Arapaho and Roosevelt National Forests
and
Pawnee National Grassland

Monitoring and Evaluation Report of the

1997 Revision of the Land and Resource Management Plan

for

Fiscal Year 2011

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Forest Certification

The 1997 Revision of the Land and Resource Management Plan (Forest Plan) provided goals and objectives to direct the future of resource management of the Forests and Grassland for the next ten to fifteen years. The Forests and Grassland have completed the fourteenth season of implementing plan goals and objectives. Lessons learned from these fourteen years of monitoring and evaluation point how to better conduct interdisciplinary resource management and monitoring and evaluation of plan implementation by Forest and Grassland personnel. Monitoring and evaluation carried out by the Monitoring and Evaluation Team has resulted in no significant problems or reasons for change to the Revised Forest Management Plan at this time.

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Introduction

Location and History

The Arapaho and Roosevelt National Forests (ARNF) include 1.9 million acres of public land in the Rocky Mountains and foothills of north central Colorado. Boundaries extend north to the Wyoming border and south of Mt. Evans and Interstate-70. These two National Forests include lands on both sides of the Continental Divide. Topography on the forests varies from rolling hills to snow covered mountain peaks over 14,000' in elevation.

President Theodore Roosevelt established the Arapaho National Forest on July 1, 1908. It is named after the Native American tribe that occupied the region for summer hunting. Roosevelt National Forest originally began as a part of the Medicine Bow Forest Reserve, created in 1897. In 1910 portions of this reserve were renamed Colorado National Forest. Finally, in 1932 the Forest was renamed by President Herbert Hoover to honor President Theodore Roosevelt, the person who was the most responsible for its creation.

The Pawnee National Grassland (PNG) includes 214,000 acres of primarily short-grass prairie in two units located approximately 30 miles east of Fort Collins, Colorado. Elevations range from 4,300 ft. on the prairie to 5,500 ft. at the summit of the Pawnee Buttes.

The Pawnee National Grassland was transferred to the US Forest Service from the USDA Soil Conservation Service (SCS) in 1954. The SCS acquired this prairie during the dust bowl days of the 1930's and was charged with its rehabilitation. It was designated a National Grassland in 1960.

The Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARP) are within a one-hour drive of the heavily populated Denver metropolitan area and the other heavily populated areas along the northern Front Range (Boulder, Ft. Collins, Longmont, Loveland and Greeley) and, therefore, are considered to be one of the fourteen Urban National Forests nation-wide. The landownership pattern of the ARP creates special challenges, with approximately 750,000 acres of small private parcels intermixed with federal lands.

Fourteen Years of Forest Plan Implementation

The ARP is making progress in accomplishing Forest Plan objectives. Actual levels of accomplishment vary by programs due mainly to funding levels. When program budgets were low during these past fourteen years, staffing was reduced and projects were not implemented. The Forest Plan was optimistic in its funding predictions and, therefore, predictions for program objectives (Chapter 1, Forest Plan) were also overly optimistic. Some programs, though under-funded, have benefited from other well-funded projects. For example, the Wildlife Program is typically under-funded and wildlife habitat improvement acreage would have only increased in small increments. Yet, due to the increased funding to treat hazardous fuels, more acreage of wildlife habitat improvement has occurred than funding would have allowed. In addition, the wildlife program, as have other programs, has been successful in increasing funds through both internal and external partnerships.

The Forest Plan was overly optimistic in predicting future Recreation budgets (Base, Experienced or Full) as shown in the S-Tables. Funding has come to the Forest that has gone to accomplishing other priorities than the Forest Plan stated objectives on pages 7 and 8. However, there are many accomplishments in the recreation program since the 1997 Revised Forest Plan was approved. In 2000 the first round of National Visitor Use Monitoring surveys was conducted by the Forest Service. Another survey was conducted in

2005 and the most recent survey for the ARP was completed in Fiscal Year 2010 (FY 2010). The compilations of data for the 2000, 2005 and 2010 surveys shows that the ARP is in the top 5 of the most visited National Forests in the country.

Developed recreation has been somewhat invigorated through the Capital Investment Program since 1998 and more recently included infusions of capital from the Recreation Site Improvement (RSI) funds and funding from the American Recovery and Reinvestment Act (ARRA). In 2007, a Recreation Facility Analysis (RFA) was completed enabling the ARP to align management of facilities with expected budget levels and to reduce costs by proposing elimination of little-used recreation facilities and focusing appropriated and other funds toward reducing deferred maintenance. The RFA directly enabled the ARP to take full advantage of the RSI and ARRA funding that was initiated in 2008 (RSI) and 2009 (ARRA).

Many of the projects from these funds were contracted and initiated in 2010 and many were completed as well. The most recent of the ARP's construction projects for developed sites and facility improvements to have been reconstructed to bring them up to the standard our visitors expect include: Forest toilet vent stack replacements, Forest toilet replacements, Forest water system improvements, Pawnee National Grassland Bird Tour roads, signs and kiosks, Molly Lake, Mt. Margaret, and Lady Moon Trailheads reconstruction by Redfeather Lakes, Rainbow Lakes Campground (CG) reconstruction start, Pawnee CG reconstruction start, Brainard Lake Recreation Area Portal parking construction and Sourdough Trailhead reconstruction starts on the Boulder Ranger District.

The ARP campground concession permit holder operated for their 12th and final season under the existing permit. The ARP put out a Draft Prospectus for the next concession permit which would begin in 2012, and hosted a week long Show-Me Trip with prospective concessionaire applicants on the week of Aug. 16-19, 2010. Responses from interested applicants to the Revised 2011 Prospectus were received in February 2011. A panel reviewed all submissions and made a recommendation in their evaluation report on March 30, 2011. The Forest Supervisor chose American Land and Leisure to be the new Forest Campground Concessionaire, starting in January of 2012.

Recreation fee collections through the Federal Lands Recreation Enhancement Act of 2004 (REA) allow the ARP to sustain and enhance our more heavily used recreation areas such as Mt. Evans and the Arapaho National Recreation Area. We are able to maintain these areas to high standards and expand interpretation and education programs through partnerships and fee collections. The Dos Chappell Nature Center along the Mt. Evans Road was completed in 2006 and provides the public key information about the surrounding fragile environment as well as provides a top quality interpretive and recreation experience at that destination. An ongoing lawsuit over Forest Service implementation of REA at Mt. Evans, initiated in 2008. On July 22, 2010, the U.S. District Court of Colorado found that the Forest Service did not exceed their statutory authority and ruled in favor of the Forest Service on all claims in the case. The case was subsequently appealed to the 10th Circuit Court of Appeals. On August 9, 2011, the Court found in favor of the US Forest Service.

Finally, recreation standard amenity fees at the Brainard Lake Recreation Area (BLRA), managed by the Forest concessionaire on the Boulder Ranger District, help offset costs of managing the parking areas, cleaning and pumping toilets, cleaning and trash service for the picnic areas, information booth staffing and some limited trail maintenance for the Mitchell Lake and Long Lake Trailheads. In addition, the 2005 recreation management/development plan for the Brainard Lake Recreation Area was also in process of substantial implementation, including design and construction of the BLRA Portal site, survey and design of Pawnee Campground reconstruction project and completed construction of the arched culvert on the Brainard Lake road.

Managing the scenery resource on the Forests during the past 14 years has been a challenge due in large part to the effects of the mountain pine beetle infestation of mainly our lodgepole pine forests. Mortality of the mature lodgepole pine forest began more than ten years ago on the west side of the Continental Divide and become extraordinarily widespread in the last 5 years. It has recently moved onto the eastern side of the Divide. As a result, the existing condition of the scenery resource in many areas of the ARNF has become incongruous with the Scenic Integrity Objectives described in the Forest Plan. Management activities designed to protect or improve forest health, reduce or mitigate the potential for large-scale, high-intensity wildland fire, or to protect the safety of forest visitors, have created noticeable changes to the scenic landscape both in General Forest Areas and in Developed Recreation Sites. And though the management activity-induced changes to the scenery have not always been met with immediate support from the public, these changes have been consistent with management direction provided in the Forest Plan and have not required any amendments to the Forest Plan.

Due to the increased effects of the mountain pine beetle infestation, surveys for cultural resources have become increasingly difficult. The safety of crews conducting pedestrian inventories in areas of dead and dying lodge pole pine trees has prompted the ARP to negotiate new modifications to our Bark Beetle, Hazard Tree Programmatic Agreement (PA). This PA allows the ARP to use off site mitigation in lieu of pedestrian inventory in areas where the hazard is too great to send in field crews to conduct surveys. This allows the Forest to complete projects without field inventory and still remain in compliance with Section 106 of the National Historic Preservation Act.

The National Fire Plan approval in 2000 led to increased awareness of the increasing wildfire risk to communities and support infrastructure including power lines and water supply. In 2002, the ARP joined with the Pike National Forest, the Colorado State Forest Service, the Forest Service Rocky Mountain Region, and the Forest Service Rocky Mountain Research Station to form the Front Range Fuels Treatment Partnership. The goals of the partnership are to reduce hazardous fuels and restore ecosystem health. In 2004, the partnership in concert with other interested parties helped create the Front Range Fuels Treatment Partnership Roundtable. The Roundtable is a diverse group of stakeholders that strive to build consensus to reduce the risk of wildland fire to communities and to restore lower montane forests. Through increased public and congressional awareness, the ARP is receiving increased funding to treat the buildup of dead trees and dense, overgrown forests. Through this hazardous fuels reduction we will better protect against the devastation of wildfires. Our ranger district personnel are actively working with local communities, county and state governments to plan treatment projects in potential hazardous fuels areas. In Fiscal Year 2011 (Oct 1, 2010 - September 30, 2011) the ARP treated over 13,858 acres of hazardous fuels including both Forests and the Grassland.

Mountain pine beetle (MPB) populations began increasing west of the Continental Divide (a.k.a. Divide) on the Sulphur Ranger District in the late 1990s. MPB populations reached epidemic levels within the Sulphur Ranger District in the period from 2001 to 2003 and have continued to exist at epidemic levels. In 2007 MPB began occurring in larger numbers east of the Divide. By 2008, populations had reached epidemic levels in a number of areas east of the Divide. The ARP has joined with the Colorado Bark Beetle Cooperative and Northern Front Range Mountain Pine Beetle Working Group to collaboratively address issues that have arisen from tree mortality associated with the MPB epidemic. Hazard trees along roads, trails, power lines, and in campgrounds are an increasing issue. Timber harvest has been an important tool in addressing these issues. The timber program was able to offer and sell over 31,154 ccf of timber in FY 2011. Use of the recently awarded Front Range Long Term Stewardship Contract allowed for accomplishing most of the sales awarded. There was a continuation of accelerated harvest on the Sulphur Ranger District to address mortality created by mountain pine beetles.

Approximately 2,695 acres of timber stand improvement was accomplished in FY 2011. In stands of lodgepole pine and spruce fir, thinning has been limited to some extent by the need to protect snowshoe hare habitat in an effort to recover the listed lynx. This may limit forest productivity in the future. However, as MPB killed stands revegetate, there will be an increase in the need to thin these young trees to perpetuate a healthy forest.

The Lands Program has met or exceeded most Forest Plan objectives. For encroachment cases, the Forest Plan projected that 378 cases on file would be resolved (at base budget levels) in the 10 year period to 2007. Over the past 14 years, over 100 of those cases have been resolved; however, many new cases were discovered in that 14 year period. Approximately 8 new cases are discovered on an annual basis; therefore, even for those that are resolved, the overall number continues to rise. Encroachment cases can be resolved in a number of ways: land exchanges, STAs, removal of the offending facility, or authorization. Since 2007, the ARP Land Adjustment Program has disposed of, through STA cases, 6 encroachments. In 2011, 3 isolated cabins were removed and the lands were rehabilitated with the use of the previous cabin owners 'bonded' funds. The Forest also maximizes the nomination process for Land and Water Conservation funding to acquire properties that benefit the Public and meet our Management Plan goals. The ARP continues to process in the range of 60-70 Special Use Authorizations per year and continually uses the 36 Code of Federal Regulations (CFR) to screen applications.

