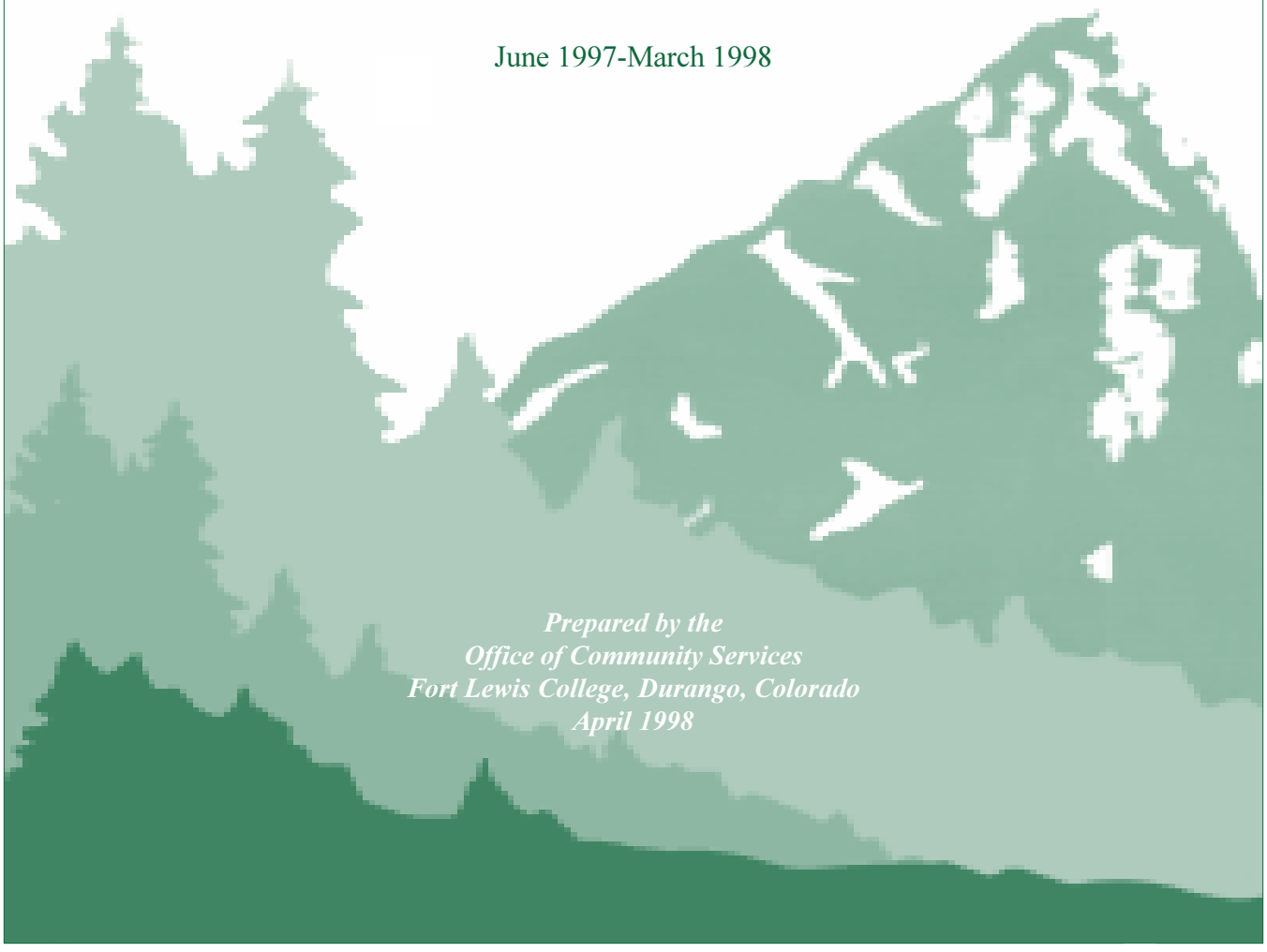
San Juan National Forest
Land & Resource Management Plan

Community Working Groups
Summary Report

June 1997-March 1998



Prepared by the
Office of Community Services
Fort Lewis College, Durango, Colorado
April 1998

Contents

San Juan National Forest Land & Resource Management Plan

Community Working Groups

Summary Report

June 1997-January 1998

Prepared by the
Office of Community Services
Fort Lewis College
1000 Rim Drive
Durango, Colorado 81301

Printed April 1998

This *Summary Report* is in the process of being reviewed by San Juan National Forest staff and members of southwest Colorado communities.

Its intent is to represent a range of perspectives.

It will evolve as the review process continues over the coming months.

Acknowledgements

The cooperative learning between the communities of southwestern Colorado and San Juan National Forest staff continues to be a unique process that promises to bring considerable benefit to the public. Everyone concerned has remained committed to finding common ground and appropriate, balanced alternatives to challenging resource management issues. As the learning has progressed, a sense of teamwork has grown, even in the midst of diverse perspectives.

After nearly two years of intensive community participation in forest planning, field trips and discussions, we are beginning to clarify and strengthen the linkages between study, inquiry and stewardship. We are beginning to understand more clearly how an integration of science, community knowledge and committed leaedership can lead to positive actions on the ground that improve the sustainability of our public lands.

I would like to express our deep appreciation for the participation, recommendations, knowledge and heart-felt concerns that have been expressed by community members and staff alike. Your resolve to sustain community and public lands, and to see their interconnections are invaluable contributions to the ultimate success of this endeavor. Thank you all very much.

Sam Burns
Program Director
Office of Community Services


MANCOS BOUNDARY DISTRICT
COLUMBINE DISTRICT
PAGOSA DISTRICT
SAN JUAN NATIONAL FOREST

Introduction

☆Collaboration is a process, not an outcome . . .
the measure of success for any community-based approach is better decisions on the land and improved working relationships among interests.

—Michael Dombeck, Chief of the US Forest Service
(*American Forests*, Winter 1998).

A Continual Learning Process

This report summarizes the accomplishments from June 1997 through March 1998 of six community working groups as they learned about and discussed possible solutions for planning and management issues in the San Juan National Forest. Six sections of the report documents each group's progress as members set initial working goals and objectives, raised issues and questions during presentations and small group discussions, then addressed the issues by discussing tools and strategies for meeting the challenges. In order to convey a sense of the focus that conversations took, each section concludes with a summary of possible themes and interrelationships. Brief descriptions of San Juan National Forest proposals to amend some of its current plan, regarding topics discussed by working groups, are also included.

The working groups, in the spirit of continuing analysis and dialogue, took up where previous study groups (1996-97) left off by examining selected topic areas in greater detail. After the study group discussions of multiple issues, a number of topics still needing attention were identified. Some topics simply needed more discussion in order to better understand their intricacies, while new topics were brought out for discussion (water and special management areas). In some cases, working groups confirmed information and recommendations developed by the study groups.

Working group members developed a stronger collaborative problem-solving relationship with San Juan National Forest managers and specialists, who gave educational presentations to meeting and field trip participants, who in turn discussed the issues raised, while recorders captured essential information. The documentation is intended to be used for a number of purposes, such as developing plan revision alternatives, sharing the study process with interested individuals and organizations, and developing next steps in strengthening ecosystem stewardship.

The question many have asked is: What are the opportunities, given what we are learning, to plan effectively for future impacts of human activity in the San Juan National Forest? To help reveal such opportunities, presentations were made on such topics as current and past management guidelines and practices, new research on southwest Colorado's ecosystem, and recreation trends. First-hand field examinations and interactive mapping have been key to generating discussions along with presentations. The San Juan's Geographical Information System (GIS) team also contributed maps that help focus working group talks. The GIS team continues to develop maps from which potential future planning direction can be drawn.

Examples of Learning

Needless to say, but important to be reminded of, study process participants have achieved a high level of learning. Here are a few highlights of each group's progress:

- The Wildlife Working Group, focusing on winter range, sought to balance emphasis on species-specific sites with special designations in order to eliminate conflict between species or animals and humans. Members also focused on using the plan's standards and guidelines to help protect habitat for forestwide species that range across various altitudes and vegetation

types. Many were interested in managing large areas, such as the Hermosa Creek drainage, to protect habitat diversity. They recognized interrelationships between resource topics — wildlife and travel and recreation, for example — that need further evaluation.

- The Range and Riparian Working Group is identifying Rio Grande National Forest Revised Plan standards and guidelines that are compatible for the San Juan. The group has examined whether new Bureau of Land Management range management standards could improve range conditions. During productive field trips members compared several sites in various stages of rehabilitation. What they learned there will support specific management practices and other future needs on the San Juan.
- The Special Management Areas Working Group explored opportunities for enhancing the role that the special qualities of the San Juan Skyway — named one of only six "All-American Highways" in 1997 — may play in the forest's future. Members contemplated the basic, but perplexing, question of how the Forest Service can manage for increases in such uses as biking, hiking, camping and sightseeing at the same time that it works to protect the forest's health. The group also reviewed 21 potential Research Natural Areas and the criteria used to measure each site's unique qualities and the benefits of protecting them.
- The Travel and Recreation Working Group has confronted a myriad of questions stemming from increased recreation and travel demands. When the first plan was written and finalized in 1983, travel and recreation were not the major issues they are today, thus they didn't receive the focus that later became necessary. Interestingly, working group members found considerable agreement amongst themselves with the "Recreation Strategies" that the San Juan National Forest developed during the late 1980s to address increased travel and recreation. Still, the group was confronted by the challenge of continuing to provide for current recreation uses and modes of travel, provide for more opportunities, and simultaneously protect and preserve forest health.
- The Timber and Fire Working Group discussed a multitude of issues: restoration, wood fiber production, economic viability (and benefits of both), road building issues, harvesting impacts on other forest uses, as well as ecosystem health and opportunities for education. They examined ponderosa pine, aspen, and spruce-fir forests, not only as places to harvest timber, but as whole vegetation types. They asked many questions: what are the opportunities for locally owned small businesses? Are harvesting and prescribed natural fire reliable substitutes for natural disturbance regimes, or should we forego management in favor of trusting nature to take its own course? How do we merge our diverse imagined futures with long-term planning for harvesting timber and preserving forest health?
- The Special Water Concerns Working Group, seeking constructive ways to address concerns, delved into intricacies of water law and possible links with the forest plan. Members learned regulations and forest plan goals, objectives, standards and guidelines related to riparian, and water quality and quantity issues. Forest Service managers and water conservation groups should continue talking about water management and planning, they concluded.

New Members Expand Collaborative Stewardship in the Community

The shift from the study groups' broad issue identification to the working groups' more in-depth examination gave other citizens a chance to join the process to better ensure broad-based community participation in the forest plan study process. Office of Community Services staff used various techniques to attract new participants, including local news briefs, letters of invitation to various interest groups, announcements to mailing-list recipients, and special mapping sessions with non-working group members and regional user groups. Study group members invited friends to participate. Forest Service staff provided names and addresses of interested organizations and individuals for the mailing list so that they could stay informed of the local dialogue, even though they couldn't directly participate. The original study group mail list grew to 178 names: 90 citizens regular participants and 37 Forest Service and OCS staff. The rest were interested citizens and tribal officials from around the Four Corners region.

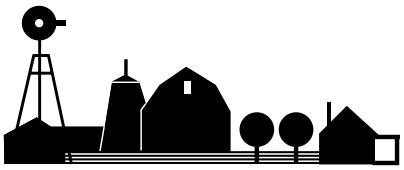
Learning and Stewardship Challenges

Working group members and San Juan National Forest representatives learned from their exchange about the various constraints to solving problems. The sheer complexity of Forest Service management challenges confronted working group members as they placed themselves in the position of addressing issues that managers face. The challenge for all — facilitators, agency staffs, and working group members, alike — of allowing everyone to have a voice was ever-present. Many also realized how difficult it can be to keep up with the pace of learning.

While the intended benefit of an intensive effort at community study and problem-solving has been to create a more responsive forest plan, perhaps the primary result has been a new emphasis on stewardship of forest resources. Community members not only took the opportunity to recommend their desires for the future of recreation, wildlife, travel and cultural resources, but they stressed a willingness to participate in the solutions.

A major insight during two years of public involvement in forest planning has been how a community involvement process can link planning to stewardship development. Planning does not have to be limited to a formal decision-making process, but can lead directly and more concretely to community members and groups creating and implementing hands-on solutions to ecosystem improvements. This makes the challenge of learning worthwhile, because it leads to concrete improvement in cooperative stewardship between communities and forest lands. Here are a few stewardship values expressed by participants:

- improve the practices of resource (recreation) users through education rather than law enforcement;
- increase resource monitoring as part of stewardship processes to improve forest health;
- apply the learning process gained during the forest plan revision to other ecosystem management activities, such as range standards for allotment management plans;
- reduce conflict through education and dialogue among various trail users;
- apply silvicultural analysis developed from working in ponderosa pine to mixed-conifer;
- continue to improve the well-being of the forest by virtue of the community sharing responsibility for new management alternatives (reintroducing fire in overstocked stands), or reducing excessive road densities (by closing unneeded roads in the Glade), or partnering with the Forest Service to restore an ecological area (Pine Zone Project).



Range and Riparian

The Range/Riparian working group took two productive field trips during summer 1997 and recently concluded meeting until the fall of this year. During the field trips, members concentrated on comparing upland range conditions at two sites, one functioning (actively being grazed) and the other in the process of recovering.

