

Chapter 3 – Forest-Wide Management Recommendations

This chapter contains over-arching management guidance, compatible with conservation principles, for general issues that are prevalent across the entire Pike-San Isabel National Forest, irrespective of theme or location. For example, invasive species, fire management and land tenure are a few of the issues addressed. This chapter is divided into four main sections according to type of management use and direction. Detailed, area-by-area management recommendations and justifications will be described in Chapter 5 within the complex narratives.

General Forest Management Recommendations

Roadless Areas Inventory and Protection

Historical Background

In the late 1970s, development on National Forest lands was accelerating at an alarming rate, prompting Congress to direct the Forest Service to survey its lands and evaluate them for wilderness character. As part of these evaluations (known as the Roadless Area Review and Evaluation or RARE I and RARE II), the Forest Service identified all areas larger than 5,000 acres that remained free from roads. These areas are officially named Inventoried Roadless Areas (IRAs). IRAs had a special classification and management structure within Forest Plans, although the management still remained at the forest level.

In the late 1990s, the Clinton administration initiated a federal rulemaking process with the intent to resolve the continual controversy over how these areas should be managed. This turned out to be the most extensive public process in the history of federal rulemaking. Over the next few years, approximately 1.6 million comments, the most comments ever received on a proposed federal rule, were submitted. More than 90% of those comments were in favor of roadless area protection. Therefore, the administration published the Roadless Area Conservation Rule (RACR) in January of 2001. The rule put a stop to almost all road building associated with commercial logging, coal, gas, and other mineral leasing nation-wide, including approximately 667,000 acres within the Pike-San Isabel National Forest.

In May of 2005, the Bush administration formally repealed the 2001 Roadless Rule, and replaced it with a process requiring governors to petition the Department of Agriculture in order to seek protections for roadless areas. Under the new rule, governors have to submit a petition requesting specifically which, and to what extent, roadless areas should be protected in their state. These petitions must be submitted by November, 2006. Once governors have submitted a petition, there is no guarantee that it will be granted, as it must go through another review by a national task force. The Department of Agriculture may choose to accept, modify, or outright reject a state's petition.

In Colorado, Senate Bill 05-243 created the Colorado Roadless Areas Review Task Force. The Task Force is a bi-partisan committee comprised of 13 members who will, through a public process and with expert testimony, submit recommendations to Governor Owens regarding how Inventoried Roadless Areas should be managed in Colorado.

Further, at the time of publication of this document, there are bills circulating in Congress that would create a uniform, national law regarding the management of IRAs, as well as several lawsuits challenging the validity of the 2005 repeal of the Roadless Area Conservation Rule.

The Wild Connections Recommendation for IRA Management

Given the critical role roadless areas play in ecosystem sustainability, and given that they are the most important special element utilized within this plan (see Chapter 2 – Methodology), and given the many variables with the status of IRAs described above, we recommend that the Pike-San Isabel adhere to the 2001 Roadless Area Conservation Rule until the management guidance for IRAs is settled. Further, UASPP recommends that the Pike-San Isabel also include the 16 additional roadless areas our inventory has determined to be eligible for roadless status. Finally, due to our strict field-inventory protocols, we recommend the Pike-San Isabel utilize our roadless area boundaries for currently designated IRAs. For additional comparisons, details and references, refer to Appendix C. For mapping protocols and policies, refer to the bibliography, *SRFN Manual*.

Significant Routes

UASPP has identified travel corridors, both motorized and mechanized, which are adjacent or are cherrystemmed into Theme 1 areas. These travel corridors have been determined by our planning team to be “Significant Routes.” These roads and travelways range from Forest Service system roads and trails, to state and federal highways. Although not every Significant Route is under the direct authority of the Forest Service, these travel corridors will require on-going maintenance and future construction projects.

The intent is to recognize these permanent roads and travelways which have a direct and quantifiable impact on the surrounding lands intended for strict conservation protection. It is not the intention to prescribe management of the road or travelway itself, but rather to ensure future reconstruction or maintenance is conducted in an ecologically sensitive manner, and takes into account the management criteria of the adjacent lands.

Ecosystem Management Recommendations

Restoring Natural Disturbance Regimes, Fire Management

Forest plans are, at their core, about the relationships between landscapes and people. In any landscape, there are three situations with regard to people and fire. First, there are those situations where we never want fire because it has the potential to cause great damage to people and property. Areas near communities—the wildland-urban interface—are an example. Second, there are places where fire can be used as a tool for ecological restoration as well as reducing future major wildfires, but only under tightly-prescribed conditions. And third, there are places where fire poses little risk to people and resources, and natural fires can actually help achieve management objectives. Wilderness areas, most roadless areas, and other remote lands are examples of the third category. The Pike-San Isabel forest plan must be developed to use natural fire wherever possible to achieve management objectives, whether these are social or ecological goals.

Fire Management on the Pike-San Isabel National Forest

The landscape of the Pike-San Isabel National Forest has been shaped by fire for millennia. Major vegetation types, including piñon-juniper, ponderosa pine, lodgepole pine, Douglas-fir, and shrub-grassland, are well known to have evolved with adaptations to fire. Indeed, fire is such an important force in the ecosystems of Colorado that forests and fire cannot be isolated from each other. Consequently, forest management and fire management must be seen as inextricably linked, and forest plans must include direction for preparing and revising fire plans for the forest.

The following recommendations² provide the foundation for a sound Pike-San Isabel policy on fire management, taking into account the imperative of protecting lives and homes from wildland fire and the important ecological role of fire in shaping and maintaining landscapes.

Protect Life and Property – To prevent loss of lives and homes, Pike-San Isabel fire policies must first prioritize creating and maintaining defensible space around communities in the wildland-urban interface. It is only within the wildland-urban interface that appropriate thinning can help reduce the risk to lives and homes from wildland fire. Where fire poses a direct, immediate threat to communities, aggressive suppression is appropriate. The Pike-San Isabel should work collaboratively with communities adjacent to Forest Service land to prepare community wildfire protection plans that will prioritize and help implement cross-jurisdictional risk reduction projects in the wildland-urban interface. Further, it is important to note that due to exurban sprawl, the wildland-urban interface zone is increasing annually.