Abandoned mines occur throughout the ARP. In 2011, important progress was made in reducing and rehabilitating physical and environmental hazards from abandoned mines. Several safety closure projects occurred across the forest. These projects were completed through partnerships with state agencies, local governments, community organizations and private landowners.

The soils and water program focuses on projects that will improve watershed condition. Projects funded with direct watershed funding, as well as by other resource areas, including the engineering and abandoned mines programs, accomplished many acres of integrated watershed improvement. These projects included: decommissioning roads on the Sulphur Ranger District; continuing restoration and travel management in the Left Hand Off-Highway Vehicle (OHV) Area, the Bunce School area, the Kingston Peak area and the Spring Gulch Area on Boulder and Clear Creek Ranger Districts; completing an annual fisheries and watershed improvement project in cooperation with Miller-Coors brewing company on the Clear Creek Ranger District; restoring fish passage at several culverted road crossings, and constructing a wetland protection fence on the Pawnee National Grassland. The ongoing work in the Left Hand OHV area has been accomplished cooperatively through the watershed, recreation, and wildlife programs on the ARP. External partners have been essential to the project, and include: OHV user groups; the James Creek Watershed Initiative, who have obtained hundreds of thousands of dollars in grants for restoration; and Wildland Restoration Volunteers (WRV), who have provided hundreds of days of volunteer efforts. In 2011, the finishing touches of active restoration work focused on rerouting trails, closing routes and restoring connected disturbed areas to reduce ground disturbance, erosion and sedimention the upper Carnage Creek watershed. Design, construction, erosion control and planting were all accomplished through cooperation with the volunteers of WRV.

In 2011, approximately 5.5 miles of habitat were reconnected by replacing small road culverts with larger crossings that allow fish and other aquatic animals to move upstream. Fish passage improvements in the Willow Creek watershed benefitted wild brook trout, native sculpin, and wood frogs. Restoration of fish passage and habitat conditions in the Winter Park Ski Area on Little Vasquez Creek benefitted a native cutthroat trout population. To better guide our efforts to reconnect stream habitats for aquatic life, we completed our systematic inventory of road culverts across both the Arapaho and Roosevelt Forest units. This information will help us identify road crossings that pose the greatest risks to aquatic habitat fragmentation and will aid in prioritizing and remedying fish passage barriers. Additional stream habitat

restoration occurred on Mad Creek in the Clear Creek watershed where unauthorized ATV use had damaged the stream. Through a Challenge Cost-Share Agreement, lake habitats were managed cooperatively with Colorado Division of Wildlife in Lake Granby, Shadow Mountain Reservoir, and Grand Lake through invasive species education and boat inspections to prevent introduction and the potential spread of Quagga/Zebra mussels.

Soil, water, and, air monitoring on the ARP has continued and evolved in response to ongoing and emerging issues. Implementation and effectiveness monitoring, conducted to support vegetation management activities on the Forests and Grassland included prescribed fire monitoring on the Pawnee National Grassland and soil disturbance monitoring for forest fuels reduction treatments, timber sales, and pine beetle treatments on Boulder and Canyon Lakes Ranger Districts. In 2011, ARP watershed personnel monitored recently burned areas for treatment effectiveness, recovery of native vegetation and watershed response to seasonal high intensity precipitation events. In partnership with Rocky Mountain Research Station, a burn-pile mitigation treatment effectiveness study, developed in 2008, was continued in 2010 and 2011. In 2011, ARP and RMRS collaborated to develop a research project to investigate wildfire effects on soil and vegetation within the Church Park Burned Area on the Sulphur Ranger District. Ongoing air quality monitoring programs, conducted in cooperation with Regional Air Quality personnel and the Rocky Mountain Research Station include ozone sampling at 3 stations across the Forests and lake sampling at 8 high elevation lakes within ARNF wilderness areas

Rangeland Vegetation Management: Year 2011 was a year of about average precipitation (following two good years) after a severe and prolonged drought from 2000-2008. A snowy and cold late spring required many Forest operators to go on later than normal. Spring and summer rains were better-than-average in many areas in amount, and timing was generally conducive to good grass production. However, good rains were spotty, as usual, across the Grasslands, and some allotments received very little precipitation at all. Most ranchers were able to graze a majority of their permitted numbers; a few are still taking partial non-use for resource protection. A few came off early because of localized low forage production. All of these efforts are good examples of proper rangeland vegetation management techniques – reducing livestock commensurate with the level of forage production and water availability, and allowing rangelands to recover from previous drought conditions.

Of the nearly 485,000 acres in 176 active grazing allotments, 378,739 acres (78%) were administered to standard in 2011 (94% of the Forest allotments and 34% of the Grassland allotments); total acres were reduced from most years because two rangeland management specialist positions were vacant for the entire year (one on the Pawnee, one on Canyon Lakes). Long-term inventory and analysis efforts have been completed on all allotments in the last decade; in addition, 2011 specific annual monitoring data were collected for about 188,153 acres. Allotment/NEPA planning efforts are complete for 100% of the allotments on the Forest and Grassland, and on schedule.

In 2011 no prescribed fire project was implemented on the Pawnee National Grassland. Over the last 14 years, the Grassland has been considered a world class birding destination and in 2010 the 35-mile Pawnee Self-Guided Birding Tour was implemented.. The Grassland has been diligently working with its range allotment permittees to improve range condition through better cattle distribution and improved grazing systems. The Grassland staff continued to implement the Black-tailed Prairie Dog Management Plan and continued working with private landowners (ranchers/farmers), grazing permittees, the environmental community, and other agencies during implementation. The PNG is interspersed with numerous roads and “two-tracks”. The district staff has been doing extensive travel management planning which has led to improving highly used roads and closing little used roads to improve wildlife and range habitat.

The botany program has had significant growth and accomplishments across the ARP. The Forest and Grassland has identified seven Threatened or Endangered plants, about 40 US Forest Service Region 2 Sensitive plants, and about 100 other rare plants or plant communities of local concern that occur on the ARP or occur nearby that could be impacted by management activities. When encountered during Forest projects, these species are typically avoided or impacts to them are minimized. Proactive surveys have occurred since 2002 for rare plants or for specialized wetland ecosystems called "fens," which are of high biological value in Colorado and often harbor rare plants. In 2007, one species of moonwort (primitive fern-like plant), new to science, was discovered on the Forests. It recently was documented to occur in South Dakota, Wyoming, New Mexico, and Canada. The Forest Botanist is assisting in formally describing this species. A working herbarium housing all of the Forest's plants is planned for completion in 2013.

Noxious weeds are a problem in some areas on the ARP. To move proactively ahead in reducing this problem, a Forest- and Grassland-wide noxious weed management plan was developed. Overall in 2011, about 3,473 acres of noxious weeds were treated, up 1,973 acres over what was achieved in 2010.

The wildlife and fisheries programs have continued to provide recreational and educational opportunities to the public. Interactive educational programs for local schools and communities have continued to have expanded and increased participation each year. In 2011, the "Save the Frogs Day "and "Water, Wildlife and Trails" programs continued to take the Forest into local classrooms while the Adventure Backpack program took citizens to the field. The Forest partnered with local wildlife agencies to emphasize education in human/bear encounters in campgrounds and saw improvements in communication and response over past years. On-the-ground and in-stream habitat improvement projects have enhanced available habitat for a variety of species, including threatened, sensitive, and management indicator species. Increased efforts to survey important habitats and species have led to a better understanding of existing old growth conditions and presence of Preble's meadow jumping mouse. Efforts are also underway to improve habitat mapping for the Canada lynx and Preble's meadow jumping mouse. Increased surveys of bats and their habitat helped in assessing the risk of White-nosed Syndrome on the ARP . Key results are anticipated from genetic studies of greenback cutthroat trout that will shape future management decisions within the next year.

Not enough can be said about the hundreds of volunteers on the ARP. By hiking in the Wildernesses, raft-patrolling on the Poudre River, working on the Continental Divide Trail, maintaining the 100s of miles of summer and winter trails, building trail bridges and water control structures, counting birds, working in our offices, and ad infinitum; these volunteers provide a tremendous service to the public and helped provide services that would otherwise not have been completed due to limited ARP program budgets. Our volunteers and partners provided 68,122 hours of volunteer work in 2011, valued at $1,455,086 (based on the national standard value of approx. $21.36/hour for 2011).

In 2003 the Chief of the Forest Service identified unmanaged recreation, and specifically OHV use, as one of the four major threats to sustainable forest health. As a result, on November 9, 2005 the "Travel Management: Designated Routes and Areas for Motor Vehicle Use Rule" (aka Travel Rule) was finalized in the Federal Register. This rule requires the Forest Service to designate a system of roads, trails, and areas open to motor vehicle use by season and vehicle type. The public has had, and will continue to have, full review of preliminary inventory and maps. This designation is completed via publication of a Motor Vehicle Use Map (MVUM), which will be printed annually and updated as often as necessary. After MVUM's have been printed, it is a violation of Forest Service regulations to use or possess a motor vehicle anywhere not designated on the MVUM.

Several of the ranger districts on the ARP began work on their road/trail inventory in FY07 and continued into FY08, FY09 and FY10. Their actual completion dates are as follows:

Sulphur	September 2007
Pawnee	May 2008
Canyon Lakes	September 2009
Boulder	December 31, 2010
Clear Creek	December 31, 2010

Forest Closure Order No. UFC-02-09 (Urban Front Country Occupancy & Use, approved on 7-15-09) prohibits "using a motor vehicle off of National Forest system roads except snowmobiles operating on at least six inches of snow" and "using any type of vehicle on any National Forest system road or trail except those vehicles that are allowed by signing on that road and trail." The order also lists, by Ranger District, specific roads and trails closed to motorized vehicle travel, year-round and seasonally. Districts are implementing the above closure order, as well as implementing the MVUM and planning for any needed additional closures and opportunities for motorized travel. The order is nullified for motorized travel designations when a District has published its first MVUM, which the final two were completed this Fiscal Year.

Limited recreation management and law enforcement funding have maintained only minimal Forest Service employee presence on the Forests and the Grassland. This puts an undue burden on our few law enforcement officers who are required to cover 700,000 acres per officer and respond to over 850 incidents per year. While the public is being underserved because not many ARP personnel are "in-the-woods" to answer visitors' questions or to protect public land resources through enforcement of regulations, some progress was made in our General Forest Areas (GFA) by emphasizing efforts to provide uniformed Forest Service presence in the field during critical high-use periods.

The roads infrastructure program and accomplishments were similar to those in previous years. Base funding decreased in fiscal year 2011 however the Forest received supplemental road funding to assist in hazard tree removal and fuels reduction. Emphasis in 2011 was again in support of these two programs with approximately 80 miles maintained. Strong partnerships with local counties accounted for an additional 326 miles maintained. Other program areas contributed 25 miles of road maintenance for the improvement of watershed conditions. Planning and road decommissioning continued to be part of the yearly program of work with approximately 14 miles of system roads decommissioned and 15 miles of unauthorized roads decommissioned in 2011.

The remainder of this report describes Forest Plan monitoring and evaluation. In these sections there is more in-depth information about programs and resources on the Arapaho and Roosevelt National Forests and Pawnee National Grassland.

Monitoring and Evaluation

The 1997 Revised Forest Plan describes a monitoring program to evaluate Forest Plan implementation, which is programmatic and designed to evaluate the conditions on the Forests and Grassland. Monitoring and evaluation are separate, sequential activities required by the National Forest Management Act (NFMA) regulations to determine how well objectives have been met and how closely management standards and guidelines have been applied. Monitoring usually includes data collection and information gathering. Evaluation is the analysis of the data and information and the results are used to determine the need for changes to the Revised Forest Plan or how it is implemented.

To guide this monitoring and evaluation process, Chapter 4 of the Revised Forest Plan lists many monitoring questions presented in two tables. Table 4.1 lists the legally required monitoring per NFMA. This is the twelfth year of the Revised Forest Plan monitoring and evaluation. The monitoring items that will be addressed in this report are only the ones shown as listed ***Annually*** in the M&E Report column, below, therefore, there are far fewer questions to be addressed of the 11 questions from the table, below. The Revised Forest Plan management emphasis goals and objectives are addressed in the questions found in Table 4.2.