They also examined riparian areas that have been rested and allowed to rehabilitate and others that display more current affects of grazing. This range of conditions provided many topics for consideration, including: the benefits of allowing a stream to rehabilitate; the use of "time and timing" in grazing strategies; and the inherent ability of nature to heal when given the chance. Concerns for long-term sustainability, multiple use and maintaining a healthy forest for the future focused the group's discussions, as they considered current management strategies and provided suggestions and modifications to range/riparian standards and guidelines.

The Study Process

Field trips, discussions and presentations by Forest Service staff provided a variety of materials and handouts from which to work (see appendix). They reviewed long-term forestwide desired conditions and objectives (achievable during the life of the plan), as well as forestwide standards and guidelines for riparian areas and range. They learned that compliance with standards is mandatory, while guidelines are adaptable in specific stituations and sites through the environmental assessment (EA) process associated with Allotment Management Plans (AMP) the San Juan is currently working on.

The group also studied site-specific management area prescriptions (another important feature of a plan document) for general forest rangelands and intermingled rangelands, grassland resource production, deer and elk winter range, special wildlife areas and pristine wilderness. These plan elements were adapted from a menu provided by the Forest Service regional office in Denver.

Key discussion topics

After reviewing key issues in the field, working group discussion of riparian and range issues was organized around a review of the recently adopted Rio Grande Forest *Standards, Guidelines and Prescriptions*.

Riparian area conditions, standards and guidelines

Defining Riparian Areas — The simplest definition is an area that is populated by water-loving and water-dependent plants.

Riparian Improvement — The key is protection and re-establishment of willows, sedges and stream bank stability. Spring grazing allows for the best recovery. Summer grazing is the most problematic, because cows hang out in riparian areas to mitigate the heat.

Man-made Riparian Areas — A major contribution of livestock grazing is the development and maintenance of stock ponds which support riparian vegetation and wildlife. Since their function is to distribute cattle (as well as big game) away from natural riparian areas, some members felt that there should be more tolerance for the short-term visual impacts of grazing, so long as there is good rest and recovery.

Fencing Riparian Areas — is effective but expensive. The "watering gaps" that are created get more intensive pressure from livestock and wildlife. Alternation of fenced and unfenced areas also create water temperature variations that are hard on fish. In addition to Rocky Creek, fencing is being studied on House Creek, Hermosa Creek and on the Dutch Creek Allotment. An alternative is to lay out pastures and rotations so that riparian areas are grazed in the spring, though altitude and length of season can be a limiting factor.

Stubble Height in Riparian Areas — The 4-6" stubble height guideline may be appropriate for some riparian species (sedges), but not species such as bluegrass. Since this is a guideline, these distinctions can be taken into account in the AMP process. The goal of this guideline is to trap sediment (with "finer comb" willows and sedges) and stabilize banks.

Streambank Trample — A guideline limiting trample to no more than 20-25 percent is reasonable provided that a long enough reach is being analyzed. Some shorter reaches will exceed this guideline because of geography and stream crossings impacted by a combination of cattle, wildlife, and recreational users.

W*ater Budgets, Flow Patterns* — It was suggested that the standard which calls for not degrading water budgets or flow patterns should take into account downstream water rights. This standard should be applied in a way that honors water rights while managing to keep adequate water in streams and wetlands to meet the needs of dependent plant and animal species. This issue was discussed extensively in the Special Water Concerns Working Group.

Grazing and Upland Range Conditions, Standards and Guidelines

Relationship of the Forest Plan to Site-Specific Allotment Management Plans (AMPs) — The working group learned that grazing management and ecosystem improvement strategies are developed by the permittee and the range conservationist in site-specific Allotment Management Plans. The *Forest Plan* establishes the Desired Conditions, Standards and Guidelines, and Prescriptions that an interdisciplinary team applies in conducting an environmental assessment which evaluates grazing management alternatives to be considered in developing the AMP. The environmental assessment also addresses public comments that are received during the AMP process.

Focus on Trends, Capability and Suitability — Many range and riparian conditions have developed over a long period of time and can't be repaired quickly. The key is whether the trend is upward or downward, and how to move in an upward direction. There are also limits on the capability of certain sites to recover and/or produce. In some cases, these limitations should be recognized and expectations should be adjusted accordingly. The *Forest Plan* analyzes "grazing suitability," which can be used as a basis for adjusting allotment capacities.

Grazing Management Strategies — Deferred Rotation: Resting a spring pasture until the fall provides almost a full season of plant recovery, root and seed production. Flexibility is constrained by elevation and length of season. Rest Rotation: Leaving a pasture out of the rotation for one year or more. The constraint is dealing with additional pressures on remaining pastures. Time and Timing (HRM): Intensive short-term grazing emphasizes plant recovery time rather than traditional utilization levels and animal units. Since small paddock fencing is not acceptable on public land, the alternatives are more intensive herding (added permittee time and costs), combining herds and thereby multiplying the number of pastures (large herds are harder to move and get settled), and working with animal behavior patterns (e.g. using the uphill end of a pasture in spring and the downhill end in fall, and acclimating replacement heifers to underutilized areas).

Benefits of Grazing — In addition to the development of ponds that benefit wildlife, proper grazing can stimulate nutrient cycling, plant vigor and regeneration. Grazing can also reduce

fire risk and maintain access through dense vegetation. In some cases, short-term, intensive grazing (e.g., along riparian areas) can put pressure on undesirable plant species, allowing more desirable species the opportunity to strengthen their hold on an area. These benefits depend on careful allotment planning, management and monitoring.

Brittle and Non-brittle Environments — While most of the group agreed with the HRM philosophy that appropriate grazing can break up the soil crust (for water intake) and stimulate plant vigor in lower altitude "brittle" environments, this is not necessarily true in higher altitude "non-brittle" environments.

Reference Conditions — Reference conditions for range and riparian improvement can best be established by finding a similar site that is functioning in a desired condition. Grazing is, however, a legally recognized forest use, so the establishment of pristine undisturbed conditions in grazed areas is not a realistic goal. Some of the group felt that, while traditional uses should be allowed, some areas should not be grazed, particularly in high altitude non-brittle areas.

Desired Plant Communities —- Desired plant communities can involve a mix of native and introduced species. AMPs begin with an inventory and the Interdiciplinary Team determines the desired mix. It is not intended to be "non-grazing climax," since it is determined under grazing conditions.

Grazing on High Altitude Tundra — High altitude grazing has involved primarily sheep grazing. Due to the economics of the sheep industry, there are several vacant allotments. Some members felt that the fragile nature of these high-altitude areas warranted the closing of allotments as they become vacant.

Potential Conflicts between Grazing and Wildlife — The Colorado Division of Wildlife manages wildlife, while the Forest Service manages habitat. There are forest-wide standards and guidelines designed to accommodate wildlife populations, as well as wildlife prescriptions (deer and elk winter range). The 6b prescription, which emphasizes livestock grazing provides for vegetation standards intended to protect wildlife. The impacts of big game and livestock are often similar (e.g., stream bank trampling), although they often use vegetation during different seasons. A key issue is the relative stocking levels for livestock (controlled by AMPs), and big game (controlled by the number of hunting licenses).

Tree Regeneration by Exclosure — Permittees observed that pine seedlings do worse in exclosures due to grass competition and rodent damage. The issue is being monitored in the ponderosa pine pilot projects.

Noxious Weeds — There was wide agreement that noxious weeds are a problem that needs a great deal of attention. Noxious weeds are exotic plants that displace desired vegetation. They thrive on disturbance and persist because they have no predators. Where biological controls are not feasible, chemical controls are acceptable. There are opportunities for livestock permittees to help with weed control, but this would require training and EPA certification.

Outcomes

The comparison of *Rio Grande Revised Forest Plan Standards and Guidelines* to more specific standards and guidelines contained in the current *San Juan Forest Plan* led to the consideration of the appropriate balance between flexibility and consistency. The working group also looked at southwest Colorado BLM Resource Advisory Council (RAC) standards and guidelines and discussed the potential for compatibility between SJNF and BLM allotment grazing standards and management practices.

With the near-term effort to revise SJNF standards and guidelines and BLM and SJNF range staffs working more closely, the group agreed to re-convene in the fall of this year to review draft SJNF range and riparian standards and guidelines and evaluate them based on criteria to include flexibility, consistency, practicality and clarity of common understanding. The group will also look at progress towards a coordinated approach to SNJF and BLM range planning and management.

Interrelationships

Key interrelationships were identified between grazing and wildlife management. A member of the Wildlife Working Group asked that permittees review and give input into the critical winter range maps developed by the wildlife group. The Range/Riparian Group asked for a habitat specialist from the DOW to participate in fall discussions to evaluate draft range and riparian standards and guidelines.

Relationships were identified between riparian standards and guidelines and water rights issues discussed by the Special Water Concerns Working Group. Relationships were also identified between forest restoration, improved forage conditions and tree regeneration. There was also considerable discussion concerning multiple-use issues involving livestock grazing and growing recreational use on the forest. Montezuma County sponsored a weed forum involving a variety of counties, federal agencies and the Colorado Department of Transportation to organize a coordinated approach to weed control.

Fiscal Year 1998
SJNF Plan Amendment Work

The following information, provided by the San Juan National Forest planners, gives a sense of how the Forest Service is applying information and data from study and working group interaction.

Range and Riparian Planning Status

The Forest intends to amend the San Juan Forest Plan to update the range portions of the forestwide standards and guidelines and some prescriptions (range, big game winter range and wilderness). Standards and guidelines from the BLM, Rio Grande, Black Hills and new Regional (USFS Region 2) prescriptions will be reviewed for consideration.

The Forest is also working to complete an analysis of range suitability and capability.

Closures of some vacant sheep allotments will be considered. This is a project-level decision, rather than a forest plan decision, but fits well with other range amendments so it could be done efficiently.

The goal is to develop a draft amendment by October 1998.

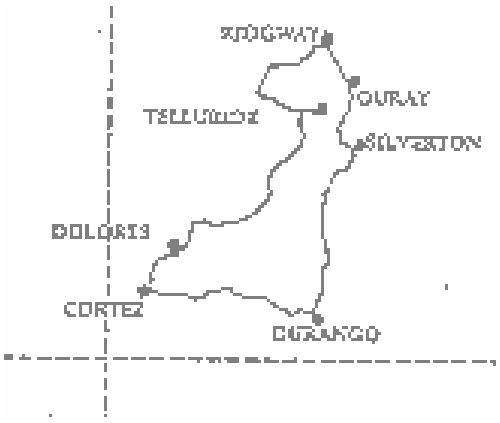
Special Management Areas

The Special Management Areas Working Group was formed to focus on three areas not addressed in detail by the community study groups: Heritage Resources, the San Juan Skyway and Research Natural Areas. Here are brief definitions of each topic:

- The San Juan Skyway is a 232-mile highway corridor, 91 miles (39 percent) of which wind through the San Juan and Uncompahgre National Forests. Sites have been selected along the Skyway by the Forest Service to interpret San Juan Mountain natural and heritage resources.
- Heritage Resources include historic cabins, mining structures, portable artifacts, early Puebloan dwelling sites, Ute hunting areas, tree carvings and so on.
- Research Natural Areas are specially designated tracts of land managed to not only maintain, but conduct long-term research of diverse unique ecological features.

San Juan Skyway

The San Juan Skyway is a 232-mile scenic and historic touring byway that travels through some of the most pristine areas of Colorado. The Special Management Areas Working Group considered preservation of the many valuable heritage and physical resources along the Skyway important topics of discussion. At the same time, providing recreational experiences for visitors through access to natural resources and interpretive, educational opportunities at key sites was also important.



These and other topics were raised when the group toured portions of the Skyway. For example, how best to acquire and preserve remaining open space led to several questions about development along the Skyway. The group addressed: how to determine the scale of development along the Skyway; how to provide opportunities to educate the public about the historic and cultural resources that are part of the Skyway experience; and how best to preserve key private lands that are adjacent to the Skyway.

Key discussion topics

Increased Use of the Skyway — This appears inevitable, so management should minimize harmful impacts through controlled situations that can reduce impacts. This may include providing better information and orientation for visitors to the Skyway, more facilities, paved trails and parking areas to prevent further degradation of heavily used areas.

Corridor Width — The effect of the Skyway corridor's width on visitor driving experiences was an important discussion topic. What is visible in the immediate foreground (up to 1/4 mile distance) greatly enhances or disturbs the visual experience of the touring public. The middle ground was described as what's visible from two to five miles, with fewer details and more expanse. The background, five miles to infinity, is where visual experience is least impacted. A question explored was about how logging or development is handled on the lands along the corridor. One possible answer was that logging and other management activities in all visible areas of the Skyway can be done in a way to be natural in appearance.

Preservation of Open Space and Vistas — Many participants felt that working with local communities and governments, as well as private land owners to ensure that open space is maintained and scenic corridors are preserved, is an important issue.

Education of the Public — Interpretation of important natural and cultural values, ecosystems and processes along the Skyway will enhance the public's experience and preserve the integrity of the resources. It is important to reclaim degraded resources, such as historic mining structures and railroad grades, as part of our heritage.