Restore Ecological Health— Fuel reduction efforts should focus on the use of prescribed fire to restore natural fire cycles where it can be accomplished without substantial risk of unnaturally high intensity fire. In many cases, careful thinning of smaller trees and underbrush followed by mechanical treatment or selective burning of slash within lower elevation ponderosa pine, Gambel oak, and piñon-juniper may be required as a first step before reintroducing fire. In contrast, commercial logging of bigger, older trees or logging within aspen, lodgepole pine, or spruce-fir forest types for fire-risk reduction cannot be justified scientifically.

- **Fuels reduction, fire risk reduction and restoration treatments should not occur in aspen, lodgepole pine, or spruce-fir forest types beyond the Wildland Urban Interface** – Beyond the area immediately surrounding homes and communities, fuels reduction should be targeted to vegetative types that are outside their historic range of variability. Aspen, lodgepole pine, and spruce-fir forest types in the Southern Rockies are not currently outside of the range of natural variability; treatment efforts targeting these forest types would be a waste of resources and might do more harm than good, e. g., by adding fine fuels and increasing evaporation under a thinner canopy, thus increasing the ignition risk. There is little scientific evidence that reducing fuels in these forest types beyond the home ignition zone actually protects communities, though in rare circumstances it may help firefighters keep fire from reaching structures. Thus, such projects should only be considered in very limited circumstances (such as down slope and upwind from a community where defensible space in the home ignition zone has already been created). In such circumstances, selective thinning should be the preferred treatment used in order to reduce density of trees and, therefore, fire intensity. In all other circumstances, fires should generally be allowed to burn in these ecotypes where it can be done safely.
- **Prioritize Restoration Work** – To maximize the effectiveness of limited federal funds, restoration must be focused on the places where it is needed most. Throughout the West, the forests that are most in need of restoration are those immediately adjacent to communities, often at the base of adjacent mountain ranges. These dry, low-elevation forests of ponderosa pine, Douglas-fir, piñon-juniper, and Gambel oak have been the most altered by fire exclusion, and are the most in need of thinning to restore a fire-tolerant forest structure. Constraining the restoration zone to the area within a few miles of communities will focus

² A multi-year collaborative planning effort, *The Front Range Fuels Treatment Partnership (FRFTP) Roundtable*, is now underway to propose prioritized, comprehensive fire management transcending jurisdictional boundaries, taking into account socio-economic, political and environmental concerns. UASPP is engaged in this process, along with the Pike-San Isabel Forest Supervisor and The Wilderness Society. Therefore, general management criteria are proposed below, with additional recommendations being prepared through the Roundtable process. The initial Roundtable Report was released in May 2006.

restoration efforts where they will yield the greatest benefit. In areas with no nearby noxious weeds, both passive and active restoration techniques should be utilized, allowing natural processes of plant recolonization as much as possible or use of local genetic plant materials.

- ***Let Fire Perform Its Role Where and When It Can Be Done Safely*** – Where human lives and property are not at stake, fire suppression should be undertaken only when fire threatens critical or rare components of ecosystems (such as old growth forest and endangered species habitat) while these elements are being restored to healthy levels. The Pike-San Isabel should not base fire suppression policy and guidance based on management theme. For example, instigating suppression activities in all Theme 5 areas regardless of forest type, natural fire regime, or proximity to communities and rare ecosystem components would not be a diligent approach to ecosystem management. Such a policy can result in ecological harm by preventing cyclical fires, which regenerate fire-adapted forests, from occurring. In addition, such a policy would unnecessarily divert limited resources (money and personnel) from critical community protection work in the wildland-urban interface. To summarize, the decision to suppress fire should be made on the grounds of human life and home protection, rare ecosystem component protection, and historic range of variability, not general management themes. To more effectively address wildland fire, the Pike-San Isabel should establish zones for fire response that transcend management prescriptions. These zones should clearly articulate where and under what circumstances natural ignitions may be managed for resource benefit and conversely state comprehensively and definitively where and under what terms Fire Use (including areas for suppression, containment/confinement, and burning within acceptable limits) would be ruled out.
- ***Treat Mainly Smaller-Diameter Trees*** – In lower-elevation, fire-evolved forest types such as piñon-juniper or ponderosa pine, we support vegetation "treatments" (such as prescribed fire and appropriate thinning) where fire suppression or other activities (e.g., grazing, high-grade logging) have allowed stand densities to increase to levels above those that likely existed under natural or pre-European settlement era conditions. Such restoration treatments should preserve all pre-settlement trees and maintain or restore the natural forest composition and structure. As the Forest Service notes, "The removal of large, merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk. Fire ecologists note that large trees are insurance for the future—they are critical to ecosystem resilience. Targeting smaller trees and leaving both large trees and snags standing addresses the core of the fuels problem" (Forest Service's Report to the President, 2000). Treatment should thus focus on trees that exist only because of fire suppression.
- ***Keep Roadless Areas Roadless*** – Roadless areas are critical wildlands, and are generally healthier ecosystems than logged areas. Forest Service studies have found that roadless areas account for a very small percentage of the total forest acreage at risk of unnaturally intense crown fire. "Moreover, the Forest Service [sh]ould prioritize efforts to reduce fuels in areas that have already been roaded because these areas tend to be much closer to communities and have higher fire risks" (Forest Service's Report to the President, 2000). The WCCP opposes logging in roadless areas, except in instances where these areas directly abut an occupied property, making the creation of defensible space in the home ignition zone (up to 40 meters from a structure) a priority. Beyond the home ignition zone, logging in roadless areas would not significantly reduce the risk of fire adversely affecting humans and their properties. Furthermore it would compromise the roadless area's ecosystem value and could increase fire ignition risk by creating fuels that would dry out in the opened forest. Any fuel reduction projects should also avoid construction of new permanent roads.

Invasive Plant Species Management

Dale Bosworth, Chief of the US Forest Service has identified invasive species as one of the four significant threats to our Nation's forest and rangeland ecosystems. Native plant species usually do not compete well with invasive plants for nutrients, sunlight and water. As a result, our biologically diverse mountain meadows, grasslands, and wetlands are in danger of being overrun by non-native, invasive weeds (Bliss, 2004). Noxious weeds become established in soils disturbed by a variety of activities, including construction, motorized travel, logging, concentrated livestock grazing, and natural disturbances such as fire. Noxious weed seeds are transported to new sites in numerous ways such as by wind, water, vehicle tires, machinery, and people (e.g. via boot tread), as well as wild and domestic animals (Colorado Weed Management Association 2002).

