percent fines <6.35mm using the method of Stowell et al (1983) in all perennial streams potentially supporting salmonids
Suitable Uses	• All species are watchable and researchable (within approved guidelines for protection) • Species are fishable as per UDWR direction.

Physical Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Watershed - General	
Desired Condition	• All elements of Dixie/Fishlake NF watersheds are in minimally fragmented condition. • Native vegetation is increasing in dominance and cover. • Beaver are becoming abundant in at least half their potential suitable habitat, engineering the restoration of hydrological functions and the linkage of aquatic and riparian areas with valley floors. Forests are returning to natural fire regimes. • Streams, lakes, springs, wetlands, and aquifers fully support state designated beneficial uses and native biological resources
Objectives (to move from existing to desired)	**Obj. 1** Watershed Analysis Framework is employed to conduct comprehensive watershed analyses at the scale of one or multiple adjacent sixth order watershed(s) according to the Federal Guide for Watershed Analysis. Watershed Analysis links Plan direction to project-level prioritization and planning. Watershed Analysis is used to complete the following eight steps as set forth in greater detail in the above referenced Federal Guide: a) Identify and characterize dominant physical, biological, and human processes and features that regulate ecosystem function and condition; b) Identify key analysis questions and issues relating to each watershed's ecosystem function and condition; c) Develop information needed to address issues, key questions, and document the current range, distribution, and condition of relevant ecological elements; d) Explain how ecological conditions have changed over time as the result of human and natural disturbances and develop a reference for comparison with current conditions and with LRMP objectives; e) Compare existing and reference conditions of specific ecosystem elements and identify key management objectives and trigger initiation of corresponding management actions; f) Form the basis for management recommendations and identification of project-level needs as identified in the analysis process g) Form a geographically discrete spatial context and ecologically rigorous data context for project level prioritization and analyses h) Form the basis for comprehensive Watershed Analysis Report detailing each of the above seven steps, including all relevant data, analyses, maps, discussions, recommendations, and other information. **Obj. 2** The cumulative implications for fragmentation, degradation, or recovery of affected fifth- and sixth-order watersheds are explicitly analyzed in all project, permit, authorization and operations decisions. **Obj. 3** One least-impacted and one highly-impacted sixth order watershed on each District is designated as a

reference area (i.e., a total of five least-impacted and five impacted out of 143 watersheds). See **Reference Areas.**

Obj 4 Forest users are provided with maps and information which helps them understand how every action takes place in, and affects, the functioning of one or more watersheds.

See all Objectives for **Resource And Ecosystem Management, Public Use And Participation, Facility Operation And Maintenance, And Commodity And Commercial Uses,** as all these activities influence the fate and condition of the Forest's watersheds.

Table 6. Ecological systems (Southwest ReGap, National Vegetation Classification System) with high potential for biological crusts occurrence and acreage on the Dixie/Fishlake NFs (Personal communication, Jayne Belnap, USGS, 2004).

Ecological System (NVC System)	Acres on Fishlake NF	Acres on Dixie NF
Inter-Mountain Basins Greasewood Flat	319	19
Inter-Mountain Basins Semi-Desert Grassland	277	661
Inter-Mountain Basins Semi-Desert Shrub Steppe	5,144	1,197
Rocky Mountain Dry Tundra	7,597	16,508
Rocky Mountain Subalpine Mesic Meadow	2,516	9,315
Rocky Mountain Cliff and Canyon	26,119	58,334
Inter-Mountain Basins Cliff and Canyon*	41	108
North American Warm Desert Bedrock Cliff and Outcrop*		3,512
Colorado Plateau Mixed Bedrock Canyon and Tableland*	12,977	33,542
Southern Rocky Mountain Montane-Subalpine Grassland	6,578	3,896
Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland	36,658	9,909
Inter-Mountain Basins Montane Sagebrush Steppe	234,887	252,085
Inter-Mountain Basins Semi-Desert Shrub Steppe	5,144	1,197
Inter-Mountain Basins Mixed Salt Desert Scrub	2,587	492
Colorado Plateau Blackbrush-Mormon-tea Shrubland	122	1,027
Mojave Mid-Elevation Mixed Desert Scrub		3,731
Inter-Mountain Basins Mixed Salt Desert Scrub	2,587	492

Sonora-Mojave Creosotebush-White Bursage Desert Scrub		562
Colorado Plateau Mixed Low Sagebrush Shrubland	3,413	85
Mogollon Chaparral		61,024
Inter-Mountain Basins Big Sagebrush Shrubland	41,344	58,084
Great Basin Xeric Mixed Sagebrush Shrubland	417	3,413
Inter-Mountain Basins Mat Saltbrush Shrubland	226	8
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	182,028	35,269
Colorado Plateau Pinyon-Juniper Shrubland	3,890	19,026
Colorado Plateau Pinyon-Juniper Woodland	428,271	251,351
Great Basin Pinyon-Juniper Woodland	164	249,981
TOTAL	1,003,306	1,074,828

*Mostly rock, but where there are soil patches there will be biological soil crust

Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Watershed Condition Class • Compliance with or exceedance of State water quality standards at established streams and streams in which water quality standards are potentially out of compliance. • Comparisons with reference watersheds, the variables depending on specific questions Objectives • Watershed Analysis Reports are posted on the Forest website annually in a format that is easily accessible to the public and allows for electronic transfer of data, maps, and other information across multiple file formats.
Suitable Uses	

Physical Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Soil and Water Resources: Municipal Supply Watersheds and Drinking Water Source Areas

Desired Condition	• Municipal supply watersheds and drinking water source areas provide water for communities and beneficial uses in quantities appropriate for that watershed, without reduction of productivity of natural ecosystem processes and native ecosystems of the Forest. • Multiple uses occur within these watersheds and utilize special designs if necessary to maintain water for culinary purposes.

	• Management and multiple uses maintain or improve overall native watershed condition and natural ecosystem functions. • Points of diversion, ditches, tanks, pipelines, and other developments are stable and secure, and are maintained to minimize erosion, failure, and contamination. • These facilities have appropriate access which maintains or provides for natural watershed, channel, and native biological processes. • Water diversion systems are efficient, meaning that they minimize the amount of water lost between the point of diversion and the area of use. By doing so, they maximize the amount of water available for other beneficial uses. • Livestock grazing does not occur within culinary watersheds.
Objectives (to move from existing to desired)	**Obj. 1** Consumptive and non-consumptive water needs and desires, including instream flows, in-place standing water, and conservation pools within fifth order watersheds are identified and quantified. **Obj. 2** Instream rights needed to maintain and restore aquatic and riparian ecosystems are identified; and pursued in partnership with Utah Department of Natural Resources. **Obj. 3** All legal capabilities are exercised to approximate natural rates of water retention, storage, and flow on the Forest. **Obj. 4** Water diversion permits that adversely affect threatened, endangered or candidate species, or vulnerable native species or their habitat are phased out. **Obj. 5** In habitat that has been degraded by water withdrawals, existing permits are amended as necessary to provide suitable water flows for vulnerable native species. **Obj. 6** All human activities on the Forest are managed to prevent, to the degree feasible, the entry of polluting substances into the water. **Obj. 7** Within three years, suitable and potentially suitable habitat for beaver on the Forest is identified using existing information, GIS overlays, and ground surveys. **Obj. 8** Beaver and their water engineering skills are restored in half their suitable habitat within ten years. **Obj. 9** Management changes respond to monitoring results or other indications of water quality degradation (e.g., failure to meet Biotic Condition Index standard).
Guidelines (sideboards for future activities)	**Gdlne. 1** In any case in which the Forest has legal authority, streamflows should be conserved to sustain aquatic life during all seasons and including drought. **Gdlne. 2** Do not authorize water diversions from Forest lands in: ▪ Colorado cutthroat conservation/recovery watersheds ▪ Reference areas ▪ Eligible wild and scenic rivers ▪ Research Natural Areas

	▪ Wilderness **Gdlne. 3** A new seep or spring should not be developed without removing development from a greater number of seeps and springs on the Forest.
Monitoring	Desired Conditions: Monitoring elements • Comparisons with reference watersheds, the variables depending on specific questions • Amounts of water diverted from Forest ecosystems for municipal supplies and drinking water • Contamination of drinking water • Conditions of points of diversion, ditches, tanks, pipelines and other facilities. • Guidance is available to Forest users to identify, monitor and report violations of water appropriation, use, and pollution requirements or laws .
Suitable Uses	

Physical Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Soil and Water Resources: Riparian and Aquatic Ecosystems: Streams (Perennial, Intermittent, and Ephemeral)	
Desired Condition	• Stream bank stability reflects stream type potential, and is not impacted by management activities or other human uses. • Streams are hydrologically reconnected with their valley floors. • Degraded stream and stream bank conditions are recovering rather than being "maintained." • Native, deep-rooted vegetation is increasing on stream banks. • Forest management activities and uses are not contributing to the spread of whirling disease. • Streams and lakes provide the habitat, including water depth, flow durations, and temperature, necessary for native fish and other native aquatic and riparian-dependent species • The number of human-caused barriers to the movement of fish, such as culverts, is reduced. • New structures allow fish passage, except in select locations intended to protect native species. • The number of structures and water-volume of diversions is reduced. • New water diversions, developments, and structures, are offset by removal of a greater number of water diversions, structures, and developments. • The number of seeps and springs protected in natural (undeveloped) condition is increased. • Beavers are playing an increasing role in watershed restoration by raising and maintaining high water tables as

	they store water in the channel and increase the frequency of valley floor flooding (a key mechanism for groundwater recharge). • Overbank flows occur frequently to maintain the stream channel, recharge groundwater, and maintain wetland/floodplain functions. • Stream flows are shifting from intermittent or ephemeral to perennial. • Flood peaks have decreased in magnitude and erosive power and have increased in duration. • Base flows have increased or extend later in the low-flow season. • The volume of water the channel can carry before the water overtops its stream banks (called "channel capacity") has decreased in response to channel narrowing and channel bed build-up ("aggradation") as a result of sediment deposition along the banks and on the bed. • Overbank flows occur frequently, thereby recharging the groundwater and keeping the water table high and allowing for the expansion of wetlands. • Stream velocity rapidly decreases and water infiltrates into the valley floor. Instream water flows are increasing for aquatic and riparian species and human and community uses.
Objectives (to move from existing to desired)	**Obj.1** Stream channel hydrologic bankfull width-to-depth ratios, entrenchment ratios, and channel sinuosity are moving toward the channel type expected based on the steepness of the valley bottom (gradient), width of the valley bottom, valley floor sediments and the stream bank composition and stratigraphy. **Obj.2** Human-associated pollutants are decreasing. **Obj.3** Where sediment is limited but the habitat is suitable for beaver, channel capacity can be reduced to pre-disturbance capacity through the building of beaver dams, which trap water and what sediment is available. **Obj.4** Where stream banks are eroding due to stream action (called "fluvial processes"), active bank stabilization via the reestablishment of riparian vegetation on streambanks and bars is taking place. **Obj.5** Infiltration of precipitation and floodwaters into the valley sediments is increasing. **Obj.6** Soil water-holding capacity is increasing. **Obj.7** Sediment fines (<6.35 mm) in salmonid spawning and rearing streams will be less than 30%. **Obj.8** Point, mid, and lateral bars are increasingly stabilized with dense, native riparian vegetation.
Guidelines (sideboards for future activities)	**Gdlne. 1** When bank trampling due to human activities or developments (e.g., livestock, roads, routes, trails) exceeds 15 percent for any 200 feet of stream length (i.e., this equals 400 feet by counting both stream sides), one or more of the activities should be adjusted or eliminated to reduce the bank trampling to 15% or lower. **Gdlne. 2** Beaver dams should not be removed to protect roads or other developments unless no reasonable

	alternative means of managing pond depth or area (e.g., "Beaver deceivers"; see Lisle (undated)(are feasible to prevent culvert, road, or other problems. **Gdlne. 3** Instream structures other than addition of woody debris should not be used as a means of restoring stream function. If large woody debris is added, it should provide natural amounts, types, sizes, and spatial distributions of wood both in and along stream channels. The addition of woody debris should always tbe accompanied by recovery of off-channel habitat and alteration of off-channel activities that have led to a deficiency of in-channel woody debris.
Monitoring	Desired Conditions: Monitoring elements • Inventory of water distribution on the Forest (e.g., instream flows, spring flows, diversions). • Base flow quantity and timing • Beaver presence and activity • Level II Riparian inventories: repeat of ten year old inventories; inventories of selected streams not previously inventoried • Trend of stream width by fixed transects: at straight sections (to show whether the stream is destabilizing) and at bends (to show whether point bar is aggrading, indicating healing) • Overbank flooding • Whirling disease • Fish passage inventory • Effects on stream condition and species populations of both projects (planning, implementation, and post-implementation) and ongoing activities (e.g., ORV use, livestock, mining) • Comparisons with reference riparian and aquatic sites, the variables depending on specific questions Objectives **Mon. 1** A Forest website map is prepared which indicates stream ratings for measured functioning condition, and priorities for restoration.
Suitable Uses	

Physical Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Soil and Water Resources: Riparian and Aquatic Ecosystems: Springs and Wetlands	
Desired Condition	• Springs provide quality native habitat, and water for native wildlife and vegetation and for Forest and community uses, as compatible with native functioning and condition.

	• Springs are free of livestock trampling and pollution. • Wetlands acreage, function, and value increase. • The number of seeps and springs protected in natural (undeveloped) condition is increased. • Invasive and exotic vegetation is reduced. • Comparisons with reference springs, seeps, and wetlands, the variables depending on specific questions
Objectives (to move from existing to desired)	**Obj. 1** Seep, spring, and pond physical "developments" are in place and functioning to insure natural conditions of seeps, springs, and ponds, **Obj. 2** Wetland native vegetation is abundant and bare ground minimal. **Obj. 3** The soil in the spring/seep areas is moist. **Obj. 4** The ground within 100 feet of springs, seeps, and wetlands is minimally (less than 15%) trampled.
Guidelines (sideboards for future activities)	**Gdlne. 1** New or replacement spring and seep livestock developments should not allow livestock to trample the spring or seep riparian vegetation within 150 feet of the water; the springs and seeps must be fenced.
Monitoring	Desired Conditions: Monitoring elements • Inventory of Dixie/Fishlake springs, seeps and wetlands conditions: developed/natural; native/exotic vegetation; and water flow. • Spring, seep flow quantity and timing • Compaction of wet meadows and surrounding springs, seeps, and ponds. • Native vegetation in wet meadows and surrounding springs, seeps, and ponds • Inventory of springs/seeps-dependent native wildlife • Remote sensing change detection, with field verification of significant detected changes The number of structures and water-volume of diversions is reduced. • New water diversions, developments, and structures, are offset by removal of a greater number of water diversions, structures, and developments.
Suitable Uses	

Physical Components for the Dixie/Fishlake National Forest Plan Revision
FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Soil and Water Resources: Upland Linkages with Aquatic Ecosystems

Desired Condition	• Water entering streams from the uplands is pesticide-free and sediment-limited. • Upland vegetation is decreasing surface runoff and decreasing soil compaction, thereby enhancing infiltration rates. • Precipitation infiltrates into the ground at 85% of reference watersheds and meadows, travels through the subsurface, and enters the stream as base flow. • Erosion-causing activities leading to terracing and furrowing have been eliminated, and furrowing and terracing are no longer necessary. • Constructed features and impacting uses in riparian areas are minimized.
Objectives (to move from existing to desired)	**Obj. 1** Water bodies within Forest watersheds surpass State water quality standards when this is necessary to maintain or restore watershed habitat or riparian/aquatic-dependent species. **Obj. 2** Annual soil erosion from uplands into aquatic systems does not exceed that of appropriate reference areas. **Obj. 3** Annual soil and sediment erosion from uplands (e.g., bare soil, roads, recreational activities, livestock grazing) into aquatic systems does not exceed that of appropriate reference areas. **Obj. 4** Where soils are naturally erosive, upland native ground cover (live vegetation plus litter) is being re-established to 85% cover of reference areas. **Obj. 5** Soil reference areas for each vegetation type on the Forest are identified and intact biological crusts examined in those areas in order to create a baseline for degraded site evaluation. **Obj. 6** Degraded soil areas are identified and prioritized. Those areas with the most restoration potential (those areas with the best chance of restoration success) have first priority. **Obj. 7** A program to educate the public about the ecological value of biological soil crusts and the need for behaviors that protect the integrity of those soils is developed, based on successful outreach programs developed by the National Park Service, such as at Arches National Park.
Guidelines (sideboards for future activities)	Gdlne. 1 Any addition of woody debris to a stream should be accompanied by recovery of off-channel habitat and alteration of off-channel activities that have led to a deficiency of in-channel woody debris
Monitoring	Desired Conditions: Monitoring elements • Effects on upland condition and species populations of both projects (planning, implementation, and post-implementation) and ongoing activities (e.g., ORV use, livestock, mining) • Comparisons with reference upland sites, the variables depending on specific questions Objectives **Mon. 1** Reference areas for each vegetation type will be used as a comparative measure for soil quality across the Forest.

	Mon. 2	An unacceptable 'level of departure' from high soil quality types, will be developed based on reference areas.
	Mon. 3	Soil in 'use' areas (i.e. grazing, recreation, mining, tree cutting) will be monitored by employees or trained volunteers using simple, but proven, methodology
	Mon. 4	Sites chosen for passive or active restoration will maintain an active file with record of the following: Soil quality data that led to restoration Measurable restoration goals to be achieved through restoration treatment. Restoration treatment, including whether native seeds were spread and what type Justification for using restoration treatment Any observations, casual or purposeful, made by employees of site after restoration treatment is completed Formal evaluation of the site every five years after restoration treatment until it is apparent that restoration goals have been achieved.
	Mon. 5	The presence or absence of biological soil crusts in relevant vegetation types is monitored within reference and activity areas.
Suitable Uses		

Physical Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Soil and Water Resources: Soil Resource	
Desired Condition	• The basic integrity of all topsoils and biological soil crusts on the Forest are intact and maintained to ensure proper nutrient cycling, allow water filtration, and to minimize erosion. • Soils have physical, chemical, and biologic properties for native vegetative growth, nutrient cycling, and soil-hydrologic function that are similar to soils in reference areas. • Biological soil crusts are increasing. • Native ground cover retains soil, bulk density, and soil biological life similar to that of appropriate reference sites. • Commercial resource extraction, motorized and other recreation, roads, restoration activities, livestock grazing, or excessive wild ungulate use are not causing erosion, compaction, degradation, or the introduction of exotic/invasive plant species. • Soils that have been degraded are restored primarily through passive restoration, or active restoration methods that prevent the spread of exotic/or invasive plant species. • Sufficient coarse woody debris and snag requirements to sustain biological productivity are met.

	• Compaction is not greater than 15% more than relevant reference sites.
Objectives (to move from existing to desired)	**Gdlne. 1** Commercial, recreational and other permitted activities should be allowed within soil restoration areas only when the soil has stabilized and soil quality tests are similar to soils reference areas for that vegetation type.
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Bulk density (compaction) • Coarse woody debris • Soil organic matter • Trends of biological soil crust area • Results of passive and active restoration, the variables depending on specific restoration goals • Comparisons with reference sites, the variables depending on specific questions
Suitable Uses	

Physical Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Geologic Resources	
Desired Condition	The natural, geologic features and evolutionary processes, and record of those features and processes on the Dixie/Fishlake NF are maintained.
Objectives (to move from existing to desired)	**Obj.1** Human activities which will alter the natural formation of the land are minimized. **Obj.2** Criteria for issuing paleontological research permits are developed. **Obj.3** Chain-of-custody documentation of findings and curation as a condition of permits for paleontological collecting is required. **Obj.4** Any permitting of earthquake seismic studies, paleontological research, or any other Geologic study is conditioned upon full rehabilitation of natural conditions and native vegetation on the site. **Obj.5** Least-intrusive mining methods are required. [See Oil, Gas and Mining] **Obj.6** The necessity for gravel is minimized and the creation of new gravel pits avoided where feasible.
Guidelines (sideboards for future activities)	**Gdlne 1.** Aggradation and increasing sinuosity of stream channels and banks should be allowed to occur.

Monitoring	
Suitable Uses	

Physical Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Paleontological Resources	
Desired Condition	• Paleontological resources are inventoried, collected, and curated by accredited individuals and institutions and made available for study by qualified paleontologists. • Significant resources are curated at the nearest accredited repository. • Opportunities to acquire reproductions (casts) are made available to local and other interested institutions and museums. • Special Interest Areas (SIAs) are designated to protect unique paleontological resources.
Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Number of permits • Number and type of fossils located • Where fossils are curated • Database similar to cultural resource database • Effectiveness of protection measures for paleontological resources, both on the Forest and in Special Interest Areas.
Suitable Uses	

Physical Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option
RESOURCE: Air Quality

Desired Condition	• Forest visitors and local residents have the opportunity to experience clean air and spectacular vistas in a natural setting, while recognizing that those vistas and air quality may be affected periodically by smoke from management actions or wildfires. • Smoke emissions from prescribed and wildland fires are within the historical frequency and distribution for the various vegetation types across the Forest.
Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • State Air Quality monitoring data • Additional air quality monitoring if particular air quality degradation is suspected.
Suitable Uses	

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Social and Economic Condition - General	
Desired Condition	• The Forest's natural heritage (i.e., productivity of native plants, wildlife, and fully-functioning natural ecosystems) improves the social, economic, and cultural condition of local communities, the nation, and future generations. • Residents from nearby communities continue traditional uses of the Forest for their social and economic benefit as compatible with the Forest's natural heritage • Opportunities for competing new uses are accommodated, without degrading local economies, traditions, or the Forest's natural heritage. • Cultural values are respected and integrated into decisions and actions as compatible with the health of the Forest's natural heritage. • The Forest provides visually pleasing natural landscapes and is a source of clean, cool water, and clean air. • The Forest transportation system provides access on the Dixie/Fishlake National Forest to allow people and materials to move to and through the Forest in a manner and at levels compatible with the Forest's natural heritage. • Utility corridors and communication sites allow for the movement and distribution of electricity, petroleum products, and

	communication signals across National Forest System land through the use of environmentally sound technologies compatible with the Forest's natural heritage. • The exploration, development, and production of mineral and energy resources occur in response to and to assist in meeting local, state, and national desires for energy, as compatible with the Forest's natural heritage, while both providing some economic benefits such as employment, tax base and royalties and mindful of public costs in the form of administrative oversight, mitigation, enforcement, restoration of damaged ecosystems, and loss of non-renewable natural resources. • Opportunities for developing alternative energy sources are available as compatible with the Forest's natural heritage. • Livestock grazing continues at levels compatible with preserving and restoring the Forest's natural heritage for current and future generations. A fair amount of the Forest is allowed to function free of livestock grazing to the benefit of other natural, cultural, and economic values (e.g., bighorn wildlife watching and hunting). • Forest watersheds are managed to provide water of appropriate quality for instream beneficial uses, municipal, industrial, agricultural, and other uses on and off the Forest as compatible with preserving and restoring the Forest's potential productivity of native watersheds. • Forest products are made available to the local and regional economies, as compatible with preserving and restoring native forest communities and watersheds, providing employment opportunities for nearby communities as well as ensuring healthy natural forests (including old growth) for the nation's current and future generations. • Diverse recreational opportunities are provided and managed to enhance the recreational experience as compatible with protecting the Forest's natural heritage. • The Forest's pre-eminent heritage resources are interpreted and made available for scientific study. Other uses are managed to minimize damage to the heritage resources.
Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Social: Understandings and comments expressed by the national, regional, and local public, including leaders of interested groups. • Water: Storage and instream uses of water for support of the natural heritage of the Forest. • Water: Distribution of water throughout the Forest.
Suitable Uses	

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Tree-Cutting

Desired Condition

- Thinning is employed where it is determined to be necessary to meet certain fire management and native vegetation management objectives.
- Insofar as there is a need for tree cutting to meet native resource management objectives, those activities are providing trees for locally owned wood processing businesses.
- Tree cutting is not occurring for the sole purpose of timber production or supply of wood processing businesses.
- Tree cutting for fuel wood, Christmas tree and cultural tree collection is occurring under conditions that afford those uses while minimizing damage to the Forest's natural heritage
- Other than for conditions of hazard tree removal and fuel wood harvest, salvage logging of dead or dying trees resulting from fire, insect outbreak, or other natural disturbances is prohibited.
-

Objectives (to move from existing to desired)

Obj. 1 Tree-cutting is employed when determined necessary to facilitate certain native vegetation and fire management objectives including:

1. Fire Obj. 2
2. Ponderosa Pine Objs. 1,2
3. Mixed Conifer Obj. 2
4. Aspen Obj. 5
5. Commercial Tree Cutting Obj. 3

Obj. 3 Remove or fell hazard trees where they pose an immediate risk to life and / or property.

Guidelines (sideboards for future activities)

Gdlne 1. Guidelines in Table 16 should apply to all tree removal outside the wildland urban interface threat and defense zones and hazard tree removal. These guidelines describe the parameters of ecologically sound structural manipulation.

Table 7.: Silvicultural Guidelines

Structural Stage	Ponderosa Pine	Dry Mixed-Conifer	Aspen
VSS 2 & 3			

	Minimum BA:	60 ft/acre	80 ft/acre	NA
	Upper Diameter Limit:	12”	12”	16”
	Upper Age Limit:	120	120	120
	Spacing:	Uneven	Uneven	NA
	Max Opening Size:	2 Acres	2 Acres	1
	Minimum CC:	GG	GG	NA
	Minimum Snags:	GG	GG	Retain All
	Minimum Logs/Ac:	GG	GG	Retain All
	Species:	Conifers	Conifers	Conifers
	Approach	Low Thinning Low Thinning- Group Selection	Low Thinning Low Thinning- Group Selection	Aspen Release
	VSS 4			
	Minimum Basal Area:	80 ft/acre	100 ft/acre	NA
	Upper Diameter Limit:	16”	18”	16”
	Upper Age Limit:	120	120	120
	Spacing:	Uneven	Uneven	NA
	Max Opening Size:	2 Acres	2 Acres	NA
	Minimum Snags:	GG	GG	NA
	Minimum Logs/Ac	GG	GG	NA
	Species:	Conifers	Conifers	Conifers
	Approach:	Low thinning Low thinning/ Group Selection	Low thinning Low thinning/ Group Selection	Low Thinning
	VSS 5			
	Upper Diameter Limit:	14”	15”	16”
	Upper Age Limit:	120	120	120
	Spacing:	Uneven	Uneven	NA
	Max Opening Size:	2 Acres	2 Acres	1
	Minimum Snags:	GG	GG	NA
	Minimum Logs/Ac:	GG	GG	Retain All
	Species:	Conifers	Conifers	Conifers
	Approach	Low Thinning	Low Thinning	Low Thinning
	VSS 6, Old Growth Reserves			

Upper Diameter Limit:	12”	12”	16”
Upper Age Limit:	120	120	120
Spacing:	Uneven	Uneven	NA
Max Opening Size:	2 Acres	2 Acres	1
Minimum Snags:	Retain All	Retain All	Retain All
Minimum Logs/Ac:	Retain All	Retain All	Retain All
Species:	Conifers	Conifers	Conifers
Approach	Low Thinning	Low Thinning	Low Thinning

Thinning Definitions

Minimum BA: Minimum basal area measured and averaged across twenty acres. Basal area is the cross-sectional area of a tree 4.5 feet above ground. The basal area of all trees in a given land area describes the degree to which an area is occupied by trees and is generally expressed in square feet per acre (ft2/acre).

GG: Goshawk guidelines.

Upper diameter limit: Maximum diameter of trees that may be felled.

Conifers species means: Coniferous tree species.

Minimum Logs/Ac: Minimum number downed logs greater than 12” diameter and 10’ length left following tree cutting.

Uneven spacing means: Non-uniform spacing among residual trees, emphasizing the retention of groups of dominant and co-dominant trees with interlocking crowns.

Low thinning means: Thinning from below. The successive removal smaller to larger trees until target stand conditions are met, emphasizing retention of the largest dominant and co-dominant canopy trees. Low thinning is a general approach and does not preclude retention of specified densities of small trees for specific objectives.