The Concept of a Working Forest — Rather than restricting or hiding activities, such as timbering, it was pointed out that education about how an area is being managed is a strategy toward maintaining a healthy working forest and continuing to allow for multiple use. Managing for aspen may disrupt the scenery somewhat, because aspen harvests are usually by clearcutting. However, the alteration last a relatively short time. If the public is aware of the ecological reasons for clearcutting, it is less likely to oppose clearcutting, based on its scenic value.

Managing for Site-Specific Situations — Aspen was used as an example to explain that some stands are producing, some are not and others are being crowded out (e.g., mixed-conifer). Each situation would require specific, customized management directions.

Adjacent Compatible Prescriptions — Working group members discussed prescriptions on lands adjacent to the Skyway; for example, a grazing prescription on Lime Creek. Some prescriptions may need to be reconsidered if their management strategies are incompatible with Skyway planning goals concerned with visual enhancements. San Juan National Forest staff discussed the Forest Service's obligation to manage the forest both as a public resource and to provide visitors and regular users with chances for quality experiences. In other words, it must protect the forest and the Skyway while being responsive to the public's increases in demands and uses. This may mean discouraging human activity in certain areas (wilderness is hands-off for human activity).

Outcomes

Following group discussions and presentations, members listed numerous recommendations for strategies which are summarized here. For a more detailed listing, please refer to "Meeting Notes" of October 18, 1997. Overall, participants expressed a mutual desire to preserve the diverse natural and cultural resources of the San Juan Skyway corridor. More specifically:

- Customize a management prescription that preserves and enhances diverse natural, historic and cultural resources that are integral to the San Juan Skyway visitor's experience.
- Establish a management for the San Juan Skyway corridor that encompasses its most sensitive scenic resources (foreground and midground) and those recreational facilities, trails and interpretive sites that contribute to multiple resource themes.
- The group was asked to consider whether there are any areas, activities, etc., that negatively influence the San Juan Skyway experience, given the current 2B prescription ("to enhance recreational opportunities and the driving and visual experience of its users with no commodities to be removed).

Heritage Resources

The Forest Service's Heritage Program requires that, prior to any ground-disturbing activity, a site will be examined to "identify, evaluate, protect and interpret" any cultural resources. With this in mind during August and September of 1997, the Special Management Areas Working Group began looking at specific areas on the San Juan National Forest identified as heritage resources by the Forest Service. The physical integrity of these historic sites, structures and artifacts is threatened for various reasons, such as: urbanization and private development, recreation impacts, uncontrolled access and limited security, lack of funding to continue preservation efforts, and Forest Service management activity.

a strategy

The Forest Service should consider historic structures for recreation opportunities.

This goal can be met by partnering with volunteer groups and organizations to restore, maintain and manage structures.

Such partnerships can be resourceful and educational, and provide access to, and positive contacts with, the public.

The Study Process

The working group learned about current management strategies and their application to specific cultural sites on the San Juan through group discussions, field trips and presentations by Forest Service staff. Then, using the amassed information and data to help suggest problem-solving ideas, they began to suggest changes that would further preserve and protect these valued resources. The issues covered included:

- Key heritage management concepts and definitions;
- National Register of Historic Places District (NHRP) information;
- Mapping each NRHP district in the national forest;
- Tables that describe management opportunities and priorities for the NRHP districts;
- An appendix providing details of San Juan-Rio Grande National Forest cultural resource budget projections through fiscal year 2004. The appendix also included descriptions of "Traditional Cultural Properties" and the National Historic Register.

Key discussion topics

A brief description follows of the information shared in presentations by Forest Service specialists about heritage resources, as well as some main points discussed afterwards. Of the five areas that are currently designated National Historic Districts and listed on the National Register, only two are given a 10C management prescription in the current forest plan, closing them to motorized vehicles. These two, Chimney Rock and Falls Creek Archeological Areas, both receive special management emphasis protecting them from other management activities and forest uses.

Since off-road vehicles cause archeological and resource damage to the three remaining, unprotected sites, it was suggested that restricting ATV use in these areas needs to be addressed. The essential question is: Which prescriptions need changes in order to better protect these sites?

The expressed goal of the Forest Service is to accommodate perspectives of all users. But many cultural sites are considered sacred to Native Americans and, by law, spiritual and cultural values must also be considered as management strategies are designed. The central question asked is: How can these sites be managed for multiple use and their cultural values still be protected and preserved?

This challenge is compounded by lack of funding and personnel, making it difficult to monitor sites. Participants discussed public education and site etiquette, but how to successfully achieve these goals remains in question. All five sites are archeologically unique and offer educational opportunities. However, this must be weighed against harmful effects of public visitation, such as crumbling walls and removal of artifacts. Sites are being threatened further by vandalism, development and excavations on adjacent private lands.

Outcomes

As an outcome of what they learned, SMA working group members recommended preliminary directions and goals for cultural and heritage resources on the San Juan. Many agreed that educating the public is a key component in any planning or management process. Discussions covered other issues such as national historic district boundaries, hunting restrictions and protecting human burial sites. Working group members made the following suggestions.

Cultural and heritage resources are synonymous in the Forest Service. Heritage resources is the official Forest Service term.

- Place a cultural resources prescription (10C) on all five national historic districts – a total of 23,597acres (820; 15,977; 1,500; 2,500; and 2,800 acres individually);
- Restrict or prohibit all-terrain-vehicle (ATV) use within the districts;
- Increase public education; for example, discourage piling artifacts;
- Maximize partnerships utilizing volunteers who monitor and protect cultural resources;
- Reduce hunting on or near national historical sites by restricting firearms;
- As required by federal law, maintain consultation with Native American tribes and Pueblos regarding the appropriate management of sacred sites;
- Do not open sites or promote them for visitor use without adequate funding for responsible project planning, management and long-term monitoring.

Future Opportunities

The SMA Working Group was not able to address others of the many historic resources on the San Juan National Forest that are not officially designated in the National Historic District Register. And although the Weminuche Wilderness Study Group in 1993–1994 addressed some heritage sites located in wilderness, providing some community perspectives for future protection strategies, there was a strong sense that more study and discussion is needed to guide future management actions more comprehensively.

Research Natural Areas

The objective of an RNA is to preserve a spectrum of pristine and biologically diverse areas that provide reference conditions and research opportunities. The working group's task was to compare and evaluate the characteristics of 12 out of 21 potential RNA's on the San Juan and contribute ideas, suggestions and personal knowledge about these and other possible areas.

Key discussion topics

Working Group participants discussed four main criteria for designating a site as an RNA:

Quality —Does the site have high ecological value?

Condition — Is the site altered from past use?

Viability — What is the likelihood of long-term, future functioning?

Defensibility — Is the site protected from external impacts?

The participants discussed the following issues stemming from these criteria:

Minimize Duplication of Qualities — In selecting RNA's, it is important to include as much ecological variability as possible in order to represent all the diverse types of ecosystems across the state. It is more important to include lands with new types, rather than lands which duplicate types already represented. In some instances, a conflict with another use, such as

mining, would eliminate a site from designation.

Protection of an Area — Some areas would provide valuable research opportunities; however, they should be protected by prescriptions other than an RNA prescription, which is specific only to the outlined objectives of an RNA.

Role of Fire — Natural fire and management-ignited fires in an RNA close to private property present potential conflict, while letting a fire burn in a remote area would pose no threat as part of maintaining an undisturbed ecosystem. In the case of the proposed Electra Lake RNA, which partially borders private property, fire is a potential conflict.

Dual Designations — If a particular site's qualities make it worthy of designation, then a dual prescription, such as wilderness and an RNA may be considered.

Designating a Site Does Not Restrict Use — Designating a RNA does not restrict use by the public, except for snowmobiles. If there are access problems (i.e., as in the case of areas bordering Southern Ute lands), or heavy trail use through an area, these sites may not be appropriate for designation.

Outcomes

Of the 21 initially proposed sites, 11 were given higher priority in a review by the Colorado Natural Areas Program. During discussions following a presentation of details of the review by the SJNF ecologist, most members supported the idea of getting as many RNA's designated as politically and scientifically feasible.

In contrast, the point was made that it might be better to be more selective and nominate perhaps only six or eight areas. This might bring more support to the designation process. At least one person opposed designating any more public land for RNAs. One additional RNA was suggested for consideration; a pure aspen stand on a steep slope of Stoner Mountain. An enlargement of the existing Williams Creek RNA was also suggested .

Interrelationships

Overlapping issues that may need further consideration by a cross-section of study participants include the following:

- One purpose of a RNA is to preserve it as closely to its natural state as possible; however, letting a fire burn may conflict with timber management and opponents to burning. It may also be an issue with adjacent private property owners;
- Some people don't want to see more public land restricted or set aside for special uses like RNAs. These citizens feel they have not been heard from in the study process;
- RNA restrictions on snowmobiling may conflict with some desires for recreation;
- Managing for aspen in mixed-conifer stands may alter the visual experience of the driving public, particularly along the San Juan Skyway.
- Some grazing prescriptions on land along the Skyway may need reconsideration if they aren't compatible with Skyway planning goals. Permittees must be part of the deliberation.

Fiscal Year 1998

SJNF Plan Amendment Work

The following information, provided by the San Juan National Forest planners, gives a sense of how the Forest Service is applying information and data from study and working group interaction.

Special Management Areas Planning Status

San Juan Skyway

The SJNF proposes to amend the San Juan Forest Plan to reflect the new scenic byway corridor. The new corridor is not in the current plan, although much of it is in a motorized recreation prescription that is a close fit. The corridor needs to be overlayed with the current prescriptions for comparison. The new USFS Region 2 (Rocky Mountains) prescription for scenic byways needs to be evaluated and, if needed, modified to be more specific to the San Juan Skyway.

The Forest Plan would then be amended to reflect the new corridor and prescription. The goal is to produce a draft amendment by October 1998.

Archeological Districts

Only two of the San Juan National Forest's five National Register Archeological Districts have any recognition in the current Forest Plan: Chimney Rock and Falls Creek. The SJNF proposes to change prescriptions to provide more emphasis on cultural resources on the other three: Anazasi, Lost Canyon and Spring Creek. Currently, proposals exist to expand the boundaries of all of the districts, except Anasazi. The boundaries of the proposed expansions need to be better defined. The new Region 2 prescription for cultural resource areas needs to be evaluated and modified as necessary for each of the five areas. The goal is to produce a draft amendment by October 1998.

Research Natural Areas

A larger effort to designate RNA's on national forests in USFS Region 2 that haven't recently completed forest plan revisions now appears likely. The San Juan National Forest would provide support with local knowledge and local public involvement. The Forest Service would need to continue narrowing the focus on which potential areas it supports for designation and on setting their boundaries.

Special Water Concerns

The Special Water Concerns Working Group held an organizational meeting in July of 1997, and two additional meetings in August and November of 1997. The discussions focused primarily on the interface between the state water rights priority system and the federal laws and regulations that govern water quantity and quality issues on national forest land. The group explored approaches to enhance communication and to undertake collaborative problem solving and issue resolution where needs and opportunities become apparent.

The Study Process

The state water rights system was presented to the working group with supporting literature provided by the Southwest Water Conservancy District. San Juan National Forest staff reviewed with the group written information from a summary entitled "Federal Laws and Regulations Applicable to Water Quantity and Quality on National Forest Systems Land," as well as examples of the SJNF plan riparian standards and guidelines.

In Perspective

Federal Reserve Water Rights

A long line of judicial decisions has both recognized and limited federal reserved rights to the primary purposes of the reservation. The most recent decision, from Division 1, granted reserved water rights for administrative and fire-fighting purposes. The decision also reasoned that channel maintenance flows were required to secure favorable conditions of water flow, a primary purpose of national forests, but only to a reasonable degree (Gillilan and Brown, 1997).

-From David M. Gillilan and Thomas C. Brown. (1997). *Instream Flow Protection: Seeking a Balance in Western Water Use*. Island Press.

Key discussion topics

State Water Rights System — State water rights are decreed by a State Water Court. Southwest Colorado is in Water Division 7. Water rights are granted on "a first in time, first in right" basis. Historically, water rights in the West have involved diverting water from a stream and transporting it by canals and/or pipes to a point of "beneficial use." Beneficial use can involve agricultural uses (such as irrigating a field), municipal uses (such as supplying water to a town) or industrial uses (such as mining). A water right is only granted when the applicant has proven that a specified quantity of water has been developed and put to beneficial use. In water-short years, senior rights are given priority in the order of their historic establishment. A change in the use or point of diversion for an existing water right must be approved in water court and other water rights holders have the opportunity to object.

Since the granting of water rights can potentially deplete or dry up a stream, a mechanism for establishing "in-stream flow rights" has been established. According to state law, the Colorado Water Conservation Board is the only entity that can hold in-stream flow water rights. State courts currently do not allow national forests to go through state process to establish in-stream flow water rights on national forest land.

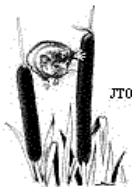
Federal Laws and Regulations — National forest objectives involve keeping enough water in the streams to support the biological resources that require protection under federal laws and regulations such as the Threatened and Endangered Species Act, the Federal Land Policy and Management Act, the National Forest Management Act, the Clean Water Act and others.

Absent decreed in-stream flow rights from Colorado Water Court, national forests have attempted to comply with the above laws through regulatory means. For example, forest plan standards have been used to establish terms and conditions for permitting new reservoirs and renewing expired permits for existing reservoirs and canals on national forest land.