Treatment

The 2005 Forest Service document Rocky Mountain Region Invasive Species Management Strategy (Rocky Mountain Region, USDA Forest Service, 2004) is a useful resource for weed management, and its "General Weed Prevention Practices for Site-disturbing Projects and Maintenance Programs" should be required management on the Pike-San Isabel, including the formulation of an assessment and treatment plan as follows:

- Identify the Forest's priority species and populations.
- Identify the Forest's priority monitoring and treatment areas.
- Create timetables for inventory and/or treatment of all roads on the Forest/Grassland unit.
- Unless otherwise negotiated, Levels 3, 4, and 5 roadways, and major system trails will be inventoried and treated on a three-year cycle. Level 1 and 2 roads will be on a five-year cycle. More frequent monitoring and treatment is needed; monitor, and treat if necessary, for weeds every year for at least three years after weeds are first found.
- Evaluate the adequacy of existing invasive species inventories.
- Identify and establish at least one Coordinated Weed Management Area per Forest/Grassland annually with local partners.
- Identify funding needed to implement the desired program of work and incorporate this need into program budget planning.
- Schedule validation monitoring of the action plan and summary of past three years' activities.

Prevention

Because invasive species are so difficult to eradicate once established, the following methods for prevention should be adopted:

1. To prevent introduction into new areas:
 - To the extent feasible, avoid new road and trail construction and major reconstruction forest-wide.
 - Especially avoid ground-disturbing activities in remote, uninfested areas.
 - Avoid new ground-disturbing uses in uninfested areas.
 - Restrict uses/prohibit modes of travel once first instance of infestation is found.
2. To prevent spread of existing weed polygons:
 - Plan travel management to minimize travel through known infested areas.
 - Implement an aggressive education campaign.
 - Establish boot and machine-washing stations.
 - Close areas to travel where control is not possible.

Invasive Plant Species and Fire

While wildfire is a natural and recurring event in Colorado's forest ecosystems, the natural fire ecology of our wildlands is seriously compounded by the increased presence of exotic weed invaders (McClure, 2002).

Before a fire, a healthy native plant community has good ground cover and litter in the soil. All niches are filled both above ground and in the root zone with a diverse mix of native plant species. But after severe fires, native plants are suppressed for a period of two to three years. Thus these areas provide ideal locations for establishment of non-native plants. And once they are established, these weeds can be extremely difficult to eradicate.

Consequently, post-fire management should focus on the highest burn severity areas, with special attention given to fire camps, dozer lines, and other areas impacted during the fire suppression period. A strategic program of early detection and timely treatment of weeds for years after the fire will provide the best defense against the rampant spread of new weeds in the burn area and adjacent areas. Proper management of domestic livestock and wildlife numbers in line with grazing capacities, preventing the buildup of dangerous woody debris, and an on-going program of early detection of exotic plants coupled with timely eradication to minimize weed seed sources, are examples of management practices that will minimize catastrophic weed invasions following fire (McClure, 2002).

The unprecedented Colorado wildfires of the early 2000's produced alarming consequences to human safety, wildlife habitat, water quality and much more. Perhaps less dramatic, but nevertheless detrimental are the long-term effects of the advancement of noxious weeds after large wildfires. Wildfire restoration areas will need special care to prevent this long-term degradation of our precious natural heritage.

Management Criteria for Riparian, Wetland & Aquatic Ecosystems

Riparian areas are the biological and physical link between terrestrial and aquatic ecosystems, and they are one of the most important habitats in the arid West. Ninety percent of wildlife species use riparian areas at some point in their life cycles. Riparian areas are of great importance for maintaining water quality and quantity, stabilizing stream banks, and providing habitat for fish and other wildlife. Colorado riparian areas are threatened by domestic livestock grazing, gravel mining, recreation and development, and their use as motor vehicle transportation corridors.

While riparian areas are unique, they should not be considered independently of uplands. Problematic upland watershed conditions often reduce the effectiveness of management in the riparian zone. To be managed effectively, the whole area adjacent to the riparian zone and the whole watershed outside the riparian zone should be considered. Management must provide an adequate cover and height of vegetation on the banks and overflow zones to promote natural stream functions such as sediment filtering, bank holding, flood energy dissipation, and aquifer recharge.

Healthy rivers are dependent upon a natural flow regime, i.e., one that varies in magnitude, frequency, duration, timing, and rate of change. Natural flows are critical because the flow of water provides the base on which all other river functions are built. The plants, fish, and wildlife in any given river have evolved to adapt to a natural river's unique rhythms.

A prime focus of aquatic management on the Pike-San Isabel should be preserving and restoring high quality habitat, particularly for species at risk. Aggressive monitoring of stream health and cleanup of

acid mine discharge will be necessary to accomplish this.

Riparian Management Guidelines

- In each stream capable of supporting a self-sustaining fishery, ensure that projects maintain sufficient habitat, including flow, for all life history stages of native and desired non-native aquatic species. In streams where reproduction does not occur but supports a recreational fishery, sufficient habitat will be maintained to ensure recreational values.
- Naturally occurring debris shall not be removed from stream channels unless it is a threat to life, property, important resource values, or is otherwise covered by legal agreement. Removal in designated Wilderness must consider wilderness values.
- Identify and secure future introduction areas for greenback cutthroat trout (*Oncorhynchus clarki stomias*).
- Prohibit introduction of non-native salmonids in existing and future greenback cutthroat trout habitat.
- Acquire rights to water for adequate instream flows and lake levels, and meet or exceed state, federal, and any local municipal water quality standards.
- Oppose new out-of-basin, trans-mountain diversion.
- Consult with state and other federal agencies prior to implementing any depletion to critical habitat.
- Ensure full compliance with the Clean Water Act.
- Monitor watershed conditions, instream flows, lake levels, and water quality to detect changes in aquatic habitat.
- Measure abundance and diversity of aquatic insect species on an ongoing basis.
- Ensure that temperature levels, dissolved oxygen, salinity, turbidity, hardness, acidity, and alkalinity (water pH) are all within a natural range for that river and its species. A healthy river will also have minimal amounts of toxic pollution, such as pesticides, nitrogen, phosphates, fecal coliform, and heavy metals.
- Ensure that any new mining permits require permanent protection of water quality from potential discharges. Continue systemic evaluation and cleanup of acid mine discharge including heavy metals.
- Limit or prohibit livestock grazing when aquatic resources fail to meet minimum riparian habitat guidelines. Aggressively employ Best Management Practices to minimize or prevent elevated sedimentation levels, especially in streams on the state of Colorado's 303 d list and Monitoring and Evaluation list.
- Prohibit gravel mining, or other extractive stream-bed activities.
- Educate the public about the importance of maintaining healthy aquatic systems.
- Cooperate with local municipal water providers using the Pike-San Isabel for its supplies in the development of Source Water Protection Plans. Incorporate prescriptions into the land management strategies for these source watersheds, i.e., retiring grazing allotments to protect municipal water quality.