Low thinning-group selection means: The successive removal smaller to larger trees until target stand conditions are

	met, emphasizing retention of the largest dominant and co-dominant canopy trees, selecting groups of small trees for removal within constraints of maximum opening size to promote structural heterogeneity. Low thinning is a general approach and does not preclude retention of specified densities of small trees for specific objectives. Aspen Release means: Removal of conifer species necessary to increase vigor and longevity of aspen trees and/or promote aspen suckering. **Gdlne.2**. Nest trees of birds and other wildlife outside the Wildland Urban Interface Threat and Defense Zones should not be cut except for hazard trees. **Gdlne. 3** Whenever feasible, tree cutting should not take place during the breeding season to avoid impacts to breeding birds. **Gdlne. 4** **WUI Threat Zone Silvicultural Guidelines** The following guidelines apply to all tree removal inside the wildland urban interface threat zone. **a.** **Fire Regime 1 Ecosystems:** AT least 40 ft. / acre basal area, 15% hiding/thermal cover, average crown base height on conifer trees of 15' or greater should be maintained. **b.** **Other Fire Regime Ecosystems:** Site-specific determination of treatments should be conducted to ensure that treatments would not increase fire hazard by reducing shade and increasing drying of fuels. If site-specific determinations conclude that treatments would increase fire hazard, other mitigation strategies should be identified, such as maximizing treatments in the WUI Defense Zone. If site specific determinations are made that action will not increase fire hazard, treatments should follow Fire Regime 1 ecosystems guidelines, above. **Road construction and reconstruction.** **Gdlne. 4** New road construction and reconstruction of old roads for the purposes of tree removal should only take place 1. in Wildland Urban Interface Defense and Threat Zones 2. Outside the Wildland Urban Interface Defense and Threat Zones: a. In Condition Class 2 and 3 lands identified as priority for treatment based on fire and vegetation management objectives and priorities and only for scientifically justifiable restoration purposes, and only if: i. Road construction is limited to roll up roads, and;

	ii. Roll up roads are closed and reseeded by the end of the first growing season following cessation of restoration activities. iii. Total density of open and closed roll up roads shall not exceed three miles per square mile within a restoration project area. **Slash Disposal** **Gdlne. 5** Slash disposal systems should be limited to: 1. Lop and scatter 2. Piles not larger than 10’ x 10’ x 10’. Rehabilitate soils beneath piles following burning by inoculating scorched soils with adjacent unburned soil. **Machinery and Logging Systems** **Gdlne. 6** All machinery employed in commercial or agency tree cutting activities should be pressure-washed prior to delivery to and removal from project sites in order to avoid transport of invasive weeds and seeds. **Gdlne. 7** The use of large wheeled or tracked machinery should be avoided in thinning operations if activities can be feasibly and cost-effectively conducted with less impacting systems. Where such machinery is used the following guidelines should be used: i. Exert no more than 5 pounds per square inch of ground pressure on any wheel or track under full load ii. Do not leak oil, fuel, hydraulic or other fuels iii. Forwarding systems are preferred. **Hazard Tree Removal** **Gdlne. 8** Standing dead trees of any size may be removed where they pose an immediate threat to live and property. Hazard trees are defined as: 1. Standing dead trees located within: a. Tree length of a paved or maintained road, building, campsite, or other developed area

where such a tree poses an immediate risk to life and/or property.

b. Wildland Urban Interface Defense Zone;
c. Wildland Urban Interface Threat Zone when:
    i. Those trees would retard suppression activities
    ii. Identified for removal in a Community Wildfire Protection Plan
    iii. Located near trails or other areas of frequent use by adjacent communities.

Fuel wood harvest

Gdlne. 9 Fuel wood cutting should be limited to dead trees of the following species: Engelmann spruce, subalpine fir, white fir, ponderosa Pine, douglas fir, Juniper species, pinyon pine and aspen.

Gdlne. 10 Annually, up to ten fuel wood harvest areas can be designated, each not larger than 200 acres, located not further than 300 feet from designated routes. Preferably, fuel wood harvest is in old chainings still containing downed, dead wood.

Gdlne. 11. Based on the amount of fuel wood available, a limited number of commercial and non-commercial fuel wood harvesting permits can be sold on an annual basis for each fuel wood harvesting area, for up to one half of standing dead and down wood in a fuel wood harvest area . Permits should specify:

1. Fuel wood harvesting area
2. Species allowed to be harvested
3. Up to 4 cords for each non-commercial permit
4. Up to 20 cords for each commercial permit
5. Limitations on season of use, soil and road conditions, and other conditions necessary to avoid resource damage during fuel wood harvest.

Christmas Tree and Cultural Tree Cutting

Gdlne. 12 Annually, up to ten Christmas/cultural tree cutting areas can be designated, each not larger than 200 acres, located not further than 300 feet from designated routes.

Gdlne. 13 Permits should specify:

- Harvesting area
- Species allowed to be harvested

	▪ Up to 2 trees for each non-commercial Christmas tree permit ▪ Up to 100 trees for each cultural permit ▪ Limitations on season of use, soil and road conditions, and other conditions necessary to avoid resource damage during harvest. **Gdlne. 14** The following species can be cut for Christmas tree or cultural cutting:: Engelmann spruce, subalpine fir, white fir, Douglas fir, and pinyon pine. **Gdlne. 15** Christmas tree harvest should be limited to trees smaller than 12" dbh. **Gdlne. 16** Cultural tree harvest should be limited to hazard trees or, in the case of green trees, limitations listed in Gdlne. 1. **Gdlne. 17** Whenever feasible, harvest areas should be located where cutting activities will facilitate vegetation management objectives. **Roadless, and Reference Areas** **Gdlne. 18** Tree cutting should not take place in Roadless or reference areas except in Fire Regime 1 ponderosa pine and dry mixed conifer forests where thinning from below may be needed to restore natural fire regimes as specified in fire management and vegetation management objectives and standards, and only where those activities do not compromise the structural, functional, and compositional reference value of those areas, and only in accordance with all other applicable standards of these designated Areas. **Gdlne. 19** In these cases, structural manipulation deemed necessary to restore natural fire regimes should be minimized to the extent feasible. Tree thinning should be based on ▪ Site-specific determination of predominance of condition class 3 conditions. ▪ Site-specific demonstration that single or multiple applications of fire cannot achieve similar results over time, or that multiple applications of fire would not sufficiently reduce fuels to facilitate surface fire behavior under moderate (80th) percentile fire weather conditions. **Gdlne. 20** Trees larger than 12" should not be cut in restoration thinning. **Cover, Dead and Down, and Goshawk Guidelines.** The following standards shall apply to implementation of the Goshawk Standards:

	1. Tree cutting should not exceed the minimum number and sizes of trees necessary to conform to goshawk guidelines within and between patches. 2. Tree cutting should deviate from guidelines to retain large trees (>16" dbh) in VSS 4, 5, and 6 stands. 3. Recovery plans and conservation plans should take precedence over Goshawk guidelines. 4. Unless otherwise specified in Goshawk Guidelines, the following should apply to all tree cutting projects outside the WUI threat and defense zones: a. Maintain of at least 40% thermal and hiding cover b. Wherever practicable, maintain at least 3 snags larger than 18" and 3 snags smaller than 18" per acre. c. Wherever practicable, maintain at least 4 downed logs per acre larger than 10" dbh and longer than 12' in length. **Salvage Logging** **Gdlne. 21** Salvage logging of dead or dying trees resulting from fire, insect outbreak, or other natural disturbances should take place only for hazard trees or fuel wood (see above guidelines)
Monitoring	Desired Conditions: Monitoring elements • Adequacy of enforcement of tree cutting regulations. • Introduction, establishment, or spread of exotic, invasive species associated with tree cutting. • Compatibility with best available science regarding fire management, native forest retention and regeneration, and wildlife habitat
Suitable Uses	1. No Forest lands are suitable for the purpose of timber production. 2. Forest lands tentatively suitable for tree cutting shall not include: a. Non-forest lands; b. Forest lands withdrawn from timber production; i. Wilderness areas i. Other legislatively or administratively designated zones, areas, or sites where tree cutting is otherwise prohibited; b. Areas where tree-cutting is likely to: i. Result in permanent soil or watershed damage over the planning horizon; ii. Increase the extent or relative abundance of aggressively invasive, non-native plant or animal species. iii. Be incompatible with other management objectives, including: (1) Roadless Areas, Reference Areas, and Existing Research Natural Areas, except in ponderosa pine and dry

	mixed conifer forests where thinning from below may be needed to restore natural fire regimes as specified in fire management and vegetation management objectives and standards, and only where those activities do not compromise the structural, functional, and compositional reference value of those areas, and only in accordance with all other applicable standards of these designated Areas. (2) Rare, unique, or relict biological communities, except in ponderosa pine and dry mixed conifer forests where thinning from below is needed to restore natural fire regimes, and only where those activities do not compromise the structural, functional, compositional, and unique biological value of those areas, and only in accordance with all other standards applicable to those areas. (3) Archeological sites, unless it can be demonstrated that those activities would not adversely impact archeological resources. (4) Lands of exceptional scenic beauty or social importance where tree cutting activities would compromise the long-term aesthetic qualities of those lands. (5) In existing or potential habitat for declining, threatened, endangered, sensitive, candidate and focal species, except in ponderosa pine and dry mixed conifer forests where thinning from below is needed to restore natural fire regimes or to protect those habitats from unnaturally severe fire and only (a) in accordance with objectives and standards set forth specific to management of those areas, (b) when those activities can be demonstrated to not adversely impact, either directly, indirectly, and cumulatively, the subject species or its habitat quality, and (c) in accordance with the subject species' recovery and/or conservation plan, or, in the absence of such a plan, the best available science regarding that species habitat requirements. (6) Old growth, except in ponderosa pine and dry mixed conifer forests where thinning from below is needed to restore natural fire regimes or to protect those areas from unnaturally severe fire, and only when those activities do not compromise structural, functional, and compositional old growth attributes, and only in accordance with all applicable silvicultural standards. c. Forest land with greater than 40% slope 3. All other forest land shall be tentatively suitable for tree cutting activities to support objectives for Fire, Ponderosa Pine, Mixed Conifer, and Aspen (see applicable objectives)

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Hunting and Fishing	
Desired Condition	• Quality hunting and fishing habitat and access opportunities are available to the public.

	• Hunters find a variety of game in the more remote areas. Habitat conditions sustain healthy populations of game and fish species. • Critical wildlife habitat is maintained or improved, including primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, migration corridors, and animal concentration areas. • The Forest stabilizes and improves the health and diversity of habitat through passive restoration and, where necessary, active management. • Forest health, riparian and meadow habitats, fawning grounds, and bighorn sheep habitat are given priority. • The Forest emphasizes conserving core game habitat areas and creating linkages to reduce effects of landscape fragmentation. • Fish and game species populations that have declined are reversed by improving habitat, removing invasive exotic species, and by reducing conflicts with recreation and other Forest activities.
Objectives (to move from existing to desired)	**Obj. 1** Native fish and game habitat is restored and vehicle use managed to allow natural recovery of native fish and game animals. **Obj. 2** Three to five miles of stream fish habitat improvement is implemented eacgyear. **Obj. 3** Coordination with UDWR regarding fish stocking resolves conflicts with all vulnerable native species and habitats. **Obj. 4** Partnerships with the DWR and other cooperators such as Trout Unlimited maintain and improve fish and wildlife habitat. .
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Population trends of native non-game fish and wildlife • Condition of important wildlife habitat. • Adherence to hunting and fishing regulations Objectives **Mon. 1** Occupied native fish and wildlife habitat and potential recovery habitat are surveyed in relation to: ▪ Transportation system ▪ Intensive recreation use ▪ Livestock grazing ▪ Tree-cutting activities ▪ Other permitted uses **Mon. 2** Level II riparian surveys capable of detecting vegetation trends toward or away from Desired Conditions are conducted on all Forest perennial stream reaches at least once every ten years.

Suitable Uses	

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Other Food Gathering

Desired Condition	• The Forest acknowledges and protects the rights of Native Americans to gather foods for consumption and sacred materials for ceremonies, where and when so doing is compatible with long-term sustainability of the Forest's full complement of native species and food webs. • Both recreational and commercial vegetation/food gathering are allowed within limits imposed by native resource sustainability. • Permitted harvesting diminishes neither the productivity of native Forest vegetation nor sustainable reproduction of the harvested species.
Objectives (to move from existing to desired)	**Obj. 1** Science-based protocols are prepared which must be observed by visitors gathering vegetation for recreational or personal purposes. A copy of this protocol is distributed to all visitors requesting information on such activities, and to visitors observed gathering non-timber forest products. **Obj. 2** All gathering of non-timber forest products (e.g., seeds, mushrooms, ferns, berries) on the Forest is on an ecologically sound and random, rather than thorough manner. **Obj. 3** Science-based protocols are prepared, which must be signed by permittees as a necessary part of receiving commercial permits to gather specific vegetation on the Forest for commercial purposes. The protocol will require: ▪ leaving sufficient amounts to ensure healthy populations ▪ using ecologically-sound methods of harvest ▪ reporting to the Forest of amounts and locations of specific species harvested. **Obj. 4** Permits specify where vegetation, seeds, mushrooms, etc. may be gathered and maximum amounts or percentage allowed for each permitted area.
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Health of native foods populations and culturally-important plants and animals. • Adequacy of enforcement of food-gathering permits

	Objectives **Mon. 1** A report on amounts and locations of vegetation and food gathered under permits is prepared annually.
Suitable Uses	

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Commercial Recreation

Desired Condition	• Party size of outfitted or guided groups is limited to a quota of people and stock that adequately protects native natural resources. • More sensitive regions in the Forests are evaluated for site-specific group size restrictions that may be smaller than the general group size.
Objectives (to move from existing to desired)	**Obj. 1** Group size and number of stock are established for each category of permitted use meeting all resource protection objectives and standards. **Obj. 2** Outfitters and guides must obtain training on 1. ecology of key native. exotic, and invasive species, and appropriate actions for the protection of native resources 2. heritage resource protection and the significance and sensitivity of Native American and historical sites. **Obj. 3** Simple noxious weeds and invasive species handbooks and forms are provided to outfitters and guides to report changes in the location or presence of noxious weeds or invasive species along their outfitting and guiding routes. **Obj. 4** Resource impacts are documented after every large group event such as ATV jamborees or mountain bike festivals, to determine if organizers effectively controlled participant activities and behavior as required by their permits, on both the Forest and adjacent public lands.=
Guidelines (sideboards for future activities)	**Gdlne. 1** Outfitting/guiding permits should be limited to persons trained in resource protection and invasive species identification. **Gdlne. 2** Restoration should be undertaken and/or the impacting activity should be eliminated if native vegetation or wildlife habitat is adversely affected. **Gdlne. 3** Group event permits should not be continued or renewed if organizers fail to control resource damaging activities of participants. **Gdlne. 4** Water should not be diverted for commercial recreation activities.
Monitoring	Desired Conditions: Monitoring elements

	• Party size quotas are re-evaluated bi-annually, to ensure that it promotes the protection and recovery of native flora and fauna. Objectives **Mon. 1** Outfitters and guides report to Forest on noxious weeds, invasive species, and conflicts with other recreationists. **Mon. 2** Outfitters and guides submit use reports for each month in which their services are provided. **Mon. 3** Impacts of outfitter activities on native vegetation, wildlife habitat, and aquatic areas as well as on non-commercial users are reported every five years.
Suitable Uses	

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Oil, Gas and Mining	
Desired Condition	• The Forest Plan implements withdrawals and non-waivable NSO lease stipulations to protect highly valued and special interest lands, including roadless and riparian areas, and to safeguard areas with special features such as steep slopes and sensitive soils. • .In areas open to surface occupancy, various non-discretionary protective measures – either special stipulations or standard stipulations – are enforced to protect wildlife habitat, soils, water quality, air quality, cultural and scenic resources, and other natural resource values. • Disturbed sites are reclaimed to native, natural condition consistent with potential natural condition. • As mandated by MUSYA, the relative scarcity of the values involved and the availability of alternative sites for those values must be considered in all management decisions. • Some areas currently leased are removed from leasing. The leases simply expire without incident or are not reissued, or, should the leaseholder file an APD, are suspended pending further consideration of the area's resource values. • The national interest in certain lands, the importance of their preservation, and their unique beauty and wildlife habitat result in the purchase or exchange of overlapping lease parcels. • All of these conditions, and management decisions leading to them, are based in complete analysis, prepared under provisions of the National Environmental Policy Act with extensive public review and comment, of projected levels of oil, gas, and mining activities in the forest, of potential impacts from those activities, and of means of limiting and mitigating those impacts. No new oil or gas leases or drilling permits are issued before such analysis is completed.
Objectives (to move from existing to desired)	**Obj. 1**: The following areas will be closed, upon implementation of the Forest Plan, to any exploration, leasing and development related to mineral extraction (*e.g.* oil, gas, coal and hardrock minerals): 1. municipal watersheds

	2. designated wilderness 3. recommended wilderness 4. designated critical habitat 5. roadless areas 6. archeologically rich areas (areas with high concentrations of sites) 7. reference areas, Research Natural Areas, Special Interest Areas 8. eligible Wild And Scenic River corridors 9. critical wildlife habitat 10. areas where recreational, scenic, wilderness and/or wildlife values outweigh marginal oil and gas resources. **Obj. 2**: The following areas will be closed, upon implementation of the Forest Plan to hardrock mining and will be open to other mineral development subject to non-discretionary NSO stipulations: 1. developed recreation sites 2. semiprimitive recreation sites 3. springs, riparian areas, wetlands, meadows, streams (including a 660 foot buffer) 4. slopes greater than 30% 5. areas above tree line 6. areas characterized by sensitive soils or where a geologic or erosion hazard is high 7. areas of high scenic value. **Obj. 3** The following wildlife areas will be subject to non-discretionary wildlife-related stipulations as well as to the standard stipulations listed below. Seasonal restrictions should only be used where adequate field staff is available for monitoring and enforcement. 1. key winter range for large ungulates: surface occupancy not allowed from 12/1 to 4/15); 2. general winter range for large ungulates: surface occupancy not allowed from 12/1 to 4/15) 3. sage grouse leks: no surface occupancy within 3 miles of sage grouse leks 4. habitat for listed, candidate, and vulnerable species. Institute NSO buffer as necessary to ensure the continued occupancy of the species 5. seasonal restrictions as necessary to assure secure habitat on winter range, fawning/calving areas and/or habitat for pronghorn antelope, desert bighorn sheep, rocky mountain bighorn sheep, and raptors **Obj. 4** All other areas are subject to non-discretionary standard stipulations, including: 1. require non-negotiable best management practices that require directional drilling where necessary to avoid surface impacts, minimized drilling facility size, limited construction of new roads and

	rehabilitation of roads not needed after drilling is completed, air pollution control, and prohibition on gas flaring 2. accommodate the public's increasing sensitivity to development within currently natural landscapes 3. reduce vehicular access for oil and gas development and ORV recreation during prolonged drought conditions 4. mitigate the spread of invasive and noxious weeds on oil and gas leases relating to, 5. minimize habitat fragmentation 6. emphasize pollution prevention over pollution containment and clean-up 7. ensure exploration, development and extraction is consistent with Forest Desired Conditions 8. close to ORV use any roads and tracks not designated open for public use and require reclamation of any such roads and tracks once production ends 9. require posting of bonds that ensure adequate reclamation including long term monitoring 10. prevent contaminated operation water entering either ground or surface water. **Obj. 5** Before specific lands are open for exploration or leased for mineral development, an environmental analysis is conducted with opportunity for full public participation, to assess: 1. the regional and national need for such mineral production 2. the economic feasibility of development 3. the extent to which other sources and means to meet the mineral extraction needs exist 4. the cumulative impacts from full development of a structure or field 5. the economic benefits (to whom) and costs (to whom) that full development would entail. **Obj. 6** Off-site mitigation in lieu of avoiding adverse impacts to natural resource values or on-site mitigation is not allowed. **Obj. 7** Any exploration activities must be restricted to existing designated roads to the maximum extent practicable. Lines off existing designated roads should be placed on foot. **Obj. 8** Site-specific environmental review of any proposal to lease particular lands for mineral extraction is required. **Specific Objectives (Coal Bed Methane):** **Obj. 1** Before any leasing or development activities associated with coal bed methane occurs, a complete environmental review is undertaken with full opportunity for public participation, of the impacts of such development, including a consideration of alternatives, cumulative impacts, and effects on water quality, air quality, wildlife and other natural values. From this process, standards and monitoring that will

		protect water quality, air quality, wildlife, and other natural values based on sound science are adopted by the Forest with public input.
	Obj. 2	Air contaminant emissions are controlled by requiring the use of electrified compressor stations associated with coal bed natural gas development.
	Obj. 3	Protection of surface and groundwater resources, including quality and quantity, are protected by prohibiting surface disposal of water and by requiring treatment of water before reinjection into ground water
	Obj. 4	Prior to approval of proposed operations, the collection flow and quality baseline information for any surface and sub-surface waters that could be affected by mineral extraction is documented.
Guidelines (sideboards for future activities)	**Gdlne. 1**	All disturbed areas should be reclaimed and bonding that protects taxpayers from all liability and clean up costs should be required.
	Gdlne. 2	A base bond per well of $20,000 or more, corresponding to potential damage and resulting restoration of natural features, for oil and gas leasing should be imposed and should implement the following terms: 1. The required bond amount will reflect the probable difficulty of reclamation considering such factors as the severe and prolonged drought in southeast Utah, global warming, topography, geology, hydrology, vegetation, wildlife populations, and evidence from past leasing operations reclamation. 2. The amount of the bond will be sufficient to ensure the completion of the reclamation plan if the work had to be performed by the Forest in the event of forfeiture 3. The Forest can adjust the amount of the bond as affected land acreages increase or decrease, or where the cost of future reclamation changes. 4. Bond amounts will be based on worst case scenarios. 5. Bonds will cover the cost of plugging wells and restoring sites around wells; and the cost of reclaiming roads, compressor station sites, produced water containment ponds and all other associated facilities and impacts for which a bond is not otherwise provided.
	Gdlne. 3	Environmental impacts of oil and gas drilling should be reduced by use of “closed loop”

	drilling techniques. Solid well cuttings should be removed from the drilling fluid and the fluid stored in tanks and reused rather than being dumped in a waste pit. [3] Further reduce environmental impacts by requiring use of directional drilling, maximized use of drill pad sites, and other evolving technologies, by limiting access to existing roads, and by requiring sequential reclamation of well pad sites, limited total simultaneous surface disturbance within geographic areas, and, where possible, implementation of federal units and use of a single operator in each federal unit.
Monitoring	Desired Conditions: Monitoring Elements • Water quality and quantity upstream and downstream of mines • Air quality in mine vicinity • Number of leases issued and retired. • Success of reclamation to native, natural condition • Number of miles and locations of oil, gas, and mining roads constructed and decommissioned. • Areas of Forest available and not available for mineral operations. Objectives **Mon. 1** Identification and measurement of all effects to water flow and quality are required downstream of the site. **Mon. 2** Before any exploration, leasing and development activities related to mineral extraction begins, all historic properties within the area of potential effects are identified in cooperation with all consulting parties. Where eligible sites are found, measures are developed and implemented to avoid any adverse effects of the undertaking, in cooperation with all consulting parties. **Mon. 3** Before any exploration, leasing and development activities related to mineral extraction can occur, all listed, candidate, and vulnerable plant and animal species are identified within the affected region. Where such species are found, measures to avoid any adverse effects to these species are developed and implemented. **Mon. 4** The efficacy of special stipulations relative to wildlife are assessed. Once 10,000 acres subject to special stipulations are developed, whether and how the special stipulations are adequately protecting the wildlife and habitat they are designed to protect is assessed within two years. If the assessment does not occur with in the two years, the agency will not allow development on additional areas subject to

[3] By eliminating the waste pit, closed loop systems lower construction, closure and waste management costs and reduce liability by eliminating the possibility of contamination from a leaking waste pit.

	special stipulations.
Suitable Uses	Mineral and energy leasing, and related mining and drilling operations are closed on the following Forest lands 1. designated wilderness 2. recommended wilderness 3. designated critical habitat (ESA) and other important wildlife habitat 4. roadless areas 5. areas with high concentrations of archeological sites 6. Reference areas, Research Natural Areas, and Special Interest Areas 7. eligible Wild and Scenic River corridors 8. areas where recreational, scenic, potential wilderness, or wildlife values outweigh oil, gas, or mineral values

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

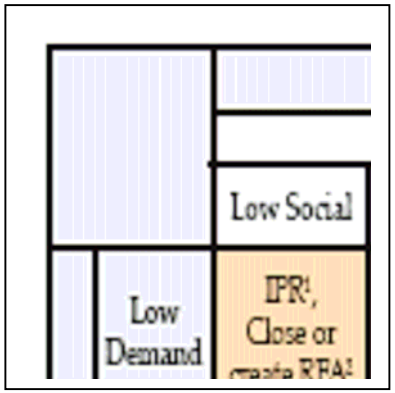
RESOURCE: Livestock Grazing	
Desired Condition	• Livestock grazing continues to be permitted as a commercial activity on some of the Forest and with practices that are monitored and demonstrated to not impair native productivity of the land and aquatic ecosystems. • Current livestock grazing areas have been recently analyzed for (1) capability for livestock grazing using criteria established by USFS Region IV, including slope limitations, current forage production, distance to water, and erodibility of soils; (2) current condition of native vegetation and wildlife; and (3) suitability by considering conflicts with other social or ecological values of the Forest. • Where livestock grazing is found to be leading to unsatisfactory ecological conditions, livestock grazing is changed, in order to restore such Forest values as native plant community structure and function, native wildlife habitat, stream or creek hydrological functioning, appropriate infiltration and water storage in soils, or soil stability. • Half of each year's forb and grass biomass production palatable to livestock in each vegetation type is retained by the plants at the end of grazing season for reproduction, watershed protection, and nutrient cycling. • Twenty-five percent of palatable forage is allocated for wildlife. No more than twenty-five percent is allocated to livestock. • Shrubs and saplings are reproducing and recruitment into multi-storied stands is ongoing. . • Stream banks retain overhangs and vegetation cover suitable to stream and soil type and remain 85% free of combined bank trampling and vehicle impacts. • Native grasses and forbs are increasing in cover and diversity.

Objectives (to move from existing to desired)	**Obj. 1**	The Forest collaborates with UDWR on an analysis of domestic and wild ungulate herbivory and riparian and wetlands impacts on the Forest. A protocol for coordinated actions by each agency, including the adjustment of hunt numbers and livestock grazing intensities, is developed to provide a rapid response to exceedance of forage utilization standards
	Obj. 2	Forest areas that are subject to potential livestock use, e.g., riparian areas, sensitive areas (e. g. , aspen stands, potentially suitable beaver or sage grouse habitat, tall forb meadows, sites invaded by invasive non-native species) are rated according to a formula for (1) ecological conflicts/compatibility with current livestock grazing, e. g. , vulnerable ecology (erosive soils, invasive species) or significant ecological values threatened or foregone by current livestock grazing (e. g. , hydrological restoration engineered by beaver, tall forb or sage grouse recovery; bighorn reintroduction; potential groundwater recharge, or aspen recovery); and (3) social conflicts/compatibility with current livestock grazing.
	Obj. 3	Allotments and pastures are prioritized for (1) open; (2) closed, or, (3) if permit is relinquished, extended rest or closed status (see Table 8) A formula is developed to estimate ecological or social conflict and demand, including insuring the establishment of one-half of all potential beaver riparian habitat outside allotments within ten years.

	<u>Explanation</u> IPR = If permit relinquished ERA = Extended Rest Allotment; is used no more than one year out of every four for livestock grazing "Close" means discontinue livestock grazing for the life of the plan. Would still allow administrative use All Allotments except "close" remain open. Any permittee whose allotment is being closed will be given a two-year notice of closure, unless waived by the permittee, except in the case of willful permit violations.

Table 8. Allotment Decision Matrix

(Adopted by Bureau of Land Management. 2004. Upper Deschutes Resource Management Plan, Preferred Alternative, Final EIS.
Prineville District, Deschutes Resource Area.