Pro-Active Conflict Resolution — While conflicts between the state water rights system and the application of federal laws and regulations on the San Juan National Forest have been minimal to date, the history in other areas indicates that the potential for conflict exists. Such conflicts can be expensive and involve intense litigation. Working group members explored methods of resolving potential conflicts so as to avoid litigation and other expensive and adversarial approaches.

Negotiations to Establish Federally Reserved Water Rights — Since national forest lands are often upstream from other water rights, and their objectives involve keeping water in the streams, it is possible that federal in-stream flow rights could be established on many streams without impacting downstream water rights. A framework for such negotiations is in place, but progress is constrained by the lack of data needed to quantify in-stream flow rights needed to meet forest objectives. Budgetary resources to gather such data are limited, making it difficult to anticipate a time frame for reaching proposed flow rights, providing the opportunity for water rights holders to raise concerns with regard to impacts on their rights and a decree of in-stream rights by the water judge.

In the absence of decreed in-stream flow rights, the San Juan National Forest intends to rely on standards and guidelines, special use permitting and other project-level decisions to address in-stream flow issues.



The Dolores Water Conservancy District, Montezuma County and Dolores County are jointly sponsoring a "Watershed Forum" in March and April of 1998 to inventory concerns and facilitate efforts aimed at addressing water quantity and water quality issues in the Dolores Watershed.

Outcomes

A "seat at the table"

Local water users in the working group are asking for a "seat at the table" when Forest Service decisions that impact their water rights are made. Forest Service staff are asking for legal standing to be able to establish and hold in-stream flow rights adequate to meet federal laws and regulations.

While these perspectives were not reconciled, working group members agreed to reconvene after the San Juan Forest ID team has had an opportunity to shape the content of the plan to discuss the following items:

- A statement of principles addressing cooperation between the SJNF and local communities to be included in the preamble of the *Revised Forest Plan* (possibly drawing on a Memo Of Understanding [MOU] being developed as part of the in-stream flow negotiations);
- Review of any progress on in-stream flow negotiations;
- The opportunity to evaluate preliminary forest-plan elements as to their potential impact on water quantity and water quality including:
  - √ goals and objectives;
  - √ shaping of alternatives;
  - √ the articulation of standards and prescriptions (old and new);
  - √ exploration of other two-way seat-at-the-table opportunities.

Timber, Vegetation, Fire and Old Growth

The Timber, Fire and Old Growth Working Group included members who had developed an interest in this topic during the study group process and some additional people interested in focusing their participation on vegetation management. The working group decided to focus on scientific analysis, coupled with a firsthand look at a range of vegetation management strategies.

The Study Process

A bibliography of available scientific literature and background information, recommended by SJNF staff and Working Group participants, was circulated. Two field trips were conducted to look at current conditions and the results of various management approaches related to mechanical harvesting, old growth and the use of fire. The overarching objective of the Working Group was to consider current conditions and desired future for each of the major cover types and to consider how the desired conditions can best be achieved by using various management approaches.

Key discussion topics (by cover type)

The discussions that followed the field trips were organized cover type by cover type. For each cover type, disturbance regimes (insects and fire), restoration and wood fiber production opportunities, and old growth conditions were reviewed and discussed. The discussion of the high altitude spruce fir cover type also included discussion of timber management in unroaded areas. Based on these discussions the working group formulated a list of issues to be analyzed in Forest Plan revision alternatives. The four major cover types in the suitable (for harvest) and unsuitable base are presented below, followed by a summary of the discussion for each cover type.

FS Geographical Information System acres by cover type and suitability

Cover Type	Suitable Base	Unsuitable Base	Total
Ponderosa Pine	133,722	147,573	281,295
Aspen	95,504	197,466	292,970
Douglas Fir & White Fir	52,190	173,023	225,213
Spruce-fir	105,014	416,728	521,742
Total Forested Acres	375,092	934,790	1,321,220

Ponderosa Pine

Today, much of the ponderosa pine forest on the SJNF is outside the natural range of variability. There are very few large, old trees and seed/saplings, which are both essential to the future of ponderosa pine regeneration and stand stability.

Disturbance Regime and Natural Range of Variability (Pre-1870 conditions)	**Current Condition**
• 40–50 trees per acre, average diameter 27” • clumped patches, park like openings, diversity of grasses, forbs, wildlife habitat • low intensity ground fires, approximately every 5–15 years, provided tree thinning, bare mineral soil for regeneration	• 200–400 trees per acre, average diameter 8” (minimal economic value) • dense overstocked stands with limited vegetation/wildlife habitat diversity • fire suppression the past 90 years has resulted in excessive ground and ladder fuels, creating a high risk for catastrophic fire

Discussion

There was wide agreement concerning the use of harvesting and the reintroduction of fire to return overstocked ponderosa pine stands to within the range of natural variability. The resulting uneven-aged stands can increase ecological diversity, promote regeneration and reduce risk of catastrophic fire. Field trips to the ponderosa pine restoration demonstration sites, the results of initial ecological and economic monitoring and subsequent working group discussions revealed some of the factors that must be considered in undertaking restoration activities on an ecosystem scale:

Wood Fiber Values are Key to Restoration on a Meaningful Scale — Budgetary resources are lacking to subsidize the total cost of restoration. The development of wood fiber into commercial products can address a major portion of restoration costs.

Economic Feasibility of Restoration — The predominately small-diameter trees that are taken out to meet restoration objectives are low in value and require different market outlets, new products and new processing technologies. Stable long-term supplies and reasonable pricing are the key to making the necessary economic transitions.

Sustainability of Wood Fiber Supply — While restored stands are more ecologically stable and less subject to wildfire, they will, over the long term, produce less wood fiber. Stands managed for higher wood-fiber production involve more fire risk. The trade-offs between the stability of restored stands and the productivity (and higher risks) associated with commercially managed stands need to be considered in the context of increasing demand for wood products.

Stand Suitability for Restoration — Some stands don’t have the large tree component required to implement the restoration prescription and may require pre-commercial thinning to allow remaining trees to release and grow and create options for the future.

A Mix of Restoration and Wood Fiber Production — This mix of objectives can occur in the same area over time. It is also possible to focus restoration on areas of high need and high potential, while focusing commercially oriented approaches on areas more suited for commercial production.

Industry Sustainability — It may not be feasible for those that remain in the timber industry to survive on restoration alone. An appropriate mix of restoration and commercial opportunities may be critical to sustaining a restoration program.

Prescribed Burns are a Critical Component — Once the canopy is opened up, prescribed fire must occur as soon as possible to control oak brush, expose bare mineral soils for regeneration and stimulate a diversity of ground vegetation.

Fire Must Be Used In All Phases of Restoration — This is especially true in the unsuitable base, which accounts for more than 50 percent of ponderosa pine acres. Also, the pine forests of the SJNF contain high-risk housing subdivisions and other structural improvements.

interrelationships

Timber group members discussed the importance of wildlife in relation to vegetation management. Every management action affects wildlife — sometimes positively and sometimes negatively. For example, managing for a diversity of tree ages and size classes can increase wildlife diversity.

Suggestion: The Forest Service should consider the effects of all activities on wildlife as it analyzes management alternatives.

Old Growth Management — Ponderosa pine old growth is extremely limited (estimated at 2 percent). It was generally agreed that active restoration should be pursued to create a larger old growth component for the future. It was also agreed that active management may be appropriate to reduce high fire risks in remaining old growth stands. Whether restoration should be allowed in both the suitable and unsuitable base was the subject of debate.

Ponderosa Pine Issues for Alternative Analysis

After discussion of the above considerations concerning ponderosa pine, the working group listed issues to consider in analysis of alternatives:

- As ponderosa pine restoration is applied on a larger scale, determine how much prescribed fire can realistically be achieved to keep up with openings created by small-diameter tree removal.
- Consider the impact of grazing on reestablishing natural fire cycles.
- Can ponderosa pine restoration break even economically? How can restoration costs be subsidized? Can more efficient use be made of the 70% of sale preparation costs that go into NEPA?
- Identify where ponderosa pine old growth exists and how it is defined.
- If restoration costs exceed revenues, how can the public be educated to accept costs in light of the benefits (knowledge, experience, understanding of variables, adaptive management).
- Consider how to reduce catastrophic fire risks in even-aged stands that don't have the large trees needed to support a restoration prescription.
- Consider the role of production-based approaches in the viability of businesses needed to conduct restoration activities.
- Consider strategies that combine restoration and production in the same area, in effect subsidizing restoration costs.
- Consider associated costs of protecting our forests while putting more pressure on private timber stands and forests in less-developed countries.
- Consider the potential role of firewood cutting.
- Consider the impact of multiple entries (uneven-aged management).
- Consider the overall cost effectiveness of various management strategies.
- Consider how to increase the amount of ponderosa pine with old growth character (whether previously managed or not). Should old growth management be passive or actively applied to enhance old growth character?
- Should old growth management be undertaken in the unsuitable base or unroaded areas?
- Consider how much ponderosa pine old growth should be maintained, how it should be distributed and how it should be managed.
- Identify high fire-hazard risk value locations in ponderosa pine and prescribe treatments.

In Perspective

Small patch cuts (0-10 acres) have been common for aesthetic reasons. In a recent aspen sale, Fire ecologist William Romme suggested two large cuts that would harvest the same amount of acres as would be cut in several small patch cuts, while reducing the number of areas impacted by road building, weeds and general fragmentation.

In Perspective

Pure Aspen

Disturbance Regime	Current Condition
• Aspen stands are clonal (regenerate from the root profusely after a disturbance). • Large landscape fires in the past were essential for regeneration. • Uncertain how stands originated and whether they will regenerate in the absence of disturbance.	• Stands consist mostly of large, mature trees, except where harvesting has occurred. • Very few seedlings/saplings. • Absence of fire has reduced the disturbance and regeneration cycle, resulting in older age classes and increasing the potential for large-scale turnover.

Discussion

The ecological need for restoration management in stable aspen stands is limited, since they appear to regenerate naturally. Discussion primarily focused on opportunities to actively manage for wood-fiber production, as well as increase age-class diversity by the use of patch clearcutting to mimic natural disturbance patterns.

Since aspen regenerates profusely when disturbed, harvesting stimulates growth. Patch clear-cut silviculture methods have been found most effective in the aspen cover type, because it causes the least damage to the residual stand and is similar to a natural disturbance pattern for regeneration. Select-cut harvest prescriptions have a higher risk of fatally damaging remaining trees. Standing trees in selectively cut aspen stands release a chemical that inhibits root sprouting and regeneration.

Today, a majority of aspen stands consist of large, mature trees. From a fiber production perspective, after aspens reach 80-110 years of age, they start to rot and deteriorate in wood value. On the other hand, mature aspen stands do support a wide range of wildlife and are beautiful to behold and to hike in. Patch cuts can also affect the availability of livestock forage after the tender sprouts begin to mature, and before stands thin themselves to allow for grasses to get reestablished. Managing for a mix of age classes with a well thought out cutting program could allow for the blending of aesthetic and economic values and would avoid a large scale turnover (from mostly old to mostly young stands) in the future.

Members recognized the economic value of aspen fiber production, especially since there is a local market for aspen, which adds substantial value and supports much of the employment in the local wood products industry. Retaining the aesthetic and economic values associated with "fall colors" was also discussed. Given the abundant regeneration after disturbance, fiber production impacts should be scaled appropriately for a balanced age class, supported by relatively quick regeneration.

Aspen Issues for Alternative Analysis

- Develop an inventory of pure aspen stands including roaded/unroaded, suitable/unsuitable, age, and amount of clearcutting and regeneration that has occurred.
- In order to determine size, shape and scale of patch clear cuts, identify the considerations and consequences (e.g., vegetative, aesthetic, wildlife, economics, etc.)
- Consider the economics of pure aspen cuts versus aspen harvesting in mixed conifer. Would patch cuts in pure aspen mean less incentive for restoration cuts in mixed conifer stands?
- Use science and monitoring to better understand why some patch cuts are not regenerating (adaptive management and scientific analysis).
- Prescribed fire in aspen type will require higher fire indices, low-fuel moisture, extended dryness, etc.
- Determine how much pure aspen should be allowed to progress to old growth conditions.

In Perspective

The concept of "below-cost sales" (revenues are less than costs) is too narrow for determining the validity of ecosystem restoration sales.

Restoration sales provide a means of thinning — that the FS used to pay for through service contracts — by using the commercial value of harvested wood fiber to finance the thinning and prepare for fire reintroduction.

Wood-fiber production is a by-product of restoration. Sometimes, the by-products pay for restoration work. Other times, ecosystem health benefits are subsidized.

Suggestion: **evaluate restoration sales on the basis of "net public benefit" and modify Forest Service contracting and accounting systems to do so.**

Mixed Conifer

The mixed conifer cover type on the SJNF is a zone of transition which varies widely in stand structure, species composition, aspect, elevation and fire history. The mixed conifer cover type has been further divided into two categories: "cool wet" and "warm dry."