Biological Sustainability Management

One of the most important functions of a national forest management plan is to ensure perpetuation of ecological characteristics and processes. Many species found on national forest lands have much of their remaining habitat there, and could not maintain ecologically effective populations if not for habitat on national forest land. This is particularly true for species having large home ranges, such as lynx, black bear, and wolverine, or requiring large areas of late successional habitat, such as goshawk and pine marten. Similarly, important ecological processes like fire need large areas of public land in

order to be able to play their ecological roles.

The National Forest Management Act requires plans to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area to meet overall multiple use objectives...” (16 USC 1604(g)(3)(B)).

Under the 2005 Planning Regulations, Forest Plans must “provide a framework to contribute to sustaining native ecological systems by providing ecological conditions to support diversity of native plant and animal species in the plan area.” (36 CFR 219.10(b)).

Specifically, plans should “establish a framework to provide the characteristics of ecosystem diversity in the plan area.” *Id.* at 219.10(b)(1). Also, plans must supply additional components as “needed to provide appropriate ecological conditions for specific threatened and endangered species, species-of-concern, and species-of-interest”. *Id.* at 219.10(b)(2). Such components are required under the Planning Directives at FSH 1909.12, section 43.25.

One of the primary goals of this Wild Connections Plan is to maintain habitat and ecologically effective populations for all native plant and animal species. An objective is to ensure maintenance of sufficient, connected, well-distributed habitat to attain, over time, ecologically effective populations for those wildlife and plant species most at risk of extinction from the planning area. Another objective is to increase the population number and distribution of wildlife and plant species with low populations and/or a consistent downward trend in the planning area.

All native species and processes are important to the functioning of healthy ecosystems. While it is important to provide plan components that address ecosystem sustainability at the landscape scale, such an approach is unlikely to ensure that plans contain adequate monitoring and protection for all important ecosystem parts, especially some individual plant and animal species. Thus selection of species-of-concern and species-of-interest is very important. Identification of these species and federally listed species for the species diversity evaluation is required by FSM 1921.73(b).

Species of Concern, Species of Interest

With the implementation of the final 2005 Planning Rule, the Forest Service will no longer be required to monitor Management Indicator Species (MIS) to ensure the viability of species populations that occur. Though the Forest Service may designate Species of Concern (SOC) and Species of Interest (SOI), the planning rule and directives provide few mechanisms for protecting, monitoring, or ensuring sufficient habitat for them. Even more important, the directives do not provide a substantive, scientifically sound methodology for how such species should be designated, nor do they fully require any species to be designated.

Species of Concern are defined as “species for which the Responsible Official determines that management actions may be necessary to prevent listing under the Endangered Species Act” (FSH 1909.12, section 43.22(b)). Species of Interest are defined as “species for which the Responsible Official determines that management actions may be necessary or desirable to achieve ecological or other multiple use objectives” (*Id.* at 43.22(c)).

The designation of a representative list of species as SOC/SOI is of critical concern and a vital component of employing responsible, ecologically sustainable management. Evaluation at the landscape-level, such as disturbance regimes, variability and vegetation composition, is certainly important. However, landscape scale evaluation does not provide sufficient fine-scale evaluation and

protection for plant and wildlife species. The plan must contain an adequately detailed set of species to help ensure the persistence of all key biological resources in the planning area.

Therefore, the Wild Connections Plan recommends the following methodology for section of Species of Concern and Species of Interest. The Wild Connections list of recommended species is detailed in Appendix J.

Selection of Species of Concern and Interest

Under the Directives (FSH 1909.12, section 43.22a), the responsible official may select species in the following categories as Species of Concern:

1. Species identified as candidate and proposed species under the Endangered Species Act.
2. Species with ranks of G-1 through G-3 on the NatureServe ranking system.
3. Intraspecific (subspecific) taxa with ranks of T-1 through T-3 on the NatureServe ranking system.
4. Species that have been petitioned for Federal listing and for which a positive “90 day finding” has been made.
5. Species that have been recently delisted including species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary.

Under the Directives (Id. at section 43.22c), the responsible official may select species in the following categories as Species of Interest:

1. Species with ranks of S-1 and S-2 on the NatureServe ranking system.
2. State listed threatened and endangered species that are not within the criteria as species-of-concern.
3. Bird species on the US Fish and Wildlife Service Birds of Conservation Concern National Priority list.
4. Additional species that valid, existing information indicates are of regional or local conservation concern due to factors that may include significant threats to populations or habitat, declining trends in populations or habitat, rarity, or restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).
5. Additional species that valid existing information indicates are of regional or local conservation concern due to factors that may include:
 - a. Significant threats to populations or habitat.
 - b. Declining trends in populations or habitat.
 - c. Rarity.
 - d. Restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).
6. Species that are hunted or fished and other species of public interest. Invasive species may also be considered.

These sources may contain numerous species for which there is little concern or public interest. The Responsible Official should consider the following factors when identifying Species of Interest. The presence of one or more factors would suggest, but not compel, that a species be included as a Species of Interest (FSH 1909.12, section 43.22(c)).

1. Species habitat or population has declined significantly in the plan area.
2. Species and its habitats are not well-distributed in the plan area.
3. Species population numbers are low in the plan area.
4. Species is dependent on a specialized and/or limited habitat in the plan area.
5. Species is subject to some imminent threat (for example, invasion of exotic species into habitat or disturbance due to road systems).

6. Species habitat or population is not generally secure within its range and NFS lands act as an important refuge.
7. Species is of public interest, including those species identified cooperatively with State Fish and Wildlife Agencies consistent with the Sikes Act.
8. Species is invasive.
9. Species poses a threat to ecosystem or species diversity.