Table 4.1. Minimum Legally Required Monitoring Activities.

Action, Effect or Resource to be Measured	Frequency of Measurements	Precision and Reliability*	M & E Report**
Lands are adequately restocked. 36 CFR 219.12(k)5(i)	Mix of 1st, 3rd & 5th years per FSM 2472.4	A	Annual
Lands not suited for timber production. 36 CFR 219.12(k)5(ii)	Year 10	A	Year 10
Harvest unit size. 36 CFR 219.12(k)5(iii)	Years 5 & 10	B	Years 5 & 10
Control of destructive insects and diseases. 36 CFR 219.12(k)5(iv)	Annual	B	Annual
Population trends of management indicator species in relationship to habitat changes. 36 CFR 219.19(a)(6)	Years 5 & 10	B	Years 5 & 10
Effects of off-road vehicles. 36 CFR 219.21	Annual Review, Analysis years 5 & 10	B	Years 5 & 10

Effects to lands and communities adjacent to or near the National Forest and effects to the Forest from lands managed by government entities. 36 CFR 219.7(f)	Years 5 & 10	B	Years 5 & 10
Comparison of projected & actual outputs and services. 36 CFR 219.12(k)1	Annual	A	Annual
Prescriptions and effects. 36 CFR 219.12(k)2	Years 5 & 10	B	Years 5 & 10
Comparison of estimated and actual costs. 36 CFR 219.12(k)3	Annual	A	Years 5 & 10
Effects of management practices. 36 CFR 219.11(d)	Years 5 & 10	B	Years 5 & 10

*Monitoring methods used are divided into two categories, A and B based on their relative precision and reliability:

- A – Methods are generally well accepted for modeling or measuring the resource. Methods used produce repeatable results and are often statistically valid. Reliability, precision, and accuracy are very good. The cost of conducting these measurements is higher than other methods. Methods are often quantitative.
- B – Methods or measurement tools are based on a variety of techniques. Tools include: project records, communications, on site ocular estimates and less formal measurements such as pace transects, informal visitor surveys, aerial photo interpretation, and other similar types of assessments. Reliability, accuracy, and precision are good but usually less than that of A. Methods may be more qualitative in nature bu6t they still provide valuable information on resource conditions.

**The frequency of measurement and reporting are triggered by regulation as well as anticipated intervals at which gathered data will provide meaningful information.

Below are the responses to our monitoring activities. The long number with the letters "CFR" is the citation to the Code of Federal Regulations which translates Congressional law (in this case, NFMA) into working regulations which the Forest Service can apply to management of its lands.

Lands Are Adequately Restocked - 36 CFR 219.12(k)(5)(i)

This CFR requires a determination of compliance with the standard that lands are adequately restocked as specified in the Forest Plan. Monitoring for compliance is accomplished through surveys the first, third, and fifth years following reforestation treatment. Where natural regeneration is prescribed the first year survey can be a walk-through survey to determine that the timber harvest and/or site preparation activities have produced site conditions conducive to adequate stocking within five years following final harvest. Third year and any subsequent surveys must be fixed plots to determine stocking levels and distribution.

Since inception of the 1997 Forest Plan the silviculture objective has been to achieve natural regeneration success on harvested acres. Surveys have been conducted as required to assure restocking on suitable and available lands receiving a final harvest treatment. For the period of FY 1998 through FY 2011, almost 13,507 acres of natural regeneration have been certified as satisfactorily restocked. The need for regeneration of forested stands has dropped since 2000. The primary reason for this is that reduced levels of timber harvest in the mid to late 1990s created reduced need for stand regeneration. It is anticipated

that the current mountain pine beetle mortality will increase the need for regeneration activities in the future. Funding regeneration activities that require seedlings grown in nurseries, such as campgrounds, will be a challenge.

Control Of Destructive Insects And Diseases - 36 CFR 219.12(k)(5)(iv)

This CFR requires a determination that destructive insect and disease organisms do not increase to potentially damaging levels following management activities. The most damaging insect and disease organisms currently occurring on the Forest are mountain pine beetle, *Dendroctonus ponderosae,* and dwarf mistletoe, *Arceuthobium spp.*

In the late 1990's an increase in mountain pine beetle (MPB) activity in lodgepole pine (LPP) stands was noted in the Williams Fork on the Sulphur Ranger District. In 2000-2001 the MPB began to expand rapidly in the Williams Fork and increased activity was noted on other areas of the District especially near Grand Lake. District personnel began analysis to try to improve the resistance of LPP stands to MPB, reduce hazardous fuels associated with the MPB killed trees and salvage MPB killed trees. In addition the District conducted spraying operations in campgrounds to limit MPB caused mortality of LPP. Mountain pine beetle has also infested ponderosa pine where it is mixed with lodgepole pine stands. By 2007 the MPB epidemic had spread throughout LPP on the Sulphur Ranger District. All efforts to improve resistance to MPB have been unsuccessful. Spraying in campgrounds and other recreation facilities continued to protect most trees; however, it has become apparent that this will not be a long-term solution. It is hypothesized that the length of the epidemic and the high MPB numbers were primarily responsible for the failure of mitigation techniques.

There are approximately 183,000 acres of LPP on the Sulphur Ranger District (SRD). As of 2008 the epidemic has affected all of those acres. It is estimated that approximately 80 percent of the LPP over 4" in diameter have been killed by the MPB on these acres. It is likely that at least 90% of the LPP over 4" in diameter on the District will eventually be killed by MPB.

Mountain pine beetle impacts on the Canyon Lakes, Boulder, and Clear Creek Ranger Districts east of the Continental Divide continued to increase in 2011, and are spreading extensively east of the Divide, especially in Larimer County. Over the next 5 years it is anticipated that tree mortality will occur in substantial areas of the LPP stands on these districts.

The mountain pine beetle can also affect limber pine, bristlecone pine and ponderosa pine. Mortality has been observed in these species and as the MPB epidemic moves east of the Continental Divide the acres affected are expected to increase. There has also been some mortality of spruce caused by the high MPB population density west of the divide. Although spruce is not a host for MPB it can be attacked and subsequently killed when no suitable LPP are available.

This MPB epidemic is resulting in an altered age structure of LPP stands on the SRD and now east of the Continental Divide. Initially substantial numbers of LPP snags are created. These snags will slowly rot, generally at the base, and the dead trees will fall over in the next 20+ years. The actual rate of snag fall can be influenced by several factors. The regeneration of the forest will also begin. Lodgepole have both serotinous and non-serotinous cones. For seed to be released from serotinous cones a heat source is required. This can either be from a wildland fire or once the trees fall the cones can be sufficiently heated by radiation from the sun on the ground. Therefore, without intervention, reforestation in areas with serotinous cones will occur over time as the trees fall. Lodgepole pine regenerates well after stand

replacement events so it is anticipated that adequate regeneration will occur over time. Timber harvest of the dead trees can speed regeneration by placing the cones near the ground. Also, in areas with existing aspen clone stands, these aspen should be able to expand due to the LPP mortality.

Fire hazard may also be modified to some degree by the mortality caused by the MPB. The year after a tree is attacked by MPB the needles die and turn red. These dead needles do not contain the same level of moisture as do green needles and are more easily ignited by a heat source. The dead needles tend to persist on the trees for several years. Also, not all trees in a stand or watershed are attacked and die at the same time. This is a multi-year event. Therefore, the period of increased flammability can last for a number of years after the initial tree mortalities from MPB. It should be noted that LPP of the size and age being killed by MPB often experiences stand replacing wildland fire. So, it is not that there was not a fire risk prior to the MPB, it is that the effect of the MPB epidemic initially will make it more likely that a stand replacing wildland fire could occur under more moderate conditions. Once the needles fall from a majority of the trees the wildland fire hazard should be reduced for a few years. Then as a majority of the dead trees fall the fire hazard will increase again. Under this situation the type of wildland fire would more likely be a ground fire, which could result in increased damage to soils due to the heavy fuel concentration close to the ground.

Dwarf mistletoe is wide-spread throughout lodgepole pine and ponderosa pine stands on the ARNF. Some removal of dwarf mistletoe infested lodgepole pine trees within timber sale contract areas has been done.

The occurrence of both of these organisms occurs naturally in forested areas and has not been shown to be a result of management activities.

Spruce beetle populations and related mortality continue to increase on Canyon Lakes, Boulder and Clear Creek Ranger Districts. Areas of bark beetle infestations include; the Rawah Wilderness, Buckeye and Tennessee Mountain, Loveland Ski Area, Berthoud Pass, and Peaceful Valley. White pine blister rust was observed for the first time on the Boulder Ranger District in 2005.

The Forest continues to experience a small isolated outbreak of *Ips* beetle on hazardous fuels reduction projects on the Canyon Lakes Ranger District. The primary area of infestation appears to be adjacent to the Bobcat wildfire.

Comparison Of Projected And Actual Outputs – 36 CFR 219.12(k)1

This CFR requires a quantitative estimate of performance comparing outputs and services with those projected by the Forest Plan.

WILDLIFE:
There has been a downward trend from FY 1998 when 'more-than expected' acres of treated wildlife and Threatened, Endangered or Sensitive species (TES) habitat were accomplished, to FY 2011 when 'near-expected' acres were accomplished relative to budget levels. The following describes aspects that comprise the habitat treatment acres.

- Improved habitat treatments due to hazardous fuels management has been substantial, making up about half of the acreage accomplishments. Hazardous fuels treatments can be largely beneficial and Forest Plan habitat objectives can be met faster than expected if wildlife objectives are

adequately designed into hazardous fuels treatments. The ARP has anticipated the increased fuel treatment program well and has correspondingly increased and maintained biology staff to assure favorable outcomes for wildlife.

- Old growth of all conifer types has been largely retained over the past 14 years, except in areas of the MPB epidemic. Development of more, future low-elevation old growth is being best assured by reduction of forest fuels in hazardous fuels treatment areas along the Front Range and by acquisition of low-elevation lands by the Forest Service in the Evergreen, Colorado area. Since 2002, an average of 7,600 acres of hazardous fuels have been treated. More low-elevation old growth (ponderosa pine (PP) and Douglas-fir (DF)) is being found than was known at the time of the Forest Plan revision (1997). Newer aerial photos (taken since insect epidemics) are providing a more complete and reliable inventory of the locations of PP and DF old growth. Pre-project and specific old growth condition surveys to field truth many PP/DF old growth sites are confirming recent photo interpretation findings. An entire inventory along the Front Range was completed in FY03 to assure that locations are known, and to allow for planning and implementation according to Forest Plan direction. The recent inventory located additional sites that were previously undetected, but also ascertained that PP/DF old growth still remains the most limited type of old-growth forest within the ARNF. However, with the MPB epidemic, old growth lodgepole pine forests may be at risk. There are approximately 183,000 acres of LPP on the Sulphur Ranger District (SRD). As of 2011 the epidemic has affected all of these acres. It is estimated that approximately 80 percent of the LPP over 4" in diameter have been killed by the MPB on these acres. It is likely that at least 90% of the LPP over 4" in diameter on the District will eventually be killed by MPB.
- Mountain pine beetle impacts on the Canyon Lakes, Boulder and Clear Creek Ranger Districts east of the Continental Divide increased in 2011, but are not yet as extensive as west of the Divide. However, it appears that the MPB are spreading and over the next 5 years it is anticipated that tree mortality will occur in substantial areas of the LPP stands on these districts.
- TES habitat improvements have mostly achieved the expected Forest Plan objective of 3 (minimum number of) annual projects per year.
- Riparian/habitat restoration, as well as road closures and obliterations, have increased due to hazardous fuel reduction funding opportunities. Internal partnering with the watershed and soils programs as well as increased funding from external partners has also increased our capacity to achieve results in these areas.
- Expectations of structural improvements and habitat protection have not been fully realized due to limited funding and other priority habitat treatments.
- Aspen regeneration and reduced conifer encroachment in openings have mostly been realized as expected through design of fuels/timber management projects. However, enhancement of aspen has occurred as independent wildlife projects.