Mixed Conifer Stand Types	Disturbance Regime	Current Conditions
COOL-WET: aspen, englemann spruce, sub-alpine fir, white fir, and some Douglas fir, on south and west aspects, primarily at 9,000 ft. and above, and on north and east aspects between 7,500-9,000 ft. **WARM-DRY:** aspen, ponderosa pine, douglas fir, and white fir, present below 7,500 feet on south and west slopes, otherwise between 7,500-9,000 feet.	In cool wet stands, fires tended to be infrequent and stand replacing In warm dry stands, frequent low-intensity fires burned significant portions of fire sensitive species such as white fir, while the larger, thick-barked ponderosa pines and Douglas fir trees would survive, providing cone crops for regeneration in areas opened up by fire.	• Shade tolerant White fir domination and crowding of other species due to fire suppression. • Limited openings and sunlight inhibit ponderosa pine and douglas fir regeneration • Aspen component is shrinking as it is increasingly shaded out by white fir • Prescribed burns are difficult due to ladder fuels and build up of ground fuels.

Discussion

Many cool-wet and warm-dry mixed conifer stands are outside of the range of natural variability due to fire suppression and lack of disturbances. A denser, older forest than would have been seen in the past has been created. For both stand types, the group discussed restoration management approaches for reducing the risk of stand replacement fire, insect infestation and protecting old growth components.

In cool-wet mixed conifer stands, the group discussed the possibilities of applying a group select-cut management approach to mimic small lightening strike fires, thereby creating openings to allow aspen, Engelmann spruce and Douglas firs to regenerate. For warm-dry stands, the group explored possibly commercially removing white fir and aspen understory to allow regeneration of aspen, large ponderosa pine and Douglas fir, thereby managing to promote the old growth character and a more disturbance resistant stand structure.

Given the high risk of stand replacement fires, treatment was also discussed in the context of both suitable base and unsuitable base. Some members felt that all of mixed conifer acres should be eligible for restoration treatments, including areas in the unsuitable base. In contrast, others felt that restoration treatments are experimental and should be confined to areas within the suitable base; thereby letting natural forest processes manage the forest within unsuitable lands. This approach also allows targeting limited funds towards restoration needs in the suitable base.

Fiber production opportunities were discussed, primarily to offset restoration costs to the local industry. As in the ponderosa pine type, restoration treatments are economically marginal due to the relatively low-value of white fir. Also, preparing, harvesting and distributing multi-product sales is more expensive than dealing with a single species. Antitrust laws put constraints on front-end arrangements to bid and distribute products from mixed sales.

The group also discussed the appropriateness of prescribed fire and lightning ignited managed fire, specifically considering the high fire risk associated in these cover types and the stand replacing fire disturbance history.

About seven percent of the mixed conifer on the San Juan is old growth that has never been harvested. A key issue is whether these stands should be protected from stand replacement fire risk by active management. More work needs to be done on determining how much mixed conifer old growth is in cool-wet and warm dry types, how much is desirable and whether active management should be used to promote additional old growth.

Mixed Conifer Issues for Alternative Analysis

- Define the distinction and the physical divide between "warm/dry" and "cool/wet" mixed conifer stands including: fire cycles; consequences of stand replacing fires; and recognition of the difficulty to delineate in some cases.
- Consider the appropriate balance between letting natural forces operate without intervention and active human management (this applies to all cover types).
- Continue to use restoration-oriented adaptive management including:
  - √ ecological objectives and consequences;
  - √ social and economic objectives and consequences;
  - √ the role of local industry as a management tool;
  - √ the role (capacity, needs and opportunities) of both small and large mills for providing local employment opportunities and processing the full range of fiber outputs from restoration management (e.g., wood chip products from defective materials); and
  - √ ongoing monitoring of the above factors in restoration-oriented management efforts.
- Consider the potential for a sustainable restoration program within areas that have already been managed for timber production.
- Evaluate growth rates in already roaded areas.
- Determine how much mixed-conifer old growth is in cool-wet and warm-dry types, how much is desirable and whether active management should be used to promote potential old growth.

a strategy

Anti-trust laws constrain front-end arrangements to bid and distribute products from multi-product sales (mixed conifer). These sales are a higher risk to the purchaser, because local businesses are only able to handle either conifer or aspen. Pre-bid arrangements to distribute the various species to more than one purchaser, raise the possibility of anti-trust violations.

Workshops are exploring resolutions to the problem and the Forest Service is working on making joint ventures possible and more feasible.

Spruce-Fir

Disturbance Regime	Current Conditions
• Infrequent fire cycle (150-900 years), often stand replacing. • Small scale disturbances (e.g., avalanches, small patch lightning burns) are more common and provide some age class diversity. • Slow regeneration, excepting the presence of aspen. • Bark beetle epidemics are within the range of natural variability.	• Naturally occurring stand replacement fire may not be due for a century or more on the SJNF (or could occur anytime that an extended drought occurs) • Very few seed/saplings and pole size spruce trees • Stands contain many large trees, 92% ranging from 9-16" diameter and 7% larger than 16" diameter • Most of the old growth spruce fir is in not currently in the suitable base.

Discussion

Given the disturbance regime and current condition, spruce-fir stands are, for the most part, within their range of natural variability. The following brief management scenarios and concerns were described as a beginning discussion point in order to discuss management opportunities and approaches in the roadless suitable base and unsuitable base.

Lightning ignited managed fire — would most likely be applied in the spruce-fir cover type; i.e., allowing lightning ignited fire to burn. Considering the consequences of a stand replacement fire (amount of acres and regeneration time) the group discussed the appropriateness and public acceptance of allowing a natural ignited fire to burn.

Restoration — Due to the long disturbance and regeneration cycles, there is no compelling reason for restoration management in spruce-fir. Select-cut harvesting has been used to replicate natural small scale disturbances, enhance age-class diversity and address beetles, blow down and excessive fuel build up. These treatments are more a matter of health maintenance rather than major restoration. Natural fire could play a role in promoting vegetation mosaics and age-class diversity.

Fiber Production — There is potential for fiber production in spruce-fir, which is very high quality. Although high altitude and wet conditions make for a short harvesting season and sensitive regeneration factors, the Forest Service has found that areas treated with partial cuts or uneven-aged management have regenerated successfully. The primary harvesting constraint in this cover type are roadless areas within suitable timber lands. Often sales within the roadless suitable base areas are avoided due to political and economic reasons.

Spruce-Fir	Number / Acres
In Current Suitable Base	105,014
In Roadless Suitable Base	21,000

The group discussed management conditions in roadless areas, considering both suitable and unsuitable base, temporary roads, harvesting methods that do not require roads, fiber production value and opportunities, and managing for health purposes.

San Juan National Forest staff specifically asked whether roadless areas within the suitable base should be retained and entered, or removed from the suitable base. There was general agreement for retaining the current areas in the spruce-fir suitable base. However, there were preferences for both entering and not entering roadless areas. Reasons for entering roadless areas within the suitable base included restoration purposes, retaining future management tools and options, and fiber production opportunities, as well as responsibilities considering global impacts from reduced local harvesting. The amount of spruce-fir protected by wilderness designations was also noted.

Regarding management in the unsuitable base, some said that ecosystem management should be employed to reduce risks. Others stressed the ability and appropriateness of natural ecological processes to self-manage, despite possibility of large scale stand turnover—a perspective that supports staying out of roadless areas in the suitable base. Also associated is concern about the impacts of expanding motorized travel into what are currently unroaded backcountry areas.

Spruce-Fir Issues for Alternative Analysis

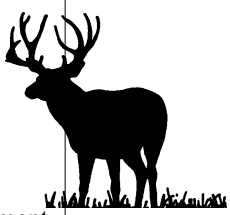
- Overlay old growth map layer on the unroaded suitable base map, in order to identify roadless suitable areas that contain very old spruce stands. This is one way to evaluate which roadless areas might be best removed from the suitable base, and those more feasible for entering.
- Use scientific analysis to better understand spruce-fir disturbance regimes.
- How should large contiguous blocks of spruce-fir old growth be managed? Should they be managed to expand them, or should fire breaks be established to reduce the scale of old growth loss from stand replacing fires.
- How should aspen be managed in the spruce elevation band with regard to spruce seed/sapling recruitment or new growth coming up in aspen stands?
- Explore methods and technologies for harvesting spruce-fir stands on steeper ground in roaded areas.
- Consider the economics of utilizing spruce-fir harvesting in the context of regional and national supply and demand.
- Consider the appropriate size of unroaded area blocks. What could be the consequences if Congress reduces unroaded area designation criteria from 5,000-acre minimum requirement to 1,000 acres?
- Assess wildlife impacts from different management approaches.

Outcomes

Throughout the individual cover type discussion, the following themes were stated.

- *Retain all management tools for future management options* — Members agreed upon the role, appropriateness and need for fire and harvesting in different scenarios, further stressing the importance of retaining all management tools and options. For some, this also included retaining all current suitable base areas.
- *Explore opportunities for improving public awareness about forest health management approaches, as well as net public benefit factors* — Members of the group specifically expressed concern about public misconceptions and misunderstandings, especially with regard to restoration harvesting and prescribed burning management approaches for achieving healthy stands.
- *Continue to research natural disturbance regimes and use adaptive management in order to better understand ecological processes and management approaches* — Related to the scientific analysis the group emphasized the importance of researching and understanding natural forest processes. The group felt that vegetation and fire management tools and approaches should mimic natural disturbance patterns. The group also supported the use of adaptive management; i.e., research on applied pilot projects.
- *Allow natural ecological processes to manage some forest areas, primarily suggested in roadless and unsuitable base areas* — It was also expressed that pilot projects and all types of management are essentially "experiments or hypotheses," and should not be applied extensively. In all cover types, some areas should be left to be managed by nature — as reference for natural processes; i.e., old growth conditions.
- *Provide fiber production opportunities in order to retain the local industry as a management tool* — Members expressed the importance of retaining the local mill capacity and the value of local jobs. From an economic perspective, the group acknowledged that mill operators need fiber production opportunities in order to stay in business and to continue to provide mechanical harvesting as a management tool. Some members also felt that in some instances an appropriate role and need for bigger industries exists, given limited capacity of local mills to handle "special" products; e.g., defective materials.

- *Fiber Production as a Renewable Resource* — The group also discussed the importance of fiber production on the San Juan in the context of a renewable resource, demand for wood products and global impacts, or harvesting pressures caused from reduced harvesting in our nation.
- *New opportunities for improving vegetation management*, *such as*:
  - Create different management prescriptions for suitable and unsuitable base (restoration forest health concerns).
  - Create prescriptions capable of adapting existing management parameters such as "Allowable Sale Quantity" and "Suitable Base" to restoration objectives.



Interrelationships

The working group members focused study on issues for analyzing fire and vegetation management alternatives. However, several discussions occurred about the implications that different vegetation and fire management approaches have for other resources and uses. Concern about wildlife habitat was often expressed and have been identified for alternative analysis. Grazing concerns were discussed in relation to reestablishing natural fire cycles and forage availability during aspen regeneration phases. Air quality, aesthetic values and watershed protection issues were also discussed.

Future Opportunities

The Timber, Fire and Old Growth Working Group has developed information and understandings about the ecology, current conditions and potential management approaches for each of the major cover types on the San Juan National Forest. Members placed a great deal of emphasis on active restoration and the use of fire in ponderosa pine and mixed conifer cover types. As restoration pilot projects continue, the working group could provide a vital core to the formation of some form of stewardship council to provide broad based input into the future of these efforts.

The working group could also remain engaged in more long-range efforts critical to revising the *Forest Plan*. Some examples include: growth and yield modeling, determining the suitable base, addressing the roadless issue within the suitable base, addressing forest health issues outside the suitable base, developing an old growth management scheme and developing a long-term restoration cycle for thinning and fire. The balance of perspectives represented within the working group could also be helpful in working through the appropriate relationship between sustainable forests and the sustainability of small businesses that have a critical role to play making a long-term restoration effort a reality.

Finally, the working group focused on the need for community and national educational efforts to gain public understanding and acceptance for active restoration, the reestablishment of natural fire and the need to establish careful monitoring and adaptive forest management strategies on the best available science. The group is in a position to actively advance this vital educational process.

Fiscal Year 1998

SJNF Plan Amendment Work

The following information, provided by the San Juan National Forest planners, gives a sense of how the Forest Service is applying information and data from study and working group interaction.

Timber, Fire and Old Growth Planning Status

The San Juan National Forest will continue working on identifying the lands tentatively suited for timber production and developing growth and yield models. Work will also continue on the old growth inventory and analyzing biological diversity. The SJNF will continue to refine restoration-oriented silvicultural prescriptions by designing, implementing and monitoring projects in ponderosa pine and mixed conifer forests. Prescribed fire will continue under the new wildland fire policy. The timber sale schedule and suitable timber lands will be addressed in the *Forest Plan* revision.

Travel and Recreation

The Travel and Recreation Working Group began meeting in July 1997 to further the study and commentary begun by the Community Study Groups in December 1996. The largest working group at about 46 regular members, the travel and recreation group consists of former study group members, as well as many new community members.

Currently midway through its study process, members have focused mostly on recreation in order to understand the different planning tools used for managing. Recreation and travel planning are complex processes which aim to match an appropriate range of recreation opportunities and experiences with modes of travel. The aim also is to figure in land management prescriptions set by the *Forest Plan*. Many additional planning concerns must be considered, as well; for example, resource protection and wildlife habitat and corridors. The group has found it difficult to discuss recreation planning a one aspect at a time because of the interrelation of management issues within the ecosystem. Group discussion and exercises have produced broad agreement in some topic areas, as well as differing perspectives and approaches.