In addition to these basic criteria listed above, the Wild Connections Plan recommends the Forest Service must consider the following in identifying and designation Species of Concern and Interest:

- Ensure that any species that might need or benefit from special management are selected as species-of-interest. This would help ensure that ecosystem and species diversity are fully supported by the revised plan. A broad range of species will also help the FS in interpreting its monitoring data.
- The proposed list should include species that indicate key habitat conditions (e.g., standing snags for the three-toed woodpecker).
- The proposed list should include species extirpated from parts of their historical range.

In some cases, it may be appropriate to designate one or more invasive species as Species of Concern. This would encourage the development and implementation of plan components to facilitate eradication of these species from the Pike-San Isabel. Designation would be most appropriate for invasive species that have recently been discovered to inhabit the planning area, are only found in a relatively small number of locations, or cover a small enough area so that significant progress toward eradication of the species can be made over the life of the plan.

Information Collection

In order to “understand potential threats and identify opportunities to manage those threats,” the responsible official can consider the following information:

1. Current taxonomy.
2. Distribution (including historic and current trends).
3. Abundance (including historic and current trends).
4. Demographics and population trend.
5. Diversity (phenotypic, genetic, and ecological).
6. Habitat requirements at appropriate spatial scales.
7. Habitat amount, distribution, and trends.
8. Ecological function.
9. Key biological interactions.
10. Limiting factors.
11. Risk factors including various human disturbances (trails, roads, dams).
12. Population effects resulting from hunting, fishing, and trapping and natural population fluctuations recommendations³.

This step emphasizes the collection and summarization of existing information, but one of the key points should be to identify critical information that is currently lacking. Collection of such information as feasible or appropriate through monitoring programs should be a high priority.

Assembling Groups of Species and Using Surrogate Species for Analysis

Given the large numbers of species that maybe selected as species of concern and interest, it may be impractical to evaluate the contributions made to ecological diversity by all of them. Thus it may be appropriate to group species for analysis purposes and use surrogates species to indicate the habitat

³ Point 12 does not appear in the 2006 version of the Directives.

needs and ecological functions of other species. However, such grouping and use of surrogates should be limited, as no species truly and completely indicates the needs and ecological functions of any other species. It would be easy, in the name of efficiency and convenience, to create large groups of various species, select a surrogate for each group, and then miss important ecological functions in the analysis because each group covered too many different species with a relatively broad range of functions that were not well represented by the surrogate.

Plan Components for Species of Concern and Interest

As stated above, focusing only on the coarse filter or broad, ecosystem look will not provide sufficient protection for species of concern and interest. Thus, for most SOC/SOI or groups of them, a detailed set of desired conditions, objectives and guidelines must be established. Determining the current status of the SOC/SOI and establishing desired conditions, is fundamental to a rigorous adaptive management framework and associated monitoring program that will help the public understand the extent to which progress is being made towards desired conditions. FSH 1909.12, section 43.25 (2006) states that components do not need to be developed for each species or group “but the combination of components for ecosystem diversity and components for species diversity must be designed to help provide appropriate ecological conditions for all species that have been identified as federally listed species, species-of-concern, and species-of-interest. Plan components for species of concern and interest should be formulated, at a minimum, to address the following, as provided in the Planning Directives (FSH 1909.12, section 43.25):

- Manage for appropriate amounts and distribution of habitats used by the species, including habitat restoration, if necessary.
- Manage human disturbance factors (roads, trails, dams, and so forth) so that their impacts on the species are acceptable.
- Manage biotic interactions (for example, invasion of cheatgrass into sagebrush habitats).
- Manage for disturbances that are important to species survival (for example, frequent burns to produce dead wood for three-toed woodpeckers).
- Manage currently known species locations. This may involve all locations or a subset of locations.
- Manage newly discovered locations. This could involve all or a subset of locations.
- Manage suitable habitat that is not currently occupied but may be in the near future.

Recovery and Reintroduction of Extirpated, Endangered and Sensitive Species

All native species, including those on the brink of extinction or local extirpation, must be managed to insure their continued existence across the landscape. This is a fundamental premise underlying the WCCP Conservation Management Plan. Species that have been extirpated should be reintroduced where practical. Further, the Pike-San Isabel, “using the best science available at this point, must consider the requirements for ecologically effective populations, not just arbitrary numbers of even minimum viable populations” (Soulé et al., 2005).

Activities Management Recommendations

Introduction

The protection, maintenance and restoration of healthy, intact forest ecosystems are now a global imperative. As well as providing carbon sequestration (greenhouse gas reduction) at the global level, forests have regional and local benefits that cannot be overstated, or duplicated. They provide our clean water and air, the habitat for wildlife, opportunities for our quiet solitude and spiritual renewal,

wood for construction and heating, open spaces for recreation, and forage for our livestock, among other uses.

While the impacts of more than 100 years of human uses have been widespread, the potential for conservation and restoration of forest biodiversity on the Pike-San Isabel remains high. Future management emphasis should be shifted toward maintaining, enhancing, and restoring the diversity of native species and natural ecosystem functioning. A central element of this will be to preserve existing large blocks of unroaded habitat for reintroduction of large native carnivores.

Land Ownership Adjustment

Consolidation of the ownership within the Pike-San Isabel National Forest is an important step towards assuring long-term viability of biological diversity. As one example, consolidated ownership leaves decisions about constructing new roads entirely to the discretion of the Forest Service. Currently, owners of private inholdings within the Forest regularly demand, and under law must be granted, approval for new or improved roads and motorized access to their property.

Ownership is consolidated through direct purchases (generally funded by earmarked Congressional appropriations from the Land and Water Conservation Fund), land exchanges, and, very rarely, outright donations. Acquisitions clearly depend on willing sellers, but the Forest can assist the process by proactively encouraging land exchange proponents to offer private lands in key areas. The agency should also determine which lands would more appropriately be in private ownership and which private lands would enhance national forest management, in order to facilitate possible land exchanges.