FORESTED RESOURCE:

The Allowable Sale Quantity (ASQ) for the first decade is approximately 67 mmbf (135,000ccf). Timber sold in the first decade was approximately 135,000 ccf. Over 92,000 ccf was sold on the Sulphur Ranger District with over 75,000 ccf of salvage associated with the mountain pine beetle epidemic. Future timber harvest on the Sulphur Ranger District is anticipated to primarily be salvage of lodgepole pine killed by MPB. Once the merchantability of the MPB killed lodgepole pine is reduced the volume sold on this district will diminish substantially. In FY 2011, 31,154 ccf of timber was sold on the ARP.

Timber volume sold on the Front Range Districts, primarily the Canyon Lakes Ranger District has been at levels below the ASQ. However, implementation of the Front Range Long Term Stewardship Contract (LTSC) has expanded timber volume sold from Boulder Ranger District. The LTSC, small sales and personal use permits did allow for sale of 24,889 ccf in FY11. Historically from 2004 through 2008, sales with approximately 40,000 ccf of volume were offered, but received no bids on the Canyon Lakes Ranger District. At this time there is no reason to revisit the ASQ.

RECREATION:
Comparisons of projected vs. actual outputs show Forest Plan objective estimates are high and actual accomplishments are low for:

- Reconstructing or rehabilitating dispersed camping areas.
- Providing new designated wilderness campsites (no actual target)
- Constructing new dispersed-use campsites

This discrepancy in output vs. accomplishment vs. budget availability indicates that these Forest Plan listed objectives are not all-inclusive of the full scope of the recreation program and, in fact, represent just a minor portion of the work involved. In addition, lack of accomplishments in these areas reflects other higher priorities.

- Recreation Special Uses, Heritage, Interpretation and Visitor Information Services, Landscape/Scenery Management., and Accessibility programs are also subsets of the overall recreation program as are Developed Recreation, Wilderness and General Forest Areas.
- Maintenance activities were not recognized as high importance (no objectives) but new construction, reconstruction, and rehabilitation were. However, funds for new construction are very limited. A lot of the work of the Recreation program involves maintenance, yet it has no Forest Plan connection for tracking these accomplishments.
- Public contact for information, education, prevention and enforcement purposes is very important and a desired workload.
- Interpretation and education functions are also important but not part of our Forest Plan monitoring system.
- Volunteer coordination is a function that results in some kind of recognized reportable activity but is rarely viewed as an activity unto itself, yet much of our dollars and efforts are spent working with volunteers.
- The allotted budget for the Recreation program is below predictions shown in the Forest Plan. The program has been funded at less than one half of the Forest Plan projections. Yet, the ARP is one of the top five most heavily visited National Forests/Grasslands in the Nation.

RANGELAND RESOURCE:

A. *Comparison of Projected and Actual Outputs – 36 CFR 219.12(k)1*

1. Cattle Grazing (thousand AUMs)

Planned and actual livestock use during 2011

	Use (in thousands)	Planned Level	2011 Level	Percent of Planned Level
National Forest				
Active Allotments	**Allotments**	**31**	**31**	**100%**
Cattle Grazing	Head-Months	9.5	6.1	64%
	AUMs	11.4	7.7	68%
National Grassland				
Active Allotments		**146**	**146**	**100%**
Cattle Grazing	Head-Months	60.1	36.0	60%
	AUMs	79.3	45.5	58%
TOTAL NFS				
Total Grazing	Head-Months	69.6	42.1	61%
	AUMs	86.6	53.2	62%

Most operators were able to run a majority of their permitted numbers. The snowy, cold spring held a number of Forest operators off until later than normal; some did not put on full numbers, taking partial non-use for resource protection (Grasslands especially). A few had to come off early, mostly on the Grasslands, due to locally sparse summer rains. Allotments were stocked at about 62% of planned-level capacity, but at about 72% of permitted levels on the Forest and 89% of permitted levels on the Grassland.

2. Grazing Permits – the Forest Plan projected issuance of 56 livestock grazing permits. The Forest currently has 28 active grazing permits. The Grassland has two Grazing Agreements issued to the two grazing associations, who in turn issue permits to their 86 members; the Pawnee Ranger District also issues 10 direct permits on the Grassland. Total number of current term grazing permits issued by all Units is 40.

B. *Comparison of Estimated and Actual Costs – 36 CFR 219.12(k)3*

2011 Rangeland Management Budget (thousands of dollars)

Activity	Plan Level Budget	2011 Final Budget	Percentage of Planned Level
Rangeland Vegetation Management (NFVW)	370	149.9	41%
Grazing Permit Administration (NFRG)	570	319.2	56%

Rangeland Resource Improvement (RBRB)	48	6.7	14%
TOTAL	988	475.8	48%

NFVW – Congress has reversed a decade-long upward trend, and is now funding NFVW at rapidly decreasing levels (the rangeland vegetation portion of that Budget Line Item, which also includes soils and watershed management, air quality, reforestation and thinning, and noxious weed control) – for four consecutive years; funds have been particularly hard-hit by the Regional effort to re-mix appropriated funds to cope with the bark beetle infestations. The rangeland vegetation portion of NFVW pays for allotment/NEPA inventory and analysis efforts for all functional specialists, and for annual short-term monitoring of rangeland vegetation by rangeland management specialists as well as long-term condition and trend measurements and evaluations. In the last four years, any changes in funding at the national level are resulting in significant reductions at the field level. Re-directed funds for managing trees killed by the bark beetle epidemic, including those different priorities for employees' time, has cut the rangeland vegetation funding in half in the last two years.

NFRG funding pays for final NEPA analysis and decisions as well as allotment and permit monitoring, and the implementation of NEPA decisions. Congress has increased NFRG funding by an average of approximately 3-5% in recent years in order to accelerate allotment planning efforts to meet the required 1995 Rescissions Act schedule. While most of that funding increase made it to the Forest/Districts in 2003, incremental increases as well as additional funding levels were retained at higher organizational levels in 2004 - 2009. The funding is now trying to hold level at the Forest and Ranger District level, but the bark beetle emphasis continues to result in some fall-down in target completion. Funding is currently only about 56% of what the Plan predicted was needed to implement it in full.

Rangeland resource improvement dollars (returned from collected grazing fee receipts) fluctuate slightly each year as a result of authorized grazing levels (in number of head-months) the previous year.

1. Grazing Allotment Planning

Goal: By the end of 2010, complete environmental analyses on 95 - 100% of National Forest System grazing allotments, and reauthorize grazing permits where consistent with other resource considerations. The following table portrays the cumulative planning efforts (active and vacant allotments) since 1995.

Allotment Management Planning

Area	Total Number of Allotments	Allotments Completed 1995 - 2010	Percentage Completed Through 2010
Forest	52	52	100%
Grassland	146	146	100%
TOTAL	198	198	100%

The last seven allotments were completed in 2010. The Goal has been met.

2. Rangeland Vegetation Management

Rangeland vegetation inventory and re-analysis efforts have been completed on all of the above 196 allotments, including for all 485,116 NFS acres in the 176 active allotments on the Forest and Grassland.

***C.** Effects of Management Practices – 36 CFR 219.11(d)*

1. Rangeland Inventories

All rangeland acres were inventoried and analyzed in preparation for Rescissions Act allotment planning efforts by 2010. No additional long-term condition and trend inventories were completed in 2011, although re-analysis efforts may begin in the next 2-3 years.

2. Allotments Analyzed and Decisions Implemented

Allotment/nepa decisions were implemented on 29,736 acres (13,144 on Canyon Lakes, 16,092 on the Pawnee, and 500 on Sulphur).

3. Allotments Administered to Standard

Allotment Management and Administration

Area	Total Number of Active Allotments	NFS Acres in Active Allotments	Allotment Acres (also vacant) Administered to Standard -- 2011	Percentage Completed in 2011
Forest	31	220,311	238,937	84%
Grassland	146	197,656	139,802	70%
TOTAL	177	417,967	378,739	78%

4. Rangeland Monitored and Evaluated

Rangeland Vegetation Monitoring

Area	Acres with Rangeland Vegetation Objectives	Rangeland Acres Monitored in 2011	Percentage Monitored in 2011
Forest	95,460	136,809	143%
Grassland	196,289	51,344	26%
TOTAL	291,749	188,153	65%

Specific monitoring methodologies were completed on 188,153 acres in 2011, 39% of the acres in active allotments across the Forest/Grassland, and in spite of two permanent positions being vacant.

Table 4.2 Forest Plan Monitoring Questions for Priority Management Emphasis and Stakeholder/Public Involvement.

The following questions are displayed in Table 4.2 (Forest Plan, pages 394-396). These questions address priority management emphasis, goals and objectives in Chapter 1 of the Forest Plan. As described in Chapter 1, page 3 of the Forest Plan the ARP has an overall mission to achieve over time; **Forest-wide management implementation must balance the demands of people's vastly different resource-use values with maintaining ecosystem health.** To focus the ARP management towards meeting this mission, the Forest Plan identified three management emphasis areas: 1) biological diversity, ecosystem health and sustainability; 2) human use; and 3) land use and ownership. The following questions fall into one of these three areas. Again, because this is the twelfth year of Revised Forest Plan monitoring and evaluation, the questions which will be addressed in this report are only the questions with: 1) a *measurement frequency* listed as *annually* or 2) if the *measurement frequency* is listed as either *Annually or As Needed*, then the determination of whether to address the monitoring question in this report will be made by the Monitoring and Evaluation team member, who has program responsibility that the monitoring question references. The determination whether to address the question or not in this report will be based on the meaningfulness the response has on Forest Plan monitoring if reported annually or at another longer timeframe. Therefore, there are eleven topics to be addressed below of the 21 topics from Table 4.2.

Priority Management Emphasis: Biological Diversity, Ecosystem Health, Sustainability

Air, Soil, and Water: Non- Point Source Pollution	Has the Forest made progress toward reducing non-point source pollution in Class II and III watersheds and in streams, which are not fully supporting State-designated uses? How has this been accomplished? (Biodiversity; Air, Soil & Water - Obj. #10)

Progress has been made through the implementation of watershed improvement projects, road decommissioning, and abandoned mine reclamation, although the pace has been at the lower end of the 49-160 annual acres listed in the Forest Plan objectives. Annual accomplishment in FY 2011 was x acres. Watershed improvement was accomplished through projects funded by the watershed, engineering, and abandoned mines programs, as well as projects accomplished with cooperators and volunteers. Roads are a significant source of non-point source pollution on the ARP and road decommissioning is an effective means of treatment.

Determining the effectiveness of improving State-listed streams is more problematic. The State lists stream segments that are not fully supporting State-designated uses in a biennial report that is referred to as the 303(d) list. When the Plan revision was completed, there were 12 stream segments on the Forest that appeared on the list. On the 2006 303(d) list, only 6 stream segments that occur on the Forest were listed. On the year 2010 303(d) list, the most recent list, 17 stream segments that are located at least partially on the Forest were listed. However, the changes in number of listed streams are mostly an effect of changes in the State's listing criteria as well as increased monitoring by the State to identify impaired streams, rather than significant new sources of pollution emanating from Forest lands. The most common reason for impairment for listed streams on the Forest is metals pollution, often a legacy of historic mining on the Clear Creek and Boulder Ranger Districts. While the Forest continues efforts to rehabilitate abandoned mine sites and reduce pollution on National Forest System lands, many old mines

that serve as pollutant sources are located on patented mining claims, private lands that are inholdings within the Forests. While abandoned mines on Forest lands certainly contribute to metals loading in impaired streams, and reclamation of these mines reduces metals pollution, it is unlikely that the ARP efforts alone will be sufficient to reduce pollution to levels that would cause streams to be de-listed, particularly in watersheds with high concentrations of historic mining activity.

Various abandoned mine reclamation projects were completed in 2011. Several safety closure and waste removal was accomplished across the forest. Projects on the Boulder and Clear Creek Ranger District not only removed access to physical safety hazards but also addressed water quality issues to improve important watersheds for local, downstream communities.