Explanation

IPR = If permit relinquished
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"Close" means discontinue livestock grazing for the life of the plan. Would still allow administrative use
All Allotments except "close" remain open. Any permittee whose allotment is being closed will be given a two-year notice of closure, unless waived by the permittee, except in the case of willful permit violations.

Obj. 4 When grazing permits are renewed, an EIS is prepared that bases grazing stocking levels, seasons of use and management practices on an ecologically-based range suitability and capacity analysis. Such an analysis includes the following steps:

Step 1: Determine which lands are capable for livestock grazing.
Step 2: For those lands capable for grazing, determine which are suitable for livestock grazing. (see Suitable Uses, below)
Step 3: Where practicable, allotment boundaries are redrawn to exclude those lands which are both unsuitable and incapable. Those lands occurring outside an allotment are designated as not available for livestock grazing.
Step 4: Stocking levels for livestock are calculated.

1. Determine the current forage production (lb/acre) of exotic and native desirable and intermediate species [revision of Thompson 2003 to note native and exotic species (O'Brien and Barton-Russell 2006)] for those lands in an allotment that are both capable and suitable for

livestock grazing. Use Table 8 to determine the percent of forage that can be allocated for livestock grazing in each pasture. Grazing systems will incorporate sufficient rest to restore vigor and increase cover of native species

Table 9. Grass/Forb Forage Available for Livestock Grazing on Suitable Lands

Condition of forage and timing of grazing	**Precipitation needed for growth is average or above average.**	**Drought (75% below normal precipitation) by Standard Precipitation Index**
Forage production of species is good or excellent	25% (Galt et al 2000)	15%
Grazing outside growing season; forage production is fair or poor	15% exotic species	none
Grazing during growing season before seeds mature; forage production of species is fair or poor	None (such lands should not be grazed during growing season)	none

Calculate the number of AUMs of livestock grazing that can be allocated for an allotment for normal precipitation and drought years by multiplying the allotment's current desirable and intermediate forage production on suitable lands by the relevant percent taken from Table 8. The grazing permit should define permitted use by livestock as the amount of grazing resulting from this calculation for average precipitation years and drought periods. Production for above normal years is not counted in order to provide for restoration.

Obj. 5 For each allotment, to assist monitoring efforts, the following are identified on a map:

	1. Goshawk home range, goshawk post-fledging areas, and goshawk nesting areas. These areas include 30 acres for nesting areas, 400 acres of post-fledging areas, and the 5,400 acres home range (Reynolds et al 1992). This information will be used in managing grazing utilization for those areas 2. fences and other livestock developments 3. exclosures 4. trend monitoring locations 5. the allotment's appropriate ecological reference areas **Obj. 6** Allotment management plans and term grazing permits are completed in a public NEPA process **Obj. 7** Term Grazing Permits and Annual Operating Instructions for livestock grazing for an allotment include the following thresholds. Livestock grazing in a pasture shall end for the season when conditions reach any one of the following thresholds: 1. <u>Streambank trampling</u> (Bengeyfield 1998) combined with motorized road or route crossings disturbs 15% or more of the stream bank. Streambank trampling includes compaction, pugging, shearing, flattening of banks (including loss of undercut banks), tension cracking, slumping, banks with less than 70% vegetation cover, and eroding banks. 2. <u>Riparian vegetation utilization</u> (graminoids in riparian area above greenline) is more than 25% 3. <u>Greenline utilization</u> exceeds a 6 inch stubble height. 4. <u>Browse on riparian shrubs</u> (willows, dogwoods, currant, aspen, alder and <u>desirable upland shrubs and trees</u> (e. g. , bitterbrush, mountain mahogany) exceeds 30% of current years' leader growth (compared to reference area growth). 5. Upland utilization levels exceed those tabulated in Table 8. 6. Utilization of forage in goshawk nesting, post -fledging area (PFA) or home range exceeds 20%. 7. Grass is less than 18 cm in height within potential sage grouse nesting and brood-rearing habitat, during nesting and brooding-rearing seasons (Connelly et al 2000) 8. Livestock grazing utilization significantly impairs the habitat capability and suitability needed for listed or candidate species, or declining species of concern or interest. 9. All range projects such as fences and water developments have not been maintained prior to livestock turnout. 10. Salt or supplements are placed closer than ¼ mile to any water source **Obj. 8** Burned sites should be rested from grazing until vegetation has attained suitable conditions. **Obj. 9** Sufficient fine fuels should remain within ponderosa pine and pinyon-juniper stands throughout the year to support low intensity, low severity ground fires.

Guidelines (sideboards for future activities)	**Gdlne. 1** A permittee may bring livestock onto a pasture only when all water development structures are in proper functioning condition. **Gdlne. 2** Livestock leave a pasture after any of the pasture standards in Livestock Objective 7 have been exceeded **Gdlne. 3** Livestock can visit a suitable-use tall forb community once a year **Gdlne. 4** Any permittee whose allotment is being closed on a more than temporary basis due to ecological or social conflicts, should be given a two-year notice of closure, except in the case of willful permit violations. **Gdlne. 5** Seeding of non-native forage species should not occur.
Monitoring	Desired Conditions: Monitoring elements: Monitoring elements • Bank trampling • Native forage retention and utilization • Exotic forage retention and utilization • Shrub and sapling recruitment and reproduction • Bare soil • Invasive and exotic species • Fence maintenance • Number of actual livestock versus permitted livestock • Miles of riparian area suitable for beaver and free of livestock grazing • Current condition of native wildlife and vegetation • Trends and condition of species of interest as habitat indicators Objectives **Mon. 1** Data is collected at five year intervals (i.e. , one-fifth of allotments annually) on permanent, representative trend transects to determine allotment trend of: 1. Upland and riparian plant communities based on the proportion of native and exotic plant species present as compared to the appropriate reference area and including but not limited to measures of ground cover, canopy cover and production of vegetation species, bare ground, rock (>3/4”), crust, and litter. 2. Riparian area condition of streams, seeps, springs, and wetlands through Level II Riparian Inventories or equivalent wetlands inventories. 3. Soil bulk density Evaluation of trend in native species condition (excellent, good, fair, poor); trend in exotic species and ground cover (upward, static good or excellent condition, static fair or poor condition, or downward) will be made following each measurement period and livestock grazing management

	will be adjusted to accelerate restoration of riparian or upland areas in fair or poor condition or downward direction, including longterm rest if needed to initiate recovery (Clary and Webster 1989). A serious conflict exists if trends are not upward for lands in poor or fair condition, native grasses or forbs have downward trends, or trends are downward in lands that have been in good or excellent condition based on multiple years' comparison of data **Mon. 2** All allotments and pastures are visually assessed for utilization of grasses and forbs during the grazing season to promote timely movement of livestock. One fifth of all allotments and pastures are quantitatively monitored at the end of each grazing season in all major vegetation types to determine 1. Adherence to allotment's utilization, upland and riparian criteria 2. Presence of exotic or invasive plant species considered most threatening to the District 3. Condition of habitat of relevant federally listed or candidate species or vulnerable native species 4. Livestock impacts to identified archaeological sites 5. Trends of native cover versus exotic cover **Mon. 3** Vegetation on burned sites is monitored until forage has attained suitable use status.
Suitable Uses	• In order to ensure the viability of other, multiple uses and values, some areas of the Forest are not grazed by livestock, e. g. , one-half of suitable beaver habitat, erodible slopes, some aspen communities, reference areas, Research Natural Areas, some Special Interest Areas, and remaining native vegetation strongholds. • Within ten years, half of all potentially suitable beaver riparian habitat remains suitable for livestock allotments if the riparian area otherwise meets suitability requirements. • The following areas are suitable for livestock grazing: 1. Uplands, beyond (150 foot buffer on each side of a water body, seep, spring, or water course) 2. Native grass and forb biomass is on an upward trend. 3. Habitat for listed, candidate or vulnerable native species (e. g; species of concern, species of interest, or other native species whose populations are likely declining on the Forest) that is meeting the reproductive, structural and functional needs of that species (e. g. , by using habitat integrity tables] 4. Areas outside administrative sites, developed recreation sites, livestock exclosures, research natural areas, some special interest areas and reference areas. 5. Watersheds that are not municipal water supplies. 6. Meadows at 85% of bulk density of that soil type's potential for infiltration. (Washington Office Forest

	Service Handbook 2509. 18) 7. Cultural sites that would not be adversely impacted by livestock grazing. 8. Proportion of understory aspen to total stems has increased 20% or more over five years without treatment and/or proportion of aspen sapling growth above seven feet is 20% or more five years after fire or other disturbance 9. Potential nesting and brood-rearing habitat for sage grouse if residual grass height is 18 cm (6 inches during nesting and brood-raring season. 10. Where livestock grazing does not significantly impair other multiple uses.

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Lands and Special Uses	
Desired Condition	• Land ownership is consolidated to provide the most efficient management of National Forest System lands. • Communication sites are designated. • The Forest boundary is clearly locatable and identifiable. • The opportunity to divert or develop water sources is dependent on maintaining or restoring water-dependent ecosystems and minimizing the effects to other resources. • New construction of irrigation facilities are located outside of National Forest System lands when possible. • Summer home tracts are authorized at existing levels. No new tracts are authorized.

	• Isolated cabin permits are not renewed. Cabins are removed from National Forest System lands and reclaimed to approximate surrounding conditions once the permit expires. • No new cabins are permitted. • Proactive coordination with local governments and organizations ensures reasonable access to private lands which provides for public safety and is designed to reverse degradation to natural resources and minimize impacts to National Forest System lands. • Use of existing utility transmission corridors is emphasized over new utility corridors. • New utility corridors are designated only as necessary and designed to minimize impacts to visual integrity and the environment. • Outfitter and guide permits are issued or altered to reasonably serve public desires, as compatible with protection of native ecosystems and native species or restoration of degraded native ecosystems or impacted native species
Objectives **(to move from existing to desired)**	<u>Lands</u> **Obj. 1** Consolidate the Dixie/Fishlake National Forest land base. **Obj. 2** Complete a Forest Land Adjustment Plan to identify priorities for land acquisition or exchange. Priorities shall include: 1. Habitats for species of concerns. 2. Rare or biologically rich or important ecosystems such as old growth, rare and relict communities, riparian areas, linkages, etc. 3. Lands that would: a. Reduce ownership fragmentation within fire management units and/or maximum management areas, b. Reduce development induced fire suppression, and c. Improve the Forest Service's ability to manage wildland fire for resource benefits. d. Increase connectivity between, or consolidation of ownership within, like ecosystems. 4. Lands that would otherwise consolidated ownerships within 6th order watersheds. 5. Lands that, if developed, would require significant new construction of roads or other means of access and infrastructure across Forest land. **Obj. 3** The Forest Land Adjustment Plan is implemented in all actions altering land ownership. <u>Special Uses</u> **Obj. 1** Special uses are authorized only when they cannot be accommodated on private land. **Obj. 2** Upon termination of special use, areas are restored to a specified condition. When administering existing Special Use Authorizations, the habitat of all federally listed, candidate, and vulnerable species habitat is avoided or used to the least degree possible. **Obj. 3** Information and education (e.g., workshops, annual meetings) is provided to special use permit holders on ways to avoid and minimize effects of their activities on habitat of all federally listed, candidate, and vulnerable species.

	Obj.4 Signing, barriers, or other suitable measures is used to protect key vulnerable species and their occupied habitats within the permit areas.
Guidelines (sideboards for future activities)	**Gdlne. 1** Actions implementing the Forest Land Adjustment Plan should avoid: 1. Relinquishing ownership of species of concern habitat, rare or biologically rich or important ecosystems such as old growth, rare and relict communities, riparian areas, linkages, etc. without a corresponding acquisition doubling the Forest's ownership of relinquished habitats or biological values. 2. Increasing ownership fragmentation within fire management units or maximum management areas 3. Contributing to the increase of Wildland Urban Interface on the Forest in fire prone areas. 4. Impeding or degrading the Forest's ability to manage wildland fire for resource benefits. 5. Exchangeing lands in situations that would result in more construction of roads and other infrastructure on the Forest than would foregoing that exchange.
Monitoring	Desired Conditions: Monitoring elements • Natural resource impacts of special use permits and easements. Objectives **Mon. 1** The number of permits managed to standard including number of permits with resource conflicts resolved vs. unresolved is reported annually. **Mon. 2** A survey of whether suitable areas are being used efficiently (minimizing acres encumbered), are in harmony with other uses and resources, and are environmentally sustainable is prepared every five years for multi-year special use permits.
Suitable Uses	

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Scenic Quality	
Desired Condition	• The scenic environment within the Forest is diverse with most landscapes displaying little or no evidence of management activities, while some landscapes have visible evidence of uses and management activities. • Scenic quality and native landscape character are maintained and/or enhanced. • Forest visitors are concerned about the quality of their environment and the aesthetic values of landscapes, particularly natural, scenery and spiritual values.
Objectives (to move from existing to desired)	**Obj. 1** Forest landscapes are rated, prioritized, and zoned to guide future management activities and meet objectives for the Forest's scenic resources. **Obj. 2** The Forest's aesthetic, recreational, and open space values are conserved, especially those of high-valued

	landscapes that serve as scenic backdrops to local communities and those with increasingly rare values such as open space and solitude **Obj. 3** Area objectives link regional trail and open-space networks with natural appearing landscapes.
Guidelines (sideboards for future activities)	**Gdlne.** 1 Activities that prevent accomplishment of scenic integrity objectives should be restricted or prohibited.
Monitoring	**Mon. 1** The magnitude and duration of changes in conditions including scenic integrity and landscape character are reported every five years. **Mon. 2** The percentages of each integrity level being met within each viewshed is reported every five years.
Suitable Uses	

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Transportation: General (including Roads, Routes, and Trails)

Desired Condition	• Travel management planning creates a travel and recreation system that provides appropriate access to public lands and contributes as needed to the regional transportation system while also ensuring that native biodiversity, native wildlife habitat condition, a diverse range of recreational opportunities, and overall natural landscape condition and function are maintained or improved. A comprehensive and responsible travel management plan considers a full range of cumulative factors at the local and landscape scale. • The system of roads, routes, designated undeveloped camping sites, and (non-motorized) trails is safe, and environmentally sound; considerate of compatible public preferences; and efficient and affordable to manage. • The transportation system provides public access for recreation, special uses and fire protection activities and supports Desired Conditions. • The transportation system is well maintained. • Unnecessary and resource-damaging roads, routes, camping sites, and trails are actively removed and restored, and the surrounding landscape is restored passively, or if necessary, with active intervention. Dead-end motorized routes, which invite unauthorized route creations, are eliminated. • Motorized travel occurs only on system roads and routes and at designated campsites. Off-road vehicle routes provide a range of recreation opportunities and experiences for ORV enthusiasts through an integrated system of routes and maintenance level 3 roads. • Only those roads and routes are designated that the Forest has the personnel and resources to monitor, maintain, and enforce use restrictions.

	• Native wildlife species and other natural and cultural resources are protected by a scientifically-informed travel plan. • Motorized travel occurs only on system roads and routes and at designated campsites
Objectives (to move from existing to desired)	**Obj. 1** Forest Travel Maps indicating the following are widely available: 1. access locations and requirements (e. g. , spark arrestors, silencers, registration stickers) for vehicles that are not street legal 2. routes and roads that are legally open for off-road vehicle use 3. allowable motorized and non-motorized uses, including seasons of allowable use 4. sensitive resources and ecological constraints 5. road/route mileage and density 6. road/route condition. **Obj. 2** All unlicensed motor vehicles on the Dixie/Fishlake National Forest display registration numbers legible from 150 feet. **Obj. 3** Threshold fire hazard levels among cheatgrass and other flammable grasses are established for restricting recreational motorized vehicles to passenger vehicle roads
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements: Roads • Natural resource or native species habitat damage by road • Natural resource or native habitat restoration by road • Number and nature of partnership and stewardship activities related to road impacts. • Adherence to road closures, whether seasonal or year-round. • Miles of classified road • Miles of classified road open for public use • Miles of classified roads decommissioned • Miles of new road construction • Miles of classified road reconstructed or relocated • Miles of classified road maintained • Miles of road removed from unclassified status (decommissioned or classified) • Adequacy of enforcement of road use restrictions.
Suitable Uses	• Motorized travel/recreation only on roads and routes that are designated open on the Forest Travel Map following route-specific NEPA analysis and signed as open, specifying allowable use. • Cross country travel by tracked vehicles only on designated over-snow routes and only when there is sufficient

	packed snowpack, provided such use meets all resource protection and user conflict related objectives for those areas. • Wheeled vehicles are not suitable for over-snow travel • Motorized use is not suitable in areas where irresponsible behavior or willful disobedience is not being successfully curtailed by the Forest or users.

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Transportation: Transportation System Maintenance	
Desired Condition	• The system of roads, routes, designated undeveloped camping sites, and trails is safe, and environmentally sound; responsive to public preferences; and efficient and affordable to manage. The system is well maintained. • Unnecessary roads, routes, camping sites, and trails are actively removed and restored, and the surrounding landscape is restored passively, or if necessary, with active intervention. • Dead-end motorized routes, which invite unauthorized route creations, are eliminated. • An environmentally sustainable, integrated system of backcountry, urban and rural nonmotorized trails is maintained.
Objectives (to move from existing to desired)	**Obj. 1** There is no net gain of total classified road and motorized route mileage during the life of the plan. **Obj. 2** Vulnerable species, riparian areas, and watersheds are protected through appropriate use requirements: • designated undeveloped camping sites, nonmotorized and motorized, at least 200 feet from the nearest water source; • campfire restrictions in keeping with vegetative community and fire management Desired Conditions; • year-round or seasonal closures in areas of vulnerable species, seasonal needs, and habitat; • seasonal closure of roads/routes without hardened surfaces that are subject to damage and erosion during wet periods such as spring and early fall rain/snow conditions. **Obj. 3** unnecessary or ecologically destructive roads/routes are prioritized for closure in order to reduce road/route densities and increase core areas to provide greater wildlife security and provide for habitat needs of vulnerable species. **Obj. 4** Not including currently developed campgrounds and picnic areas, road/route density for each District does not exceed 1 mile per square mile. In no sixth field watershed does road and motorized trail density exceed 1. 3 miles per square mile. There is no more than 2. 5 miles per square mile in any given square mile on the Forest. **Obj. 5** In critical habitat areas road/route mileage is reduced so that core habitat areas are more than 0. 25 miles from a

	road or route. **Obj. 6** In known habitat for road-sensitive species, road and route use and proximity to core habitat are evaluated and reduction of use or road/route closure considered. **Obj. 7** Satellite camping sites are revegetated and natural barriers installed where camping impacts are spreading. **Obj. 8** A reasonable number of undeveloped camping sites are permitted based on roads and route designation and density criteria.
Guidelines (sideboards for future activities)	**Gdlne. 1** Developed facilities should not remain open if there are considerable adverse effects on soil, plants, wildlife, habitat, or cultural/historic resources. **Gdlne. 2** Where loss or hindered recovery of vulnerable species is not successfully mitigated within three years, motorized travel on roads or routes should not continue until successful mitigation has been achieved. **Gdlne. 3** In areas where illegal off-road vehicle activity is not successfully stopped within three years, motorized travel should not be permitted on roads/routes. **Gdlne. 5** Ten percent of unnecessary draw bottom roads and routes should be decommissioned each year.
Monitoring	Desired Conditions: Monitoring elements 1. Condition of environmentally compatible roads, routes, and trails
Suitable Uses	1. Only Non-motorized vehicles are suitable on trails (i.e., non-motorized tracks). 2. ATVs are not suitable on single-track motorized routes, 3. All vehicles larger than 50" tread width are not suitable on ATV routes. 4. Roads/routes that climb directly up or unnecessarily traverse erodable hillsides are not suitable

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Recreation: General	
Desired Condition	• The Forest provides open space, solitude, and a wide variety of recreation opportunities compatible with the Forest's unique natural heritage. • Maintaining and expanding these opportunities depend on the protection and restoration of the rustic character and wildlands atmosphere that define the Forest. • Recreation participation, activities and services contribute to visitors' physical and mental well-being and relationship with the Forest. • A commitment to certainty of protection for natural resources allows for timely and appropriate responses to unforeseen environmental impacts or misuse, as well as recreational equipment developments and trends not now anticipated. • Recreation is managed in a holistic manner using least-impact principles, in order to protect natural, cultural and historical

	heritage, and to minimize conflicts. • Dispersed campsites are reduced. • High use areas are managed within ecological capacities in order to maintain the quality of experiences and natural ecology. • Conflicts between recreationists, with private lands and homeowners adjacent to National Forest land, and with natural resources are addressed and resolved in a timely manner. Resolutions are consistent with area objectives and management direction. • Opportunities for physically challenged recreationists are maintained or expanded at developed facilities and through the management of dispersed activities. • Visitor information is provided at Forest offices, local visitor centers, and/or information kiosks. • Information centers are signed and easily located. Interpretive displays, exhibits, and programs provide learning opportunities that enhance Forest visitors' appreciation of the unique natural heritage of the Forest. • Interpretive and educational efforts increase visitor awareness of the environmental effects of recreation use, and result in reduced degradation to natural resources. • Both non-motorized and motorized routes are signed providing visitors with the ability to locate popular destinations and facilitate movement through the Forest. • Collaboration between the Forest Service and Forest users results in recreational experiences that protect natural resources while meeting user desires compatible with the Forests' natural resources. • Local communities, partners, and volunteers work collaboratively and benefit from their roles in planning and enhancing native ecosystems, native species' habitat, and recreational opportunities.
Objectives (to move from existing to desired)	**Obj. 1** All forms of recreational use are placed under effective management to protect native biodiversity, cultural resources, and ecosystem functions. **Obj. 2** Recreational use impact thresholds are identified on an ecological basis in areas where recreational activities have the potential to conflict with reproduction, nesting, or rearing of plant or wildlife threatened, endangered, candidate species or vulnerable native species. **Obj. 3** Overuse and overcrowding are eliminated in sensitive habitats by one or more of the following: • closing areas where, or when, biological resources are at risk • monitoring and enforcing permanent or seasonal closures • directing users towards more resilient areas • educating users on the incompatibility of certain recreational activities with sustainable natural conditions • use permitting. **Obj. 4** Information is sufficiently available to enable visitors to select settings to match the experiences they

	desire and know what to expect before they arrive. **Obj. 5** Conflicts between off-road vehicle users, other recreationists, commercial recreation activities, or private landowners, and related resource issues are resolved in a manner consistent with the off-road vehicle Executive Orders (11644 an 11989), publicly and in a timely manner.
Guidelines (sideboards for future activities)	**Gdlne. 1** Where use or impact thresholds are exceeded on a repeated or chronic basis by a particular recreational activity, that activity should not be continued without management that eliminates the probability of further threshold exceedances. **Gdlne. 2** Recreation activities should not be continued in areas where efforts to protect vulnerable species/habitat or ecosystem conditions are not effective.
	Desired Conditions: Monitoring elements: • Protection and mitigation of damage to natural resources. • Additions, removals, and alterations of recreational developments. • National and Forest Visitor Use Monitoring results
Suitable Uses	

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Recreation: Non-Motorized Recreation	
Desired Condition	• The DIXIE/FISHLAKE NF manages areas of the Forest to provide for non-motorized recreation. These areas include a wide spectrum of recreational opportunities ranging from primitive settings where there are opportunities for solitude, risk, and challenge, to more developed areas where there are opportunities for social interaction, comfort, and less risk • Non-motorized recreation areas are managed to facilitate additional natural values such as development of habitat corridors, watershed restoration, and development of native biological strongholds • Non-motorized recreation areas are managed as large remote areas where vital natural disturbance regimes are mostly unimpeded, and the average visitor would be unaware of human-made intrusions or alterations. • The DIXIE/FISHLAKE NF manages non-motorized recreation areas to prevent the development of user created motorized vehicle routes and actively pursues decommissioning of user created vehicle routes already existing in these areas. • The Forest clearly delineates the boundaries of non-motorized recreation areas and educates all users about these boundaries.