Between July and December 1997, group members attended seven monthly meetings, one field trip on the Columbine District and watched a slide presentation of the Grand Lake Trail System. In addition to proposing specific recreation management actions, the group discussed management strategies for two related forest-planning working group topics: recreation impacts on wildlife habitat, and developed amenities along the San Juan Skyway.

In February 1998, the group began integrating recreation with travel planning. Members anticipate finishing during spring 1998. The aim of this chapter is to highlight the range of members' perspectives and areas of agreement to consider for developing alternatives as it reports on the group's progress, on information that has resulted from and shaped the discussions.

The Study Process

Before receiving planning information or sharing considerations, some members proposed that the working group provide the Forest Service with general directions or guidelines for managing travel and recreation. The intent was to help to reduce "micromanagement" of every trail, area and road.

The group then went on to identify three important questions to be addressed:

- Is our future desired condition to accommodate more users? How can the SJNF better accommodate the current amount of users?
- How can the forest minimize, direct and contain user impacts?
- What experiences are desired by different forest users. In other words, considering both the resources and the types of activity occurring within the area, what preferred uses can be achieved?

Based upon the suggested work approach and concerns identified within the first two meetings, the following working group goal was derived.

Goal

- Provide general management guidelines for minimizing resource impacts, and for providing quality recreation opportunities and adequate access for all users.

Objectives

- Provide natural resource protection when planning and managing travel and recreation on the San Juan National Forest.
- Address people management, considering the experience desired by different user groups, resource impacts and wildlife habitat.
- Address motorized recreation and travel planning.
- Provide direction for minimizing and containing user impacts.
- Consider wildlife habitat with regard to recreation and travel access, especially winter recreation effects upon winter range.
- Determine to what extent the Forest Service should provide amenities and their appropriate locations (specifically along the San Juan Skyway).
- Explore and recommend opportunities for public education, access to information and stewardship opportunities.

In Perspective

A remark made in Congress' recent Appropriations Bill says that the Forest Service should manage just the resource, not social aspects.

Many working group members expressed that since recreation is a social experience, where forest users seek a particular character and setting for their activities, the Forest Service should monitor for both physical *and* social effects of recreation and travel planning.

Key discussion topics

In order to help members apply their concerns to a planning process, SJNF staff presented the history of recreation planning on the San Juan. They also explained current planning tools, processes and considerations. The group also received detailed information from handouts regarding various aspects of Forest Service travel and recreation planning (see appendix for listing). The information that primarily shaped the group's study includes the *SJNF Recreation Management Strategy Plan Amendment, Recreation Opportunity Spectrum,* and *Capacity Analysis.*

Capacity Analysis — In July 1997, the SJNF completed a draft capacity analysis, copies of which members received. As a planning tool for establishing desired recreation experiences and monitoring for changes, the *Capacity Analysis* seeks to identify the upper limit for all recreation uses that should be allowed within an area. That limit is based on resource protection, current and desired use (supply and demand), national and local recreation trends, as well as many sub-issues for consideration.

The capacity analysis also provides direction for managing changes in the capacity of an area due to resource and social impacts. Particular focus falls upon areas that are at or over capacity; most are found currently in the Weminuche Wilderness. Some members suggested retaining semi-primitive non-motorized areas as a means of reducing wilderness impacts by redirecting uses into areas that provide similar experiences.

SJNF Recreation Management Strategy — Little recreation planning had occurred when the current plan was finalized in the early 1980s, because there were fewer recreators and recreation concerns. Later, an appendix was added to provide recreation planning direction, as well as to describe the San Juan National Forest's general recreation direction, key-emphasis areas and program-emphasis areas.

These strategies were compared to the group's statements regarding management, recreation values and future desired conditions. Generally speaking, the group's desires and suggestions were compatible with the existing SJNF management directions. As the group's study process progressed, these initial strategies were further developed. Their work contributed to creating the themes and strategies stated in this chapter's "Outcomes." Overall, the group emphasized adequate opportunities for all forms of recreation — particularly multiple-use philosophy, strategies to minimize resource impacts and opportunities for improving user compliance.

Recreation Opportunity Spectrum (ROS) — The ROS is a planning tool having two primary purposes for determining which areas should be managed for which experience. It describes the existing situation and proposes desired future conditions in the plan. The ROS takes into consideration mode of travel, experience (degree of solitude), remoteness (proximity to roads and trails), natural setting, social setting and managerial setting.

The group participated in an ROS exercise in which members identified the types of recreation activities and experiences desired on the SJNF. Members expressed that the Recreation Opportunity Spectrum should emphasize the following recreation desires:

- from a high degree of solitude to a moderate social interaction;
- a range of remoteness from unroaded to, on, or near primitive and improved roads;
- unmodified to modified environmental settings; i.e., few buildings or developments;
- infrequent to frequent encounters are appropriate given the recreation or travel mode;
- medium to low presence of management.

In addition, members noted that the ROS should reflect a multiple-use philosophy that provides opportunities for all travel modes, and recreation experiences and settings. Within this philosophy, the group emphasized separating motorized and non-motorized uses in some areas. The following briefly summarizes preferred experiences identified during the exercise by different recreation users.

- *Cross-country skiing* — more groomed, accessible family areas, and some segregated cross-country and snowmobile areas; e.g., large open passes like Molas.
- *Snowmobiling* — group travel on single track and in areas with old logging roads.
- *All-terrain-vehicle riding* — loop rides and challenging experiences on old logging roads and trails.
- *Mountain bike riding* — a backcountry, challenging experience that results in a sense of accomplishment, but one in which trail ethics and respect for other users are emphasized.
- *Hiking* — solitude experiences away from noise, some safe, short and managed family and visitor trails, educational and interpretive trails, and half day hikes.
- *Horseback riding* — moderate-to-difficult opportunities; recommend retaining non-motorized semi-primitive areas in order to spread out wilderness use.

Information gained from a special presentation by Jack Placchi, Off-Highway-Vehicle Program Manager, Colorado Parks—Trail Program, complemented much of what the group had been thinking. Placchi's slide program about the Grand Lake Multiple-Use Trail System showed them many of their own ideas in actual practice.

Placchi said that those involved in establishing the Grand Lakes area system first listed constraints and identified currently open and used trails. Prioritizing, they chose to improve signage first, then protect and restore areas, then create new routes. They implemented a sign system for both summer and winter travel modes that indicated which recreation opportunities were allowed, with dates for each type of use. Few new trail miles were built, because they used old road beds to create opportunities. The main trails are mostly multiple use, but the trail spurs are more restrictive.

ROS Classifications

Primitive **(P): solitude, unaltered, natural, few users. High need for outdoor skills.**

Semi-Primitive Non-Motorized **(SPNM): solitude probable, natural, no motors on trails.**

Semi-primitive Motorized **(SPM): moderate solitude, mostly natural, low user density. High degree of skill and risk for motorized users.**

Roaded Natural **(RN): developed sites, mixture of uses, natural views from roads.**

Roaded Natural - Closed **(RN-C): same as RN, but closed to some activities.**

Roaded Natural-Modified **(RN-M): chance to get away from others with easy access; altered by timber harvests.**

Rural **(R): accessibility and chance to interact with other users are important.**

Urban **(U): chance to interact with others and accessibility are more important than outdoor skills.**

Desiring to create a multiple-use trail system on the SJNF based on similar strategies, working group members began to create maps that inventory current trail use by travel mode, and also records future desired uses and opportunities.

Outcomes

In addition to providing input regarding a desired ROS, members have conducted mapping exercises and provided recommendations that have been developed into themes and strategies for managing travel and recreation.

Mapping Exercises

Recreation User-Group Map — During fall of 1997, working group members, as well as other community members from the region who are members of specific user groups, met for special mapping meetings to mark trails, roads and areas of particular interest. They also recorded areas of conflict, destination points, and provided other related information. Each map was then compiled into winter and summer travel-inventory maps. The summer travel map was overlaid on existing SJNF roads, trails and ROS areas. Separate transparent overlays were used for motorized and non-motorized modes of recreation.

The map's purpose is to compare current and desired recreation routes with the current ROS and travel management direction. It identifies travel and recreation activity from a user's perspective, as well as indicated desired use, trail improvements and loop opportunities. Specifically, the map marks trails and roads that are:

- currently used bicycle routes, as well as proposed bicycle routes;
- currently used horse routes;
- currently used ATV routes, as well as proposed ATV routes;
- currently used motorcycle routes; as well as proposed motorcycle routes;
- currently used 4X4 routes; as well as proposed 4X4 routes;
- preferred non-motorized trails (bicycles okay);
- preferred non-motorized and non-mechanized trails.

Although there were a few areas of overlapping use and desired changes, the map shows that overall current travel and recreation management is working fairly well; diverse users are either separating themselves or sharing the trail with few conflicts. Members often have emphasized multiple use and cooperation among recreation users, some commenting that, given the large number of users and range of current opportunities, conflicts are minimal. There simply is not enough forest to separate uses, they assert.

Multiple use may be okay in the sense of sharing access among current users. However, caution was expressed towards the multiple-use philosophy that leads to the belief that all uses can be satisfied. Future recreation planning needs to acknowledge the point when the land cannot accommodate more uses.

Map of Management Concerns — For two meetings in February and March of this year, SJNF Ranger District specialists brought a map showing suggested changes in travel management classifications for about 25 sites and areas. They based their considerations on their field observations and asked working group members to give their impressions of the suggested changes. They stressed that the proposals are not official. Rather, they are ideas for changes that managers wanted to discuss.

Proposals included changing to non-motorized a few motorized trails where the physical terrain is difficult and little used. Many opportunities for linking old roads and upgrading trails to provide motorized trail loops were also identified.

Discussion of these two issues also led to much discussion about the SJNF travel policy.

Currently, the Dolores District uses the "Open Unless Designated Closed" policy. In contrast, the Columbine and Pagosa Districts policy is "Closed Unless Designated Open," which implies restricting access to designated roads and trails, prohibiting off-road and off-trail use. Given high density of roads on the Dolores District, combined with resource protection issues, members generally accepted making the policy for the entire forest "Closed Unless Open."

Area Specific Recommendations — In addition to responding to area-specific management concerns, members have made recommendations for other areas throughout the course of their regular meetings — particularly in relation to a desired Recreation Opportunity Spectrum for any given area. As of this writing, these area-specific comments are being compiled for final review by the working group as they continue their study process. They are not included here.

Themes and Strategies

The group's course of study reverberated with repeated calls for three values that must be sustained through planning and management: resource protection; multiple use philosophy; and adequate access and travel opportunities that provide a full range of recreation experiences. Here are some strategies members suggested for achieving these keystone themes:

Emphasize a multiple-use recreation and travel plan by encouraging responsible use and working out user conflicts rather than imposing restrictions or segregating uses.

Protect opportunities for solitude and more natural recreation experiences by specifically designating some areas for non-motorized recreation activities; for example, cross-country skiing and hiking.

Utilize the "Closed Unless Open" area and road policy across the SJNF in order to:

- better protect the resource, especially given the current need for user education. Benefits of this would include sending positive messages in signage; e.g., "open to . . .," rather than "closed to . . ." (Disagreement exists over this theme and discussion will continue as community members and the Forest Service continue to develop a solution)

Manage primitive areas in large blocks to:

- protect and retain biological diversity;
- reduce fragmentation, especially between high and low elevations;
- and preserve a natural environment and refuge for animals and humans.

Develop facilities along key points of the San Juan Skyway to:

- accommodate user needs and provide interpretive and general forest information.

Concentrate use and development along highways and urban corridors in order to:

- reduce resource impacts and protect other areas.

  Receiving special mention were:

  - protect wildlife habitat and corridors from fragmentation; and
  - preserve the natural character and solitude of other areas, especially backcountry.

Minimize resource impacts from motorized recreation use by:

- providing adequate motorized access and opportunities, restricted to designated roads and trails;
- designating roads and trails in the current F (open areas);
- developing ATV loop trails to reduce off-trail violations, reduce environmental mischief and spread out the flow of traffic back and forth on the few existing motorized trails.

Minimize wildlife disturbances and habitat impacts caused by travel and recreation by:

- restricting recreation access in low-elevation winter-range habitat;
- concentrating uses; and
- managing recreation access seasonally, depending on periods of wildlife use.

a bit of history

Recreation was not a major topic when the current San Juan National Forest Plan was finalized in 1983.

Later, an appendix was added to address increasingly crucial recreation issues that describes the forest's general direction, key-emphasis and program-emphasis areas.

It was learned that areas of concern identified early by the travel and recreation working group compared closely with issues addressed in current San Juan National Forest recreation management strategies.

interrelationships

Research reveals a continuum of recreation effects on wildlife. Most winter recreation occurs below 9,000 feet in winter wildlife range areas. Both animals and humans contend for the same space—one for play, the other for survival.

Winter recreation hurts big game most, because scaring animals from slope to slope in deep snow drains vital energy needed to survive. Elk often crowd other herds, which stresses them even more.

Generally, wildlife are more disturbed by erratic behavior — altered, disturbed or displaced behavior. Routine movements disturb animals less, because they get used to it. Example: using the same snowmobile route, or cross-country ski tracks may be less of a disturbance than several different trails.