Vegetation: High Fire Hazard	Has the Forest made progress toward reducing the number of high fire hazard, high value, and high and moderate risk acres? How was this accomplished? What was the most effective method? (Biodiversity; Vegetation - Objective #11)

The objective is to reduce the number of high risk/high value, and high and moderate risk acres by 2,000 to 7,000 forested acres annually using mechanical and prescribed fire treatments.

The annual average accomplishment for the 14 years of the Forest Plan is almost 7,000 acres/year and falls within the Forest Plan stated objective. Since 2003 with the development of the Front Range Fuels Treatment Partnership hazardous fuels reduction has averaged over 10,000 high fire hazard acres per year. In FY 2011 almost 13,858 acres were treated on the ARNF.

Priority Management Emphasis: Human Uses

Wilderness	Is the Forest making progress toward providing designated wilderness campsites where resource impacts from users are evident? (Human Uses - Objective 2)

The Forest hasn't added designated wilderness campsites since they were established in the Indian Peaks Wilderness Area in the mid-1980's, and in the Comanche Peak Wilderness Area in 1996. However, the Forest funded an effort in the summer of 2009 to use a National Wilderness Area rapid assessment campsite inventory process to meet the Chief's Wilderness Challenge Element #6.

Developed Recreation	Has the Forest made progress toward providing a mix of facility reconstruction, expansion, and, when possible, new developments consistent with future use projections? Has this been done to assure quality developed recreational opportunities? (Human Uses, Developed Recreation - Objective #4)

Progress has been made. Within the past fourteen years, the following campgrounds were reconstructed: Ansel Watrous, Narrows, West Lake, Sunset (conversion from day use area), Willow Creek, Stillwater, and Dowdy Lake Campground. Many other individual campsites were brought into standard for disabled accessibility and several developed campsites were reconstructed using Granger-Thye collections. Many other items were replaced, repaired, or installed such as water and electric lines, new pumps and chlorinator facilities, new picnic tables and fire rings, and some bear resistant food boxes and dumpsters. New tent pad areas were delineated with timbered borders and trails in a few developed campgrounds

were hardened. Also, as noted earlier, new developed site construction contracts were started in 2010 and completed in 2011at Rainbow Lakes Campground (CG), Brainard Lakes Portal and Sourdough Trailhead (TH). New TH construction was initiated in FY11 at Pawnee CG and Brainard Lake Day Use Area.

The ARP toilet replacement contract has contributed to at least sixteen new toilets across the Forest. Within the past few years the Sunset Boat Ramp and parking facility were reconstructed and the boat ramp was extended twice and a sailboat "gin" pole was installed at the Stillwater Boat Ramp. A new kiosk was installed on Mt. Evans and the Dos Chappell Interpretive Nature Center building was constructed and opened at the Mt. Goliath Natural Area along the Mt. Evans Scenic Byway. Additionally, the Berthoud Pass Trailhead development and construction project was largely completed in 2010, with minor site rehabilitation work still needed. Survey and design work were completed in FY11 for Mitchell Lake Trailhead and Niwot Picnic Area toilets in the Brainard Lake Recreation Area.

Within the past several years, West Branch, Rawah, Hewlett Gulch and Lower Maxwell Falls Trailheads were rebuilt. A bridge replacement was installed at Buffalo Creek. The Waldrop Trail bridge in the Brainard Lake Area was reconstructed. A new trail bridge designed for four-wheel drive vehicles on Trail Creek Trail, a new bridge on Sunken Bridges Trail, and a new bridge on the Bakerville-Loveland Trail were installed. Twenty-four miles of new Continental Divide Trail, one mile of new trail on the Grays and Torreys Peaks trail were constructed and a rerouted trail on the Chicago Lakes Trail was completed. Over the past few years, roadside recreation/travel management kiosks were installed at Stillwater East, Stillwater West, North Supply, Cabin Creek, Young's Gulch and Herman Gulch. In FY11 a trail bridge was completed on the High Lonesome Trail and turnpikes were constructed on both the Flume Trail and the Blizzard Pass Trail.

The ARP Recreation Facility Analysis, part of a national process, was completed in FY 2008, identifying and stratifying top recreation facilities eligible for Recreation Site Improvement (RSI) funding to maintain and improve key sites, and to identify what level of deferred maintenance exists across all ARP recreation facilities and describe which facilities are potentially not essential to maintain into the future.

In FY 2009, the ARP completed an assessment of effects to implement proposals for major facility replacements (toilets, etc.) across the Forests and Grassland via funding from RSI and American Recovery and Reinvestment Act (ARRA) programs. A Decision to move ahead on major facility replacement, based on this assessment, was also completed in FY 2009. Construction on several developed site projects was initiated in FY2010 and several were completed in 2011 (discussed above).

Dispersed Recreation	Has the Forest made progress toward reconstructing or rehabilitating impacted dispersed areas and sites, providing new designated dispersed campsites consistent with future use projections? How has this been accomplished? (Human Uses, Dispersed Recreation - Objective #1, #3)

Progress has been made in dispersed recreation sites over the past few years. The Manhattan Road, Long Draw and Lost Lake areas (on the Canyon Lakes Ranger District) have designated-dispersed campsites. Toilets have been installed in the Stillwater backcountry dispersed camping area and at many trailheads across the ARP to reduce human waste issues in these areas.

Restrictions have been established to prohibit shooting and/or overnight use in the Buckhorn Area of the Canyon Lakes Ranger District; Brainard Lake Recreation Area, Left Hand Canyon, Lefthand OHV Area, and South Saint Vrain Canyon of the Boulder Ranger District; the Mt. Evans Road corridor, Barbour

Forks area and the Fourth of July Road corridor on the Clear Creek Ranger District. Two developed shooting area proposals were initiated in FY11. One on the Boulder Ranger District fo the Allenspark Area and one on the Pawnee National Grasslands.

Several annual Lefthand Canyon cleanups have been instituted to remove debris and rehabilitate this heavily impacted dispersed area. There have also been shoreline cleanup projects at Lake Granby and Shadow Mountain Reservoir. Buck-and-rail fences were installed around several dispersed campsites in the Stillwater area of the Sulphur Ranger District to prevent campers and OHV riders from traveling beyond the designated dispersed campsite boundary.

Additionally in 2005, the Boulder Ranger District completed the Brainard Lake Recreation Management Plan and Environmental Assessment for Brainard Lake Recreation Projects. Implementation design began in 2006, continued into 2010 and several components were completed in 2011.

Visitor Satisfaction	Have the Forest and Grassland made progress toward providing satisfactory recreational experiences to visitors? (Human Uses, Visitor Satisfaction - Objective # 5)

The ARP strives to provide satisfying recreation experiences to our visitors. The Mt. Evans Recreation Area has provided the public with a substantially enhanced recreation experience. The additional funding enabled by the standard amenity recreation fees via the Federal Lands Recreation Enhancement Act of 2004 (REA) has provided for: toilets cleaned to high standards and at greater frequencies; interpretive programs and Forest Service interpreters to lead them; roving patrols to provide visitors with information, comfort, safety and security; new and improved signage; a new interpretive and nature center at Mt. Goliath; and other facilities maintained to high standards.

Within the Arapaho National Recreation Area, standard amenity fees have provided increased service patrols, interpretive day events for first and fifth graders, boat safety patrols on Lake Granby and Shadow Mountain Lake, cleaned and maintained toilets and trash service in the ANRA picnic areas, and law enforcement patrol in the ANRA for enhanced visitor safety and security. The Christmas Tree special recreation permits at Clear Creek, Sulphur, and Canyon Lakes Ranger Districts provides for substantial information and educational opportunities, technical assistance, safety and security, and overall interaction and good will with the public.

More and better interpretive signs and information has increased visitor satisfaction. New signs on Guanella Pass Scenic Byway, a new trailhead, restroom/warming hut, parking and interpretive plaza at Berthoud Pass, and three interpretive signs at the Lake Granby Overlook of the Colorado River Headwaters Scenic Byway were constructed within the past few years. At the Clear Creek Ranger District's Visitor center a new interpretive kiosk was recently built. New wildlife mounts and natural wood furniture for the Sulphur Ranger District visitor center have enhanced the visitor's experience. The Boulder Ranger District Visitor Center has also seen improvement with additional available maps, furniture and information racks. A substantial visitor center was designed and constructed for the Forest Supervisor's Office and the Canyon Lakes Ranger District's new office building. Interpretive displays for recreation trip planning and outdoor safety were created as were maps and displays regarding basic location and orientation.

The Front Range Sport Shooting Partnership was established in 2007. This Partnership with the ARP as a founding member, has a mission to develop and expand a framework of cooperation among federal, state, and local partners to enhance shooting sports opportunities in a safe and environmentally sound way along the Front Range of Colorado.

Hundreds of recreation special-use permits are issued to providers who serve the public and provide recreation experiences via outfitter/guides, marinas, ski areas, boat docks, recreation events, recreation residences, and many others. Also, the Forest Campground Concession Permit provides for concession-managed developed campground (and some picnic areas) operations, maintenance, host staffing, and interpretive programs.

Roads and trails, signs, information bulletin boards, toilets at trailheads, facilities, dispersed camping areas, day use areas, historic and prehistoric sites, paleontological sites and other areas are maintained on the ARP for enhanced public recreation experiences.

The ARP also provides random interpretive programs in the field and sessions at schools, visitor contacts at district VIS centers and in the field and interpretive signage for our kiosks and bulletin boards. In addition, the ARP has invested in upgrading and hiring visitor services personnel to increase service to the public.

Finally, the 2010 National Visitor Use Monitoring survey estimates approximately 5.4 million annual visits to the ARP, and relatively few complaints occur each year. The overall finding is that the ARP is far exceeding our 70% satisfactory recreation experience objective in the Forest Plan as shown in the following NVUM data: Developed Facilities (83%); Access (87%); Services (81%); and Security (94%).

Priority Management Emphasis: Land Uses and Ownership

Boundary Mgt., Access and Land Ownership Adjustments	Has the Forest made progress toward improving boundary management, access, and land ownership adjustments to protect and enhance Forest and Grassland resources and to increase management efficiencies? Which approaches have been effective? (Land Uses & Ownership, Boundary Mgt., etc. - Objective #1, #2)

Identification of boundary lines has averaged almost 56 miles per year over the last five years. For the past 3 years the ARP has met or exceeded the Forest Plan range objectives of 50 miles/year. With the increased population and the demands for recreation, the ARP is experiencing dramatic increases in use which causes increasing problems of trespass, encroachment, and loss of access by the public. However, the boundary management program emphasis has shifted to support the hazardous fuels reduction program, and impacts caused by the mountain pine beetle epidemic. Boundary location work is now performed by a mix of service contracts, force account and through agreements with the Bureau of Land Management. The ARP program is managed by a Forest land surveyor whose accomplishments have exceeded the maximum Forest Plan objective for identifying boundary line by an average of 14 percent.

In most cases, land adjustments are multi-year projects. Progress has been made toward Forest Plan Objectives though land adjustment cases can be dropped or frequently changed because of changing land values, indecision, delays in finalizing the environmental analysis (NEPA), changed proposals, and the changing economic climate. With the emphasis on the fuels reduction program, funding to process complex encroachments is not available. However, easy to resolve encroachments, such as fences, are being removed in conjunction with the fuels projects.

Case Backlog for SUPs, ROW Grants and Land Ownership Adjustments	Have the Forest and Grassland made progress toward improving customer services to reduce the number of backlogged cases for special-use permits, rights-of-way grants, and landownership adjustments? How has this been accomplished? (Land Uses & Ownership, Special Use Permits (SUPs), Right-of-way (ROW) Grants & Landownership Adjustments - Objective #2)

More progress has been made to reduce the special uses backlog in 2011. The number of permits processed and targets accomplished exceeded those of all past years. These accomplishments were due to focus group and the lands team efforts and the use of 'batching' applications for efficiency. In addition all vacancies in the lands group are now filled and fully operational.