The WCCP prioritizes consolidation efforts in the linchpins of the reserve design - current and proposed Wilderness areas, roadless areas, and wildlife linkages. Private inholdings should be pursued via purchase or exchange in the following priority:

1. Wilderness areas, recommended Wilderness, backcountry areas
2. roadless areas
3. linkages
4. “hotspots” of biological diversity such as rare plant communities or other threatened and endangered species habitat
5. riparian and wetland areas

Grazing

Introduction

Humans and domestic livestock have long been part of the Pike-San Isabel ecosystem and an instrument of ecological change. Despite being one of the most pervasive uses of Western public lands, livestock grazing is a privileged use, not an inherent right or ecological imperative, since the animals grazed are not native to this region. Livestock grazing must be practiced with care, recognizing that this activity can cause severe adverse impacts to biological diversity, soils, and water quality. The Forest Service must also recognize differences between historic and current use, changing Western population dynamics, and growing ecological knowledge.

Although livestock numbers on public lands are declining, many large areas of public rangeland remain impacted and changed, and many continue to decline due to current over-use. While ecological damage caused by overgrazing is widely acknowledged, many heavily impacted areas have recovered to properly functioning hydrologic and vegetative conditions by simply changing grazing

timing, intensity and duration. Sensitive areas or areas experiencing historic overuse and associated plant community impairment should be placed into total non-use and/or permanently retired. Active restoration should be scheduled for these lands, as needed.

Management Guidelines

- The Forest Service will enforce existing practices that are adequate to protect and restore rangeland. Grazing management practices must maintain sufficient residual vegetation on both upland and riparian sites to protect soil from wind and water erosion, and to buffer temperature extremes.
- Acceptable management practices promote plant health by addressing the kind and class of livestock, season of use, and duration, distribution, frequency, and intensity of grazing use. Management practices must provide periodic rest or deferment from grazing during critical growth periods to allow adequate recovery and re-growth of vegetation, and to provide opportunities for seed dissemination and seedling establishment.
- Rangeland will be managed to achieve and maintain, to the extent feasible, the potential natural community (PNC) of vegetation, which is the composition and structure of vegetation that would likely exist in the absence of intensive and persistent human activity. Where establishing the PNC is not feasible, the Pike-San Isabel shall develop, as part of rangeland planning, a desired plant community (DPC) that emphasizes native plant species as much as possible, and then manage the respective areas to achieve the DPC.
- The Forest will require intensive management from permittees. The Forest and permittee will work together to develop appropriate grazing systems; no single grazing system works in every location. Any planned grazing system requires frequent attentiveness to range condition and is preferable to season-long passive grazing.
- To ensure compliance with management practices generally, the Forest will employ a monitoring system such as suggested in the Forest Service Rangeland Analysis and Management Training Guide. Specifically the Forest Service should implement riparian area monitoring methods as discussed in Methods for Evaluating Riparian Habitats with Applications to Management (GTR INT-221). The Forest will encourage use of established photo points to monitor conditions/changes at specific locations.
- Range improvement projects will be consistent with overall ecological functions and processes. Natural occurrences such as fire, drought, and flooding, and prescribed land treatments will be combined with livestock management practices to move toward the sustainability of biological diversity across the landscape. This will provide natural vegetation patterns, a mosaic of successional stages, and vegetation corridors that maximize wildlife habitat connectivity.
- Grazing management will occur in a manner that does not encourage establishment or spread of noxious weeds. In addition to various methods of weed control, livestock may be used where feasible as a tool to inhibit or stop the spread of noxious weeds, such as domestic sheep used to reduce leafy spurge, or horses to reduce non-native thistles. Where reseeding is required, native plant species and natural re-vegetation will, to the greatest extent possible, be used to sustain ecological functions and site integrity. Colorado Best Management Practices and other scientifically-developed practices to enhance land and water quality will be used in the development of activity and range improvement plans.

Range and Wetlands Management Guidelines

The most extensive human-caused influence on riparian zones in the United States has been livestock grazing (Montana BLM Tech. Bull. #3, Nov. 1997). Thus the time and duration that livestock spend in riparian areas must be very limited and carefully managed. Riparian areas cannot be used season-long or with both spring and fall use during the same year.

Implement a grazing system that:

- Limits grazing intensity and season of use to provide sufficient rest to encourage plant vigor, re-growth and energy storage;
- Ensures sufficient vegetation is left to protect stream banks during periods of high flow, to dissipate energy and trap sediments; leave 4 inches stubble height for early season use, 6 inches or greater stubble height for late use pastures, or to protect special ecosystem characteristics such as critical fisheries.
- Assesses specific needs of each unique riparian area relative to vegetative potential and capability. Stocking rates, duration and utilization levels must be monitored and adjusted to ensure post-grazing re-growth and residual cover (especially prior to high flows).

Extractive Industry

Oil and Gas

Currently in the Pike-San Isabel region, there are few economically recoverable and proven reserves of oil or gas, including coal-bed methane. Therefore, the WCCP planning team is not, at this juncture, making specific recommendations on this activity. However, should more oil, gas or coal-bed methane explorations be initiated, we will address this issue.

Mining

Currently in the Pike-San Isabel region, there are few economically recoverable and proven reserves of hard-rock minerals. Therefore, the WCCP planning team is not, at this juncture, making specific recommendations on this activity, with the exception of mitigation of historical mines. However, should mining explorations be initiated or reinitiated, we will address this issue.

Mitigation of Historical Mines

Although most historical mines are on private (patented) land, these mines carved out small island inholdings within the large public landscape. Thus, any drainage from these mines filters into creeks that run throughout the Pike-San Isabel. However, some historical mines are indeed on public lands as the inholdings were (re)acquired by the USFS, or the prospecting sites were never fully patented. The mitigation of old mines is a complex issue, subject to many laws and statues, with the responsibility and jurisdiction spread across different government agencies and mining companies. Further, the inventory of old mines is a detailed and costly process, complicated by the landownership diversity.

Abandoned mines can cause a variety of problems. They can create on-going water quality problems, public safety concerns, or a combination of both. The Colorado Inactive Mine Reclamation Program has been reclaiming non-coal mines since 1985 and has safeguarded 935 adits and 2,683 shafts during the past twelve years. A reconnaissance of mining districts in 1980 compiled information on 8,000 hazardous openings. From that inventory, Colorado estimates there are almost 22,000 openings in 36 of the state's 63 counties (Western Governors Association, 2002).

The Wild Connections recommends that during the course of the Pike-San Isabel plan revision, a commitment is made to work with other public and private agencies to inventory old mines, with the goal of prioritizing those mines which are creating the largest safety issue.