	• Human impacts from roads and motorized access/recreation are minimal or non-existent within the V • Non-motorized recreation areas are connected to other roadless, wilderness, or primitive/semi-primitive recreation areas through connectivity corridors thereby providing extended opportunities for primitive and semi primitive recreation, larger habitat areas, greater opportunity for formation of biological strongholds, watershed restoration, and reintroduction of natural disturbance regimes.
Objectives (to move from existing to desired)	**Obj. 1** Ample hiking, equestrian, backcountry skiing, mountain biking as well as wildlife and landscape viewing opportunities are available throughout the Forest, in areas free from the audio and visual impacts of motorized recreation. **Obj. 2** Cross country foot travel is limited where and when human impact may significantly alter natural patterns. of wildlife movement, feeding or breeding. **Obj. 3** Primitive backcountry equestrian, hiking, and skiing opportunities are not compromised by visual or sound intrusions from motorized recreation. Prohibit all winter use in areas where human activity significantly disturbs species T, E, Candidate species and species of concern or interest whose populations have declined on the Forest. **Obj. 4** Conflicts between target shooting and sensitive resources are reduced by the Forest cooperating with community partnerships to establish shooting ranges in areas away from sensitive resources. **Obj. 5** Conflicts between hunters and other users are reduced, in cooperation with UDWR to establish a non-hunting zone in each Geographic Area, with desirable non-motorized recreation opportunities at a range of elevations, whose location varies from year to year, to provide non-hunters with a safe area to visit during hunting season. **Obj. 6** Use of motorized drills by climbers is restricted during sensitive times for wildlife (e. g. , breeding, nesting) and in areas where other visitors may be disturbed. **Obj. 7** Climbing is seasonally restricted to protect nesting raptors during critical phases of the courtship, nesting, and fledging periods. Temporary closures may be established for other wildlife protection as necessary. Climbing is restricted with respect for the traditional uses of sacred sites. **Obj. 8** A permit or approval system for fixed anchors may be developed and implemented if the Forest determines it is necessary, through research and monitoring, to protect natural and cultural resources. **Obj. 9** Development of sport climbing areas is allowed, provided that the base of climbs and staging areas do not obstruct designated FS trails, fixed anchors on climbs less than 100 feet from designated trails have a matte finish, and lowering anchors do not utilize webbing or cordage.
Guidelines (sideboards for future activities)	**Gdlne. 1** Motorized recreation development should not intrude audio and visual impacts on non-motorized areas. **Gdlne. 2** Recreation activities should be restricted where conflicts among users cannot be resolved in a timely manner.
Monitoring	

Suitable Uses	

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Recreation: Routes (motorized) and Trails (non-motorized)

Desired Condition	• Off-road vehicle routes provide a range of recreation opportunities and experiences for ORV enthusiasts through an integrated system of routes and maintenance level 3 roads. • Only those routes are designated that the Forest has the personnel and resources to monitor, maintain, and enforce use restrictions. • An environmentally sustainable, integrated system of backcountry, urban and rural trails is maintained. • The routes and trails system accommodates a range of experience in high-quality settings, and is managed to minimize conflicts while providing opportunities for partnerships, learning, stewardship and mental and physical renewal for a diverse visitor population. • Day use "loop" trail (i. e. , non-motorized) opportunities are increased.
Objectives (to move from existing to desired)	<u>Trails (non-motorized)</u> **Obj. 1** Undertake a landscape-scale non-motorized trail system analysis is with government entities, tribal governments, and the public, including the following steps: 1. Categorize existing trails according to foot, horse, mountain bike. 2. Assess present and predicted future fiscal and personnel resources available for trail maintenance and use management. 3. Summarize public recreation desires and current recreational opportunities. 4. Assess trail density and distribution in comparison to habitats and natural resources. 5. Assess and designate trails at the site-specific level, considering each trail's category, Forest Service management capability, and impacts to natural resources. 6. Assess trail availability at the landscape level, considering Desired Conditions, Forest management capacity, and protection of native biological, physical and cultural resources. 7. Develop and implement a monitoring plan, including triggers for changes to management to implement further protections where Desired Conditions are not being met. **Obj. 2** Maintain and/or develop access points and connecting trails linked to surrounding communities and create opportunities for trails of varying durations. **Obj. 3** Identify, delineate, and/or harden access trails to well-known and heavily used viewpoints and climbing routes in

	order to mitigate and prevent erosion, loss of vegetation, and to establish a pattern of use. **Obj. 4** Regularly review trails on which bicycles are allowed to assess conflicts and safety issues with other users to determine need for safety standards, mitigation and closures. <u>Routes (motorized)</u> **Obj. 1** Implement landscape-scale transportation system analysis and motorized route designation coordinating with government entities, tribal governments, and the public, using the following steps: • .Identify the presence and assess the condition of on-the-ground resources consistent with the requirements/specifications in Executive Orders 11644 and 11989, for example native wildlife, soil types, slope, geologic features, roadless areas, and archeological or historic sites. • Identify the baseline travel system of previously designated roads, motorized routes, and trails. Categorize baseline roads and routes according to use requirement, route conditions, and maintenance needs. • Overlay the baseline system on assessed elements and resources. • Assess present and predicted future fiscal and personnel resources. • Involve the public in creating a range of alternatives • Assess alternatives and propose route designations at the site-level, considering each route's category, reasonable access to valid and existing rights, goals and objectives, Forest Service management capability, and impacts to native species, habitats, and ecosystems. • Develop and implement a monitoring plan, including hiring sufficient enforcement personnel and triggers for changes to management to implement further protections where conditions are not moving toward Desired Conditions **Obj. 2** Add unclassified routes to the Forest Road System only when site-specific analysis determines so doing will not cause ecological harm, such a route is needed in the transportation system, and/or such a route is suitable to replace a classified road/route found to be harming resource sustainability. **Obj. 3** Decommission roads and routes that have been determined to cause significant ecological impacts to aquatic or terrestrial resources (including wildlife habitat), or that are determined to be unnecessary or redundant **Obj. 4** Close undesignated motorized camping sites and access routes. **Obj. 5** Reduce road maintenance backlog to provide safe, efficient routes, and to safely accommodate fire protection equipment. **Obj. 6** Designate off-road vehicle routes based on specific criteria in accordance with Executive Orders 11644 and 11989, including, but not limited to: 1. avoidance of threatened, endangered, and sensitive plant and wildlife species habitat; 2. minimization of soil erosion and water quality degradation; 3. maintenance and protection of wildlife movement corridors; 4. protection of wildlife migration routes, denning, calving and fawning grounds; 5. avoidance of wildlife harassment or significant disruption of wildlife habitat; 6. prevention of invasive species introduction, establishment, and spread;

	7. minimization of fragmentation of ecosystems; 8. protection of meadows, wetlands, riparian areas, and streams; 9. avoidance of cultural and historic resources; 10. minimization of conflicts (including noise and pollution) between off-road vehicle use and other existing or 11. proposed uses on the Forest or neighboring public lands; and 12. protection of roadless and wilderness areas. **Obj. 7** Administrative roads and routes and rights of way for lessees and private inholdings are: 1. accessed by motor vehicle only for the stated administrative or right of way purpose; 2. physically closed to public motorized use, e. g. , by a locked gate. **Obj. 8** Allow no more than 15 percent total bare ground (i. e , from all vehicle, recreation, and livestock use) per 200 feet of stream bed. Coordinate with livestock management a progressive removal system to decommission roads and routes that exceed this limit. **Obj. 9** Harden stream crossings with gravel or cobble material to reduce sedimentation. **Obj. 10** Close unclassified roads and routes, and block or obliterate where resource values cannot otherwise be protected. **Obj. 11** Successfully block or obliterate unsuccessfully closed roads/routes **Obj. 12** Establish sound level (decibel) criteria to limit noise from ORVs.
Guidelines (sideboards for future activities)	**Gdlne. 1** When new forms of motorized recreation arise, they should be allowed only if they can be effectively managed to prevent damage to natural resources.
Monitoring	Desired Conditions: Monitoring elements • Miles of user-created routes created, altered, or eliminated • Success of route decommissioning. • Miles of trails created, altered, or eliminated. • Natural resource damage by route and trail • Natural resource restoration by route and trail • Adherence to route restrictions • Number and nature of partnership and stewardship activities. Objectives **Mon. 1** Impacts on vulnerable native species/habitat, and watersheds are monitored. **Mon. 2** A current database is maintained for: • User conflict reports to Forest and local authorities; • Presence and condition of road and route signs.
Suitable Uses	

Social and Economic Components for the

Dixie/Fishlake National Forest Plan Revision
FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Heritage Resources

Desired Condition	• Heritage (including indigenous and pioneer) resources remain intact and offer scientific, recreational, as well as spiritual opportunities to the public. • The condition of and damage to heritage sites are known. • Illegal disturbances of heritage sites are rare. • The opportunity exists for a sense of discovery as one visits remote cultural resource sites on the forest and finds neither evidence of recent looting or vandalism, nor evidence of illegal motor vehicle trespass. • Alterations of surrounding environment or setting caused by livestock grazing and vegetation manipulation are minimized or absent. • Scientific studies of heritage sites are benign and do not alter a site significantly. • Protection of heritage sites takes precedence over resource-consumptive activities, and includes a volunteer monitoring program. • The opportunity exists for solitude, quiet and a sense of discovery. Some sites are readily accessible by road, while many sites are more remote and require more effort to visit. • Soils and native vegetation surrounding sites remain intact and not compacted. • Traditional uses within the Forest important to American Indians, Anglo American, Hispanic and other ethnic groups' life ways, cultural integrity, social cohesion, and economic well-being are provided as compatible with protection of the unique natural heritage of the Forest. • American Indians are able to access those sites of a sacred nature to their communities and people. • Significant sites are protected and maintained in their historic settings for public education about pioneer presence and impacts to the extent that education is consistent with protection. • Recreational visitation occurs where heritage resources are maintained or stabilized sufficiently to preclude further damage. • Unstable sites are not publicized and rarely found by visitors. • Ethical site stewardship awareness is widespread among visitors, and visitors take responsibility for the preservation of cultural and historical resources on public lands. • Anglo-American, Hispanic and other ethnic groups will continue to benefit from the unique natural resources and cultural heritage of National Forest System lands.
Objectives (to move from existing to desired)	**Obj. 1** Cultural, historic, and spiritual values are respected and integrated into decisions and actions, and are sustained for future generations' enjoyment and education. **Obj. 2** Protection of cultural sites takes precedence over resource-consumptive activities that could damage the sites.

	Obj. 3 Cultural sites are maintained at the current level of preservation, or in some rare cases, stabilize them in order to prevent further erosion and/ or collapse. **Obj. 4** Native American sites that are easily accessible by road or motorized recreation routes are stabilized or closed to visitors. **Obj. 5** User- made off-road vehicle routes within the region of sites are closed, and those within 150 feet of sites are obliterated. . **Obj. 6** Permits for group activities at cultural sites: 1. set a maximum number of people per group 2. determine which cultural sites are open to organized and/or commercial groups 3. exclude sites and areas unable to withstand the dramatic and damaging effects of large groups. **Obj. 7** Violators of the various cultural and historic resource protection laws are actively pursued. As necessary, physical presence is provided to deter looting and vandalism.
Guidelines (sideboards for future activities)	**Gdlne. 1** Remote, backcountry sites should not be chosen for interpretive programs/activities. **Gdlne. 2** Citations should be issued in response to verifiable partnership and citizen monitoring reports and other evidence of resource damage.
Monitoring	Desired Conditions: Monitoring elements • Condition of sites • Uses associated with damage to sites • Effectiveness of enforcement • Mitigation needed • Mitigation accomplished • Number and outcomes of projects associated with protection or restoration of sites. • Number and outcomes of stewardship agreements with the State • Number and outcomes of agreements with State and educational institutions Objectives **Mon. 1** Annual reports include: 1. Number of off-road vehicles detected in cultural and historical areas where they are prohibited 2. Incidents of site vandalism are reported annually 3. Staff enforcement and mitigation of impacts
Suitable Uses	• Remote sites remain accessible only by foot or horseback • Areas with high concentrations of cultural resources, and other areas with one or more National Register-eligible sites are protected from livestock grazing.

Social and Economic Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Facilities	
Desired Condition	• Facilities and infrastructure are of appropriate quality, well maintained, safe, accessible, and consistent with both visitor interests and ecological needs. • Facility maintenance meets established national standards. • Structures are well integrated into the landscape and advance environmentally sensitive technologies. • Facilities are centrally located or concentrated on existing sites or designated corridors, minimizing the number of acres encumbered by development. • Duplication of off-Forest, private facilities is avoided where feasible. • To the extent feasible, there is a balance between creation and retirement of facilities
Objectives **(to move from existing to desired)**	**Obj. 1** aging developed recreation infrastructure is improved, removed, or replaced, with compensation for opportunities lost due to closures a priority. . **Obj. 2** Facilities in concentrated use areas are limited to portable toilets, minimal parking, trash cans, signs and kiosks. **Obj. 3** Partnerships are developed for reduction of facility maintenance backlog. **Obj. 4** Emphasize is on maintaining and improving existing administrative buildings and grounds. **Obj. 5** Facilities for water extraction or diversion are located as close to the boundary of the forest as possible in order to minimize long-term adverse impacts to forest water and riparian functioning. **Obj. 6** Water conservation is promoted at all Forest administrative and authorized facilities. **Obj. 7** The backlog of facilities that do not meet the desired condition or complement the landscape setting is reduced by replacing outdated, substandard facilities with safe, efficient, durable, environmentally sensitive infrastructure. • Identify and evaluate applicable property or buildings of potential historic value. • Remove facilities no longer needed or abandoned, and restore sites to natural conditions. • Reduce the backlog with priority for watershed protection, health and safety, and accessibility compliance. • Increase the operating efficiency of existing buildings. • Upgrade site utilities for efficient operation. Remodel or construct new buildings to conform to approved facilities master plans.

Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Condition of environmentally compatible facilities Objectives **Mon. 1** Trends in the facility condition index and maintenance back log are evaluated every five years to determine if the Forest is moving toward or away from Desired Conditions for natural resources.
Suitable Uses	**Gdlne. 1** Facilities should not remain open if there are considerable adverse effects on soil, plants, wildlife, habitat, **Gdlne. 2** New facilities should be prohibited where they have the potential to affect the eligibility or potential classification of an area for Wilderness or Wild and Scenic River designation

Special Designated Areas for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option
RESOURCE: Reference Areas
Reference areas are areas of natural integrity[4] and sufficient size to serve as essential benchmarks to help clarify • "which management activities work in the direction of improving ecosystem sustainability and which ones might further exacerbate ecosystem unsustainability." (USFS 2000a)

[4] Natural Integrity: "The degree to which an area is natural or appears to be natural and free from disturbance so that the normal interplay between biotic species inhabiting the area continues" [FSH 1909.12, Chapter 72.1(1)]

The evaluation of natural integrity relies mostly on whether a person with a scientific or professional land management background determines that the area exhibits natural process function. These processes can include fire, insects and disease activity, and natural plant succession.

- natural variation under historic disturbance regimes (USFS FSH 1909.12, Chapter 40, section 43.1)[5]
- potential recovery, functioning and condition of impacted aquatic, riparian, and upland vegetation and sites
- ecological consequences of livestock use, roads, water diversions, spring developments, heavy recreational use, timber-cutting, or other human uses of the Forest
- results of passive restoration
- invasive species introduction, establishment, and spread in the absence of ongoing anthropogenic disturbance
- soil conditions (e.g., porosity, biological activity, biological soil crusts) in the absence of heavy recreational impacts or compaction by machines or livestock
- potential native biodiversity, and
- maximally natural responses to global warming.

Reference areas can serve as "controls" for scientific study of the environmental consequences of:

- management actions elsewhere on the Forest, e. g. , of herbicide applications, Wildlands-Urban Interface management, shrub removal, post-burn logging
- ongoing commercial and/or recreational uses of the Forest

Reference areas can help prioritize management activities and restoration.

Desired Condition	• The Forest has identified and established reference areas of 200 to 1,000 acres for every major vegetation type and stream type in the Forest, in order to better understand the environmental consequences of uses and experimental treatments of the Forest . Table 10 provides examples of sites that could be considered as cores for designated reference areas. • Reference areas in protected areas adjacent or near the Forest are serving as reference areas for appropriate vegetation types on the Forest until the Forest identifies and protects such areas on Forest. • These reference areas exist as least-impacted, roadless areas free of livestock grazing for at least ten years, and free of other major human disturbances for a time sufficient to allow major recovery from the last major human disturbance (e. g. , by roads, off-road vehicle use, tree-cutting). • In addition, each Forest has designated one least-impacted and one highly-impacted sixth order watershed on each District as a reference area (i. e. , ten out of 143 sixth-order watersheds on the Forest.) The highly-impacted watersheds shed light on the potential of passive restoration for comparison with active restoration activities.
mObjectives (to move from	**Obj. 1** Reference areas of 100-1,000 or more acres are designated for

[5] "…[V]aluable information can be obtained from studies on the long-term dynamics of ecosystems in modern reference areas such as…research natural areas, some national parks, and other areas that have not been heavily influenced by human disturbances." (USFS FSH 1909 Chapter 40 at 43.13)

existing to desired)	1. each of the major vegetation types on the Forest (see Vegetation Management) 2. one least-impacted sixth order watershed on each of the five Ranger Districts 3. one heavily-impacted sixth order watershed on each of the five Ranger Districts. **Obj. 2** If no sufficiently large, natural example currently exists for a given habitat on the Forest, an appropriately large and natural protected area is identified and managed for future qualification as a reference area (e. g. after ten years of livestock exclusion); and an interim reference area as similar ecologically as possible to the habitat for which it serves as reference is selected adjacent to or near the Forest[6], e. g. , in Cedar Breaks NM (see Appendix B). **Obj. 3** Evidence available in reference areas is used when making decisions on proposed or ongoing uses and treatments; analyzing monitoring data on management indicator species, species of special concern,, soils, recovery, or drought; or when drawing conclusions about environmental consequences of proposed or ongoing activities, including restoration.
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Each reference area is systematically and repeatedly monitored on permanent transects for, at minimum, composition, reproduction, production, and ground cover of biological soil crusts, forbs, grasses, shrubs, and trees; and soil bulk density. • A comprehensive watershed analysis is completed for every watershed reference area every five years
Suitable Uses	The following uses are unsuitable in reference areas 1. Motorized recreation 2. Livestock grazing 3. Water developments 4. Water diversions 5. Recreational developments

Table 10. Potential Reference Areas: Dixie and Fishlake NFs[7]

[6] The Forest Service Handbook notes that the area of analysis relevant to national forests is larger than the plan area (FSH 1909.12, Chapter 4311)
[7] This table is based on information provided by Mark Loewen, Ecologist, Dixie National Forest, April 5, 2005

Dixie National Forest				
Type	**Dixie NF Area**	**Acres**	**Current Status**	**History**
Pinyon/juniper, mixed conifer, bristlecone	Ashdown Gorge Wilderness (Cedar City RD)	7000	Wilderness	
Pinyon/juniper, mixed conifer, ponderosa pine	Pine Valley Mountain Wilderness (Pine Valley RD)	50000	Wilderness	
Ponderosa pine, rock, pinyon/juniper	Box Death Hollow Wilderness (Escalante RD)	25800	Wilderness	
Mountain shrub and pinyon/juniper	New Harmony Cattle Allotment (Pine Valley RD)	16100	Non-use	Cattle allotment that has not been used for over 10 years. Still under permit.
Pinyon/juniper, mountain shrub, slickrock	Long Neck (Fremont River RD) (407505)	26000	High Natural Integrity	Undeveloped Evaluation
Pinyon/juniper, ponderosa pine	Box Death Hollow (Escalante RD) (407410)	33000	High Natural Integrity	Undeveloped Evaluation
Gambel oak, mountain shrub	Oak Creek (Fremont River RD) (407506)	23000	High Natural Integrity	Undeveloped Evaluation
Ponderosa pine, mixed conifer, pinyon/juniper	Henderson Canyon (Escalante RD) (407402)	20000	High Natural Integrity	Undeveloped Evaluation
Pinyon/juniper, sagebrush	Little Creek Peak (Cedar City RD) (407207)	19000	High Natural Integrity	Undeveloped Evaluation
Mixed conifer, spruce/fir, aspen, ponderosa pine	Ashdown Gorge (Cedar City RD) (407201)	12000	High Natural Integrity	Undeveloped Evaluation
Lava, aspen, mixed conifer	Lava Beds # 2 (Cedar City RD) (407204)	8600	High Natural Integrity	Undeveloped Evaluation
Lava, isolated aspen	Lava Beds # 1 (Cedar City RD) (407203)	7000	High Natural Integrity	Undeveloped Evaluation
Ponderosa pine, Pinyon/juniper	Birch Creek (Escalante	6000	High Natural	Undeveloped Evaluation

	RD) (407404)		Integrity	
Pinyon/juniper, ponderosa pine	Red Canyon South (Powell RD) (407304)	5500	High Natural Integrity	Undeveloped Evaluation
Pinyon/juniper, mountain shrub	Shakespeare Point (Escalante RD) (407412)	1200	High Natural Integrity	Undeveloped Evaluation
Tall Forb, aspen, larkspur	Cedar Mountain (private land)	??	Some horse grazing	Tall Forb fenced in 1930's, on private land, some horse grazing
Mountain shrub, chaparral, pinyon/juniper	Cottonwood (Pine Valley RD) (407112)	8800	High Natural Integrity	Undeveloped Evaluation, adjacent to BLM WSA
Ponderosa pine, Douglas-fir, bristlecone pine, endemic plants	Red Canyon RNA, Powell RD	460	Established 5/5/1987	
Aspen, spruce/fir	Timbered Cinder Cone RNA, Cedar City RD	640	Established 12/18/1990	
Mixed conifer	Table Cliff RNA, Escalante RD	1300	Established 7/24/1991	
Mountain shrub, chaparral, pinyon/juniper	Browse RNA, Pine Valley RD	2180	Established 11/20/1998	
Pinyon/juniper, ponderosa pine, mixed conifer	Upper Sand Creek RNA, Escalante RD	1880	Established 11/20/1998	
Fishlake National Forest				
Type	**Dixie NF Area**	**Acres**	**Current Status**	**History**
Mixed shrub, mixed conifer, aspen, grass	Cottonwood Sheep Allotment, Beaver RD	31300	Closed to grazing in mid 1980's	No grazing for 20 years
Alpine/sub-alpine meadow, mixed conifer, aspen, mountain brush	Tushar Mountain (Beaver RD) (405301)	82600	High Natural Integrity	Undeveloped evaluation
Pinyon/juniper, mixed conifer, sagebrush, grasslands	Beehive Peak (Fillmore RD) (408106)	61200	Closed to grazing in mid 1980's	Undeveloped evaluation
Aspen, mixed conifer	Fishlake Hightop	29000	High Natural	Undeveloped evaluation

	(Fremont River RD) (408201)		Integrity	
Sagebrush/grasslands, aspen, meadow, spruce/fir	White Mountain (Richfield RD) (408415)	28800	High Natural Integrity	Undeveloped evaluation
Pinyon/juniper	Wayne Wonderland (Fremont River RD) (408209)	15000	High Natural Integrity	Undeveloped evaluation
Pinyon/juniper, sagebrush and grass	McDonald Basin (Fremont River RD) (408210)	2000	High Natural Integrity	Undeveloped evaluation
Aspen, alpine meadows, spruce/fir	Bullion Canyon RNA, Beaver RD	1300	High Natural Integrity	
Mixed conifer, spruce/fir	Upper Fish Creek RNA, Beaver RD	1720	High Natural Integrity	
Mountain mahogany-white fir, pinyon/juniper	Partridge Mountain RNA, Fillmore RD	1200	Established 2/28/1988	
Sagebrush, mountain mahogany, pinyon/juniper, mixed conifer, ponderosa	Old Woman Cove RNA, Richfield RD	2520	Established 2/28/1988	

Special Designated Areas for the Dixie/Fishlake National Forest Plan Revision
FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Undeveloped Areas ***Note: the SMU Alternative correctly uses FSH 1909.12 Chapter 70 inventory criteria to identify undeveloped areas.*** [8]

[8] **71 – IDENTIFICATION OF POTENTIAL WILDERNESS AREAS**

The first step in the evaluation of potential wilderness areas is to inventory all undeveloped areas within NFS lands that satisfy the criteria in 71.1 below.

71.1 – Inventory Criteria

Potential wilderness areas qualify for placement on the inventory if they meet one or more of the following criteria:

1. They contain 5,000 acres or more.

2. They contain less than 5,000 acres but:

   a. Due to physical terrain, natural conditions can be preserved.

   b. They are self-contained ecosystems, such as an island, that can be effectively managed as a separate unit of the National Wilderness Preservation System.

   c. They are contiguous to existing wilderness, primitive areas, Administration-endorsed wilderness, or potential wilderness in other Federal ownership, regardless of their size.

3. They do not contain improved roads maintained for travel by standard passenger-type vehicles, except a permitted in areas east of the 100th meridian (sec. 71.12).

71.11– Criteria for Including Improvements

Potential wilderness areas may qualify for the inventory even though they include the following types of areas or features:

1. Airstrips and heliports.

2. Cultural treatments involving plantations or plantings where the use of mechanical equipment is not evident.

3. Electronic installations, such as cell towers, television, radio, and telephone repeaters, and the like, provided their impact is minimal.

4. Areas with evidence of historic mining (50+ years ago). Do not include areas of significant current mineral activity, including prospecting with mechanical or motorized earthmoving equipment. The inventory may include areas where the only evidence of prospecting is holes that have been drilled without access roads to the site. Inventoried lands that may have potential for wilderness recommendation also may include:

a. Areas that otherwise meet inventory criteria if they are covered by mineral leases having a "no surface occupancy" stipulation.

b. Areas covered by mineral leases that otherwise meet inventory criteria only if the lessee has not exercised development and occupancy rights. If and when these rights are exercised, remove the area, or portion affected, from the inventory unless it is possible to establish specific occupancy provisions that would maintain the area in a condition suitable for wilderness.

5. National Grasslands and Prairies. National Grasslands and Prairies may have structures or evidence of vegetative manipulation resulting from past management practices. National Grassland and Prairie lands that contain the following features may be inventoried:

a. Vegetation type conversions that are reverting to native vegetation with minimal evidence of cultivation.

b. Less than 1 mile of interior fence per section.

7. Areas of less than 70-percent Federal ownership, if it is realistic to manage the Federal lands as wilderness, independent of the private land.

8. Minor structural range improvements (FSM 2240.5) such as fences or water troughs. Exclude areas where nonstructural range improvements are readily visible and apparent. Areas with spray or burning projects are permissible if there is little or no evidence of the project.

9. Recreation improvements such as occupancy spots or minor hunting or outfitter camps. As a general rule, do not include developed sites. Areas with minor, easily removable recreation developments may be included.

10. Timber harvest areas where logging and prior road construction are not evident, except as provided in Section 71.12 for areas east of the 100th meridian. Examples include those areas containing early logging activities related to historic settlement of the

Desired Condition	• Human impacts from roads and motorized access/recreation are minimal or non-existent. Biological strongholds are increased because natural disturbance regimes are minimally impeded and habitat is unfragmented by roads.
	• Undeveloped Areas are serving vital roles by providing:
	  • undeveloped lands;
	  • biological strongholds for many species, from wide-ranging large carnivores down to tiny invertebrates and endemic species with narrow and specific habitat requirements;
	  • large, remote areas where vital natural disturbance regimes (fire, insect infestation, etc) are less impeded;
	  • plant and animal habitat unfragmented by roads;
	  • movement corridors for wildlife;
	  • reduced harassment of wildlife and reduced vandalism of cultural resources;
	  • near-elimination of creation of user-created routes and roads impacts;
	  • connections with roadless or protected areas in adjacent BLM, USFWS, UDWR, NPS and other public lands;
	  • a heightened chance for sustaining biodiversity within historical range of variability;
	  • a reference comparison to roaded areas;
	  • reduced introduction of exotic and invasive species;
	  • heightened protection of Forest watersheds;
	  • opportunities for solitude and primitive types of recreation;
	  • undeveloped and natural or natural appearing landscapes;
	  • undeveloped buffers for the primitive outdoor laboratories of Research Natural Areas;
	  • Reduced construction, maintenance, and management costs.

Objectives (to move from existing to desired)	**Obj. 1** All undeveloped areas identified by the Utah Forest Network inventory, regardless of size, are formally designated for either: 1. protection of wildland characteristics, and the ecological and social benefits deriving from their roadless condition; or 2. recommended for Wilderness designation to ensure permanent protection. 3. **Obj. 2** Most roads and motorized routes within undeveloped areas are closed and where necessary, decommissioned.

vicinity, areas where stumps and skid trails or roads are substantially unrecognizable, or areas where clearcuts have regenerated to the degree that canopy closure is similar to surrounding uncut areas.

11. Ground-return telephone lines, electric lines, etc., if a right-of-way has not been cleared.

12. Watershed treatment areas if the use of mechanical equipment is not evident. The inventory may include areas where minor watershed treatment has been accomplished manually, such as small hand-constructed gully plugs.

	Obj. 3 Undeveloped areas are managed for their primeval qualities, including quiet and solitude. **Obj. 4** Damage from roads and off-road vehicles is remediated **Obj. 5** The management of all Forest undeveloped areas to: 1. link populations of native species occurring in large areas; and 2. provide habitat linkage for ecologically sound populations of wild native ungulates and associated predators.
Guidelines (sideboards for future activities)	
Monitoring	Desired Conditions: Monitoring elements • Intrusion or absence of roads, routes (including user-created routes) • Adequacy of protection of undeveloped areas from road or route intrusion. Objectives **Mon. 1** All undeveloped areas are annually monitored for encroachment of unauthorized activities or impacts and effectiveness of road and route closures.
Suitable Uses	

Table 11. Dixie National Forest Undeveloped (Roadless) Area Inventory

Ranger District	Undeveloped Area not included in Forest Inventory[9]	SMU Proposal[10] (i.e., additions to Dixie NF roadless inventory)	Comments

[9] FS roadless id numbers used are from the 2004 FS draft inventory.

[10] See the submitted UFN and UEC Roadless Area Inventory GIS for precise boundaries

Pine Valley	Atchinson (FS Roadless_id: 0407108)	Expand the Atchinson Undeveloped Area to include all qualifying roadless acres. Expand the current boundary to meet Rte_no 30834 and the private inholding.	According to the Forest Service handbook, roadless area boundaries should "Use semi-permanent, human-made features that are locatable on the map and on the ground. Roads, trails, dams, powerlines and pipelines, and bridges may be used." (FSH 1909.12.72.5.2) The Dixie NF's proposed boundary follows no impact or feature that would disqualify this area.The small quarry at the terminus of rte_no U1240, as well as the route accessing the quarry, constitute significant impacts and should be excluded from the roadless area.
Cedar City	Stout Canyon (UEC), Dairy Canyon (UFN) (no FS roadless_id)	Restore Stout Canyon/Dairy Canyon as an Undeveloped Area, as found in earlier drafts of the Undeveloped Area Inventory. The boundaries come to within 33 feet from centerline of rte_num 30063 on the east side of the unit, follow private inholdings and rte_num 19817 on the south side, and closely follow the standard passenger vehicle-accessible road on top of the plateau on the north and west sides.	FSH 1909.12. 71.1 - Inventory Criteria. Roadless areas qualify for placement on the inventory of potential wilderness if, in addition to meeting the statutory definition of wilderness, they meet one or more of the following criteria: 1. They contain 5,000 acres or more The area is over 5000 acres, and has been proposed for wilderness designation by two conservation groups. The area contains exceptionally diverse conifer forests unique to the area, as well as scenic rock outcrops. From the top of the roadless area on the west side is a vista of heavily forested canyons. An ATV trail that nearly bisects the area cannot be traversed by standard non-four-wheel-drive passenger vehicles, and as such, does not disqualify the area. The Duck/Swains Analysis downgraded the route from a full size vehicle route to an ATV route. The route is closed at the wetlands at the bottom of Dairy Canyon, nearly a quarter mile north of the private inholding. ATV routes do not disqualify areas from the Undeveloped Area Inventory.