Permit Review, Cost Recovery	Have the Forest and Grassland made progress toward working with potential permittees to insure that benefiting parties assume the costs of permit review and administration? How has this been accomplished? (Land Uses & Ownership, Permit Review - Goal #2)

Cost recovery was implemented nationally in FY 06 and is now fully implemented. The ARP continues to collect approximately $5000 to $15,000 per year in categories 1-4 (smaller proposals) and $50,000-$80,000 in categories 5-6 (major projects).

Stakeholder and Public Involvement

Public Involvement	How and to what extent have the public and stakeholders been involved in assisting implementation, monitoring and evaluation of the Forest Plan?

In recreation, stakeholders have primarily been involved in the implementation of trail maintenance, noxious weed removal, and information and education work across the Forest. Many volunteer groups contact visitors, patrol wildernesses and summer/winter trails, restore watersheds, improve stream habitat, and record specific data for monitoring purposes.

All the Ranger Districts have environmental education programs including presentations to schools. In 2008 the Recreation Program manager worked with Fort Collins Natural Areas Program and Poudre School District representatives to apply for and secure a "More Kids in the Woods" grant to help improve the Poudre School District's 6th Grade Eco-Week program, which continued through FY2010. Information, education and interpretation programs continued in 2011 in key campgrounds, at Mount Evans, at the Monarch Lake Environmental Education Day Program, and at all visitor information services at each Ranger District.

Before any ground-disturbing project can be implemented, NEPA requires analysis of effects on our natural/human environment, and it also requires full involvement by the public during the analysis and decision process. The ARP has over 100 proposed projects that are in the analysis/decision process at any one time. The public is given all opportunities to get involved. The ARP's Schedule of Proposed Actions (SOPA) lists these proposed projects and provides a contact person for the project. Our publics get involved at that point or later as public notices, newspaper articles, or a direct mailing let them know about the project. This public involvement can include field trips, public meetings, comment periods, and

various other methods. After the project has been approved and implemented, many of the Ranger Districts hold public field trips to review implementation of the project.

Implementing new or updated allotment management plans (AMPs) in order to meet or continue to move toward desired vegetative conditions, including plant composition and vegetation structure guidelines, are important components of the rangeland management program.

A national MOU exists between the Public Lands Council (PLC) and the Forest Service (an identical one with the BLM) for cooperative rangeland monitoring with grazing permittees. The number of grazing permittees who are assisting in collection of allotment monitoring data is increasing each year. Cooperative Extension Service personnel from Colorado State University as well as Agricultural Research Service (ARS) personnel from the Central Plains Experimental Range are actively involved in conducting training and working with producers.

The Colorado Cattlemen's Association has been instrumental in urging their members to be involved in allotment monitoring efforts and in training and coordination efforts with Forest Service permittees. CCA completed a signed MOU with the Forest Service in 2011, and they have begun conducting a number of training sessions around the state on cooperative monitoring, including one in Greeley last summer. In addition, the Crow Valley Livestock Cooperative (CVLC) and the Pawnee Cooperative Grazing Association (PCGA) on the Grassland have been heavily involved through their Boards of Directors in training their members and collecting monitoring data on the allotments they jointly administer with the Forest Service.

Emerging Issues	Have changes in agency management activities resulted in unforseen issues that the ARNF and PNG need to address? How were needed changes determined and what recommendations or solutions did the public [or ARP personnel] offer?

RECREATION

Ongoing or Emerging Issues

- The "300 foot rule" previously allowed motorized use 300 feet off any designated Forest Road for dispersed camping and other recreational purposes. Some forest visitors had been extending unauthorized roads beyond the 300-foot limit causing a cumulative impact of additional unauthorized road miles where none were planned. This created sanitation and erosion problems and also created confusion resulting in users not knowing where the travel route legally ends. In addition, enforcement is currently based on adequate road and trail signing in the field and has not proven effective to stop motorized incursions into the National Forest System lands because signs are easily damaged or entirely removed. The national Motor Vehicle Use Maps (MVUM), have since been completed and should substantially help to direct visitors to the designated, legal system of motorized roads and trails and minimize any confusion regarding Forest Service system motorized roads and trails.
- Renewed emphasis in inventory and data management (INFRA database) of Developed Recreation Sites, Trails, as well as real property inventories for all Recreation Facility assets has created a higher than expected workload and cost to the agency, both in terms of dollars and opportunity cost of not doing other necessary work. However the benefit is timely, accurate data is needed for better managing all forest recreation facilities and stewardship assets. Condition surveys and real property assessments continued through FY11.

- Prior to December 8, 2004, the Recreation Fee Demo (RFD) program brought some positive effects to the public but it also created some negative issues. Since the Federal Lands Recreation Enhancement Act of 2004 (REA), a small but very vocal segment of the public has used the REA fee authority as a poster child for protesting fees, government management authority over public lands, taxes, and general fairness issues. Since 2008 and continuing through 2011, the Forest Service has been involved in an ongoing lawsuit over Forest Service implementation of REA at Mt. Evans. On July 22, 2010, the U.S. District Court of Colorado found that the Forest Service did not exceed their statutory authority and ruled in favor of the Forest Service on all claims in the case. The case was subsequently appealed and the Court found in favor of the Forest Service.
- The Forest Service commitments made through Memorandum of Understanding (MOU) with groups like the Continental Divide Trail Alliance and the Colorado Fourteeners Initiative can establish partner expectations for funding, planning, and project implementation that the ARP may or may not be capable of upholding. Certain negotiation aspects are outside local control and we are faced with timing issues, funding issues and issues of other higher priority work which often conflict with partner expectations. Even at local Ranger Districts the issue of outside partner or user group expectations of Forest Service ability to respond to their needs and of other higher priority work is often misunderstood or not realized. Regular review of Forest and District work priorities and capability should help to focus workload and deflect unrealistic expectations by the public even though the ARP's success in attracting and managing volunteers was a successful component of the ARP Recreation Program in FY11.
- Costs of providing safe drinking water that meets State standards and regulations are rising sharply. Microscopic Particulate Analysis (MPA) testing for all water systems is now on a 3- year cycle and costs between $1,500-$2,000 for each test. Some campgrounds and picnic areas do not collect enough revenue to offset these costs and must be covered by appropriated funding sources. Some campgrounds do not have the size or season length to justify the cost of continuing to provide safe drinking water at those sites. Taking the next step of decommissioning some drinking water systems at some low use sites is an important consideration for future management of these recreation facilities. In several cases, it is far cheaper and safer to identify a site as a dry, pack-in personal water needs site than to continue to bear the costs of routing water testing, pump and waterline replacements, chlorination, and run the risk of bad water potentially being served to the public. Cost benefit assessments should be an ongoing process for some questionable sites.
- Carrying capacity determinations for specified recreation areas that are undergoing planning processes are needed to help plan for existing and future human use, especially where there is demand for outfitter and guide services. On September 17, 2008, final directives were published for Outfitting and Guiding on National Forest System Lands. September 17, 2009 was the date that holders of temporary permits for Outfitter/Guide (O/G) services could request reclassification to transitional priority use. Assessment of need for certain O/G services, delineation of geographic areas into compartments, review of existing permitted use by compartment and assessment of carrying capacity in key compartment areas is work that continued throughout 2011.
- Recreation use in the urban front country is increasing, as are the corresponding impacts and conflicts between users. Urban front country areas need to be assessed for their capacity to provide specified recreational experiences in certain areas and not to provide certain recreation experiences in others. This assessment should then lead to management changes on the ground in the future. This process was initiated in 2007 with the establishment of a Forest Niche statement and description as part of the Rec. Facility Assessment process. This process has been used in some recreation planning efforts but not consistently. This information needs to be updated and used for all future recreation planning work.
- Epidemic conditions of the mountain pine beetle (MPB) have created very dire conditions in many of our developed site campgrounds and picnic areas. In 2008, the ARP Recreation Program

Manager was part of a Region 2 Team to assess impacts of the MPB on developed recreation sites, dispersed and wilderness areas, trails, and special use sites like Ski Areas and Recreation Residences on the Arapaho-Roosevelt National Forests, White River National Forest, and Pike-San Isabel National Forests. The team made recommendations for consistent approach to hazard tree definition, identification and process for mitigation of such widespread impacts in these specified recreation areas. In FY09 the ARP estimated miles of roads and trails and acres of recreation developed sites affected by hazard trees killed by the Mountain Pine Beetle, and the costs associated with mitigating those hazards. Those estimates were used to create a new emphasis and preliminary regional budget structure for FY10. In FY10 and FY11, the ARP used bark beetle funding to extensively mitigate hazard trees in developed recreation sites and along key roads and trails.

Recommendations

- The "300 foot rule" stated on the Forest Map has been incorporated into the 2005 Travel Rule, however, the ARP needs to do site-specific decisions in areas of concentrated dispersed use.
- Some travel management planning and decision-making occurred as the ARP Districts created their Motorized Vehicle Use Maps.
- Additional Wilderness management elements need to be attained as well as additional Wilderness areas managed to standard.
- Special-use permits need to be administered to minimum standards, and more need to be administered fully.
- INFRA databases for Wilderness, Developed Recreation and Trails should be fully populated and operating at a functional level. INFRA for General Forest Areas will most likely be in some phase of implementation.
- More "field presence" is needed to educate the public and enforce regulations. The Forest Service "field presence" personnel should have training to be certified as Forest Protection Officers.
- The James Peak Wilderness (JPW)issues and obligations need to be met. The JPW needs a management plan to focus efforts and establish specific standards and guidelines.
- Consider converting some small campgrounds and day-use areas to dry-sites (no developed water system) as circumstances allow and follow through on ARP Recreation Facility Analysis recommendations for decommissioning of certain developed recreation sites.
- Plan to address carrying capacity as part of management planning and/or environmental analysis for recreation areas undergoing some kind of existing planning process or potential planning based on need or demand.
- Assess ARP urban front country areas for their capacity to provide specified recreational experiences and determine what experiences are better provided in other locations on the ARP or on other lands.
- Increase protection measures for existing stands of healthy trees in our developed sites and begin vegetation management planning for eventual stand vegetation replacement and in some cases, catastrophic vegetation loss replacement.

TRAVEL MANAGEMENT

Ongoing or Emerging Issues

- The cost and time to complete travel management planning is higher than expected. This is due to the high levels of public interest and opposing viewpoints on what type and how much of a travel

system is needed to serve public and administrative needs. Concern is developing about meeting Forest Plan objectives due to higher planning costs and having to "re-close" previously closed roads and trails. The increasing cost of managing and supporting the hazardous fuels treatment program has diverted funding from on-the-ground transportation system improvement, maintenance and decommissioning.

- At times new travel routes are being established through "social" use and illegal travel activities. In some instances, users are constructing trails and then coming to the forest and asking that the forest add the new trails to our "system" and demanding that we maintain the trails. Many times, these requests are the first we know of the "new" facilities. Some liability issues could be associated with these new, illegal facilities.
- Upkeep of transportation system inventory information, including needed, planned and accomplished annual and deferred maintenance will require more time and effort.
- The Forest Service published the Travel Rule in November, 2005. This rule directs that motorized use will be allowed only on designated forest system roads or trails on all National Forest lands as shown on published Motor Vehicle Use Maps for each Ranger District. Keeping the Access and Travel Management (ATM) database up-to-date is an ongoing challenge and updating Road Management Objectives (RMO's) and Trail Management Objectives (TMO's) is also important but often of lesser priority because of other more impending needed workload, especially at the Ranger Districts.
- The mountain pine beetle epidemic and related lodgepole pine mortality is creating an extensive need for hazard tree removal along key roads and trails on all Ranger Districts.