Silviculture

Currently in the Pike-San Isabel region, there is little commercial logging. However, the increase in fuels treatment projects has brought renewed interest in small scale treatments.

Management Guidelines

- Prevent construction of new roads into existing roadless areas.
- Protect and, over time, restore, late-successional forests.
- Establish areas for new pine recruitment and areas for old-growth pine to develop.
- Extend the minimum rotation period between regeneration harvests to the following:
 - Aspen 90 Years
 - Douglas-fir 200 Years
 - Spruce-fir 250 Years
 - Lodgepole 120 Years
- Refrain from logging on steep slopes of over 30 percent incline or in riparian areas.
- Utilize only harvesting techniques that do minimal damage to soil, root systems and under-story vegetation.
- Employ selective tree cutting methods when harvesting spruce-fir and ponderosa due to the potential damage from clear-cutting and the difficulty of regeneration.
- Retain clumps of pole-sized and larger trees in ponderosa pine.
- Retain an average of several snags per acre, where biologically possible, over a landscape. Snags selected for retention should be at least 25 feet high if possible. Otherwise, retain the tallest ones available. Focus on retaining soft snags (those with evidence of rot) and large snags, wherever possible.
- Retain coarse woody debris (down logs at least 10 inches in diameter if available) as follows: 50 feet per acre in ponderosa pine, and 100-150 feet per acre in all other forest types, except do not leave fresh blowdown or cut Engelmann spruce trees with bark intact. Leave some sections of the largest logs available.
- Burning slash piles should be limited to those that are no more than about 750 square feet and are mostly composed of material no more than three inches in diameter.
- All timber purchasers should employ best management practices.
- Weigh the commercial value of timber against the other values of the entire forest community—undisturbed soil, clean air and water, future late-successional forests, and intact wildlife habitat.
- Ensure that commercial timber sales provide a positive net return to the government. Below cost or taxpayer subsidized commercial timber sales are unacceptable.
- Include 100' buffer zone from wetlands and 300' buffer zone from fens.

Recreation and Travel Management

The 2005 USFS OHV Rule

The USFS issued the final OHV Rule on November 9th, 2005 requiring all National Forests to engage and complete Travel Management planning by 2009. Although Forest Plans do not make final decisions on route-specific closures, they should set the general policy, framework, and guidelines for recreation and travel management. The following guidance is recommended to ensure ecosystem sustainability.

Criteria to Manage Recreation on the Pike-San Isabel

Recreation is the dominant use of public lands in terms of numbers of participants, and this use continues to grow. It is essential that the Forest Service develop comprehensive and thoughtful recreation plans for motorized travel management as mandated by the 2005 OHV Rule as well as nonmotorized recreation. These plans will allocate uses across the landscape in such a way that cumulative and site impacts are minimized to stay or be brought within reasonable limits. Where impacts are unacceptably high (i.e., the condition of the landscape is in long-term decline as measured

by a series of biological and physical parameters), recreation uses must be reallocated to prevent further impacts and to allow the area to recover.

Recreation plans must be based primarily on a comprehensive analysis of landscape condition. An analysis of the types, amounts, and locations of recreation in demand relative to what currently exists is also fundamental.

In the planning process, the Forest Service's task is to ensure that recreational allocations, in concert with other land uses, do not impair landscape health and improve it where possible. The agency should provide a wide spectrum of opportunities within this broader mandate, and at no point can the agency sacrifice the goal of ecological sustainability to provide additional recreational opportunities.

The overall goals of the Pike-San Isabel recreation plan should be:

1. Ensure landscape sustainability and reduce landscape fragmentation.
2. Provide for a reasonable spectrum of uses within the ecological constraints of the landscape.
3. Plan for the long-term by anticipating trends in recreational use and ecological condition.
4. Utilize monitoring to facilitate compliance with standards and guidelines, and to indicate the need for adjusting desired conditions, objectives, and guidelines and/or devising new ones.
5. Protect the last remaining roadless places by allowing only recreation that is compatible with retaining the roadless character in these areas.

The mechanism to achieve these goals should be:

1. Determine the types of recreational activities that are appropriate by location on the Pike-San Isabel,
2. Develop zones for recreational access based on a comprehensive ecological and socio-economic analysis, and
3. Apply rigorous standards and guidelines to each zone. The identification of recreational activities should be based on the ecological resources of the Forest, desired and existing opportunities, the appropriateness of various types of recreation in national forests, and the ability of the Pike-San Isabel to adequately manage recreational uses to minimize resource damage and conflicts between recreationists.

Because off-road vehicles (ORVs) have and will continue to impact resources and other Forest users, the Forest Service must analyze and plan carefully for ORV recreation. The damage that modern vehicles can inflict on public lands necessitates that the Forest Service only allow ORV recreation where it can guarantee that it has the resources to manage it adequately. Furthermore, the Forest Service must implement policy that insures that significant resource damage will not occur at the site or landscape scale. Experience garnered over the last few decades has taught forest users that open ORV recreation leads to the creation of new routes. ORV recreation should be allowed only on designated trails and in certain areas that are identified in the plan as a unique category (e.g. the Rampart Range recreation area) with a customized set of standards and guidelines and which have a travel management plan that clearly defines acceptable use on designated, well designed trails systems.

Applying considerably more rigor to the management of ORVs will help preserve and restore natural quiet in the backcountry and the types of recreation that depend upon it. With the explosion of various types of more intensive recreation, it has become clear that we must proactively plan to maintain natural quiet in the backcountry. Hence, the Pike-San Isabel must create and incorporate a noise-spectrum analysis into its recreation plan by creating standards and guidelines for various themes that will ensure a quiet backcountry.

Motorized access to our public lands, while beneficial to users, can also disturb natural habitats, thus we must ensure that our recreational pursuits do not excessively impact natural and cultural resources, wildlife habitat, watersheds, special status species, and where applicable, wilderness values. High-quality recreation experiences in national forests depend on healthy and intact landscapes.