	Stevens Canyon/Pink Cliffs (UEC), Pink Cliffs (UFN) (no FS roadless_id)	Include Stevens Canyon/Pink Cliffs as an Undeveloped Area	At larger than 7500 acres, the area meets the criteria for inclusion in the Forest Service Undeveloped Area Inventory. Encompassing the southwest escarpment of majestic Pink Cliffs, the unit has been proposed for wilderness protection by two conservation groups. The area also contains the mystifying feature, Cascade Falls. A short non-motorized trail accesses the stunning feature where the headwaters of the Virgin River burst forth from the side of the Pink Cliffs. The area also contains ancient stands of Bristlecone Pine. This roadless area features many of the same noteworthy natural features as another nearby known as the Gooseberry Point Roadless Area
	Gooseberry Point (no FS Roadless_id)	Include Gooseberry Point as an Undeveloped Area	At larger than 6000 acres, the area meets the criteria for inclusion in the Forest Service Undeveloped Area Inventory.The beauty of Gooseberry Point Roadless Area is encapsulated in the views of Zion National Park and the Kolob Terrace visible from many vantage points. A maze of canyons and forested hills spread out below. Both sandstone and volcanic rock make for interesting transitions between sandy patches and rocky slopes. The Pink Cliffs found in this roadless area have aroused curiosity and wonder since the first European exploration of the area. John Wesley Powell writes in his popular account of Colorado River exploration: “The stupendous cliffs by which the plateaus are bounded are of indescribable grandeur and beauty. …every one of these plateaus has characteristics peculiar to itself and is worthy of its own chapter. ...the cliffs themselves are bold and often vertical walls of a delicate pink color.” The area also contains ancient stands of Bristlecone Pine.

	Mexican Hollow (UEC), Hatch Mountain (UFN) (no FS Roadless_id)	Include Mexican Hollow/Hatch Mountain as an Undeveloped Area	This undeveloped area is recognized by UEC at over 6,100 acres, and by UFN at more than 10,200 acres. Highly varied, the terrain ranges from narrow drainages and colorful hills populated with ponderosa pine, to sage-covered slopes and plateaus, to impressive and exceptional features including Mexican Hollow, Spring Canyon, and Limerick Canyon. Limerick Canyon is found on the unit's north side, and is a narrow canyon separated from Mexican Hollow by a narrow ridge. Stud Knoll, a scenic white outcrop, is also of note. Near Stud Knoll, gently sloping hills are covered with sage, and scattered ponderosa and pinyon and Juniper trees. Visitors to the top of Hatch Mountain are treated to expansive views of the Paunsaugunt Plateau, Pink Cliffs, Griffin Top, and the Aquarius Plateau and Powell Point. Volcanic peaks to the west can also be seen, providing exceptional landscape diversity.
	Sidney Peaks (no FS Roadless_id)	Include Sidney Peaks as an Undeveloped Area	At larger than 6,200 acres, the area meets the criteria for inclusion in the Forest Service Undeveloped Area Inventory.
	Bunker Creek - Horse Valley Peak (FS Roadless_id: 0407205)	Expand the Bunker Creek - Horse Valley Peak Undeveloped Area to include all qualifying roadless acres	UEC calculates the acreage of the roadless area at over 27,400 acres, while UFN finds over 28,700 roadless acres. Current and applicable handbook direction found at FSH 1909.12, 71.1.3 states that roadless areas "do not contain improved roads maintained for travel by standard passenger-type vehicles." A road cannot disqualify an area from roadless consideration if it cannot "be traversed by standard, non-four-wheel-drive motor vehicles." N.W. Indian Cemetery Protective Association v Peterson, 565 F Supp. 586 (N.D. Cal., 1983) The routes the Dixie NF uses to cut off significant portions on the north, east and south sides are not passable to standard passenger vehicles, and are not acceptable Undeveloped Area boundaries.

	Bear Valley Peak - Little Creek Peak (FS Roadless_id: 0407207)	Expand the Bear Valley Peak-Little Creek Peak Undeveloped Area to include all qualifying roadless acres	Route_id 30083 is a high clearance vehicle route not passable by standard passenger vehicles, and the area to the extending east of this route must be included within the Bear Valley Peak - Little Creek Peak Roadless Area.
	Shakespeare Hollow (no FS Roadless_id)	Include Shakespeare Hollow as an Undeveloped Area	This area is identified by UEC at greater than 5,100 acres. UFN includes the Shakespeare Hollow Roadless Area within the larger Bear Valley Peak - Little Creek Peak Roadless Area because Route_id 30396 is a high clearance vehicle route not passable by standard passenger vehicles.
	Wildcat Hollow (no FS Roadless_id)	Include Wildcat Hollow as an Undeveloped Area	This area is identified by UEC at greater than 6,700 acres. UFN includes the Wildcat Hollow Roadless Area within the larger Bear Valley Peak - Little Creek Peak Roadless Area because Route_id 30310 is a high clearance vehicle route not passable by standard passenger vehicles.
Powell	Sunset Cliffs (FS Roadless_id: 0407302)	Expand the Sunset Cliffs Undeveloped Area to include all qualifying roadless acres	This area is identified by UEC as larger than 19,500 acres and by UFN at over 27,000 roadless acres. It appears the Dixie NF has cut off the unit on the south side, (the majority of the roadless area,) at an arbitrary point that is not defined by an impact of any kind. It should be noted that the southern portion of the Sunset Cliffs Roadless Area omitted by the Forest Service still qualifies on its own, at over 8000 acres.
	Red Canyon South (FS Roadless_id: 0407305)	Expand the western and southern boundaries of the Red Canyon South Undeveloped Area until they meet a significant impact.	This area is identified by UEC as containing over 12,700 acres and by UFN as over 21,300 acres. The Dixie NF has selected an arbitrary boundary on the west side of the unit that follows no discernable impact. It appears the Forest Service has also cut off the unit on the south side, (the majority of the roadless area,) at an arbitrary point that is not defined by an impact of any kind. While near an old ponderosa pine timber sale area, the boundary the Dixie NF uses doesn't directly use the cutting unit boundaries of that sale. The proposed FS boundary also goes straight up pink cliffs using no discernable feature.

	Red Canyon North (FS Roadless_id: 0407405)	Expand the Red Canyon North Undeveloped Area to include all qualifying acres	This area is identified by UEC as containing over 18,400 acres and by UFN as over 30,000 acres. The Dixie NF has arbitrarily constrained the acreage due to impacts that are substantially unnoticeable to the average lay visitor. The area excised by the Forest Service on the benches north of Casto Canyon does contain selective cutting of ponderosa pine, but these impacts occurred decades ago, and the area has recovered to the point where the impacts are no longer substantially noticeable. The cutting here is less noticeable than cutting contained *within* the Box – Death Hollow Wilderness Area, designated in 1984.
	Bridge Canyon (UFN), Fishhook (UEC and RARE II) (FS Roadless_id: 0407301)	Expand the Bridge Canyon/ Fishhook Undeveloped Area to include all qualifying acres.	The Dixie NF has excluded more than 500 acres of qualifying undeveloped area directly adjacent to NPS recommended wilderness. On the northeast corner of the unit, the Dixie NF cuts off the undeveloped area using a straight line that does not follow any discernable impact. Route_num 30115B ends well short of the Park Service boundary, and continues as a non-motorized trail to the park gate. Even if route 30115B were cherry-stemmed, the remaining area to the east of the route is directly contiguous to the rest of the undeveloped area as it crosses agency boundaries into the park and continues south back onto Dixie NF land. Great care must be taken to assure consistency across somewhat arbitrary agency boundaries, and doing so means expanding the undeveloped area to include all undeveloped acres adjacent to NPS recommended wilderness.
Escalante and Teasdale	Awapa Plateau (UEC), Hay Lakes (UFN) (FS Roadless_id: 0407407)	Expand the Awapa Plateau/Hay Lakes Undeveloped Area to include all qualifying acres	This area is identified by UEC as containing over 11,500 acres and by UFN as over 19,600 acres. The high clearance vehicle route used by the Forest Service to define the eastern boundary (Route_num: 30283) does not disqualify the area to the east from the Undeveloped Area Inventory because it is not maintained for travel by standard passenger vehicles. The undeveloped area must also be expanded to the south past route_nums 31253 and 31255, because these routes are not maintained for travel by standard passenger vehicles.

	Escalante Mountains - Antimony Creek (FS Roadless_id: 0407405 and 0407405)	Expand the Escalante Mountains/Antimony Creek Undeveloped Area to include all qualifying acres	The Forest Service incorrectly uses a non-motorized trail (Rte_num: 30235) to define the southern boundary of the undeveloped area. Additionally, the Forest Service uses a high clearance vehicle route (Rte_num 31395) to define part of the unit's southeastern boundary. This route does not disqualify the area to the southeast from the Undeveloped Area Inventory because it is not maintained for travel by standard passenger vehicles. The remainder of the southeast boundary follows no impact at all, and must be expanded. A single, contiguous undeveloped area is also incorrectly divided into two areas based on a route that is not maintained for passage by standard passenger vehicles. (rte_num: 30134) 0407405 and 0407407 must be combined into a single undeveloped area.
	Widstoe (UEC) (no FS Roadless_id)	Include Widstoe as an Undeveloped Area	This area is identified by UEC as larger than 9700 acres, and is part of the UFN Table Cliffs – Henderson Canyon Undeveloped Area of more than 67,000 acres. Though this area contains many old project-specific timber sale routes, the cutting is not significant and the routes are unclassified. Unclassified (unauthorized) routes do not disqualify an area from the Undeveloped Area Inventory.

	Table Cliffs - Henderson Canyon (FS Roadless_id: 0407402 and 0407404	Expand the Table Cliffs - Henderson Canyon Undeveloped Area to include the area between units 040702 and 040704. Expand the northern and southern boundaries of 040702 northward and southward to meet significant timber sale activity or standard passenger vehicle routes. Expand the eastern boundary to include Powell Point and surrounding wildlands. On the southeastern boundary, expand the area from the BLM/FS administrative boundary northward to rte_nums 30519 and 31488.	This area is identified by UEC as containing over 37,00 acres and by UFN as over 67,000 acres. The Dixie NF has arbitrarily broken one contiguous undeveloped area into two units, 040702 and 040704. This excludes some of the most remote portions on the Table Cliffs Plateau. Most of the northern boundary of 040702 follows no discernable impact. The southern boundary of 040702 follows no discernable impact. The outstanding lands on top and around the flanks of Powell Point are truly exceptional within the Forest Service system. Perhaps most notable, the Forest Service's eastern boundary of 0407402 follows no impact whatsoever, using an unacceptable straight line on the extreme eastern edge, excluding the stunning cliffs of Powell Point, a significant regional landmark, and the top of the Grand Staircase. The southeastern boundary of the unit is directly adjacent to a BLM WSA known as "The Blues." This and all lands under Dixie NF management directly adjacent to BLM WSAs must be included in the Undeveloped Area Inventory. Here, The aforementioned area was correctly identified as roadless in the RARE II process, and is currently an IRA. No activity that would disqualify the area from the Undeveloped Area Inventory has occurred in the area since the RARE II inventory.
	Shakespeare Point (no FS Roadless_id)	Include Shakespeare Point as an Undeveloped Area. Include the lands between the boundary of Bryce Canyon National Park and the high-voltage powerline that defines the extreme southwest boundary of the Table Cliffs – Henderson Canyon Undeveloped Area (Roadless_id: 0407402).	The Dixie NF has wrongly omitted a small undeveloped area that is directly adjacent to NPS recommended wilderness. In the interest of consistency across agency boundaries, the Forest Service must include an undeveloped area here and everywhere else its administrative boundaries directly abut NPS recommended wilderness, a BLM WSA, or lands found by BLM to possess wilderness character. See NPS GIS for their detailed wilderness recommendations, as well as the UEC and UFN Roadless Inventory GIS for this area.

	Canaan Peak (FS Roadless_id: 0407401)	Expand the Canaan Peak Undeveloped Area to include all qualifying acres. Expand the northwest boundary to within 33 feet of centerline of the state highway. Cherry-stem rte_num 30146 and expand the area to within 33 feet from centerline of the route. Expand the southeast boundary of 0404701 to include all unroaded tracts.	This area is identified by UEC as containing more than 15,000 acres and by UFN as more than 18,000 acres. The Dixie NF used an unlocatable straight line on the southeast boundary of 0404701 to exclude vast unroaded tracts. The northwestern boundary along the state highway has also improperly excluded old vegetation treatments that are not substantially noticeable. While significant and jarring clearcutting has occurred near the summit of Canaan Peak, it can be easily excluded while including the more than 11,000 acres of qualifying undeveloped land the Dixie NF has not proposed to include.
	Horse Spring Canyon (no FS Roadless_id)	Include Horse Spring Canyon as an Undeveloped Area. The western edge of the Horse Spring Canyon Undeveloped Area boundary is within 33 feet of the field's well pads, access routes and powerline infrastructure.	This relatively small unit, adjacent to a producing oil field, is also directly adjacent to BLM lands determined to possess wilderness character in BLM's 1999 wilderness inventory. In the interest of consistency across agency boundaries, the Forest Service must include an undeveloped area here and everywhere else its administrative boundaries directly abut a BLM WSA or lands found by BLM to possess wilderness character.
	Hog Ranch (UEC), Buck Hollow (UFN) (FS Roadless_id: 0407409)	Expand the Hog Ranch/Buck Hollow Undeveloped Area to include all qualifying acres. Expand the northeast boundary to within 33 feet of centerline of the Posey Lake Road and on the northwest to rte_num 30815.	UEC finds more than 12,700 acres of undeveloped land, while UFN finds more than 15,200 acres. The Dixie NF uses an unlocateable straight line to define the central western boundary of this area. The extreme northeast boundary does not follow any discernable impact. Old vegetation manipulation projects found in the lower elevations are not substantially noticeable to the average lay visitor, and must also be included in this undeveloped area.
	Impossible Peak - Oak Creek (FS Roadless_ids: 0407405 and 0407406)	The Impossible Peak--Oak Creek Undeveloped Area, (0407405 and 0407406,) is a single Undeveloped Area.	The Dixie NF has incorrectly divided a single undeveloped area into two areas based on a route that is rough, rocky, steep, and is not maintained for passage by standard passenger vehicles (see Bunker Creek comments, above)

	Sheets Draw - Fremont Gorge (no FS Roadless_id)	Include Sheets Draw - Fremont Gorge as an Undeveloped Area	These relatively small units are directly adjacent to NPS recommended wilderness within Capitol Reef National Park and lands found by BLM to possess wilderness character in their 1999 inventory. In the interest of consistency across agency boundaries, the Forest Service must include an undeveloped area here and everywhere else its administrative boundaries directly abut NPS recommended wilderness, a BLM WSA, or lands found by BLM to possess wilderness character.
	Boulder Mountain (FS Roadless_id: 0407504)	Expand the Boulder Mountain Undeveloped Area to include all qualifying acres. Several cherry-stems must be shortened or eliminated. Expand the northeast boundary to within 33 feet of centerline of the Posey Lake Road and on the northwest to rte_num 30815. Include the block of land south of 30177 near Big Lake. If a cherry stem is used for the route to Big Lake from the south, it covers only the southern access, and does not exclude lands based on a route that is currently closed to vehicular traffic. Expand the boundary to within 33 feet of centerline of rte_num 30178. Routes 31302 and 31308 are not cherry-stemmed. The cherry stem on rte_num 30178 ends at the old line shack, approximately three miles earlier than proposed by the Dixie NF. The cherry stem on rte_num 30177 to Chokecherry Point ends at its junction with 31317.	The Dixie NF uses an arbitrary line not defined by any impact on the northwestern side of 0407504. According to GIS obtained from the Forest Service, there is a short "hanging" cherry stem that is not connected to any boundary. Routes 31302 and 31308 are not maintained for travel by standard passenger vehicles. Route 30177 to Chokecherry Point is not maintained for standard passenger vehicles, and is not suitable for low clearance standard passenger vehicles past its junction with rte_num 31317. The northern route to Big Lake that constitutes the Dixie NF's proposed boundary is closed to vehicle traffic on the ground. This route was closed by the Dixie NF in the Boulder Top access management project a number of years ago. The route to Big Lake from the south is closed at the point where it reaches the lake. It must not exclude lands based on a route that is currently closed to vehicular traffic. The northern access route to Big Lake is not the Undeveloped Area boundary.

	Dark Valley (UEC) Part of Boulder Mountain (UFN) (FS Roadless_id: 0407502)	Expand the Dark Valley Undeveloped Area to include all qualifying acres. Routes 31302 and 31308 are not cherry-stemmed. The cherry stem on rte_num 30178 ends at the old line shack, approximately three miles earlier than proposed by the Dixie NF. The cherry stem on rte_num 30177 to Chokecherry Point ends at its junction with 31317.	A number of routes not maintained for travel by standard passenger vehicles have been used to define the boundaries of 0407502. The Forest Service has drawn the northern boundary of this unit along a straight line and an unclassified route, U5147. Unclassified (unauthorized) routes cannot define the boundaries of Undeveloped Areas. On the south side, rte_num 30285, a route maintained for high clearance vehicles has been used to define the Dixie NF's proposed boundary.

Table 12. Fishlake National Forest Undeveloped (Roadless) Area Inventory

Ranger District	Undeveloped Area not included in Forest Inventory[11]	SMU Proposal[12] (i.e., additions to Fishlake NF roadless inventory)	Comments
Freemont River/Loa "Loa" *Note: Teasdale Road on the Dixie NF*	McDonald Basin No FS ID in its draft inventory.	Add the McDonald Basin unit.	Draft Fishlake NF inventory drops this IRA but should not have. Is adjacent to NPS proposed wilderness, and the Fishlake portion of the larger interagency roadless area that is roadless, undeveloped has to be identified. Western boundary on Fishlake NF lands may use maintained roads and/or the permitted canals/ditches.

[11] FS roadless id numbers used are from the 2004 FS draft inventory.

[12] See the submitted UFN and UEC Roadless Area Inventory GIS for precise boundaries

was transferred to the Fishlake NF, which created this new district in the Forest Plan revision.			
Wayne Wonderland FS ID 0408209	Add omitted lands near north end of road 146.	Draft Fishlake inventory omits this unroaded, undeveloped portion of unit, assumedly due to historic 1950-1960's ponderosa pine treatments that are presently not substantially noticeable. Also old routes from those sales have not been maintained for standard passenger vehicles, some are in area closure "C" on travel plan and so motorized travel is not even permitted and has not since at least 1997. These un-maintained routes do not meet FSH criteria and can not be used to disqualify associated portion of inventory area. -Further the area excluded is immediately adjacent to the very remote, roadless, undeveloped core portion of Waterpocket Fold in Capitol Reef National Park. -Finally, due to the fact that this unit is adjacent to the most remote, roadless, and rugged portion of Capitol Reef NF, and just as importantly – that the constructed and maintained road 146 ends before the agency boundary, this is one of a number of FS polygons of the same larger interagency roadless area shared by the NPS and the Forest Service. In light of this, this polygon should be considered as one of at least two Fishlake polygons representing the same larger roadless area, and not as two separate roadless areas. The second polygon is the unit just to the north of this unit – and is addressed in the entry below. This other portion of the area is commonly called the "Lookout Peak" area of the 1000 Lakes Mountain unit.	

Thousand Lakes Mountain FS ID 0408208	-Add omitted lands located between ATV trail 248 and road 209. -Add omitted lands to the west of road 209 from general area ranging from Deep Creek lake north to Elkhorn Campground campsites. -At the north end of this unit lands are excluded that must be added.	-Near Deep Creek Spring, the Fishlake roadless boundary is ATV trail 248, which is not a road but is a 40" ATV trail. The boundary has to be moved to the constraining road that is farther to the west (road 209). -In relation to the omitted lands to the west of road 209, we incorporate by reference the Supervisor's approved roadless area evaluation of this specific area contained in the Thousand Lakes Mountain Community Forestry Initiative Project Record. This area does not contain old timber sales that are substantially noticeable and it does not contain roads, or even motorized trails less than 50". Note that there is a small ditch or canal just off of the main road near the campground which is not used as the boundary currently but may be, however its pretty much right up against and parallels the main road 209. -We add the lands at the north end of this unit because the boundaries presently identified rely on ATV trails and not roads with any construction and maintenance for standard passenger vehicles. In fact, such travel is prohibited by the Travel Plan, signing on the ground, and is physically impossible due to barriers, terrain and because most sections are for ATV's no wider than 40".
Solomon Basin -This is the name of this IRA, which is identified as two units in the FS draft inventory numbered 0408207 and 0408206	-This is identified by the SMU Alternative as one larger unit, not two smaller units. -The omitted lands in the north west corner near Paradise Valley are added.	-Solomon Basin is correctly identified as one unit because the route being used to split it into two has not been constructed and maintained for standard passenger vehicles since this larger IRA was mapped and identified. This route is designated, maintained, and managed for high clearance 4 x 4 ATV travel as part of an ATV segment of the Great Western Trail. -The Paradise Valley portions are added because ATV trails are not used as unit boundaries because they are not improved roads maintained for standard passenger vehicles.

Hilgard Mountain FS Draft unit 0408204	-Large chunk on the east portion of unit in Tidwell Slopes area is added per UEC and UFN GIS. -Large chunks at the south end of the unit is added per UEC and UFN GIS.	-East Portion around Tidwell Slopes is added because it is roadless, undeveloped land that meets FSH wilderness inventory criteria. It is not an appropriate situation to hop across country excluding such a large, manageable forested chunk of backcountry as if it is some narrow finger or snippet because it is not that. -The large chunks are added because ATV trails, user created tracks, or ghost roads do not meet FSH inventory direction for these undeveloped areas.
Mytoge FS draft unit 0408202	-The Fish Lake is added. -The region east of road 045 in the south central part of the unit is added.	-The Fish Lake needs to be added to the inventory because it is a natural lake and not an artificial lake. -The region in the south-central portion of the unit east of road 045 is roadless, undeveloped and does not contain past timber harvest that is substantially noticeable to the average visitor.

Fishlake Mountain, also called Fishlake Hightop, or FS draft inventory unit 0408201	-The Praetor Canyon area polygon west of road 057 is added. -The polygon in the north west corner of the unit around Butterfield Meadow and the upper portions of Otter Creek are added to this inventory unit. -Approximately 2.5 miles of the end segment of road 352 that the FS draft inventory cherrystemmed is not cherrystemmed. -The portion of Sevenmile Valley and Sevenmile Creek located on the north and east side of the unit (north east of the Sevenmile Cirques) that the FS draft inventory excluded is added.	-The Praetor Canyon area polygon is added because the route labeled road 1611 does not qualify as an improved road per the system wide directives in FSH 1909.12 for this inventory of potential wilderness areas. -The polygon around the upper portions of Otter Creek are added to the inventory unit because the route labeled road 350 does not qualify as a boundary road per any possible stretch of the inventory criteria outlined in the directives at FSH 1909.12 for the inventory of potential wilderness areas. -The approximately 2.5 mile end segment of road 352 that the Fishlake draft inventory unit has cherrystemmed is not cherrystemmed because it is a high clearance 4 x 4 route that is not constructed or maintained, let alone intended to be an improved road maintained for standard passenger vehicles. Furthermore, the soft release language in the 1984 Utah Wilderness bill associated with Tasha Spring directs that the area is to be evaluated for potential wilderness at the end of the first planning period, which is now. -The Sevenmile Creek and Valley area located on the north and east side of the unit is added because it is a natural meadow; natural river; and healthy, riparian area, human influences that are substantially noticeable that could possibly disqualify it from the roadless, undeveloped inventory of potential wilderness areas per the FSH 1909.12 criteria.

Mount Marvine – UM Plateau, also called FS roadless area ID #0408203 (This is two separate IRA's called 'Mt. Marvine' and 'UM Plateau-Mt. Terrill')	-Lands that are excluded north of Mt. Terrill in the UM Pass area are added, with road 042 cherrystemmed. -The area along the western side of the unit between the main Gooseberry to Fishlake road (presently being turned into a paved highway) and Road 1240 are added.	-Lands in the UM Pass area are added and road 042 is cherrystemmed with buffer of 33" from centerline of road because there are no old timber sales, improved roads. Further, there are also no other facilities or developments like old timber sales or vegetation treatments that are substantially noticeable per the FSH criteria. -The area between Road 1240 and the main western boundary road that's being paved is added because it is roadless, undeveloped land contiguous with the larger unit. The old jeep trail that ran east-west in sections 15 and 14 was bermed and closed over a decade ago and is completely revegetated.
Moroni Peak, also called FS draft roadless area ID 0408417	1.[13] Tommy Hollow Creek area, south of Road 222 is added.	1. This area is added because it is roadless, undeveloped land contiguous to the main portion of the unit and is not fairly or honestly characterized as an appendage or narrow finger
Red Creek Hole, also called FS draft roadless area ID #0408418	2. Headwater sections of Clear Creek south and west of Kinneys Meadow is added.	2. This area is added because it is roadless, undeveloped lands contiguous with the main body of the unit. Trails do not disqualify portions of roadless, undeveloped inventory units – see FSH direction referenced above.
Johns Peak, also called FS draft roadless area ID #0408205	3. The area around Pine Hollow is added. 4. The route labeled Road 1559 is cherrystemmed no farther than stand of trees that it cuts through at the top of the knoll in the first mile of the length of the route.	3. Pine Hollow area is added because 1960's era selective ponderosa pine cutting units are not substantially noticeable to the average observer. Further the boundary the FS has used does not try to actually follow the old 1960's cutting unit boundaries. 4. This route is not cherrystemmed past this point because it is not an improved road maintained for standard passenger vehicles. In fact it is not effectively passable by vehicles other than 40" ATV's past this point, where it becomes a trail and not an improved road.

[13] See Appendix C, Fishlake Roadless Area numbering

The Rocks, also called FS roadless area ID #0408409	5.The three regions on the west, north and east-central portions of the unit are added.	5. These regions are added because they are qualifying roadless, undeveloped lands (i.e. potential wilderness areas to be evaluated in the next step) that are contiguous with the core of the inventory unit because they are not cut off by improved roads maintained for standard passenger vehicles.
Sheep Creek, also called FS roadless Area ID #0408408	6. The northern two Sevenmile timber sale cutting units are added. 7. The eastern region between the main Gooseberry road that's being paved and the jeep trail that runs north-south down the meadow from road 040 is added. 8. This area south and a bit west of the Gooseberry campground is added.	6. This area is added because the cutting units proposed are not cut, and are contiguous with and meet the criteria for potential wilderness areas to be evaluated per FSH directives. 7. This area is added because the jeep trail in the meadow that's presently used as the boundary is not an improved road for standard passenger vehicles but an unimproved and unconstructed and unmaintained two track or jeep trail which does not meet FSH directives for an improved road. 8. This area is added because it meets FSH directives as a potential wilderness area or roadless, undeveloped area for wilderness evaluation. There are no roads or timber sales that are substantially noticeable that cut this off. Therefore it must be added to the inventory as a portion of this unit.
Old Woman Plateau No FS roadless area ID # because FS has missed this unit.	9. Add this unit to the inventory.	9. This unit is added to the inventory of potential wilderness areas to be evaluated because, without any doubt, it is a roadless, undeveloped area that meets all of the FSH criteria for this inventory. A portion of the unit is RNA, and the cliffs and plateau land on top are undeveloped, and no improved roads bisect this area that is much larger than 5,000 acres.
Wildcat Knolls No FS roadless ID # because Fishlake NF has not identified its portion of the unit that is contiguous with the Manti-La Sal IRA called Wildcat Knolls.	10. Add Wildcat Knolls on the Fishlake National Forest to this inventory.	10. The portion of Wildcat Knolls on the Fishlake National Forest that is contiguous with the Manti-La Sal National Forest's adjacent Wildcat Knolls inventoried roadless area meets all of the criteria for inclusion in this inventory of potential wilderness areas. There simply is nothing, such as an improved road, old timber sale, or vegetation treatment along the Manti-La Sal and Fishlake NF boundary to support the decision not to identify the Fishlake NF's contiguous portion of this unit for inclusion in this inventory.