Recommendations

- Continue to make the implementation of the Travel Rule an ARP priority.
- Continue to follow the Travel Analysis Process (TAP) for travel management recommendations.
- Continue to improve relationships with volunteer groups and aggressively seek out challenge cost share projects.
- Continue to sign roads and trails for the types of uses allowed.
- Minimize illegal use through expanded law enforcement and field presence. There is a need for aggressive law enforcement and follow up on the districts where the transportation system is being actively signed and managed and where MVUM's have been published.
- Work with the public and adjacent landowners to inform them of Arapaho and Roosevelt National Forests and Pawnee National Grassland travel regulations.
- Establish a method to more adequately plan and track accomplishments and utilization of funds allocated for "ongoing" activities.
- The Forest and Grassland should make a commitment to transportation planning and facilitate its completion. On an ARP-wide basis, prioritize the areas where the ARP will address travel management in association with landscape analysis or on broad project areas. Incorporate travel management planning and the TAP process with other area or project level assessments and analyses for best efficiency. Proceed with planning and implementation based on those priorities.
- Evaluate Human Uses Objective #6 (Forest Plan, p. 8) for applicability to present National Policy and the transportation needs of the Forest and Grassland. National policy leans more toward decommissioning unauthorized roads than converting them to authorized roads. Decisions should be based on sound TAP procedures.
- Evaluate Human Use Objective #9 (Forest Plan, p. 8) for applicability to present National Policy and the transportation needs of the Forest and Grassland. National Policy leans more toward reconstructing and maintaining our existing transportation system. Most of the areas of the Forest

and Grassland in need of open road access already have that access. Decisions should be based on sound TAP procedures.

- Revise Objective output measures to match those of Road Accomplishment Report and INFRA so reportable objective accomplishments and annual accomplishments are measuring the same thing. This will also make monitoring and evaluation reporting easier.
- Assess hazard tree removal along roadsides and develop a plan to address vegetation management treatments.

WILDFIRE/HAZARDOUS FUELS TREATMENT

Ongoing and Emerging Issues

- There are many management issues related to the interweaving of public land and private property. This public land/private property intermixing is commonly known as the Wildland-Urban Interface (WUI). One of the most public issues is the danger of wildfires. Since 2000, four of the largest wildfires for recorded ARP wildfire history have occurred. The sizes of these fires can be related to the severe drought at that time and the increased build-up of dead, woody material (hazardous fuels) in the forested ecosystems. The high loss of personal property is due to the increasing inroads into these forested environments by private landowners and mountain communities.
- The mountain pine beetle epidemic and related lodgepole pine mortality is creating an extensive need for hazardous fuels treatment on all mountain Ranger Districts. Forest Supervisor's hazardous fuels treatment emphasis items include 1) scale of treatments (landscape versus defensible space), 2) watershed versus site specific, and 3) transmission line and infrastructure protection.

Recommendations

- Congress has recognized this problem through increased funding and the ARP's hazardous fuels treatment program has expanded with the objective of reducing hazardous fuels; in the WUI, around domestic water supplies and watersheds, and to protect threatened and endangered wildlife/plant species. The ARP should continue all efforts to work with our neighbors (private property owners and public agencies) towards achieving reductions of hazardous fuels. Emphasis on the National Forest Plan and the Front Range Fuels Treatment Partnership should continue.
- Assess increasing amounts of hazardous fuels and emphasis items while developing plans to address fuels and vegetation management needs.

SCENERY RESOURCE

Emerging Issues

- There were no unforeseen issues which emerged as a result of project implementation or changes in agency management during FY 2011. Issues pertinent to scenery resource management were foreseen and are related to ongoing agency management (e.g. vegetation management treatments targeting the mountain pine beetle infestation). Looking toward the next fiscal year, issues may arise as the Forest contemplates utilizing tools such as higher intensity and larger scale prescribed burning in mountain pine beetle-killed areas of the forest and as hazard tree removal projects planned for roads, trails, developed recreation sites, and power lines are implemented.

WATERSHED

Ongoing and Emerging Issues

- Meeting the needs for instream flows on streams in the ARNF continues to be an issue. Increased interest in additional water development in response to the expanding urban and intermix populations and the potential for drought, have the potential to push this issue to the forefront. There are currently three proposals to increase storage and/or diversion capacity for existing projects under environmental review that are likely to affect the Forest; Seaman Reservoir expansion, Windy Gap Firming, and Gross Reservoir expansion.
- Off-highway vehicle and mountain bike use continue to increase. Unauthorized travel is a continuing source of watershed damage that continues to grow. Recreational use of designated roads and trails increases the controversy of travel management and can limit our ability to decommission and obliterate roads and trails for resource protection and recovery.
- The anticipated continuing increase in land area treated to reduce fuels and to treat mountain pine beetle killed trees could lead to cumulative watershed impacts. The cumulative impact could increase as treated areas are retreated in the future to maintain acceptable fuels profiles.

Recommendations

- Continue to seek innovative methods of providing for municipal and agricultural water supply while fulfilling our responsibility to provide for streamflow for ARP uses and purposes.
- Explore ways to provide for desirable OHV recreational experiences while protecting resources. Determine whether developed OHV trail systems such as the Stillwater OHV area have applicability elsewhere on the ARP.
- Focus implementation on identifying and completing sufficient watershed improvement within priority watersheds so that improvement in watershed condition can be demonstrated.

SOILS

Ongoing or Emerging Issues

- Monitoring indicated that occasionally design criteria and relevant/recommended watershed conservation practices were not applied in some activity areas. When these are discovered, actions are taken to mitigate effects and to prevent future occurences.
- Accumulation of high soil burn severity effects and noxious weed establishment is an ongoing issue on some activity areas, particularly where burn-pile density is high.
- Monitoring indicates operation of heavy equipment involving multiple passes and turns off designated skid trails has created excessive soil disturbance in some activity areas.
- Chipping and masticating activities are creating heavy fuel loadings in some activity areas with unknown long-term ecological consequences
- Progression of the Mountain Pine Beetle pandemic, accumulation of dead and/or downed fuels and associated risk of high soil burn severity impacts if/when future wildfire occur

Recommendations

- Continue to use the Soil Disturbance Classification Protocol, first applied on the ARP in 2008, for soil quality monitoring
- Continue to work with Recreation Specilaists, Marking Crews, Silviculturists, Engineers, and CORs on soil/water resource issues and solutions

- Continue to partner with Rocky Mountain Research Station (RMRS) and local universities to develop and implement research projects relevant to ongoing and emerging issues
- Continue to restore watershed conditions by re-contouring and de-compacting heavily impacted areas

AIR

Ongoing or Emerging Issues

- High concentrations of ozone that continue to occur frequently in the summer months could potentially be affecting human well-being and ecosystems on the Arapaho and Roosevelt National Forests. Currently, parts of the Front Range Air-shed exceed public health standards for ozone.
- Nitrogen deposition due to off-forest, anthropogenic emissions might be detrimentally affecting higher elevation ecosystems.
- Increased smoke emissions from prescribed and wildfire could affect sensitive receptors and Class 1 areas on and off the ARP.

Recommendations

- Continue lake, snow and ozone sampling programs
- Continue to work with the Forest Service ARP, Regional, Washington Office and RMRS Personnel to identify and quantify air quality issues and impacts on the ARP (particularly Wilderness Areas, Class I Airsheds, and human health)
- Continue to work with other agencies such as Rocky Mountain National Park and Agricultural Research Service to identify air quality issues and impacts on the ARP
- Continue to implement prescribed fire in compliance with permits issued by the State of Colorado
- Continue to participate in the Prevention of Significant Deterioration (PSD) Program to lower risk of air quality impacts from off forest sources within Front Range, Granby and Medicine Bow Air-sheds
- Update the ARP Air Quality Monitoring Plan to achieve objectives of "Air Element 3" in the 10 Year Wilderness Challenge

WILDLIFE/BOTANY/FISH

Mountain Pine Beetle Epidemic Ongoing Issues On Wildlife And Habitats.

- Loss of mature habitat/old growth will affect wildlife that depend on this type of habitat
- Increased fire danger/wind damage could change wildlife habitat
- Increase in snags/early successional stages affects different wildlife and their habitats. Some wildlife species will be benefited while others will be negatively affected.

Old Growth Emerging Issues

- Given the on-going loss of old growth lodgepole pine and potentially low elevation old growth pondersosa pine and Douglas fir, due to MPB, there may be a need to re-evaluate all of our existing and future old growth designations and management.

Aquatic Nuisance Species Emerging Issue

- Although quagga mussel larvae were detected in the three lakes system on the Sulphur Ranger District, rigorous testing has not detected a single adult, juvenile, or larva in the past three years. These are non-native mussels that have spread throughout the country. These organisms have caused large-scale ecological and economic problems in lakes and rivers in the midwest, the southwest, and even in some portions of Colorado. Due to the level of recreational boating on this lake system and its waters run into both the South Platte and Colorado Rivers, risks of introducing quagga mussels remains quite high.

Aquatic Nuisance Species Recommendations

- We are committed to working cooperatively with the Colorado Division of Wildlife and other partners to limit the potential for spread of these aquatic nuisance species. A new challenge cost-share agreement was made in 2010 to assist CDOW in managing boat inspection and cleaning stations. Work continued on limiting the spread of these nuisance species in 2011.

Greenback Cutthroat Trout Genetics Emerging Issue

- Recent advances in genetic testing have created uncertainty in the purity of some populations of greenback cutthroat trout. Reconsideration of the purity of several populations on the ARP is underway and genetic testing of known populations on the forest continues. The ARP continues to work with the Recovery team to understand the issue of genetic purity and to make appropriate decisions regarding the management and protection of these populations.
- Long awaited results from a genetic study of historic museum specimens and morphometric analysis is expected to be published within the next year.

Noxious Weeds Ongoing or Emerging Issues

- Funding has been flat in recent years for the Forest-wide noxious weed program, and outside funding sources are being increasingly relied upon. As a result, desired program targets are compromised. Additionally, inventory and treatment monitoring program components are minimal. Capacity for desired program accomplishments is expected to remain at decreased levels commensurate with reduced budget. Although heavily constrained in 2011, the Forest was able to exceed its target in weed treatment by use of outside funds and collaboration by counties.

Fen Ongoing or Emerging Issues

- Fens, which are uncommon specialized wetland ecosystems often harboring rare plants, are being adversely impacted by unauthorized off-road vehicle use, or "mud bogging." Monitoring shows that one fen per year on the ARNF has been severely impacted by such use since 2003. Restoration of one fen has been attempted, but is difficult to achieve, and damage can take hundreds of years to heal. Currently, there is a lack of adequate protection or law enforcement measures to remaining sites across the ARNF. Resource damage to fens are expected to increase.

RANGELAND MANAGEMENT

Ongoing or Emerging Issues

- Dealing with the severe and extended drought of the last decade in Colorado, as well as much of the West, continues to occupy a substantial portion of available time for rangeland managers; this includes planning for coming out of drought periods to allow the land, water, and vegetation

resources to recover. Drought strategies have been developed and continue to be implemented and monitored. Producers have been responsive in implementing voluntary reductions and restrictions to be flexible with annual changes in climatic patterns, the forage responses that result, and the need to properly manage rangelands affected by constantly changing conditions.

- The allotment planning schedule has been completed for all allotments on the Forest/Grassland within the established 1996-2010 timeframe. AMPs are prepared or revised as needed in order to implement the allotment planning decisions and to continue to meet or move toward desired vegetative conditions. Allotments are now beginning a ten-year schedule of determining if the NEPA for each of them remains current and sufficient.

- There will be extensive changes to rangeland vegetation, livestock grazing patterns, permittee management and practices, and allotments and allotment infrastructure as a result of the bark beetle infestations and resultant tree mortality and deadfall (this is specific to lodgepole pine stands at this point in time, but ponderosa pine and limber pine stands are now being attacked as well) on the Forest.

  Probable changes/impacts to infrastructure (fences, water sources, access):
  - Trees falling on fences will make many of them useless in livestock control.
  - Removal of wire from fences flattened or buried from jack-straw timber will be difficult or impossible. This may create a future safety hazard.
  - Probable difficulty in accessing some water, dams, and spring developments.
  - Access roads and trails become impassable; safety is a continual concern.
  - Existing cattleguards in road prisms may not be stout enough or wide enough to allow log truck passage. "Side-fence" gates may not be suitable either.