General Recreation Management Guidelines

- Restrict all motorized and wheeled vehicle travel to designated routes and trails marked as open on forest recreation/travel maps.
- Restrict snowmobile travel to designated routes and play areas marked as open on forest recreation/travel maps.
- Disallow jet-ski use, and impose speed limits on motorboats where preserving natural quiet is a priority or where limits are needed to protect fisheries or waterfowl.
- Vehicles may only travel on routes that are designated as open for the specific type of vehicle and may only travel on routes where the vehicle width does not exceed the road/trail bed width.
- Restrict travel on selected single track routes to only foot and horse, and only allow mountain bikes and/or motorcycles on other trails where ecologically appropriate. Limit user-tread to 24”.
- Use seasonal closures as necessary to protect wildlife, plant communities, soils, and water quality, and to avoid excessive resource damage, especially during wet periods and calving, fawning, and lambing seasons.
- Locate high-use areas *only* in previously disturbed zones where further impacts can be geographically contained. Use must stay well away from riparian and sensitive species habitat, Wilderness boundaries, special management areas, or other areas of special concern. Monitor high-impact areas, and relocate them or otherwise mitigate impacts when the resource shows signs of significant deterioration.
- Establish management goals and objectives based on desired future conditions (ecological and experiential) for each recreation zone. Objectives should include route density standards, and maximum noise levels and differentials.
- Set route density standards for each recreation zone. Establish standards for both open road density (ORD) (roads open to motorized vehicle use) and total route density (TRD) (which includes roads closed to motorized vehicles but not yet reclaimed and still usable by vehicles).

Recreation and Riparian Area Management

Riparian areas are particularly attractive for recreation and wildlife viewing because of their environmental features. Because of their linear nature and connectivity between urban centers, transportation and recreational planning agencies find riparian systems particularly suitable for trails. Trail corridors are planned or proposed for all major riparian areas of Colorado (Miller, Clinton K., 1994). Trails in these areas would have potentially severe detrimental ecological effects.

Effective management for general recreation includes the following guidelines:

- Minimize the number of stream crossings.
- Create and maintain hardened stream crossings and/or bridges in heavily used areas.
- Use physical barriers to keep people out of riparian areas.
- Locate new roads, trails and campgrounds outside wetland and riparian areas.
- Move existing roads and trails out of riparian areas, where possible, provided the relocated roads and trails are not more damaging than the original ones. Consider closing roads and trails which severely impact wetlands where relocation is not feasible.
- Place signage to educate users to stay on the trail.

- Limit impacts in sensitive areas (erosive soils, important wildlife habitat, etc.) by limiting numbers of users, closing or rerouting trails.
- Reduce overall road and trail density.
- Restrict or prohibit access to riparian areas for organized events, competitive races, etc.

Motorized recreation requires additional guidelines:

- Prevent upgrading trails from single-track to multiple tracks.
- Create and maintain erosion control barriers to prevent erosion and sedimentation.
- Provide education and signage to keep motorized users on the trail and out of the riparian area.
- Close or reroute motorized trails in sensitive areas to prevent resource damage.
- Limit use when wet/muddy conditions prevail. Limit or prohibit use during extreme fire hazard conditions.
- Limit numbers of motorized users.
- Restrict access to riparian areas for organized motorized events, competitive races, etc.

Roadless Areas

Preserving the remote backcountry character should be the goal of recreation management in roadless areas.

- Prohibit all non-emergency motorized use in roadless areas. Roadless Areas are the critical component within this Wild Connections plan in preserving ecosystem sustainability, and thus adherence to the desired conditions for Theme 1, 2 and 3 areas should be specifically acknowledged.
- Prohibit any new road and motorized trail construction in roadless areas of the Pike-San Isabel.
- Prohibit re-construction and new construction of staging areas in roadless areas.

Motorized Recreation Areas

These areas are zones in which motorized recreation is permitted in an intensive fashion on designated routes. Similar to a downhill ski area, the motorized area's boundary and trails are marked clearly, and the trails are built to withstand the hard use imposed by motorized recreation vehicles.

The plan includes standards and guidelines crafted especially for this type of use.

- These areas should be relatively small, have well-marked boundaries, and be constructed to withstand intensive recreation.
- Boundaries will be marked so that ORVs cannot inadvertently wander out of the area.
- Use will be restricted to designated routes marked on a map and to designated areas marked on the ground.
- Motorized recreation events will be permitted on an individual basis via the special use permitting process, and will only occur within the permitted boundary.
- The Forest Service should limit the use of two-stroke engines on public lands, phasing out such engines over a five-year period, as is recommended in the recently submitted Off-Highway Vehicle recommendations for the US Forest Service.
- Existing system routes should be closed and obliterated if they cannot be managed to limit resource damage. All non-system routes, i. e., those that have been created by passage of vehicles but that have not been designated by the Forest Service, should be closed and restored as soon as possible.

Special Uses

As recreational events grow in popularity, the Forest Service must establish consistent approaches to accepting and analyzing applications, incorporating use into capacity models, and fairly allocating use

between outfitters, event organizers, and dispersed users. Adventure races are events of super-endurance, round-the-clock, multi-sport racing that must be carefully managed to minimize impacts to wildlife and ecosystem health.

- All special recreation event applications for events greater than 49 participants or on five or more contiguous acres must submit an application at least nine months in advance of the requested event date.
- The Forest Service must complete its environmental review and issue the permit, if a permit is issued, at least two months before the event date.
- Capacity models and recreation allocations must include outfitter days and special recreation event days in the allocation process.

Outfitters from non-profit educational groups that provide services to the public directly related to furthering the mission of the Forest Service are finding it increasingly difficult to have access to the Pike-San Isabel National Forest. The Pike-San Isabel needs to allocate capacity between commercial outfitters, dispersed users, special recreation events, and non-profit education outfitters in a fair and equitable way. This includes assuring that non-profit educational outfitters are not disadvantaged in the allocation process, and even are given a priority allocation, so long as these outfitters provide services that directly further the mission of the Forest Service, e.g., leave-no-trace education, responsible backcountry travel, recreational skills and safety training, and natural history education. The permit fee structure should reflect nonprofits' public purpose and limited financial resources.

Outfitters seeking to provide a non-motorized experience to clients are having increasingly difficult time acquiring outfitting permits in areas where such experiences exist. More and more, because wilderness permits are limited, non-motorized recreation outfitters are forced to provide services in areas where motorized use precludes a wilderness-like experience. By only allowing ORV and snowmobile outfitters to operate in prescribed motorized areas, the Pike-San Isabel will help balance outfitter opportunities and assure that all outfitters have a place to operate that is appropriate to the experience they are trying to provide.

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