Steves Mountain, FS roadless ID #0408412	11. Lands west of ATV trails #248/274/096 are added, while excluding the chainings farther west	11. These roadless, undeveloped potential wilderness lands area added to the inventory unit because they are contiguous with the larger inventory unit, and ATV trails are not improved roads maintained for standard passenger vehicles, and do not disqualify areas from this inventory per FSH directives. Further, these ATV trails are generally no wider than 40" and are generally impossible for even a non-street legal, modified, jacked up jeep with a locked differential to traverse.
Signal Peak, FS roadless ID #0408407	12. The several medium to large sized areas on the north and east side of the unit area added. 13. The smaller portion excluded from the south end of the unit is added.	12. These several areas are added because they are contiguous with the larger potential wilderness area to be evaluated and are roadless, undeveloped lands that meet the FSH criteria for inclusion in this inventory. Again, ATV trails, unimproved jeep trails, and contiguous forests and high elevation meadow that are excluded are added because they do not contain improved roads or other improvements or facilities of man that are substantially noticeable. These lands can be added even if old terracing in the area is excluded from the inventory. 13. These 11,000+ foot elevation old growth spruce forests and meadows do not contain improved roads or old timber sale units that are noticeable. These lands can be added even when excluding the old timber sale cutting units in the area with the failed spruce regeneration.
Little Creek Peak, FS roadless ID #0408406	14. The three or four polygons excluded at the north and south end of the unit are added.	14. The polygons in the north and the larger one at the south west are added because they do not contain timber sales, let alone substantially noticeable timber sales, and they do not contain improved roads maintained for standard passenger or non-modified street legal vehicles. The area to the south, which was cut off using a 40" wide ATV trail is added because such ATV trails to not disqualify portions of these inventory units. The power line and/or main road to the south is used for the boundary.
Greenwich Creek, No FS roadless ID #.	15. The Greenwich Creek unit is added.	15. This unit is added to the inventory because it is an area of potential wilderness and is roadless, undeveloped that is larger than 5,000 acres and does not contain improved roads, and does not contain other facilities or improvements of man that are substantially noticeable.

Box Creek, No FS roadless ID #.	16. The Box Creek unit is added to the inventory of potential wilderness areas.	16. The Box Creek unit is added for the same reasons as point 15 above. Note that there are a couple designated ATV trails in the middle of the unit but every one is no wider than 40", and is constructed only for ATV's – not street legal vehicles. In fact, it is impossible for pickups (or any other car or truck) to traverse or travel these trails because they literally are not wide enough and never were constructed or maintained for those vehicles. That would also be illegal.
Langdon, FS roadless ID #0408401	17. The number of polygons on the south, north and north west side of the unit are added.	17. The several polygons at the south, north and are added to the inventory unit because these undeveloped lands are contiguous with the unit, are not narrow appendages, and do not contain improved roads and do not contain other facilities or influences of man that are substantially noticeable – actually in most cases there literally are no past treatments at all, let alone substantially noticeable past treatments.
Tibadore, FS roadless ID #0408402	18. The large polygons at the north and south ends of the unit are added.	18. These large polygons are added because they are potential wilderness lands that are contiguous with the unit, are not narrow appendages, and are roadless, undeveloped lands that are not cut off from the unit by improved roads or past vegetation treatments that are substantially noticeable to the average visitor.
Marysvale Peak, FS roadless ID #0408403	19. The seven smaller but significant polygons that were cut out of the inventory unit are added.	19. Each of these seven smaller but important additions to the inventory unit are added because they are each contiguous with the larger unit and add to its merits. Proposed or reasonably foreseeable timber sale cutting units that may or may not occur years from now are not to be excluded at this inventory stage – see FSH criteria. Further each of these units is not a narrow appendage and must not be cut out for those reasons as each would reasonably be treated and managed as a part of the larger unit, and they are not cut off by improved roads or past vegetation treatments that are substantially noticeable to the average visitor.

Canyon Mountians, also called Oak Creek IRA, FS roadless ID #0408109	20. Roughly 5 significant polygons that are excluded by FS are added.	20. Primary impacts and boundary features in the Canyon Mountains are roads, chainings, and water lines. For all of these additions, however, the polygons are free of improved roads and 'other facilities or developments of man' such as vegetation treatments like chainings and water lines that are substantially noticeable to the average visitor. Further each polygon added is not a narrow finger or appendage that could reasonably be cut out due to obviously unreasonable constraints on managing the area added.
North Pavant, FS roadless ID #0408108	21. The large polygon at the north end is added. 22. The polygon cut out in the Wild Goose area is added.	21. This large polygon is added because it was cut out by the FS using an ATV trail and a two track jeep trail, both of which don't cut the area out anyway, but regardless neither is an improved road maintained for standard passenger vehicles, or street legal vehicles for that matter. This is a large chunk of undeveloped potential wilderness that must simply be added by any stretch of the FSH criteria. 22. This polygon in the Wild Goose area is added because the FS cut it out via using a small PVC range plumbing line that feeds some troughs. The line is undoubtedly not substantially noticeable and must not be used as a potential wilderness or roadless, undeveloped area boundary in this inventory.
Beehive Peak, FS roadless ID #0408106	23. Polygon at south end is added. 24. The three cherrystems are shortened.	23. The polygon at the south end was cut off by the FS by using a rough ATV trail no wider than 40" for most of it's length. That is in conflict with the criteria in the system wide directives. This area and the ATV trails is therefore added. 24. There are three ATV trails that at one time were constructed for mine prospecting and possibly something else. They have always been unimproved and very rough. They currently are technical to travel even for 40" 4x4 ATV travel. All but the very beginning segments of these 3 cherrystemmed roads must not be cherrystemmed and are added to the unit.

Bear Canyon, FS roadless ID #0408107	25. Two medium to small sized polygons area added at south and north west portions of the unit.	25. These two polygons are added because they are roadless, undeveloped lands contiguous with the larger inventory unit of potential wilderness. There are no improved roads or vegetation treatments to cut these areas out, and they are manageable as a part of the larger unit sufficient for inclusion in this inventory unit.
Pavant, FS roadless ID # 0408105	26.The two large to medium sized polygons located in the north west and eastern side of the unit are added.	26. These two areas appear to have been excluded via use of unimproved jeep trails, ATV trails and PVC water lines for range developments like troughs. These kinds of routes and other facilities in these areas are not of the type that qualify for exclusion from this base inventory of potential wilderness. Therefore lands are added in both of these areas. Refer to the common areas of agreement in the UEC and UFN maps/GIS that has been submitted in the past for boundary locations.
Ferguson, FS roadless ID # 0408110	27. The polygon located in the south east side is added.	27. This polygon of undeveloped land appears to be excluded by the Fishlake NF when using the trail in Cottonwood Creek as the boundary of the unit. However this Cottonwood Creek trail, which is a couple miles long is just that – a trail. Trails are not improved roads. Therefore this area that was excluded must be added to this inventory unit.

Freemont Indian/Sam Stowe Canyon, FS roadless ID # 0408102, 1984 Fishlake NF roadless ID #08-328 named Joe Lott.	28. The polygon in the Trail Mountain area is added. 29. The several polygons on the north end in the Big Bench and Monument Hill areas are added. 30.The polygon located just to the east of skinner canyon in the area including section 30 is added.	28. The Trail Mountain polygon is added because these lands are potential wilderness lands that are roadless and undeveloped that are contiguous with the larger inventory unit. The Fishlake NF has excluded this area by first hopping from the private inholding around Three Creeks Reservoir up the escarpment on the south side of Three Creeks up to the old unimproved two-tracks that are used by ATVs and not street legal vehicles or standard passenger vehicles. Only the initial portion of road 382 should be cherrystemmed. The rest of this route and the spider web of two-tracks running off it are not improved roads for standard passenger vehicles, but unconstructed and/or unmaintained two-tracks. These features do not qualify as boundary developments for these inventory units and must be included in the unit. 29. The Fishlake NF excluded a spider web complex of two-tracks in sage steppe country that appear to have been user created over the years by pick up trucks being driven by big game hunters and cattle permittees dropping off salt blocks and taking short cuts to small PVC waterlines going to troughs. These routes are not improved roads maintained for street legal or standard passenger vehicles and can not be used to exclude undeveloped lands from the inventory. Therefore these areas must be added to the unit. 30. It looks like the FS has excluded this undeveloped area (from east to west) by hopping across the ends of old routes marked on the FS GIS roads layer up to the ATV-passable unmaintained route labeled road 963, then by using the 40" wide ATV trail that runs north-south just east of Skinner Canyon as the boundary. First, ATV trails are not improved roads and must not be used as inventory unit boundaries. Second, regarding the GIS roads that are used to hop from one to the next, they are alternately old tracks that are not maintained and never were improved roads, and road 964 was cut off by construction of I-80 and has not been maintained since the interstate was constructed. Therefore these lands must be added to the larger unit because they are potential wilderness lands that are roadless, undeveloped lands. The powerline to the south must be used as the boundary of this inventory unit.

Coyote Hollow, FS roadless ID #0408103	31. Lands south of Gooseberry Creek and north of road 110 are added. 32.Lands in and north of the old route in Oak Spring Hollow area added.	31. The FS boundary uses a linear feature in Gooseberry Creek for the south end of the unit. Field work shows this is not an improved road. It is also coded as an isolated trail segment on the FS GIS, and is not even identified as an unimproved or as an improved road. The southern boundary of this unit must be road 110, and the undeveloped lands located between this road and Gooseberry Creek must be added to the unit. 32. There is an old route up Oak Spring hollow that the FS uses for the north-west boundary of this unit. Field work shows this is not an improved road, let alone an unimproved road. Further it is not identified on the travel map or on the Fishlake GIS as a road, or even as a motorized trail. This can not be used as the boundary of this unit. To do so would be in clear conflict with any interpretation of the criteria outlined for this inventory in the FSH. Accordingly the lands in and north and west of Oak Spring Hollow must be added to this unit.
Flat Canyon, No FS roadless ID number, but this is an IRA, with a 1984 roadless area ID number 08-316	33. This unit is added to the inventory.	33. By any possible stretch or contortion of the FSH inventory criteria, this qualifies as a potential wilderness area to be evaluated, is roadless and undeveloped and must be included in this inventory.

Prince Valley, also called Sergeant Mountain, FS roadless area ID #0408304 and #0408305	34. These two FS roadless areas (see ID number in column to the left) are combined into one roadless, undeveloped area with the lands that the FS excluded in the middle added (First Spring Hollow area). 35. The undeveloped lands at the south end of this combined unit that are located between roads 113 and 474 are added to the southern portion of this inventory unit.	34. The First Spring Hollow area is located between the two Fishlake roadless areas. The boundary for the FS unit to the east is ATV trail 476. It is an ATV trail for vehicles no wider than 40", and is not an improved road 50" or wider maintained for standard passenger vehicles. The boundary for the FS unit to the west is the route labeled road 475. Road 475 is not an improved road for standard passenger vehicles. In fact, it has warning signs at some of the steep high clearance segments that physically require a compound gear. High clearance 4 x 4 trucks used in UEC survey that did not have a compound gear low enough physically can not travel this road. Further, this road is actively managed as a ATV trail and not as an improved road for standard passenger vehicles, let alone street legal vehicles that are not modified for that matter. Because ATV trail 476 and unimproved high clearance road 475 are not improved roads they must not be used as improved roads identified as potential wilderness (or roadless, undeveloped) area boundaries. In light of the above the affected sections of road 475 and trail 476, as well as the undeveloped lands in the First spring hollow watershed must be included in the inventory. This results in one larger inventory unit that will subsequently be evaluated for wilderness recommendations.; 35. This area at the south end of the combined inventory unit are added because road 474 is not an improved road maintained for standard passenger vehicles. Road 474 is exceptionally rough, definitely unimproved, and passable only with high clearance 4 x 4 vehicles with compound gears, and then only with an experienced driver who knows how to drive technically. The stream crossings, grades, and slopes along this route are such that chances of roll over is likely for all except experienced off road technical driving. This road is in reality managed as an ATV trail and not as an improved road. This road and the lands to the south of it are included in the unit, with road 113 being the southern boundary road for the unit.

Bullion Delano-City Creek, FS roadless ID #0408303 (note that this one unit is two separate IRA's.)	36. Bumblebee springs-order canyon area. The FS inventory excluded lands nearby but not affected by historic range disking and seeding. Lands inside the perimeter of this historic treatment area also excluded. These lands area added to the inventory.	36. The lands that were excluded in this area but that were not subject of the historic range treatments are added to the inventory because they were not treated. The lands that were disked and seeded are also added because the historic treatments are not noticeable, let alone substantially noticeable, to the average visitor or person. Only the improved roads in this area are cherrystemmed.
Iant ridge, No FS roadless ID #, and no IRA number or name.	37. The Iant Ridge unit is added to the inventory as a new unit. This new unit is located between Strawberry Flat to the north and Buck Pasture to the south.	37. This unit is added because it is larger than 5,000 acres and does not contain improved roads (it does contain some ATV trails but that can not disqualify the inventory unit), and it does not contain past timber sales or other treatments or developments that are noticeable or that are substantially noticeable.
Circleville Mountain, FS roadless ID #0408302	38. The several thousand acres of roadless undeveloped lands on the east side of the unit in the Cottonwood Creek watershed are added. 39. The large polygons (roughly 3) on the west side of the unit are added. 40. The north-west north portion of the unit is expanded to the boundary roads and cutting units along the Kents Lake road.	38. The several thousand acres in the Cottonwood Creek watershed are added because they are roadless and undeveloped and are contiguous with the main part of the unit. This is no narrow finger or appendage, by any stretch of the criteria. 39. These large polygons on the west side of the unit area added because they are large undeveloped lands contiguous with the main part of the unit and are not narrow fingers. The historic seeding treatments are not noticeable, let alone substantially noticeable to the average visitor, and they are small anyway, and even if excluded, would not cut off these large lands from the larger unit. 40. The potential wilderness lands that are roadless and undeveloped located south of the Kents Lake road and associated timber sale cutting units are added to the unit because they are potential wilderness lands that are densely forested or steep and contiguous with the main body of the unit.

Tushar Mountains, FS roadless ID #0408301 and #0408306	41. The two FS roadless areas are combined into the one larger Tushar Mountains inventory unit. 42. The multiple small to medium sized polygons that are excluded on the western and northern edges of the unit are added.	41. The old unimproved road that is now impassible to trucks because it is an ATV trail and is managed as such is not counted as an improved road and the two smaller FS inventory units are combined into the one larger Tushar Mountains unit. 42. These several small to medium polygons of lands are added to the unit because each area is not justifiably characterized as a narrow finger or appendage, does not contain improved roads, and does not contain past improvements or vegetation treatments that are substantially noticeable. Accordingly, these potential wilderness lands area added to this inventory unit.

Special Areas for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Wilderness Areas	
Desired Condition	• All roadless areas qualified for wilderness status are recommended by the Forest Service for wilderness designation and are either designated by Congress as wilderness or proposed by Congress for wilderness designation. • All areas qualified for wilderness status are managed to protect wilderness suitability
Objectives (to move from existing to desired)	**Obj. 1** Impacts that are substantially unnoticeable to the average lay visitor are not used to disqualify undeveloped areas from being included within the Forest Service's recommendations for wilderness designation. **Obj. 2** All qualified undeveloped areas are recommended by the Forest Service for Congressional wilderness designation. **Obj. 3** Undeveloped areas recommended for Congressional wilderness designation are managed to preserve wilderness character, i. e. , to protect and restore natural processes and to preserve the areas' undeveloped nature,, naturalness, opportunities for solitude and unconfined recreation, and features of ecological, geological, scientific, educational, scenic, or historical value. (Public Law 98-428, §201(4))

Guidelines (sideboards for future activities)	
Monitoring	**Mon. 1** Encroachment of inappropriate activities on Designated wilderness areas and roadless areas that are recommended for Wilderness designation will be recorded whenever noted by Forest Service workers and reported by Forest users;
Suitable Uses	

Special Areas for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Wild and Scenic Rivers	
Desired Condition	• All rivers and streams on the Forest that meet the requirements of the Act are included in the Wild and Scenic System (see Table 13 and 14 – Fishlake [Fishlake not yet added]). Wild and Scenic Rivers are protected and enhanced for their: o free-flowing character; o outstanding natural, historic, recreational, and cultural values; and o opportunities for solitude, wildlife viewing, and user awareness of the connection of the river to wildlife. • Wild and Scenic Rivers contribute to the uniqueness, overall biodiversity, ecological health, and sustainable economy of the region. The natural appearance and essentially primitive character of eligible Wild River corridors are maintained; the natural appearance and character of the eligible Scenic River corridors are maintained; the appearance and character of eligible Recreational River areas are maintained. • Watersheds adjacent to and upstream of each designated river are managed to protect and enhance the free-flowing character, outstanding values, and water quality of the associated designated river. • The outstanding values that prompt consideration of these rivers for the Wild and Scenic System are protected against harm through over-use, encroachment, or other threats to their outstanding nature.
Objectives (to move from existing to desired)	**Obj. 1** Eligibility inventories address the question of national and regional significance in a manner that evaluates river values based on whether they are unique, rare, or exemplary in a regional, physiographic, or geographic comparative basis. Exemplary values need not be rare nor necessarily compared to unique or unusual values. (For example, Huntington Creek should not be compared to the Desolation and Gray Canyons of the Green River to determine whether or not it is exemplary and should not be excluded because there may be a similar stream reach in the region.)

	Obj. 2 For all eligible Wild and Scenic River segments, the protection and enhancement of outstanding remarkable values and water quality apply to the bed, bank, and at least one-quarter mile on either side of the ordinary high-water mark. Boundaries are determined to protect the free-flowing nature of the river and provide for the continued experience of the wild, scenic, recreational, historic or cultural values of the river. **Obj. 3** Suitability determinations are completed for all eligible river segments.
Guidelines (sideboards for future activities)	The following guidelines apply to management of wild and scenic rivers: **Wild Rivers** • Tree cutting: Do not permit cutting of trees within the river corridor except when needed in association with a primitive recreation experience. Tree cutting outside the boundary but within the visual corridors will be managed in a manner to provide special emphasis to visual and water quality. • Roads: Do not permit roads or other provisions for overland motorized travel within 1/4 mile of the river bank. A few inconspicuous roads leading to the boundary of the river area at the time of study will not disqualify wild river classification. • Agricultural use, including grazing: Restict grazing to the extent practiced at the finding of eligibility or that which protects the scenic and ecological values of the river, whichever is more restrictive.. Prohibit row crops. Best management practices will be observed in order to protect water quality. • Recreation development: Locate major public-use areas, such as large campgrounds, interpretive centers, or administrative headquarters outside the wild river corridor. Simple, inconspicuous facilities such as fireplaces or shelters may be provided as necessary within the river area. • Structures: A few minor existing structures could be allowed assuming such structures are not incompatible with the essentially primitive and natural values of the view shed. New structures would not be allowed except in rare instances to achieve management objectives (e.g., structures and activities associated with fisheries enhancement programs could be allowed). • Motorized travel: Selectively allow emergency, essential administrative, and research use of motorized watercraft in eligible Wild River segments, but motorized travel is generally not compatible with the wild classification. **Scenic Rivers**

	• Tree cutting: Tree cutting can be allowed provided that such practices are carried on in such a way that there is no adverse effect on the river and its immediate environment. The river corridor will be maintained in its near natural status. Tree cutting outside the boundary but within the visual scene area will be undertaken in a manner that provides special emphasis on protecting visual and water quality. Best management practices will be observed in order to protect water quality. • Existing roads: Roads may occasionally bridge the river area and short stretches of conspicuous or longer stretches of inconspicuous and well-screened roads or screened railroads could be allowed. • Agriculture, including grazing: See Livestock grazing; Vegetation Management, Aquatic and Riparian; Physical Landscape: Aquatic and Riparian. • Recreation development: Larger scale public use facilities, such as moderate size campgrounds, public information centers, and administrative headquarters are allowed if such structures are screened from the river. Such facilities must be designed and managed in a manner that protects the outstandingly remarkable values of the segment. • Structures: New structures that would have a direct and adverse effect on river values would not be allowed. • Motorized travel: Emergency, essential administrative, and research use of motorized watercraft are selectively allowed in eligible Scenic River segments; motorized travel on land will be permitted, prohibited or restricted as needed in order to protect the segment's outstandingly remarkable values and ecosystem (see Transportation System). **Recreational River Areas** • Timber production: Timber harvesting can be allowed under standard restrictions to protect the river corridor, water quality, scenic, fish and wildlife, and other values. • Roads: Paralleling roads or railroads could be existing on one or both river banks, as long the roads or railroads would not negatively effect the outstandingly remarkable values for which the segment was protected. There can be several bridge crossings and numerous river access points. • Grazing: Best management practices will be observed in order to protect water quality and ecological and recreational qualities of the river segment.. • Recreation development: Recreational classification does not require extensive recreation development.

	• Structures: New structures that would have an adverse effect on the segment's outstandingly remarkable values will not be allowed. Structures in keeping with the classification of the river that will not harm the outstandingly remarkable values are allowed. • Motorized travel: Motorized travel on land or water will be permitted, prohibited or restricted as needed in order to protect the segment's outstandingly remarkable values and ecosystem (see Transportation System).
Monitoring	Desired Conditions: Monitoring elements • Wild and Scenic Rivers nominated and designated • Adequacy of protection of remarkable natural values of eligible rivers.
Suitable Uses	• All existing facilities, management actions, and approved uses are allowed to continue in eligible river corridors until decisions are made on inclusion into the National Wild and Scenic River System, provided these facilities, actions, and uses do not interfere with protection and enhancement of the river's outstandingly remarkable values. The Forest uses the precautionary principle when making decisions about permitted actions and approved uses. • Suitable uses of designated rivers (within ¼ mile of the river) **Wild Rivers** • Tree cutting: Cutting of trees within the river corridor will not be permitted except when needed in association with a primitive recreation experience. Tree cutting outside the boundary but within the visual corridors will be managed in a manner to provide special emphasis to visual and water quality. • Roads: No roads or other provisions for overland motorized travel will be permitted within 1/4 mile of the river bank. A few inconspicuous roads leading to the boundary of the river area at the time of study will not disqualify wild river classification. • Agriculture, including grazing: Agricultural use is restricted to a limited amount of domestic livestock grazing to the extent practiced at the finding of eligiblity. Row crops are prohibited. Best management practices will be observed in order to protect water quality. • Recreation development: Major public-use areas, such as large campgrounds, interpretive centers, or administrative headquarters will be located outside the wild river corridor. Simple, inconspicuous facilities such as fireplaces or shelters may be provided as necessary within the river area.

	• Structures: A few minor existing structures could be allowed assuming such structures are not incompatible with the essentially primitive and natural values of the view shed. New structures would not be allowed except in rare instances to achieve management objectives (e. g. , structures and activities associated with fisheries enhancement programs could be allowed). • Motorized travel: Emergency, essential administrative, and research use of motorized watercraft are selectively allowed in eligible Wild River segments. but motorized travel is generally not compatible with the wild classification. **Scenic Rivers** • Tree cutting: Tree cutting can be allowed provided that such practices are carried on in such a way that there is no adverse effect on the river and its immediate environment. The river corridor will be maintained in its near natural status. Tree cutting outside the boundary but within the visual scene area will be undertaken in a manner that provides special emphasis on protecting visual and water quality. Best management practices will be observed in order to protect water quality. • Existing roads: Roads may occasionally bridge the river area and short stretches of conspicuous or longer stretches of inconspicuous and well-screened roads or screened railroads could be allowed. • Agriculture, including grazing: See Livestock grazing; Vegetation Management, Aquatic and Riparian; Physical Landscape: Aquatic and Riparian. • Recreation development: Larger scale public use facilities, such as moderate size campgrounds, public information centers, and administrative headquarters are allowed if such structures are screened from the river. Such facilities must be designed and managed in a manner that protects the outstandingly remarkable values of the segment. • Structures: New structures that would have a direct and adverse effect on river values would not be allowed. • Motorized travel: Emergency, essential administrative, and research use of motorized watercraft are selectively allowed in eligible Scenic River segments; motorized travel on land will be permitted, prohibited or restricted as needed in order to protect the segment's outstandingly remarkable values and ecosystem (see Transportation System). **Recreational River Areas** • Timber production: Timber harvesting can be allowed under standard restrictions to protect the river corridor, water quality, scenic, fish and wildlife, and other values.

	• Roads: Paralleling roads or railroads could be existing on one or both river banks, as long the roads or railroads would not negatively effect the outstandingly remarkable values for which the segment was protected. There can be several bridge crossings and numerous river access points. • Grazing: Best management practices will be observed in order to protect water quality. • Recreation development: Recreational classification does not require extensive recreation development. • Structures: New structures that would have an adverse effect on the segment's outstandingly remarkable values will not be allowed. Structures in keeping with the classification of the river that will not harm the outstandingly remarkable values are allowed. • Motorized travel: Motorized travel on land or water will be permitted, prohibited or restricted as needed in order to protect the segment's outstandingly remarkable values and ecosystem (see Transportation System).

Table 13. Dixie NF Watercourses and Rivers Eligible For Wild and Scenic Rivers Act Designation

NOTE: STILL NEED FISHLAKE WILD AND SCENIC RIVERS (it will be Table 14)

Watercourse	County	Outstandingly Remarkable Values	Scale of Importance (Significance)	Tentative Classification
East Fork Boulder Creek	Garfield	Scenic, Recreational, Cultural, Ecological	Regionally significant, potentially self sustaining Colorado cutthroat trout fishery	Wild Recreation
West Fork Boulder Creek	Garfield	Scenic, Recreational, Cultural, Ecological	Regionally significant, containing unusual narrows, archaeological sites, and fishery potential.	Wild Recreation
Slickrock Canyon	Garfield	Scenic, Recreational, Cultural, Ecological	Unusual canyons descending from the Forest into the maze of canyons feeding Deer Creek	Wild
Cottonwood Canyon	Garfield	Scenic, Recreational, Cultural, Ecological	Unusual canyons descending from the Forest into the maze of canyons feeding Deer Creek	Wild
The Gulch	Garfield	Scenic, Recreational, Cultural	Slickrock canyon with flowing water, connects wooded forests of the mountains with the desert canyons of the Escalante, unusual on a national scale.	Wild
Steep Creek	Garfield	Scenic, Recreational, Cultural	Slickrock canyon with flowing water, connects	Wild

			wooded forests of the mountains with the desert canyons of the Escalante, unusual on a national scale.	
Pine Creek	Garfield	Scenic, Recreational, Cultural, Ecological	Slickrock canyon with flowing water, connects wooded forests of the mountains with the desert canyons of the Escalante, unusual on a national scale.	Wild
Mamie Creek	Garfield	Scenic, Recreational, Geological, Fish, Wildlife, Cultural, Ecological, Historical	Slickrock canyon with flowing water, unusual on a national scale.	Wild
Death Hollow Creek	Garfield	Scenic, Recreational, Cultural, Wildlife, Paleontological, Ecological,	Slickrock canyon with flowing water, unusual on a national scale.	Wild
North Fork Virgin River	Kane	Scenic, Recreational, Wildlife, Ecological	Intimately connected to Zion National Park, regionally and nationally significant	Wild
Antimony Creek Antimony Creek	Garfield	The segment north from FR 140 to where the creek turns west flows through a roadless area, there is strong fishery potential.	Since the FS was unable to find many streams with such qualities it is of regional significance.	Wild Recreational
Fish Creek	Wayne	Recreational fishery, roadless above the Blind Lake Rd (FR 179), known Cultural values abound in the stretches below the FS boundary and undoubtedly are to be found on the Forest	Originates in an unusual glaciated bowl. While there are a number of such streams on Boulder Mt few remain relatively untrammeled.	Wild Recreational
Pine Creek	Wayne	Scenic, Wild, Recreational	Pine Creek above Pine Creek Reservoir remains Wild. The portion below the reservoir is	Wild Recreational

			wild to the Government Point Trail (191). Pine Creek Reservoir acts as a natural lake similar to the beaver ponds which can be found in the area. Below Trail 191 Pine Creek is an excellent fishery	
Mammoth Creek	Iron/Garfield	Scenic, Recreational	Mammoth Creek borders Black Rock Valley, a rare lava field in a forest in Utah making the area and creek of regional significance. Mammoth Creek lies just north of three large contiguous roadless areas on the forested southern half of the Markagunt Plateau. Mammoth Creek contains a fishery in a regionally unusual setting	Recreational Scenic
Butler Creek	Garfield	Scenic, Recreational, Ecological	Unusual stream in a steep canyon which provides both beaver habitat and brooding habitat for sage grouse. Since Butler Creek and Caddy Creek are continuous they form a superb opportunity to restore sage grouse habitat.	Wild Recreational Scenic
Caddy Creek	Iron/Garfield	Scenic, Recreational, Ecological	Unusual stream in a steep canyon which provides both beaver habitat and brooding habitat for sage grouse. An incredibly beautiful canyon	Wild Recreational Scenic

			flowing over falls. Since Butler Creek and Caddy Creek are continuous they form a superb opportunity to restore sage grouse habitat.	