  Probable changes/impacts to livestock management and permittee operations:
  - Routes for permittee management and livestock movement are going to change, sometimes continually – for access, for improvement maintenance, to reach feed and water, for salting, for livestock movements between pastures.
  - How grazing permittees prefer to manage – whether by horse or ATV – may radically change. Livestock husbandry practices may have to be altered.
  - Stocking rates and seasons of use are apt to change dramatically – up or down.
  - Cattle are going to go lots of places they've not gone before – fences no longer work, stands of timber or downed timber may be less effective or more effective barriers.
  - Increased cases of unauthorized use ("trespass") from private lands as well as permitted livestock moving onto adjacent private lands. Few people will be happy. Rangeland managers will be forced to increase their "quasi-LEO roles."
  - Changed grazing use patterns may change fire behavior patterns or severity.

  Probable changes/impacts to rangeland vegetation:
  - There will be a substantial increase in transitory forage – both in number of acres and in forage production per acre.
  - Cattle may not be able to access increased transitory forage, or even traditional use areas; in other cases, they may be able to reach extensive areas previously not accessible.
  - Wholly different utilization patterns – and perhaps levels – can be expected.

Conclusions:

Infrastructure (fences, water sources, access):

- There is **no** pot of money big enough to reconstruct all the FS-owned fences.
- Private landowners and permittees – inside and adjacent – will likewise be unable to fully fund costs of replacement fencing.

Livestock management and permittee operations:

- "Allotments" as they historically or currently are located and managed will cease to exist – or may be radically altered in shape, size, and management ability.
- All parties will need to adjust and be extremely flexible in management changes on the ground – permittees, rangeland managers, IDT specialists, line officers, advocacy groups (both commodity and amenity), and elected representatives.
- Livestock management issues and complexity will intensify for Line Officers.

Rangeland vegetation:

- "Capable" and "suitable" lands may change radically in some allotments.
- Seral stages and species composition on rangelands may change substantially, and may no longer meet Goals and Objectives as a result of natural processes.

Recommendations

- The situations will take many years to resolve. Flexibility, patience, and common sense will be required from all employees, IDT specialists, and Line Officers (also permittees and other interested parties).
- Seek out any and all avenues for communication, cooperation, and funding.
- Inform permittees that they need to ask – and receive – permission in advance for such issues as felling trees to maintain access routes or improvements.
- Issue free-use permits to ranchers – for firewood, POL, maybe even house logs.
- Allow the use of native materials whenever possible in fence reconstruction.
- There may be a need to revisit the national policy on not cooperating in the reconstruction of fences located on proclaimed national forest boundaries.
- There may be a need to develop a modified policy on permittee non-use.

LAW ENFORCEMENT/FIELD PRESENCE

Ongoing or Emerging Issues

- Funding allows one law enforcement officer for every 700,000 acres. On average each officer covers 850 incidents per year. Many more incidents are occurring that are going unrecorded and are not prosecuted due to lack of adequate coverage.
- In the past when out in the field, Forest Service personnel would greatly supplement the law enforcement staff by monitoring regulations, talking to the public, and reporting incidents. Due to a reduction in workforce, office requirements, and a lack of Forest Protection Officer training, this important monitoring is occurring at much reduced levels. For example there is limited ability to enforce travel management direction across the ARP due to the lack of field presence (seasonal and permanent employees).

- In an era of tight budgets and personnel downsizing, there is an increased dependence on volunteers to meet program needs. While these people do an excellent job, they lack the authority to enforce regulations.

Recommendations

- Minimize illegal use through expanded law enforcement and field presence. There is a need for follow-up on the districts where the transportation system is being actively signed. The "closed unless designated open: regulation should be actively enforced.
- When out in the field Forest Service personnel need to reestablish their law enforcement responsibilities attitude such as talking to the public and recording incidents. Currently the fire organization has the person-power and can be an excellent resource for field presence by enforcing forest regulations as well as fire regulations. Taking Forest Protection Officer training and carrying an incident book in their gear can accomplish this.
- There needs to be adequate funding and personnel to accomplish the lands related part of conflict free boundaries with regards to trespass, encroachment, small tracts, rights-of-way, and land exchange.

LANDS

Ongoing or Emerging Issues

- Funding issues and scheduling of specialists' time continue to be a factor in meeting Forest Plan objectives for the Lands Program.
- Cost recovery is the assessment and collection of administrative fees from applicants and holders to pay for administrative costs incurred by the Forest Service in processing an application. The fees collected are retained at the Forest level. The regulations are in place and the ARP did continue to implement cost recovery in FY 2011.
- With the increased population, the demands for recreation and quality of life, the Forests and Grassland are experiencing increasing problems of trespass, encroachment, and loss of access by the public. Increased requests for access to private land and use of NFS land are also associated with the demands.
- Boundary line surveying for fuels reduction projects has discovered encroachments on National Forest System (NFS) lands, which adds to the caseload in the Lands Program. A subdivision on the Canyon Lakes Ranger District was surveyed in 2004 revealing 12 lot encroachments. The ARP is working with the landowners towards a resolution.

Recommendations

- Surveying and location of boundary lines is only a part of the solution, there needs to be adequate funding and personnel to accomplish the lands related part of conflict free boundaries with regards to trespass, encroachment, small tracts, rights-of-way and land exchange.
- Emphasize processing Alaska National Interest Lands Conservation (ANILCA) access cases to avoid litigation.
- Discrepancies between Forest Plan objectives and outputs in S-Tables need to be resolved.
- Review the proposed outputs in Forest Plan objectives and S-Tables to ensure that the proposed outputs recognize the complexity of land ownership on the Front Range, particularly on Boulder, Canyon Lakes, and Clear Creek Ranger Districts.

- Continue to emphasize elimination of the special use and Small Tracts Act (STA) backlogs. The Forest did not meet the elimination of backlog by 2007 as stated in Table 1.7 (*Forest Plan*, p. 9).
- Gain Forest Supervisor approval to return those STA applications that do not meet the intent of the law.
- Use the 36 CFR 251 regulations and cost recovery to eliminate inappropriate proposals.
- Use the Lands Program Priorities to continue to establish a program of work for the district and supervisor offices.

MINERALS

Ongoing or Emerging Issues

- Energy continues to be a National priority. Short timelines to process oil and gas leasing nominations and applications for permit to drill may be a challenge as interest increases on the Grasslands.
- The ARP accomplished its goal to certify two mineral administrators.
- In 2010 the Supervisor's Office received applications for seismic testing for oil and gas and processed the title work required by the Bureau of Land Management in 2011.

Recommendations

- Mineral Administrator Certification: An additional District staff person is close to being certified.

HERITAGE RESOURCES

Ongoing or Emerging Issues:

- The requirements for post implementation report writing, monitoring and samples surveys outside the area of potential effect (burn units, timber harvest units, and hazardous tree removal units) are all new requirements that the Forest needs to complete in order to meet the stipulations in the Programmatic Agreement.
- Safety of employees and contractors in dead and dying tree stands, has required the modification of the "Spruce Bark Beetle and Mountain Pine Beetle Management, Hazardous Fuel Reduction and Hazard Tree Reduction" Programmatic Agreement (PA). The modifications to the PA will require additional work (i.e. project budgets, project hazard analyses) prior to field inventories. The PA will allow the Forest to complete heritage projects in lieu of survey in areas determined to be too hazardous for field inventories.
- The rapidly expanding oil and gas exploration due to the discovery of the Niobrara Shale deposits and new hydraulic fracturing extraction technology with their requests for authorizations on the Pawnee National Grassland is increasing rapidly. These requests for authorizations to explore for and extract leasable minerals often have project boundaries that extend off of National Forest System Lands. Direct, indirect and cumulative effects to cultural resources can be expected from the issuance of these authorizations. The Forest is working with the CSHPO and the Pike and San Isabelle National Forests to negotiate a programmatic agreement to streamline Section 106 of the NHPA compliance for these projects.

Recommendations

- Compliance work is currently being accomplished on most projects in a timely and legal fashion. The heritage staff is fully integrated into the NEPA process on large projects, and on smaller projects should be involved early in the planning stages.
- Continue to seek out new and effective ways (e. g., Challenge Cost Share Agreements, university partnerships, volunteers, grants) to fund heritage resource program activities in an era of flat and declining budgets.
- Provide adequate project funding to do full implementation monitoring.
- Continue to enter data into the GIS Heritage Layers and INFRA Heritage Database.

INFRASTRUCTURE

Ongoing or Emerging Issues

- Safety along travelways due to the mountain pine beetle epidemic will continue to intensify along all National Forest System Roads (NFSR) given the increasing mortality. The most impacted Districts in 2011 were the Sulphur Ranger District and the Canyon Lakes Ranger District.
- Road maintenance funding continues to be flat. The limited funding in 2011 was directed to road support for the bark beetle mitigations and the Long Term Stewardship contract. Regular maintenance activities for non-bark beetle / hazardous fuels will continue to be funded at minimal levels which will continue to add to the deferred maintenance needs for NFSR.
- Emphasis on watershed analysis and the impacts associated with travelways will lead to an increase in need for more road decommissioning. The Forest has been decommissioning authorized and unauthorized routes as funding allows.

Recommendations

- The Forest has developed priority lists for the most critical National Forest System Routes based on regional established criteria in late 2010. The ranking criteria include, but not limited to, such factors as tree mortality, maintenance level, and recreational use access. This road priority list will serve as a basis for current and future planning for the hazard tree removal along NFSR. The Forest will continue to update the road priority list as updated information becomes available.
- Continue hazard tree signage along those NFSR routes during hazard tree removal treatments to protect the public.
- Continue to prioritize road funding in support of hazard tree removal, bark beetle mitigation, and Long Term Stewardship contract.
- Decommissioning of authorized routes and unauthorized routes should continue with a desired increase as planning is completed and funding is available.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

Ongoing or Emerging Issues

- Occasionally, mitigation measures and/or design criteria agreed to and documented in NEPA decisions are not always carried through to contracts and implementation. When these are discovered, actions are taken to mitigate the effects and to avoid future occurrences.

Recommendations

- Continue communication with IDT members, marking crew, and contract administrator. Utilize a cross-walk system to insure all mitigation measures and/or design criteria are included during implementation.
- Perform field reviews during and after implementation

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Sue Struthers	Archaeologist/Heritage Resources Program Manager
Liz Moncrief	Lands/Minerals Program Manager
David Tomaschow	Forest Land Surveyor/Program Manager
Steve Popovich	Forest Botanist/Program Manager

LIST OF ACRONYMS

ADA: Americans with Disabilities Act
ANILCA: Alaska National Interest Lands Conservation
ANRA: Arapaho National Recreation Area
ARNF: Arapaho and Roosevelt National Forests
ARP: Arapaho and Roosevelt National Forests and Pawnee National Grassland
ATV: All terrain vehicle
BFES: Budget Formulation and Execution System
BLM: Bureau of Land Management
BRD: Boulder Ranger District
CCRD: Clear Creek Ranger District
CDOT: Colorado Department of Transportation
CDOW: Colorado Division of Wildlife
CFR: Code of Federal Regulations
CLG: Certified Local Government
CLRD: Canyon Lakes Ranger District
CNHP: Colorado Natural Heritage Program
CO: Colorado
DMS: Days Managed to Standard
EA: Environmental Assessment
EIS: Environmental Impact Statement
FP: Forest Plan
FPO: Forest Protection Officer
GFA: General Forest Area
GIS: Geographic Information System
IDT: Interdisciplinary Team
KV: Knutson-Vandenberg
MAR: Management Attainment Report
MIS: Management Indicator Species
MOU: Memorandum of Understanding
NEPA: National Environmental Policy Act
NFMA: National Forest Management Act
NFP: National Fire Plan
NGO: Non-Governmental Organization
NRIS: National Resource Information System
OHV: Off-highway Vehicle
PNG: Pawnee National Grassland
RAP: Roads Analysis Process
RFD: Recreation Fee Demo
RMBO: Rocky Mountain Bird Observatory
SASEM: Simple Approach to Smoke Estimation Model
SIA: Special Interest Area
SOPA: Schedule of Proposed Actions
STA: Small Tracts Act
TES: Threatened, Endangered, Sensitive Wildlife or Plant Species
VIS: Visitor Information Services