Minimize hunting season impacts by:

- making the SJNF Visitor Map and travel regulations more understandable;
- posting better ground signs;
- supporting registration programs which provide a contact point for educating and funneling users into appropriate areas;
- providing more information in Colorado Division of Wildlife (DOW) pamphlets;
- increasing Forest Service personnel presence;
- utilizing more volunteers;
- collaborating between the USFS and DOW on enforcement;
- generating revenue to fix the heavy impact problems; and
- implementing a state conservation stamp to pay for monitoring and improving habitat.

Establish partnerships with forest user constituents and community organizations to:

- provide voluntary maintenance and monitoring;
- increase public contact and access to Forest Service information;
- create informational maps specific to each recreation activity or travel mode.

New Planning Approaches and Directions

As they progressed in discussions and learning, members identified new approaches and management opportunities for improving recreation and travel planning. Some of the following recommendations are fairly new planning directions for the San Juan National Forest and could result in significant changes in use.

- Create a non-mechanical and non-motorized trail designation in order to provide solitude and natural recreation experiences outside of designated wilderness, in order to more easily provide accessible lower-elevation opportunities for solitude.
- Establish guidelines and a review process for new travel modes before allowing them access.
- Distinguish between motorized modes of travel when designating trail access.
- Provide management flexibility in the plan in order to address future conflicts and allow seasonal management, because uses and needs change year-to-year.
- Encourage joint recreation and travel planning with the BLM in the Silverton area.
- Monitor for both social and physical impacts in recreation and travel planning (approval of the *Capacity Analysis*).

Interrelationships

Travel, and especially recreation, activities occur throughout the forest and within areas that emphasize different land management prescriptions (timber, grazing, etc.). Considering the social nature of recreation and travel activities, user education is crucial for minimizing conflicts with other resource management areas. For example, minimizing conflicts with fenced grazing allotments and protecting wildlife habitat closures and overall restrictions to protect physical and cultural resources. Providing adequate wildlife habitat has been discussed and considered in the group's strategies for managing recreation and travel. There was also some discussion related to the developed amenities along the San Juan Skyway, which was discussed in detail by the Special Management Areas working group.

Future Opportunities

The recent integration of recreation user maps with the Forest Service ROS areas, roads and trails has produced a number of issues for the group to further address. Below are listed some of the possible tasks still to be examined by the group.

- Develop a winter ROS map.
- Review the wildlife group's maps and recommendations in order to better plan recreation access with regard to wildlife habitat.
- Continue to integrate summer and winter recreation desires with travel planning.
- Discuss the potential for establishing a consistent travel policy across the forest and possibly designate specific roads and trails for access routes within F areas on the Dolores District.
- Integrate previous study group concerns with the continuing travel management study.
- Work with the USFS to create a desired future ROS map. The ROS map being used now illustrates "current ROS distribution."

Fiscal Year 1998

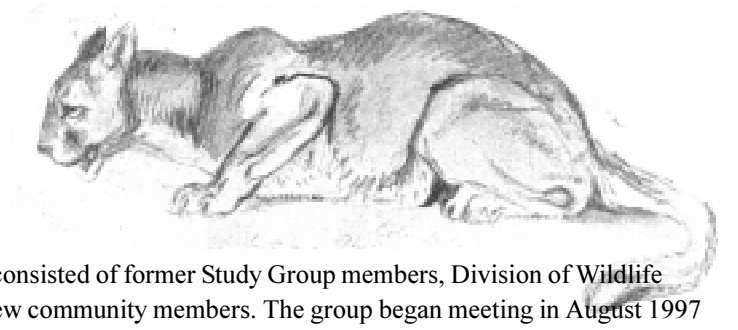
SJNF Plan Amendment Work

The following information, provided by the San Juan National Forest, gives a sense of how the Forest Service is applying information and data from study and working group interaction.

Travel Management Planning Status

The activities listed above will contribute to a travel management plan with which the San Juan National Forest proposes to amend the current *Forest Plan*. A goal for the new travel management plan is to be consistent across the forest and address known problems with the current plan. The SJNF expects to develop alternatives by October 1998.

Wildlife



The Wildlife Working Group consisted of former Study Group members, Division of Wildlife (DOW) representatives and new community members. The group began meeting in August 1997 and built upon the work initially begun by the study groups. Issues and concerns recorded and mapped during the study group wildlife meetings were compiled and used as an initial point of discussion in the wildlife working group. The working group also used information handouts originally used in the study group process, as well as referring to study group concerns before finalizing their wildlife management strategies.

The group focused their wildlife management recommendations on the following habitat issues: potential future habitat needs, winter range habitat, species-specific habitat, habitat protection for forestwide species and habitat improvement opportunities. They created a management map, as well as listed recommended management strategies. Although habitat is affected by all other resource management, the related issues that were most addressed by the group were recreation and travel management, noxious weeds and range management.

The Study Process

Members identified clear goals and objectives during their first meeting. As their discussions progressed, additional objectives were identified and are included in this report.

Goals

- Address issues that will assist with land allocation in the *Forest Plan* process.
- Consider future desired conditions, and how other allowable uses will affect wildlife.

Objectives

- Review current 4B and 5B prescription areas, including corridors.
- Identify areas for wildlife management designations.
- Review county master plans to identify where development is occurring and also to compare with the Forest Service winter range maps to better target habitat areas and plan for the future.
- Establish corresponding winter range areas between the FS and DOW in the revised plan.
- Address heavy multiple uses in critical winter range areas.
- Overlap with other working groups in order to anticipate how their plans will affect wildlife.
- Improve public information about wildlife habitat needs, especially regarding recreation.

Data

Throughout the course of the group's meetings, presentations were made by Forest Service wildlife biologists and the forest planner. A substantial amount of information was obtained in group discussions, during which questions were answered not only by Forest Service representatives, but by working group members and Division of Wildlife representatives.

Forest Service staff primarily explained the planning tools and options for protecting wildlife habitat, specifically: management prescriptions, winter range management, opportunities in the standards and guidelines, and indicator species (see appendix for a complete listing of study tools).

Wildlife Land Management Prescriptions — The two wildlife land management prescriptions in the current plan are: 4B — wildlife habitat management emphasis; and 5B — wildlife winter habitat emphasis. The 4B management prescriptions are most effective for protecting specie-specific habitat within set parameters by resolving and mitigating conflicts. For example, a 4B prescription can be used to resolve a conflict between an area where domestic sheep grazing and bighorn sheep habitat overlap.

Winter Range (5B Management Prescription) — Winter habitat on the SJNF is primarily in lower elevations. The current *Forest Plan* uses the 5B prescription to emphasize an area for winter range management. In a separate exercise, the CDOW identified what it feels is elk winter range on the forest. The Forest Service will likely designate as 5B those areas that the CDOW feels are critical for wintering elk. 5B areas may include guidelines that limit some types of recreation use.

Participants, including Forest Service specialists and DOW officers, identified the establishment of corresponding winter range areas between the Forest Service and Division of Wildlife as a planning objective. In order to begin this process, mapped DOW winter range, concentration and severe winter habitat areas were overlaid upon Forest Service winter range areas. Most of the areas identified by the DOW for winter range habitat are on BLM and private lands, below the national forest boundary.

They then incorporated county parcel development plans onto the map in order to identify habitat and private land development conflicts. Although these potential conflicts do not occur on Forest Service land, the working group felt that it was important to identify these areas in order to determine if nearby or adjacent Forest Service land might be protected or intensively managed for winter range habitat, especially considering regional growth.

Group members and agency staff also discussed vegetation management options for improving habitat, as well as retaining big game on Forest Service lands longer, before they move onto private, tribal property and into New Mexico. They also discussed opportunities for overcoming vegetation management obstacles; e.g., habitat easements and seeking financial support from the Habitat Partnership Program and Rocky Mountain Elk Foundation.

Habitat Protection Opportunities in the Standards and Guidelines — Wildlife habitat is ultimately affected by all other resource management and forest activity. Some wildlife management concerns related to other uses include: the potential effect of timber harvesting on elk hiding cover or tree snags for birds; potential harm to riparian bird habitats from range management; and potential impacts from recreation. Protecting habitat from these and other resource management and forest activities can best be mitigated in the standards and guidelines of land management prescriptions.

Standards and guidelines are used to protect wildlife habitat areas that are not specifically emphasized with a wildlife resource management prescription (4B). The standards and guidelines of other land management prescriptions provide the opportunity to specifically address habitat needs, concerns or potential conflicts. When appropriate, the standard and guidelines may be applied only seasonally; e.g., to winter range, etc.

There are specific habitat management guidelines for protecting listed threatened and endangered species (TES) and sensitive species.

Definition

***Indicator species* — a species that represents the needs of more than one species. If the minimum harm comes to this species, then it signals a threat to the habitat in general, thus creating potential danger for other species.**

Indicator Species — In the current plan, "Management Indicator Species" (MIS) have been identified. Indicator species represent the needs of more than one species and vary by location and type of habitat. If the minimum harm comes to this specie, then it signals a threat to the habitat in general, thus creating potential danger for other species. Furthermore, the standards and guidelines require monitoring for indicator species within each habitat type.

The Rio Grande National Forest uses a different concept for determining habitat viability — vegetation type indicator species. Under this concept, each vegetation type is assumed to provide habitat for a variety of wildlife species. The health of the vegetation type is monitored through time to ensure the health of the wildlfie populations that reside there.

Outcomes

After much work, the group created a final map and a list of recommended management directions.

Wildlife working group map

The final map consisted of the following base information: USFS and DOW winter range areas; SJNF watersheds; and county subdivision parcel information. These base factors were overlaid with the wildlife working group's recommendations for:

- winter range habitat
- specific wildlife habitat areas: sharptail grouse, peregrine falcon nests, river otters, bighorn and desert sheep, and cutthroat trout reintroduction streams;
- species biodiversity areas for: Hermosa and Piedra drainages, and ponderosa pine and oakbrush vegetation type (primarily between 6,500-8,500 feet in elevation);
- vegetation management emphasis areas (primarily the north side of Hwy. 160.)

The group's final map has been instrumental, not only for the group's objectives, but also for helping in Forest Service and Division of Wildlife meetings, in which the two agencies have used the map to discuss how their winter range definitions and mapped areas can be more compatible.

After comparing DOW and USFS winter range areas, the Forest Service will likely designate severe and concentration areas within the SJNF for winter range habitat. The agency will seek agreement regarding the DOW winter range areas, since they are more general and more broadly encompass lower elevations.

Recommendations

The group reviewed the wildlife management goals in the current plan, as well as some of the plan's general wildlife management directions, in order to compare them with their own concerns, and suggest additional management direction. Members reviewed their suggestions twice as a group before finalizing their management directions. Their management directions are listed here by theme.

Ecosystem Health and Habitat Biodiversity

- Provide a broad, diverse mix of suitable habitats within healthy and unfragmented ecosystems.
- Manage for suitable habitat by improving diversity and connectivity within vegetation types, especially those affected by previous resource uses.
- Manage habitat to protect critical migration corridors and avoid further fragmentation; e.g., maintain movement patterns for wildlife when other forest uses and activities affect habitat.

In Perspective

In Perspective

Research has not conclusively defined recreation effects on wildlife habitat. Contradictions exist among studies and often they can't *equivocate* (account for) the uniqueness of each situation and area.

Wildlife biologists are reluctant to base management strategies on findings derived from other areas; but they often must in the absence of time and funding for site-specific studies.

Big game are most vulnerable during winter because animals consume vital energy for survival when forced across slopes in deep snow. Disturbed elk often crowd other herds. Compounding the problem is the fact that wildlife and recreation clash below 9,000 feet in winter range areas desired by recreators.

Generally, erratic recreation behavior disturbs wildlife.The more routine the movement, the better, because animals become used to the activity. For example, using the same snowmobile or ski route may be less disturbing than several criss-crossing tracks.

- Recognize and maintain specialized, unique landscapes of biological diversity.
- First consider habitat biodiversity before allowing resource activity; i.e., consider affects of management upon the whole.

Species

- Do not allow any resource activity that would cause a depletion in the overall number of species.
- Manage for biodiversity by considering all species that inhabit a vegetation type rather than one or more indicator or representative species (similar to Rio Grande Plan).

Integrated Planning and Monitoring

- Anticipate the possibility of designating new wildlife habitat areas due to the loss of habitat on private land.
- Consider the ecosystem beyond Forest Service boundaries by pursuing and initiating wildlife habitat and corridor planning with contiguous private property owners.
- Increase management coordination among USFS, BLM, DOW and local governments.
- Establish an adaptive, flexible system for implementing wildlife closures (dependent on season and yearly conditions).
- Incorporate local input in USFS monitoring plans, since time and cost constraints have often prevented effective monitoring.

Education

- Provide education and incentives to address conflicts between recreationists and wildlife.
- Develop voluntary stewardship as a means of implementing wildlife closures.

Specific Wildlife Habitat

- Emphasize special habitat sites for bighorn and desert sheep through customized management prescriptions.
- Improve all river systems for amphibians and river otters.
- Improve riparian areas for wildlife by utilizing a more comprehensive, resource management approach.
- Protect and improve the cutthroat trout reintroduction streams in the Hermosa drainage.
- Improve range conditions in the Glade area for potential reintroduction of sharptail grouse.
- Protect and improve the Dolores River Canyon for turkey, sheep and elk winter range.
- Protect all identified raptor sites from recreation and other conflicting uses.