Special Designated Areas for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Research Natural Areas	
Desired Condition	• Research Natural Areas (RNAs) are being established to ensure ecosystem and natural process representation on the Forests. • Existing and proposed RNAs are maintained as significant natural ecosystems for comparison with those influenced by humans; for provision of ecological and environmental study sites, and for preservation of gene pools for vulnerable (e. g. , declining) native plants and animals. • The natural resource values for which the RNA was established are protected, with particular emphasis on the preservation of the target elements or processes. • RNAs serve as baseline areas for measuring long-term ecological changes. Lands surrounding RNAs are designated as primitive non-motorized areas to serve as buffers for these natural outdoor laboratories. Some RNAs also serve as reference areas for major vegetation habitats. • Threatened, endangered, and sensitive species are present at functionally significant levels. Research and restoration projects eradicate or control invasive exotic species. • Activities are not allowed that would impact the ecological integrity or complexity of the RNA; vehicle use and livestock grazing are not occurring. • As part of the planning process, candidate RNA's are surveyed and described, with valid, scientific assessments from the public and the States of Utah and Colorado included in the analysis. Recommendations in part derive from a list of absent or insufficiently represented types. As the planning process continues, descriptions are elaborated and refined Nominations for additional RNAs are initiated by the Forest throughout the life of the Plan.
Objectives (to move from existing to desired)	**Obj. 1** The Sinbad Ridge RNA as proposed by The Nature Conservancy is established. **Obj. 2** The expansion of the RNA system is evaluated based on recommendations from establishment records, and/or proposals generated from scientific research, and/or proposals from Forest scientists. Continue the search to add new areas to the system for plant communities and riparian and wetland elements not currently in RNAs or proposed RNAs, including those suggested in Appendix K. **Obj. 3** A GIS database is developed for each RNA to track information generated through research projects. **Obj. 4** At least one RNA on each Dixie/Fishlake NF unit is used to

	examine responses of resource elements to global warming.
Guidelines (sideboards for future activities)	**Gdlne. 1** Signs should identify RNA boundaries and list permitted or prohibited uses on the RNA
Monitoring	Desired Conditions: Monitoring elements • Long-term transects and plots are established in every RNA for use in a range of research projects. • Adequacy of protection of RNAs from damage (e. g. , livestock, ORV trespass) Objectives **Mon 1** Adequate data are collected to document baseline conditions of the RNA and produce analytically-based assessments of changes in the ecological status of target vegetation types and other sensitive species.
Suitable Uses	1. Research and restoration projects can be undertaken to eradicate or control invasive exotic species within an RNA to protect values for which the RNA was established 1. Collecting (e.g., of fossils, plants, animals) is allowed within RNAs only under an approved research project; 2. The following uses are not suitable in Research Natural Areas a. livestock grazing or trailing b. recreational use that threatens or interferes with the objectives or purposes for which the RNA was established is allowed a. wood-gathering for other than research under a permit

Special Designated Areas for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Special Interest Areas	
Desired Condition	Special Interest Areas are established for values not already well protected in existing or proposed Wilderness, proposed Wild and Scenic Rivers, existing or proposed Research Natural Areas. Special Interest Areas highlight features unique to the Dixie/Fishlake NF or bioregion, features threatened by current Forest activities, and features that have been nearly lost from the Forest.
Objectives (to move from existing to desired)	**Obj. 1** A continuing search to add new Special Interest Areas is guided by their potential reference area value, or potential to highlight cultural resource protection, ecosystem processes or rare elements including: ▪ Native grasses ▪ Amphibian strongholds

	▪ Intact biological soil crusts ▪ Fully-functioning natural springs and seeps
Guidelines (sideboards for future activities)	**Gdlne. 1** Signs should identify SIA boundaries and list permitted or prohibited uses on the SIA.
Monitoring	Desired Conditions: Monitoring elements 2. Adequacy of protection of Special Interest Areas Objectives **Mon 1.** Adequate data is collected to document baseline conditions of the SIA and produce analytically based assessments of changes in the ecological status or cultural protection afforded by the SIA.
Suitable Uses	1. Research and restoration projects can be undertaken to eradicate or control invasive exotic species within an SIA to protect values for which the SIA was established. 2. Collecting (e.g., of fossils, plants, animals) is allowed within RNAs only under an approved research project; 3. The following uses are not suitable in Research Natural Areas a. livestock grazing or trailing b. recreational use that threatens or interferes with the objectives or purposes for which the RNA was established is allowed c. wood-gathering for other than research under a permit d. Motorized travel research under a permit e. Motorized travel

Public Use and Participation Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Public Use and Participation: General	
Desired Condition	• Partnerships and agreements cooperatively implement strategies described in the plan as compatible with health of the Forest's natural heritage. • Volunteers, including scientists, assist the Forest in achieving objectives compatible with health of the Forest's natural heritage.
Objectives (to move from existing to desired)	
Guidelines (sideboards for future activities)	
Monitoring	
Suitable	

Uses	

Public Use and Participation Components for the Dixie/Fishlake National Forest Plan Revision
FOREST-WIDE: Sustainable Multiple Use Option

RESOURCE: Conservation Stewardship

Desired Condition	• All users and managers of the Forest understand that the Forest's ecosystems and native species are ancient, unique, inter-related and vulnerable; cultural heritage sites are ancient, unique, and vulnerable; and human uses and numbers can damage the long term health of the native ecosystems and/or preservation of cultural heritage sites and artifacts. • Educational and natural resource information signs and outreach to all users instill a "leave no trace" ethic. • All Forest users understand that they are able to monitor, protect and restore as well as use Forests. **Scientific Research** • Much of the Forest is an outdoor laboratory in which consequences of past and current human activities can be studied as well as biological functions, interactions among species, and species responses to ecological change. • Reference areas serve as controls available to independent scientists and volunteers for studying natural restoration and consequences of activities in similar habitats elsewhere on the Forest. • While cultural and natural resources are available for scientific study, these studies are benign and do not alter a site significantly. **Public Surveys/Monitoring** • Forest users are aware of opportunities to monitor conditions and species on the Forest using sound methods, documentation, and protocol posted by the Forest. **Collaborative Restoration** • Forest users are aware of opportunities for working with the Forest, non-governmental organizations, and private entities to restore depleted habitat, ecosystem functions, and populations of sensitive or extirpated species. **Recreation Stewardship** • The Forest sets priorities for recreation stewardship activities that are appropriate for developing partnerships with local communities of forest recreationists (e. g. equestrians, climbers, mountain bikers, hikers, hunters, ORVers, skiers, food gatherers, etc.)(From here forward called Partnerships). • The Forest also sets priorities for recreation stewardship activities that must be carried out independently by the agency itself. • Partnerships promote the understanding of issues related to specific Forest

	uses and the Forest's unique natural, cultural, and historical heritage. • Partnerships uphold minimum impact techniques and a sound land ethic; maintain and/or reclaim routes and trails; and help address management concerns that were not anticipated at the time of the Forest Plan. • Recreational users are aware of opportunities and encouragement to help steward the natural and cultural resources their recreation inevitably impacts. **Heritage Resource Stewardship** • The Forest is implementing Heritage Stewardship Partnerships with Tribal governments, the State Historic Preservation Office and State Archaeologist, with other State and Federal agencies, and with private stewardship organizations to conduct educational efforts promoting understanding of issues related to the Forest and its unique cultural and historical heritage. • Partnerships promote minimal impact research and preservation techniques, and maintain and/or reclaim sites and areas of concern. • Partnerships assure that cultural, historic, and spiritual values are respected and integrated into decisions and actions, and are sustained for future generations' enjoyment and education. • Partnerships enable the Forest to have a firm understanding of the cultural resources that exist within their jurisdiction, and acknowledge that Native American sites, places, and resources are a living part of Native American tradition and culture, not static pieces of the past; and that Native American sites may involve landscape features beyond a specific human artifact. **Public Education** • Forest users are provided with opportunities to learn about the ecological, biological, cultural, physical, geographical, and historical stories that constitute the unique life of the Forest. • Forest users learn more about their own relationship to the Forest each time they visit.
Objectives (to move from existing to desired)	**Scientific Research** **Obj. 1** Methods acceptable to the Forest to evaluate the condition and functioning of the Forest's ecosystems, processes, vegetation and wildlife, including quality assurance, are posted on the Forest website. **Obj. 2** Sound scientific, independent research relevant to Forest Desired Conditions is encouraged, supported, and acknowledged in management decisions. **Obj. 3** Monitoring methods and results of scientific research submitted to the Forest are made available to the public. **Public Surveys/Monitoring** **Obj 1** Forest users and independent scientists are encouraged to map, monitor, evaluate, and maintain native ecosystem conditions on the Forest.

	Obj 2 Forest users are encouraged to report violations of user regulations or permits, in order to extend the capabilities of the Forest Service staff to protect the Forest. **Obj 3** The Forest provides a response to individuals who submit independent monitoring, mapping or evaluation that meets the Forest's standards, indicating how the information has been or will be used by the Forest. If the Forest judges the mapping, monitoring, or evaluation to have not met its standards, the Forest explains this to those who have submitted the data. **Collaborative Restoration** **Obj 1** The Forest encourages, supports, and/or joins in public partnerships for restoration of native ecosystems, habitat, and species on the Forest. **Obj 2** A list of desirable non-invasive maintenance activities (e. g. , hand-pulling of easily-identified invasive species; maintaining gates open or closed, as found) is posted on the Forest website. **Obj 3** Cooperative agreements are formed with communities and user groups to help provide education, trail monitoring and maintenance. **Recreation Stewardship** **Obj. 1** Partnerships with recreationists for the ultimate protection of the Forest, to maintain appropriate access and to instill among community members the ideals of minimum impact and a sound land ethic, are encouraged by the Forest. **Obj. 2** The Forest website enables Partnerships to keep the public informed about issues and desired conditions. **Obj. 3** Forest sideboards are clear regarding what activities are appropriate for Partnerships. Partnerships for education, monitoring, route maintenance, and repair of resource damage from illegal use are strictly regulated by published protocols, which ensure that: • all Partnership communications and documents are publicly available • existence of a Partnership does not guarantee use—use requires a public decision making process • Partnership status conveys neither special privileges nor ownership of facilities such as signs or kiosks • surveys and monitoring reports that comply with the protocols cannot be dismissed • Forest use is managed to ensure that activities remain within the ecological constraints of healthy native ecosystems. **Obj. 4** Forest protocols guide the activities of voluntary user group Forest

	Patrols, voluntarily established to protect the resource, educate visitors, guard against illegal activities, provide necessary assistance and perform search and rescue functions in cases of emergency incidents. **Heritage Resource Stewardship** **Obj. 1** Partnerships assure training and provide volunteers to help monitor and aid in the protection of sites, and serve as on-site educators and site ambassadors. = **Obj. 2** Partnership-sponsored culturally aligned projects within the Forest provide jobs for tribal members and new resources for ecosystem management. **Obj. 2** Partnerships promote scientific study of cultural resources that yields new and important information, adds to the wealth of information, and leads to better understanding of past cultures. **Obj. 3** The Forest consults with Tribes in determining and protecting the rights of Native Americans to gather native foods for consumption and sacred materials for ceremonies within the bounds of ecological needs of the Forest. **Monitoring** **Mon. 1** Number of off-road vehicles detected in cultural and historical areas where they are prohibited. **Mon. 2** Incidents of site vandalism and unintentional disturbances. **Public Education** **Obj. 1** Educational materials provided by the Forest: • broaden understanding of the importance of preserving cultural and historic resources • help Forest users understand, enjoy, monitor and protect Forest ecosystems, processes, and native vegetation and wildlife. **Obj. 2** Where feasible, onsite educational materials encourage experiential understanding of ecosystem functions, natural disturbances, ecological interactions, native plants and animals, habitats, and communities.
Guidelines (sideboards for future activities)	**Collaborative Restoration** **Gdlne. 1** Maintenance and restoration projects by Forest users that involve altering Forest conditions in order to protect, maintain, or restore Forest ecosystems should be subject to Forest Service approval and conditions, which should be posted on the Forest website. All relevant information regarding such projects is publicly available. **Heritage Resource Stewardship**

	Gdlne. 1 Remote, backcountry sites should not be chosen for interpretive programs/activities. **Gdlne. 2** Responsive action should be issued in response to verifiable citizen reports and other evidence of resource damage and those who provided the reports should be provided with acknowledgment of their report and information on responsive action(s) taken.
Monitoring	**Mon. 1** A report on conservation stewardship activities undertaken by the public on the Forest is prepared annually. **Scientific Research** **Mon 1** Data and analyses are accepted for consideration in management decisions when scientifically relevant and using sound methods. **Recreation Stewardship** **Mon. 1** Approximate numbers of volunteer hours, donation amounts, and reports on actions accomplished by Partnerships is annually reported. **Heritage Resource Stewardship** **Mon. 1** Number of off-road vehicles detected in cultural and historical areas where they are prohibited is annually reported. **Mon. 2** Incidents of site vandalism and unintentional disturbances are annually reported.
Suitable Uses	

Public Use and Participation Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Tribal and Native American Interests	
Desired Condition	• Forest staff members are trained in historical, legal, and cultural perspectives of Utah Tribes. • Cultural, historic, and spiritual values are respected and integrated into Forest decisions and actions. These values are sustained for future generations' enjoyment and education. • Sacred sites are revered and protected in keeping with the American Indian world view that while all elements of the landscape are endowed with spirit and meaning, certain sites hold particular sacredness. • The sacred roles of certain plants and wildlife are facilitated and protected by the Forest. • The Forest recognizes the validity of tribal invocation of traditional

	sacred ecological stances toward their ancestral lands within the Forest. • Cultural preservation, and ultimately, tribal wellness are promoted by preserving and restoring land, wildlife, and natural resources as a sanctuary for spiritual and cultural renewal
Objectives (to move from existing to desired)	**Obj. 1** Forest partnerships with the Utah Division of Indian Affairs and Tribes promote achievement of Desired Conditions. **Obj. 2** The Forest and Tribes form partnerships supporting fuel and fire management efforts employing tribal crews trained by forest fire specialists. **Obj. 3** Training of Forest staff in cultural, historical, and legal perspectives of Utah Tribes is collaboratively undertaken by the Forest and Tribes. It includes an overview of effective joint Forest/Tribal conservation management efforts and business ventures such as tree thinning. **Obj. 4** Forest staff efforts welcome American Indian Tribes in exercising their rights of access and use of Forest land and resources. Tribes are: • included in discussions that go beyond their established legal rights, such as ancestral remains and sacred sites • heard in matters such as economic impacts, habitat preservation, and water quality • made welcome in planning forums and feel their contributions are acknowledged, understood, and adequately considered.
Guidelines (sideboards for future activities)	**Gdlne. 1** Forest landscape or resource activities should be reviewed by the relevant Tribe for conflicts with Native American cultural and natural resource preservation.
Monitoring	**Mon 1** Outreach efforts to form partnerships involving Tribes, the Utah Division of Indian Affairs, and/or fire crews, and accomplishments are reported annually.
Suitable Uses	

Public Use and Participation Components for the Dixie/Fishlake National Forest Plan Revision FOREST-WIDE: Sustainable Multiple Use Option	
RESOURCE: Enforcement	
Desired Condition	• Restrictions on Forest uses are understood by both users and monitors of use on the Forest. • Forest users understand that their monitoring of Forest uses and reporting of illegalities is welcomed and will be responded to by

	Forest management.
Objectives (to move from existing to desired)	**Obj. 1** Guidance for citizen documentation and reporting of observed Forest permittee and user violations is posted on the Forest website.
Guidelines (sideboards for future activities)	**Gdlne. 1** Public reporting of user violations which meets the Forest's guidance should be entered into the relevant Forest files for use in Forest decisionmaking and enforcement. **Gdlne. 2** The Forest should provide citizens who have reported violations of permit requirements, regulations, or laws with a response to their report, including the action(s), including no action, the Forest is taking in response to the report. **Gdlne. 3** Off-road vehicles cannot operate on the Forest without being registered with the Forest (or Region) and displaying a photographable registration number with font at least 4" in height and visible from 150 feet
Monitoring	• Adequacy of: o Record keeping of violations o Facilities to accommodate users o Employee training in law enforcement • Number of incidents and types (including estimated acreage) of: o Encroachment by landowners o Unauthorized timber cutting, fuel wood gathering, and livestock grazing o Theft and vandalism to archaeological sites o Vehicular travel illegalities • Number of reports filed, types of illegalities reported; and number and types of responses to reports brought by: o Law enforcement officers o Forest employees o Citizens • Public costs of: o Enforcement staff (both Forest Service and non-Forest Service) o Mitigation of resource damage due to illegal or unauthorized activities
Suitable Uses	

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

NATIVE BIODIVERSITY

- Distinguishing between native and exotic species when assessing biological diversity on the

Forest.

- Identifying situations in which current Forest uses are incompatible with maintaining or restoring native species or habitat conditions.
- Maintaining and restoring habitat for species of concern (i. e. federally listed, sensitive, vulnerable (e. g. , declining), or extirpated native species) when this requires altering recreational or commercial habits of Forest users.
- Maintaining or re-introducing populations of top predators to restore self-regulating ecosystem processes.
- Ensuring natural, cascading, beneficial effects on food webs through managing for healthy populations of keystone species (e. g. . wolves control elk, which reduces grazing stress on willow suckers, which allows beaver to restore incised streams, which benefits fish habitat)
- Ensuring that monitoring of Forest uses is sufficient to detect movement toward or away from Desired Conditions for native biological diversity.
- Taking action to conserve and restore aquatic, riparian and wetland areas.
- Discovering techniques to examine all elements of biodiversity that have been previously under-studied on the Forest such as insects, amphibians, reptiles, birds, small mammals, carbon and nutrient cycling.
- Taking action to maintain and restore soil quality by reducing compaction and erosion, and supporting biological soil crust recovery to sustain carbon storage, nutrient cycling, water infiltration, plant and animal productivity and health and maintain or enhance water and air quality.
- Developing effective means of communication with all Forest users regarding how their actions have consequences that can be detrimental or beneficial to native species and ecosystem functions.
- Preventing the introduction and establishment of, arresting the spread of, or eradicating invasive nonnative plant and animal species that displace, prey upon, or otherwise harm native species that live in terrestrial or aquatic habitat.
- Providing guidance for Forest users to:
    - effectively monitor and survey Forest conditions and native and invasive plant and wildlife species.
    - report violations of Forest regulations.
- Engaging local communities, governments, and individuals in restoration of Forest habitat and conservation linkages of the Forest with surrounding private and public lands, including other National Forests.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

PRECAUTIONARY MANAGEMENT

- Being alert to early manifestations of both harm and recovery through careful observation, rigorous science, and the eyes of a vigilant public.
- Increasing our abilities to predict harmful and beneficial consequences of human activities undertaken within the Forest.
- Adopting forms of Forest uses and activities that are harmonious with the health and integrity of the Forest's ecosystems as a commitment to the thriving of the Forest for future

generations.

- Considering, habitually, whether activities implicated in impairment are necessary and to seek less destructive, more appropriate ways of using or managing the Forest.
- make major changes when impairment is occurring or has occurred. According to the circumstances, great restraint or bold experimentation may be necessary.
- In any circumstance of harm to Forest ecosystems, considering curtailment or alteration of activities that are impairing natural processes and native diversity, so that the Forest may heal itself.
- Proceeding with active restoration, when it is appropriate, on the basis of our best knowledge and aiming for long-term recovery of ecosystems rather than short-term convenience or profit.
- Reaching decisions through transparent, informed, and democratic processes that consider potentially affected parties, including, in absentia, future generations of humans and other species.
- Conducting all activities with humility by studying effects and making appropriate adaptations.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

FOREST HEALTH: GENERAL

- Permitted livestock grazing has resulted in a decrease in fine fuels, decreasing frequency and extent of understory fires, moving low elevation ponderosa pine and mid elevation mixed conifer forest conditions on a trajectory away from HRV.
- Permitted livestock grazing has resulted in an increase in woody plants, which can increase intensity of and probability of stand replacing fires in low elevation ponderosa pine to an extent outside HRV
- Permitted livestock grazing has resulted in deleterious effects to the aspen forest community distribution, status, trend, and resiliency
- Lack of keystone predators such as wolves has altered elk herd composition and behavior, resulting in deleterious effects to riparian/willow and aspen community structure and function.
- Contouring and plantations of ponderosa pine planted over the last 50 years have often become dense, even-aged stands with a high TPA. These areas are outside HRV, are at risk of complete loss due to crown fire and do not provide habitat needs of game and non-game wildlife.
- Past sanitation/salvage harvesting has resulted in a reduction of the distribution, abundance, and quality of forested snag habitat depended upon by cavity-nesting wildlife.
- Past sanitation/salvage harvesting has resulted in a reduction in large woody debris, 1000+ hour fuels, and standing large snags that hold water and resist ignition and provide nutrients and microbial communities which replenish soil resources and provide nitrogen-fixing services for present and future forest resources.
- Fire suppression has and is promoting undesirable buildup of woody plants.
- Sanitation/salvage harvests have reduced habitat and prey availability for three-toed woodpecker and other insectivorous primary/secondary cavity nester communities.
- Surface subsidence from subsidence coal mining has (1) altered subsurface hydrology, (2) increased frequency and probability of slumping and landslides, particularly on the North Horn formation, which has local effects including decreased integrity of forest root systems, forest vigor, increased mortality, and has also increased forest susceptibility to water stress.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

FIRE

- Eliminating the loss of human life to wildland fire.
- Creating a safer landscape context for fire by increasing fire preparedness and defensibility of at-risk communities.
- Safely restoring fire to forests where fire exclusion has caused deleterious ecological impacts.
- Delineating areas on the landscape and conditions in which natural fires can be allowed to burn.
- Planning in advance for naturally ignited fires so that when they do occur, management areas and containment strategies for them are already in place.
- Minimizing the negative effects of fire to imperiled species and sensitive ecological values.
- Focusing fire suppression where it most effectively protects communities, and minimizing the impacts of fire suppression to species and ecosystems.
- Understanding and accommodating how fire regimes may change with global warming.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

GLOBAL WARMING

- Identifying, understanding, and mitigating impacts to species and other ecological values threatened by the effects of global warming.
- Using reference-based assessments and objectives while recognizing and acting cautious in the face of their limitations in the context of global warming.
- Developing ecologically functional reference areas, and efficient and informative means of measuring those areas, in order to understand natural ecosystem responses to global warming as a basis of comparison for ecosystem management.
- Understanding the degree to which ecosystem behavior is the result of past management or global warming, and developing management responses that are appropriately cautious in light of such uncertainty.
- Tailoring levels of uses to facilitate ecological sustainability amidst rapidly changing and vulnerable ecosystems.
- Educating the public about the relationships between global warming and ecosystem behavior, and about the need for management that is cautious in the face of uncertainty.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

MINERALS/ENERGY MARKET CONDITIONS/APPLICATIONS

- Closing mineral and energy leasing, and related mining and drilling operations on the following Forest lands
    - designated wilderness
    - designated critical habitat (ESA) and other important wildlife habitat
    - roadless areas
    - areas with high concentrations of archeological sites
    - Reference areas, Research Natural Areas, and Special Interest Areas
    - eligible Wild and Scenic River corridors
    - areas where recreational, scenic, potential wilderness, or wildlife values outweigh oil, gas, or mineral values
- Protecting additional areas and forest values through surface use prescriptions and limitations.
- Requiring for mining, oil, and gas exploration, mining, drilling, and production sites:
    - complete and successful reclamation of all disturbed areas, including bonding or other financial arranements that protect taxpayers from all liability and clean-up costs for those activities.
    - closed loop oil and gas drilling techniques
- Conducting coal mining in a manner that protects enduring natural features of the Forest, including those noted above.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

SOCIAL CONDITIONS/DEMANDS
1. COMMERCIAL EXTRACTION

- Altering or temporarily or permanently halting long-standing commercial practices when evidence indicates that impairment of natural ecosystem processes or native species habitat or populations is occurring
- Restoring, where feasible, impaired native habitats and processes, and diminished species populations, including extirpated species such as wolves.
- Acknowledging that the consequences of historical commercial extraction may require restrictions on current commercial practices, even when current practices are less destructive, so that future commercial activities may be possible, supported by healthy native ecosystems.

- Using reference areas as benchmarks for recovery potential.
- Communicating with the public regarding the unique nature of the Forest, and its special role as public lands containing some of the last of the nation's wide-ranging mammals; old forests; rare and endemic plants, fish, and wildlife; cool, clean water; natural silence; and commitments of stewardship to future generations.
- Ensuring that non-monetary and long-term natural and cultural values of Dixie/Fishlake are able to compete with the more obvious, often shorter-term monetary values of commercial extraction from the Forest.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

SOCIAL CONDITIONS/DEMANDS
2. MOTORIZED RECREATION

- Protecting the long-term health of the Forest while increasing numbers of people are coming to Dixie/Fishlake NF for a growing number of activities.
- Communicating with motorized recreationists that not all off-road activities are necessarily appropriate in the Forest or in all areas of the Forest.
- Adapting management of off-road vehicle use as other activities increase, in particular horse riding, hiking, mountain biking, rock climbing.
- Managing off-road vehicle recreation within constraints of healthy ecosystems and habitats for native plants and animals.
- Preventing unplanned, renegade, roads and routes from being created by motorized and mechanized users and closing/removing/restoring those unauthorized routes that have been created by users.
- Successfully preventing closed logging and fire fighting roads/routes from being illegally re-opened by motorized users.
- Designating routes for motorized recreation that the Forest has the personnel and resources to enforce, monitor, and maintain.
- Preventing operators of large off-road vehicles from using ATV routes. (The Forest limits ATV routes to a maximum tread width of 50 inches.)
- Preventing operators of ATVs from using single-track dirt bike routes, mountain bike trails, and hiking trails.
- Addressing the disproportionate capability of motorized activities to dominate and degrade other recreational uses through noise, speed, distance traveled, and visual impacts.
- Foreseeing and preventing adverse impacts on wildlife security, habitat and forage.
- Protecting user opportunities for quiet and solitude.
- Addressing maintenance backlogs, road reconstruction or relocation, access for modern fire fighting equipment, and the decommissioning of roads.
- Ensuring that partnerships with recreational groups do not replace the responsibility of Forest managers to prevent potential or observed ecological impacts of those recreational activities.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

BIG GAME VERSUS LIVESTOCK MANAGEMENT

- Cooperating with the Utah Division of Wildlife Resources to prevent impairment of and insure candid reporting on the condition and trends of all types of Forest resources and their underlying ecosystem processes.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

MANAGERIAL ACCOUNTABILITY

- Cooperating with the Utah Division of Wildlife Resources, scientists, citizens, other public land managers, and Forest users to prevent impairment of and insure candid reporting on the condition and trends of all types of Forest resources and their underlying ecosystem processes
- Keeping track of what is happening to interactions among species and physical landscape conditions on the Forest
- Using comparable areas of least human disturbance as reference for whether and what type of impairment or recovery has or is occurring on the Forest
- Constraining human uses within the sideboards of complex ecosystem processes and the needs of renewable surface resources even when Forest users resist limitations on their particular uses
- Ensuring transparency of information, surveying and monitoring methods, and gaps in essential information regarding productivity of the land, and
- Responding to scientific evidence based on sound methods regardless of the source from which that information comes
- Passively and, where passive restoration cannot suffice, actively restoring resources that have been impaired.
- Involving the public in reciprocal relationships (i. e. , care as well as use) with the Forest.

Management Challenges for the Dixie/Fishlake National Forest
FOREST-WIDE: Sustainable Multiple Use Option

MONITORING

- Insuring appropriate levels of monitoring funds in the costs of all programs and projects, or not undertaking the programs or projects
- Selecting and using monitoring methods and indicators that are:
    - Relevant: Evaluates conditions identified in Desired Conditions, Objectives and Standards
    - Sensitive: Quickly detects change, shows trends, identifies critical features
    - Available: Inexpensive, easily applied
    - Measurable: Accurately quantifiable with acceptable methods
    - Defensible: Minimally subject to individual bias
    - Verifiable: Allows others applying the same methods to achieve similar results
    - Ecologically inclusive: Avoids narrow applicability, where feasible (e. g. , monitor species that effectively inform about the habitat of many species; address questions of broad management implications)
- Establishing appropriate reference areas of healthy, least-impacted habitats so that the degree of native ecosystem impairment or recovery can be better understood.
- Monitoring population trends of management indicator species that have been selected for maximum, sensitive information on the condition and trends of other species.
- Engaging independent scientists, user groups, and alert citizens in partnerships for monitoring Forest projects, programs, conditions, and species.
- Synthesizing monitoring data so that patterns, trends, and management implications are clear
- Conversing with the public regarding monitoring results and monitoring needs.
- Adapting management of projects and programs on the basis of evidence of species and ecosystem impairment and recovery.

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GUIDANCE FROM RECOVERY PLANS AND CONSERVATION AGREEMENTS RELEVANT TO HABITAT MANAGEMENT FOR SOME VULNERABLE NATIVE SPECIES DIXIE AND FISHLAKE NFS

California Condor – one occurrence on the Dixie. Relevant guidance from Recovery Plan (USFWS 1996):

(Sections 3.1 and 3.2) Implement management plans to protect known suitable nesting sites and roosting sites on public lands…continue the enforcement of adopted Forest Service guidelines that protect known and potential roost sites from activities that could adversely modify or destroy them, and provide adequate protection against human disturbance."

Section 3.4) "Continue to monitor potential impacts of all surface-disturbance activities (e.g. energy development, …) within historical condor range"

Mexican spotted owl –There are 2 PACs in Dixie NF, one in Escalante RD & one on Teasdale. Relevant guidance from Recovery Plan (USFWS 1995):

GENERAL RECOMMENDATIONS FROM MEXICAN SPOTTED OWL RECOVERY PLAN

One guideline that applies to all areas with any potential for owl use is to inventory for spotted owls before implementing any management action that will alter habitat structure.

GUIDANCE FOR PROTECTED AREAS

Protect all Mexican spotted owl sites known from 1989 through the life of the Recovery Plan (Protected Activity Centers), all areas in mixed conifer and pine-oak types (defined in II.C) with slope >40% where timber harvest has not occurred in the past 20 years, and all legally and administratively reserved lands.

PROTECTED ACTIVITY CENTER (PAC) GUIDELINES

1. Establish PACs at all Mexican spotted owl sites known from 1989 through the life of the Recovery Plan, including new sites located during surveys. PACs should also be established at any historical sites within the Colorado Plateau…
2. No harvest of trees >22.4 cm (9 in) dbh is allowed in PACs. Harvest of any trees is only permitted as it pertains to 5 below.

3. Fuelwood harvest within PACs should be managed in such a way as to minimize effects on the owl, its prey, and their habitats.
4. Road or trail building in PACs should generally be avoided but may be allowed on a case-specific basis if pressing management reasons can be demonstrated.
5. Implement a program consisting of appropriate treatments to abate fire risk….
(c) … Habitat components that should be retained or enhanced include large logs (>30 cm [12 inches] midpoint diameter), grasses and forbs, and shrubs.
(d) Treatments can occur only during the nonbreeding season (1 September- 28 February)
6. light burning of ground fuels may be allowed within the 500 acres surrounding the 100-acre PAC centers

Steep Slopes (outside of PACs)
Within mixed-conifer and pine-oak types, allow no harvest of trees >22.4 cm (9 inches) on any slopes >40% where timber harvest has not occurred in the past 20 years. These guidelines also apply to the bottoms of steep canyons. Thinning of trees <22.4 cm (9 inches) dbh, treatment of fuels, and fire are allowed, as discussed in 5c above.

GUIDANCE FOR RESTRICTED AREAS

These guidelines apply to planning areas. Planning areas can be diversity units, sale planning areas, or ecological areas, all places where management activities are considered and evaluated.

Reference Conditions for nesting and roosting (target/threshold conditions)

If the basal area and tree density levels given in Table III.B.1 exist, adequate amounts of snags and downed logs (and other habitat elements) should be present.

The values provided in Table III.B.1 represent targets in that they define the desired conditions to be achieved with time and management. They also represent threshold conditions in that they define minimal levels that must be maintained. That is, activities can occur within stands that exceed these conditions, but the outcome of such activities cannot lower the stands below the threshold levels unless large-scale ecosystem assessments demonstrate that such conditions occur in a surplus across the landscape. Note that all values must be met simultaneously for a stand to meet target/threshold conditions.

Table III.B.1. Target/threshold conditions for mixed-conifer and pine-oak forests within restricted areas. Forest types are defined in II.C.

Recovery Units Forest type	% of area[1]	% stand density of trees 30.5-45.7 cm dbh (12-18 in)	% stand density of trees 45.7-61 cm dbh (18-24 in)	% stand density of trees >61 cm dbh (>24 in)	Tree basal area[2]	Density of large trees[3]
Basin and Range - East RU						
Mixed-conifer	20	10	10	10	32 (150)	49 (20)
Mixed-conifer	10	10	10	10	39 (170)	49 (20)
All RUs, except Basin and Range - East RU						
Mixed-conifer	25	10	10	10	32 (150)	49 (20)
Mixed-conifer	10	10	10	10	39 (170)	49 (20)
Colorado Plateau, Upper Gila Mountains, Basin and Range - West RUs						
Pine-oak[4]	10	15	15	15	32 (150)	49 (20)

[1] % of area pertains to the percent of the planning area, landscape, subregion, and region that must meet target/threshold conditions. For mixed-conifer forests within Basin and Range - East and then for all other RUs, the percentage figure on the second line is a subset of the percentage figure given immediately above.
[2] Basal area is m^2/ha (ft^2/acre).
[3] Trees >45.7 cm (18 inches) dbh. Density is trees/ha (trees/acre).
[4] For pine-oak, 4.6 m^2/ha (20 ft^2/acre) of oak must be provided as a threshold/target condition.

Fine Filter

Overriding Guidelines: Management activities that influence the owl and its habitat should be conducted according to the following overriding guidelines:

1. Manage mixed-conifer and pine-oak forest types to provide continuous replacement nest habitat over space and time. Treatment of a particular stand depends on its capability to attain the desired stand conditions. Target stand structure would be the described conditions for nesting and roosting habitat (Table III.B.1) but only the portion of the landscape that can be sustained through time should be in that condition.

2. Incorporate natural variation, such as irregular tree spacing and various stand/ patch sizes, into management prescriptions and attempt to mimic natural disturbance patterns.
3. Maintain all species of native vegetation in the landscape, including early seral species. To allow for variation in existing stand structures and provide species diversity, both uneven-aged and even-aged systems may be used as appropriate.
4. Allow natural canopy gap processes to occur, thus producing horizontal variation in stand structure.

Specific Guidelines: The following guidelines are intended to minimize threats to the Mexican spotted owl, retain and enhance important but difficult-to-replace habitat elements, and provide management flexibility.

1. Emphasis should be placed on uneven aged management systems. Existing stand conditions will determine which silvicultural system is appropriate.
2. Extend rotation ages for even-aged stands to >200 years. Silvicultural prescriptions should explicitly state when vegetative manipulation will cease until rotation age is reached. This age may depend on site quality, but ceasing activity at 140 years and allowing 60 years for unaltered stand maturation and senescence seems reasonable.
3. Within pine-oak types, emphasis should be placed on management that retains existing large oaks and promotes the growth of additional large oaks.
4. Retain all trees >61 cm [24 in] dbh.
5. Retain hardwoods, large down logs, large trees, and snags.
6. Management priority should be placed on reducing identified risks to spotted owl habitat. The primary existing threat is catastrophic wildfire. Thus, we strongly encourage the use of prescribed and prescribed natural fire to reduce hazardous fuel accumulations. Thinning from below may be desirable or necessary before burning to reduce ladder fuels and the risk of crown fire. Such thinning must emphasize irregular tree spacing.
7. No stand that meets threshold conditions can be treated in such a way as to lower that stand below those conditions until ecosystem assessments can document that a surplus of these stands exist at larger landscape levels (e.g., no less than the size of a FS District). This does not preclude use of treatments to reduce fire risks or lessen insect or disease problems, nor does it preclude management to meet other ecosystem objectives as long as stand-level conditions remain at or above the threshold values given in Table III.B.1.

Riparian Communities

The goals of these guidelines are to maintain healthy riparian ecosystems where they exist and initiate restoration measures to return degraded areas to healthy conditions.

1. Maintain riparian broad-leaved forests in a healthy condition where they occur, especially in canyon-bottom situations. Where such forests are not regenerating

adequately, active management may be necessary. Possible actions to restore these forests may include reducing grazing pressure, establishing riparian exclosures to manage forage use better, and shifting to winter grazing seasons.
2. Restore lowland riparian areas. Spotted owls once nested in riparian gallery forests. Conceivably, restored riparian forests could contribute additional nesting habitat in the future and could also create a landscape that is more effectively connected for dispersing owls.
3. Emphasize a mix of size and age classes of trees. The mix should include large mature trees, vertical diversity, and other structural and floristic characteristics that typify natural riparian conditions.

GRAZING GUIDELINES

The following guidelines should be applied to all protected and restricted areas:
1. Monitor grazing use by livestock and wildlife in "key grazing areas." Key grazing areas are primarily riparian areas, meadows, and oak types. Monitoring should begin by determining current levels of use plus current composition, density, and vigor of the plants. Ultimately, monitoring should detect any change in the relative composition of herbaceous and woody plants. The intent is to maintain good to excellent range conditions in key areas while accommodating the needs of the owl and its prey.
2. Implement and enforce grazing utilization standards that would attain good to excellent range conditions within the key grazing areas. Use standards (e.g., FS Region 3, Range Analysis Handbook) that have been developed for local geographic areas and habitat types-- particularly in key habitats such as riparian areas, meadows, and oak types-- that incorporate allowable use levels based on current range condition, key species, and the type of grazing system. Establish maximum allowable use levels that are conservative and that will expedite attaining and maintaining good to excellent range conditions. The purpose of establishing these use levels is to ensure allowable use of plant species to maintain plant diversity, density, vigor, and regeneration over time. Additionally, a primary purpose is to maintain or restore adequate levels of residual plant cover, fruits, seeds, and regeneration to provide for the needs of prey species and development of future owl foraging and dispersal habitat.
3. Implement management strategies that will restore good conditions to degraded riparian communities as soon as possible. Strategies may include reductions in grazing levels and increased numbers of exclosures (i.e., fencing) to protect riparian plant cover and regeneration, and to prevent damage to stream banks and channels (Clary and Webster 1989, Platts 1990). In many cases, degraded riparian areas may require complete rest for periods from a few years to 15 years for the area to recover (Kennedy 1977, Rickard and Cushing 1982, Clary and Webster 1989). Additional strategies may include the use of riparian pastures, limited winter use, double rest-rotation, and other methods that emphasize riparian vegetation and stream bank/ channel recovery (Platts 1990). Riparian restoration projects that include the use of exclosures need not require exclosures along the entire drainage course at one time. Rather, systematic use of exclosures that protect the most sensitive portions of riparian habitats is encouraged. Riparian areas can also benefit from protection of adjacent upland areas (Bryant 1982). Placement of exclosures (controls) and areas open to grazing (treatments) should be

designed to permit determination of effects on several ecological responses (e.g., vegetation, erosion, water quality, prey availability).

RECREATION GUIDELINES

The following guidelines should be applied to all protected and restricted areas:
1. No construction, either of new facilities or for expanding existing facilities, should take place within PACs during the breeding season, 1 March through
31 August. Any construction within PACs during the nonbreeding season should be considered on a case-specific basis. Modifications to existing facilities pertaining to public safety and routine maintenance are excepted.
2. Managers should, on a case-specific basis, assess the presence and intensity of allowable recreational activities within PACs. Spatial and temporal restrictions should be considered for new activities.
3. Seasonal closures of specifically designated Recreational activities should be considered where appropriate.

Bald Eagle – There is a bald eagle winter concentration area on the Teasdale RD of Dixie NF. Single birds and or pairs of Bald eagles have been documented overwintering on the Fillmore, Loa, Richfield, and Beaver Ranger Districts. The following guidance is from the 1983 Recovery Plan (USFWS 1983).

3.2 Protect and manage habitatsAgencies responsible for managing bald eagle habitat should incorporate management guidelines in their land use plans. These agencies should develop and implement site-specific habitat management plans for nesting and wintering areas under their jurisdiction.

3.2.1.2. Develop and implement management plans for potential or degraded habitat. Areas identified as suitable or potentially suitable breeding habitat should have management plans prepared. Plans should emphasize maintenance of existing habitat, including prey population, and identification and elimination of limiting factors to permit population expansion into the area by natural or artificial means.

3.2.2.1. Develop and implement site-specific management plans for significant wintering areas. Management plans for winter habitat, including, but not limited to, areas identified as essential habitat should be developed. These plans should enhance important habitat features such as roost sites and food resources.

3.2.2.2. Develop and implement management plans for potential or degraded habitat. Management plans should emphasize maintenance of existing habitat, including the prey base and historic or potential nigh roost sites, and identification and elimination of limiting factors to permit population expansion into the areas by natural means.

Utah Prairie Dog - Currently no critical habitat for UTPD on either Forest. There are 13,100 acres of potentially suitable habitat on the Dixie Forest, and 423 acres of potentially suitable habitat on the Fishlake Forest.
The Fishlake National Forest has 4 transplant populations located on the Forest, 3 in the Fishlake Basin of the Loa Ranger District and one in the Rocky Pond area of the Beaver Ranger District. To date, these transplants have been considered unsuccessful with low reproductive rates as well no dogs currently occupying the site. These sites are being evaluated by the UDWR, and will be addressed in a future Habitat Conservation Plan (HCP) that will be developed in Wayne County, Utah. In addition to these sites, several "towns" are located adjacent to the forest boundary in the Koosharem area near Monroe Mountain, and on private lands in the Gooseberry Valley.

Below is excerpted from the Interim UTPD Conservation Strategy (UPDRIT 1997) , which is "to replace the vegetation guidelines in the UTPD Recovery Plan (1991): "

"Guidelines for vegetation management of Utah Prairie Dog habitat (Prairie dog complexes or areas identified as potential for complexes) rangewide" :

Vevgetative Type	Percentage of Ground Cover	Additional Requirements
Warm-season grasses	3% - 10%	If warm season grasses are less than 3%, then forbs must be 11% - 20%
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 ground cover must be a species that is palatable and provides nutritional value to prairie dogs

Shrubs	0% - 3%	

Bonneville Cutthroat Trout - There are five known populations of pure strain Bonneville cutthroat trout on the Fishlake National Forest inhabiting approximately 38 miles of stream habitat. There are several recently reintroduced populations, and several small potential remnant populations on the FLNF. There are 10 known populations of pure strain Bonneville cutthroat trout on the Dixie National Forest inhabiting approximately 24.6 miles of stream habitat. Following language from the Rangewide Conservation Agreement & Strategy for Bonneville Cutthroat Trout (UDWR 2000):

RANGE-WIDE CONSERVATION

Objective 2(A) Eliminate or significantly reduce threats that cause any present or potential destruction, modification, or curtailment of habitat or range.

1) Maintain or restore water quality to a degree that provides for stable and productive riparian and aquatic ecosystems;
2) Maintain or restore stream channel integrity, channel processes, and the sediment regime (including the elements of timing, volume, and character of sediment input and transport) under which the riparian and aquatic ecosystems developed;
3) Maintain or restore instream flows to support healthy riparian and aquatic habitats, the stability and effective function of stream channels, and the ability to route flood discharges;
4) Maintain or restore the natural timing and variability of in and out-of-channel stream flows, including meadows and wetlands;
5) Maintain or restore the diversity and productivity of desired plant communities in riparian zones;
6) Maintain or restore riparian vegetation to:
a) provide an amount and distribution of large woody debris characteristics of natural aquatic and riparian ecosystems;
b) provide adequate summer and winter thermal regulation within the riparian and aquatic zones;
c) help achieve rates of surface erosion, bank erosion, and channel migration characteristic of those under which the communities developed;
7) Maintain or restore riparian and aquatic habitats and conditions necessary to

foster the evolution of distinct populations segments within specific geoclimatic regions;
8) Maintain or restore habitat to support populations of well-distributed plants, vertebrates, and invertebrates that contribute to the viability of riparian dependent communities.

Conservation Actions

Objective II

Action: Enhance and maintain habitat.
a) Enhance and/or restore connectedness and opportunities for migration to disjunct
populations where possible. Migratory corridors should retain some degree of their natural physical and biological condition to enable migration and gene flow.
b) Enhance fish passage in designated waters throughout the range of Bonneville cutthroat trout. Actions may include culvert replacements, improved road drainage, road decommissioning, road surfacing with gravel or paving, and stabilizing road fill and cut-slope areas.
c) Restore altered channel and habitat features to historic conditions. Actions may include stream bank stabilization, large woody debris introduction, and vegetation planting for improved riparian areas.
c) Restore natural hydraulic and sediment regimes, restore floodplain and riparian function, and expand available spawning and rearing habitat.. This action includes securing instream flow needs through water acquisition or regulation.
d) Develop a mitigation protocol for proposed water development and future habitat
alteration, where needed.
e) For land management activities to enhance and maintain habitat, consider utilizing
the guidelines listed in the Inland Native Fish Strategy (USFS 1995, Appendix VI)
as they relate to the following management activities:
i) Timber Management
ii) Roads Management
iii) Grazing Management
iv) Recreation Management
v) Minerals Management
vi) Fire/Fuels Management
vii) General Riparian Area Management
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viii) Watershed and Habitat Restoration
ix) Fisheries and Wildlife Restoration

Colorado River Cutthroat Trout - There are three known populations of pure strain Colorado River cutthroat trout on the Fishlake National Forest inhabiting approximately 8 miles of stream habitat. There are 13 (7 stream, and 6 lake) known populations of pure strain Colorado River cutthroat trout on the Dixie National Forest, inhabiting 24.8 miles of stream habitat and 24.4 acres of lake habitat. Following language from the Conservation Agreement & Strategy for Colorado River Cutthroat Trout (UDWR 1999):

Activity - Restoring degraded ecosystems:

Strategy 10: Improve watershed conditions.
Colorado River cutthroat trout habitat requirements will be considered on watersheds
designated for CRCT restoration. They will be surveyed and site plans developed in concert
with responsible land management agencies to mitigate adverse impacts of watershed
activities on water quality, instream habitat, channel morphology, riparian areas, and
population stability.

Strategy 11: Improve lake and stream habitat.
Habitat improvement techniques will be used where appropriate to provide missing habitat
components or improve existing ones. These techniques can include building instream
structures to improve pool to riffle ratios, streambank stabilization, riparian management,
instream cover, pool or spawning gravel enhancement, and provision of fish passageways.

Northern goshawk - According to data collected on the Dixie National Forest over the past twelve years, approximately 174 nests occur on the Forest as of the 2001 nesting season. This number can vary as a result of high winds and other natural events that can affect nests. Recent data shows there are 111 known goshawk territories as of 2003. Nesting activity generally ranges across the Dixie Forest from 20-30 nests annually. Twenty-eight nests have been documented on the Fishlake National Forest. This number can vary as a result of high winds and other natural events that can

affect nests. Of the 28 nests, there are14 territories. Nesting activity ranges on average across the forest from 8-12 nests. There are a few relevant documents that give guidance to National Forests on goshawk habitat management:

Conservation Strategy & Agreement for the management of northern goshawk habitat in Utah (1998):

Projects designed to implement Forest or Resource Management Plans will use the following Desired Habitat Condition (DHC) statements (Graham et al. 1998) for forested landscapes

1) Diverse forest cover types with strong representation of early seral tree species dominate the landscape
2) High quality habitat patches that are no more than 60 miles apart, preferably less then 20 miles apart, exist throughout landscapes (connected habitat)
3) Forested landscapes have 40% of the area dominated by large trees, well distributed. Large trees are defined relative to the average for the cover type and site potential
4) Habitats for prey and other associated species are present to meet needs as described by Reynolds et al. (1992) and Graham et al. (1998), i.e. snags, downed woody debris, cover, etc.
5) A variety of structural stages as recommended by Reynolds et al. (1992) are present

Habitat Monitoring: Each National Forest will monitor its forested landscapes for the attributes described in the DHC statements provided earlier (early seral tree species, habitat connectivity, large trees, stand level characteristics such as snags and downed woody debris, and a variety of vegetative structural stages). At the Forest level this is accomplished by identifying changes in habitat caused by management activities or natural events. When conditions ay the Forest level are trending away from DHCs, appropriate corrective actions will be developed and implemented.

Population Monitoring: Concurrent with habitat monitoring, Forests will monitor goshawk territory occupancy.

Monitoring and Evaluation Procedures for Territory Occupancy: Population monitoring will be conducted annually using a random sample of at least 20 territories or 50% of all known territories, whichever is greater.

The northern goshawk in Utah: management assessment and management recommendations (Graham et al. 1999)

1) Increase early and mid-seral species using mechanical means or fire or both

2) Evaluate activities near the edges of high value habitat as to how they may impact the connectivity of habitat
3) Increase the numbers and distribution of large trees in the landscape
4) Maintain large trees in net sites
5) Develop properly functioning systems at both the regional and landscape level
6) Ensure that in lodgepole stands a seed source is present when applying treatments
7) Recognize that long persistent quaking aspen can successfully regenerate under an existing canopy
8) Recognize that the successional pathways of the pinyon/juniper potential vegetation types are indeterminate, and in general most of the conditions after disturbance are less stable than the present late seral condition.

Management recommendations for the northern goshawk in the southwestern United States (Reynolds et al. 1992).

Grazing management guidance for home ranges, Post Fledging Areas (PFA), and foraging areas:

Wildlife and livestock utilization of grasses and forbs should average 20% by weight and not exceed 40% in any area, and shrub utilization should average 40% be weight and not exceed 60% in any area. These levels of utilization should maintain native food and cover for many of the prey species

The Desired Conditions for Nest Areas, Post Fledging-Family Area (PFA), and Foraging Area (by Forest Type) are summarized in the tables below (Table 1 and 2 from Reynolds et al.):

Table 1. Desired forest conditions in three forest types for sustaining northern goshawks and their principal prey species in the Southwest.

Attribute	Nest Area[a]	Home-Range Components: Post Fledging-Family Area			Home-Range Components: Foraging Area		
		Ponderosa Pine	Mixed-Species	Spruce-fir	Ponderosa Pine	Mixed-Species	Spruce-fir
VSS distribution[b]							
grass/forb/shrub VSS 1 (%)	0[c]	10[c]	10[c]	10[c]	10[c]	10[c]	10[c]
seedling-sapling VSS 2 (%)	0	10	10	10	10	10	10
young forest VSS 3 (%)	0	20	20	20	20	20	20
mid-aged forest VSS 4 (%)	0	20	20	20	20	20	20
mature forest VSS 5 (%)	100	20	20	20	20	20	20
old forest VSS 6 (%)	100	20	20	20	20	20	20
Canopy cover							
mid-aged forest VSS 4[c]	NA[d]	1/3 60+ 2/3 50+	60+	60+	40+	1/3 60+ 2/3 40+	1/3 60+ 2/3 40+
mature forest VSS 5 (%)	50-70+	50+	60+	70+	40+	50+	60+
old forest VSS 6 (%)	50-70+	50+	60+	70+	40+	60+	60+
Years to mid-aged VSS 6	200-300	200-250	200-300	200-300	200-250	200-300	200-300
Opening size							
maximum size (acre)	NA	2	2	1	4	4	1
width--maximum (ft)	NA	200	150	125	200	200	125
Reserve trees[e]							
number of groups/acre	A[f]	1	1	2[h]	1	1	2[h]
number (per group)	NA	3-5	6	6	3-5	6	6
opening threshold[g] (acres)	NA	>1	>1	>0.5	>1	>1	>0.5
Snags (no/acre)	NR[i]	2	3	3	2	3	3
Downed logs (acre)	NR	3	5	5	3	5	5
Woody debris (tons/acre)	NR	5-7	10-15	10-15	5-7	10-15	10-15

[a] *Suitable nest areas only; attribute values may vary by forest type.*
[b] *VSS; Vegetation Structural Stages, a forest description based on the tree diameter distribution within a stand. For example, if the majority of the stems of a stand (based on basal area) were located in the 12-18 inch diameter class, the stand would be classified as a VSS 4. General diameter limits are: VSS 1= 0-1" DBH; VSS 2= 1-5" DBH; VSS 3= 5-12" DBH; VSS 4= 12-18" DBH; VSS 5= 18-24" DBH; VSS 6 = 24"+ DBH. DBH = Diameter at Breast Height (4.5 ft.).*
[c] *Proportion of the area.*
[d] *NA; not applicable.*
[e] *Reserve trees; standing trees left after harvesting that will be allowed to become snags and downed logs.*
[f] *A; applicable, clumpiness, or groups of large trees is also desirable.*
[g] *When threshold size is exceeded, reserve trees are necessary.*
[h] *One group per 0.5 acres.*
[i] *NR; not required, but presence of these features are not detrimental.*

Table 2. Management recommendations for sustaining habitat for northern goshawks and its principal prey species in the Southwest.

Attribute	Home Range Components[a]: Nest Area	PFA	Foraging Area
Number of areas	6	1	1
Suitable[a]	3	NA	NA
Replacement[a]	3	NA	NA
Size (acre)	30 (Total =180)	420	5,400
Management season[b]	Oct-Feb	Oct-Feb	Year-long
Regeneration of forest			
Conifer	None	Yes	Yes
Aspen & Oak	None	Yes	Yes
Planting	None	Yes	Yes
Thinning from below[a]	Non-uniform spacing	Non-uniform spacing	Non-uniform spacing
Transportation system			
Road	Minimum density	Minimum density	Minimum density
Skid trails	Permanent	Permanent	Permanent
Forage utilization[a] (%)	20/40[c]	20/40[c]	20/40[c]
Woody debris treatment	In Order of Preference		
Prescribed burning[a,d]	1	1	1
Lopping & Scattering[a]	2	2	2
Hand piling[a]	3	3	3
Machine grapple piling[a]	None	3	3
Dozer piling[a]	None	4	4

[a] *Refer to glossary of terms.*
[b] *For PFAs surrounding active nest areas, months in which management activities are allowed.*
[c] *Average forage utilization (percent by weight) in herbaceous layer/shrub layer; utilization should not exceed 40% of grasses and forbs and 60% of shrubs.*
[d] *Not applicable in spruce-fir forest type.*

Suggested revision of northern goshawk habitat management guidelines (Greenwald et al. 2005):

Greenwald et al. reviewed one study conducted prior to the publication of Reynolds et al., and 10 studies published since the publication of Reynolds et al., which were telemetry based studies of within-home-range habitat selection by northern goshawks. These studies almost uniformly (except for one) reported affinities of goshawk for canopy closure of greater than 40%, and most of the studies found that goshawks avoided open areas and logged early seral stands: none of the studies found selection for such features. Based on these findings, the authors recommend protecting existing mature and old-forest characteristics and ensuring that such forests are allowed to develop in proportions similar to presettlement conditions (which was likely closer to 70%). This can be accomplished by restructuring cutting to small trees, and prohibiting reductions in canopy closure. A similar proposal was recently adopted by Region 5 of the USFS for the Sierra Nevada (USFS 2001).

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Appendix B: Cedar Breaks National Monument as a Potential Reference Area

Appendix C: Fishlake Undeveloped Area additions (Numbering for SMU Alternative text)