Vegetation Management

- Intensively manage vegetation for deer and elk to keep them on forest winter range longer.
- Utilize active vegetation management (e.g., burning, fertilizing, harvesting, weed control, reseeding, etc.) to improve wildlife habitat while allowing forest use.
- Improve ponderosa pine vegetation habitat, especially for species that need late seral stage conditions.

Definition

***Ecosystem Management* — For nearly five years the Forest Service has been developing principles of ecosystem management. One definition from 1995 says that as a policy it is "seeking out and utilizing the best available science, developing and implementing resource management activities based on ecological principles, pursuing the broadest possible range of partners, and involving the public through highly participatory processes."**

- Increase the number of snag trees per acre for cavity nesters.
- Increase noxious weed control to protect and improve forage and suitable habitat for wildlife.

Interrelationships

Wildlife habitat is directly related to and affected by all other forest uses and activities. From the onset, the group was concerned with how the planning and management strategies proposed by the other working groups would affect wildlife habitat. Information was indirectly shared between the groups, through working group members participating in more than one group, the *Working Group Update* (newsletter) and exchanges of information among the staff. Wildlife working group members were added to the recreation and travel working group mailing list to give them an opportunity to include wildlife habitat in their discussions and planning strategies.

The wildlife working group's suggestions for related management areas are listed below for consideration.

Range and Riparian

Members recommended managing for healthy riparian and fish habitat in order to provide a healthy habitat and food for otters. They commented that wildlife avoid basins kept exclusively for domestic use. Although another group specifically studies range and riparian, there was a recommendation to map environments by vegetation type in order to identify where it is best to graze and how it should be managed in specific vegetation types as is described in Allan Savory's "Holistic Range Management." A recommendedation was made to improve riparian areas for wildlife by utilizing a more comprehensive, resource management approach. Also, recommended: improve range conditions in the Glade area for potential reintroduction of sharptail grouse.

Recreation and Travel Management

It was recommended to: close the south end of Willow Divide Road to snowmobile traffic, because there is not enough snow there and it is big game winter range; providing parking lots for snowmobile access as a management strategy for directing and containing use in designated areas and for protecting wildlife winter range; address the concern that recreation on the forest contributes to pushing animals onto private lands; protect all identified raptor sites from recreation and other conflicting uses; allow management flexibility (closures dependent on season and yearly conditions), because there is room for both recreation and wildlife.

Noxious Weeds

Working group members generally agreed that the Forest Service should increase noxious weed control to protect and improve forage and suitable habitat for wildlife, inform the public when areas are sprayed for noxious weeds, especially those gathering medicinal plants, and plant native seeds to prevent undesired species growing back after weed spraying.

Future Opportunities

New or future plan amendments and revisions for all resource management areas have a new set of land management prescriptions to choose from, with more options for greater flexibility. For example, there is a wildlife prescription to designate an area of land for "low elevation wildlife habitat with limited management" and another for "low elevation wildlife habitat with active management."

In Perspective

Working group members, greatly concerned, fear noxious weeds threaten forest health; but poor funding prevents treatment. What's being done? $58,000 was appropriated for noxious weed treatment on the San Juan-Rio Grande National Forest in 1998. Four SJNF staff members focus on weed management across the forest. The SJNF now addresses the problem through cooperative funding projects with county governments. Currently, a management plan calls for treating weeds with insects or, usually, chemical sprays. Workers post signs in treated areas, mostly along roadways, in timber sales, or in areas reached by a vehicle.

In Perspective

Fiscal Year 1998

SJNF Plan Amendment Work

The following information, provided by the San Juan National Forest planners, gives a sense of how the Forest Service is applying information and data from study and working group interaction.

Wildlife Planning Status

San Juan-Rio Grande National Forest staff will meet with the Colorado Division of Wildlife to evaluate areas of conflict between bighorn and domestic sheep. The SJNF will consider amending the *Forest Plan* by changing some prescriptions to reflect more emphasis on big horn sheep if that appears necessary.

Relevant wildlife considerations will be incorporated into the *Forest Plan* amendments for range and travel management. Other wildlife issues will be addressed later in the *Forest Plan* revision.

Appendices

Presentation Handouts, Maps and Working Group Products

Range and Riparian

Handouts

- Two catalogs from SJRG Range Team Leader Paul Crespin entitled *Livestock Grazing on Western Riparian Areas* and *Managing Change: Livestock Grazing on Western Riparian Areas*.
- BLM Standards and Guidelines.
- SJ-RGNF Plan excerpts.
- Holistic Resource Management video.
- Diagram of "Tool Kit."
- Range maps that show grazing allotment boundaries, active allotments, prescription allocations, critical winter range and wildlife.

Products

- June 25, 1997 — Organizational meeting notes.
- August 19, 1997 — Field trip notes discussion and comparison of healthy and impacted grazing allotment, including a look at the riparian conditions.
- September 13, 1997 — Field trip notes. Comparison and discussion of riparian conditions.
- October 14, 1997 — Meeting notes. Holistic Range Management and grazing techniques discussion.
- November 18, 1997 — Meeting notes. Review of forest plan structure and examination of the Rio Grande NF Standards and Guidelines (S&G) .
- December 9, 1997 — Meeting notes. Continued discussion and review of the Rio Grande's S&G.
- January 6, 1998 — Meeting notes. Continued S&G review as well as discussing the issue of flexibility versus consistency in the forest plan.
- March 10, 1998 — Meeting notes. Discussed the direction of forest plan amendments.

Special Management Areas

Handouts

- A description of the San Juan Skyway, a Corridor Management Plan, completed projects and on-going projects, as well as issues and concerns for the group to consider.
- Outline of San Juan Skyway themes, management strategies and goals used for discussion. Revised version distributed in November 1997.
- Presentations included a slide show of some of the cultural and historical sites along the Skyway, as well as examples of foreground, mid-ground and background scenes. A map

outlined theSkyway's route.

- San Juan National Forest specialists shared a one-page matrix that details 21 potential RNA's on the SJNF by cover type and acreage.
- One page summaries of each of the sites describing location, geology, ecology and land use.
- Maps of the potential and designated RNA's.
- A booklet entitled *Heritage Resource Management Issues Discussion,* a compilation of issues and concerns that relate to heritage resources, was handed out.

Products

- July 29, 1997 — Organizational meeting notes.
- August 15, 1997 — Field trip notes–visits to and discussion about a proposed RNA and protection of cultural resources and archeological sites.
- October 17, 1997 — Field trip notes–discussion about the Falls Creek Archeological site and development along the San Juan Skyway (SJS).
- September 30, 1997 — Meeting notes–SJS presentation by Ken Francis (OCS) and Dick Ostergaard (SJNF).
- October 28, 1997 — Meeting notes– conclusion of SJS discussion and brief RNA presentation by Jeff Redders (SJNF).
- November 20, 1997 — Meeting notes- presentation on archeological sites and heritage resources by Sharon Hatch (SJNF).

Special Water Concerns

Products

- July 16, 1997 — Organizational meeting notes.
- August 20, 1997 — Meeting notes–Colorado Water law presentation by group member.
- November 6, 1997 — Meeting notes–federal laws and regulations presented by FS staff.

Timber and Fire

Handouts

- Fire and vegetation tables (3) prepared by Dr. Bill Romme for the SJNF.
- Acres by cover type and size class SJNF table and bar graph prepared by Dave Dallison (SJNF).
- GIS acres by cover type and suitability table and bar graph prepared by Dave Dallison (SJNF).
- Aspen on the SJNF handout prepared by Dave Dallison (SJNF).
- SJNF spruce/fir acres by size class pie chart prepared by Dave Dallison (SJNF).

Bibliography

- Fire related considerations and strategies in support of ecosystem management. (1993, January). Staffing paper. US Forest Service, Washington Office Fire and Aviation Management.
- Conference on adaptive ecosystem restoration and management. (1995, June). USDA Forest Service Rocky Mtn. Forest and Range Experiment Station. (A collection of abstracts from conference presentations).
- Brennan, L. & Hermann. (1994). Prescribed fire and forest pests: Solutions for today and tomorrow. Journal of Forestry., pp. 34-37.
- Kaufman, M. (1995). An ecological basis for ecosystem management. USDA Forest Service Rocky Mtn. Forest and Range Experiment Station.
- Little, C. (1992). Colorado brown. American Forests. , pp. 24-26. (along the Rockies' eastern front, "a big damn plague of bugs" is demanding that we pay heed to how we're changing nature's balances.)
- Lynch. D. (1997, March 18). Statement before subcommittee on forests and forest health and committee on natural resources, US House of Representatives, concerning criteria for forest health and appropriate management tools to maintain or improve forest health.
- McRae, D. (1994). Prescribed fire converts: Spruce budworm-damaged forests. Journal of Forestry., pp. 38-40.
- Mutch. R. (1994). Fighting fire with prescribed fire: A return to ecosystem health. Journal of Forestry., pp. 31-33.
- Rogers. P. (1996). Disturbance ecology and forest management: A review of the literature. USDA Forest Service Intermountain Research Station. General Technical INT-GTR-336.
- Schmid, J.M. & Mata, S.A. (1996). Natural variability of specific forest insect populations and their associated effects in Colorado. USDA Forest Service Rocky Mtn. Forest and Range Experiment Station. General Technical RM-GTR-275.
- Sedjo. R. (1995). Local Logging: Global effects. Journal of Forestry., pp. 25-28.
- Shindler, B. & Neburka, J. (1997). Public participation in forest planning: Eight attributes of success. Journal of Forestry. , pp. 17-19.

Products

- June 16, 1997 — Organizational meeting notes.
- August 16, 1997 — Field trip notes. Pure aspen stands and ponderosa pine restoration sites.
- September 9, 1997 — Field trip notes. Low elevation ponderosa pine stands, mixed conifer proposed timber sale, and spruce fir site.
- November 3, 1997 — Meeting notes. Ponderosa pine and pure aspen stand discussion.
- December 10, 1997 — Meeting notes. Mixed conifer discussion.
- January 7, 1998 — Meeting notes. Spruce-fir stands and management approaches in the roadless suitable base discussion.

Travel and Recreation

Handouts

- Matrix listing Area/Site, Management Issue/Recommendation created from Study Group Statements, Jan. 1997.
- Recreation Management Strategies (current).
- Recreation Strategy Overview for the SJNF.
- Forest Service Fiscal Year 1998 Interior Appropriations Bill, Effect of House and Senate Action, Appropriation: National Forest System, Activity/Subactivity: Recreation Use.
- Recreation Use Analysis and Outfitter-Guide Need Determination, SJNF July 1997 Draft.
- SJNF Road System Facts: listed the amount of miles, maintenance and funding for Level 1-5 roads.
- Recreation Opportunity Spectrum Users Guide, USDA-Forest Service (excerpts from workbook).

Presentation

Grand Lake Multiple-Use Trail System overview, presented by Jack Placchi, OHV program manager for the State of Colorado Parks-Trail Program.

Maps

- Recreation Capacity Analysis — Summer: identifies areas below capacity, approaching capacity, and at or over capacity on the SJNF.
- Recreation Opportunity Spectrum — current conditions.
- SJNF Current Travel Management Areas.

Products

- July 10, 1997 — Organization meeting notes.
- August 13, 1997 — Meeting notes. Recreation trends and planning tools discussion development of group management goals and guidelines.
- September 20, 1997 — Field trip notes. Different recreation and travel management approaches and issues of concern.
- October 1, 1997 — Meeting notes. Discussion and comparison of current recreation management strategies with the group's recommended strategies.
- SJNF Recreation Management Strategy Excerpts and Working Group Strategies prepared by OCS.
- October 29, 1997 — Meeting notes. Review of the Recreation Opportunity Spectrum (ROS) and ROS group exercise.
- December 1, 1997 — Meeting notes. Slide show presentation of the Grand Lake Multiple Use Trail System-Arapaho National Forest, presented by Jack Placchi, Off-highway vehicle program manager for the Colorado State Parks and Trails program.
- February 4, 1998 — Meeting notes. Review and discussion of travel management uses and issues related to the user travel map and the map of management concerns, continued discussion following month .
- March 4, 1998 — Meeting notes. Consolidated set of recommendations from Feb. and Mar. meeting notes.

Wildlife

Handouts

- Colorado Division of Wildlife (CDOW) Definitions for Elk and Deer (winter range, winter concentration areas, severe winter range.
- New Land Management Prescriptions examples.
- Study Group Wildlife Concerns.
- Wildlife Species of Special Concern on the SJNF prepared by the SJNF.
- Species with Strong Affinities for Certain Habitats in SW Colorado prepared by John Toolen, CDOW (2/97).
- San Juan National Forest Plan (9/83) Management Goals for Wildlife.
- Recreation and Wildlife Impacts–excerpts from the Rio Grande Plan.
- "Can People and Wildlife Be Neighbors?," from *The Denver Post* (10/28/97).

Products

- July 30, 1997 — Organizational meeting notes.
- August 27, 1997 — Meeting notes. Winter range discussion and mapping exercise.
- September 17, 1997 — Meeting notes. Special habitat areas for specific species discussion and mapping exercise.
- October 8, 1997 — Meeting notes. Noxious weeds and recreation impacts discussion and comparison of FS wildlife management directions with the group's suggestions.
- Wildlife working group preliminary management directions/actions.
- November 19, 1997 — Meeting notes. Final review of the group's management directions and final map product consisting of winter range, species specific habitat areas, and areas that should be emphasized for vegetation management and biodiversity.
- Wildlife Working Group Map.