Medicine Bow National Forest
Routt National Forest

2007 Annual Monitoring And Evaluation Report

October 1, 2006 through September 30, 2007

United States Forest Service
Rocky Mountain Region

April, 2008

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Cover photo is a clump of Pink Monkey Flowers on the North Fork Little Snake River..

Certification

The Medicine Bow National Forest Land and Resource Management Plan (Medicine Bow Plan) Record of Decision (ROD) was signed on December 29, 2003. The Routt National Forest Land and Resource Management Plan (Routt Plan) Record of Decision (ROD) was signed on February 17, 1998. The Plans are dynamic documents, subject to change based on annual monitoring and evaluation as we implement them. Monitoring is intended to provide me with information necessary to determine whether the Plans are sufficient to guide management of the Medicine Bow and Routt National Forests for the subsequent year or whether modification of the Plans or if modifications of management actions are necessary.

Overall, the 2007 Monitoring and Evaluation results indicate that the management of both Forests meets goals, objectives, standards and guidelines, and management area prescriptions. I have reviewed the 2007 Annual Monitoring and Evaluation Report for the Medicine Bow and Routt National Forests that was prepared by the Forest Interdisciplinary Team (IDT). I believe that the results of monitoring and evaluation for FY07 meet the intent of Chapter 4 of the two Forest Plans. I also believe that the monitoring and evaluation requirements displayed in Chapter 4 of the Forest Plans have been met, and that the decisions made in the Forest Plans are still valid.

The Forest IDT has not identified any modifications to the Plans or adjustments to management actions, except for the Management Indicator Species (MIS) amendment. This amendment was completed in February 2007, and was identified as a need through a 2001 Forest Service Region 2 review of MIS. Additionally, two administrative corrections to the Routt Plan, described below in the *Forest Plan and Policy Updates section* were completed in 2007. The Medicine Bow Plan and Routt Plan are sufficient to continue to guide management of the Forests.

Please contact Frank Romero at the Medicine Bow-Routt National Forests, 2468 Jackson Street, Laramie, Wyoming, 82070, or call (307) 745-2300, if you have any specific concerns, questions, or comments about this report.

/s/Mary H. Peterson **04/25/2008**
MARY H. PETERSON Date
Forest Supervisor

Introduction

The Medicine Bow and Routt National Forests are managed under the administrative unit known as the Medicine Bow-Routt National Forests and Thunder Basin National Grassland extending into the states of Wyoming and Colorado. Since there are three Land and Resource Management Plans that provide guidance for the National Forest System (NFS) lands managed on this unit, we are required to prepare three annual monitoring and evaluation reports. In an effort to streamline costs for field work and report preparation and because the forested ecosystems are similar and provide for similar multiple uses, the Management Team decided to combine reporting for the Medicine Bow and Routt portions of the unit into a single annual monitoring report. This single report is intended to meet the requirements of monitoring and evaluation for the implementation of the two Forest Plans.

Beginning in the 2004 monitoring report, monitoring questions are combined from both Forests, where possible. Chapter 4 in each Forest Plan contains monitoring direction. Some of the monitoring direction is similar between Forest Plans and some is not. Over the next few years, we intend to combine direction wherever feasible.

The Medicine Bow National Forest contains 1,095,384 acres of National Forest System lands in southeast Wyoming. The Forest includes four units in three distinct mountain ranges; the Laramie Range, the Medicine Bow Mountains, and the Sierra Madre Mountains. The Continental Divide crosses the Forest for approximately 45 miles. The major river drainages are the Green River Basin that flows west into the Colorado River system and the western Dakota sub-Basin that flows into the Platte River to the east. Elevations range from 5050 feet above sea level in the Laramie Range to 12,013 feet above sea level at Medicine Bow Peak. More than 50 percent of Wyoming's population lives in the vicinity of the Forest. Timber harvest and domestic livestock grazing have been historic uses on the Forest since before the turn of the century. The Forest provides a wide variety of recreation activities, including hunting, snowmobiling, skiing, hiking and camping.

The Routt National Forest contains 1,125,568 acres of National Forest System land within northwest Colorado. In addition to the management direction for the Routt National Forest, the 1997 Routt Revised Plan contains direction for the 85,350 acres of the Arapaho National Forest administered by the Routt National Forest; as well as the 104,744 acres of the Williams Fork Area of the Arapaho National Forest, administered by the Arapaho Roosevelt National Forest. The Forest is a varied mix of high plateaus, rolling foothills, and mountains. Many of the mountains exceed 13,000 feet in elevation. The Continental Divide crosses the Forest for approximately 113 miles. Though most of the Forest can be called "remote and undeveloped", it still provides a high level of multiple use values for people, including outstanding wildlife habitat, important watersheds, valuable recreational opportunities, timber, livestock, minerals, and other natural resources.

Goals and Objectives

The first chapters of both the Medicine Bow and Routt Plans, lists the Goals and Objectives to be accomplished through National Forest management. Goals and objectives provide broad, overall direction regarding the type and amount of goods and services the National Forests provide and focus on achieving ecosystem health and ecological integrity.

In the 2003 Medicine Bow Revised Forest Plan, most of the objectives are due to be accomplished over the life of the plan, usually considered to be 15 years. However, some objectives have earlier due dates, or are annual objectives. For the objectives due by 2007 or earlier, in addition to the annual objectives, the progress made toward these objectives is listed in Appendix 1. The Routt Plan does not give timelines for the goal and objective accomplishments, so progress to date is reported for all of the Routt objectives (Appendix 2).

Goals are concise statements that describe desired conditions, and expected to be achieved sometime in the future. They are generally timeless and difficult to measure. Goals describe the ends to be achieved, rather than the means of doing so.

Objectives are concise, time-specific statements of measurable, planned steps taken to accomplish a goal. They are generally achieved by implementing a project or activity.

The goals and objectives in the Medicine Bow Revised Forest Plan are tiered to the *USDA Forest Service Government Performance and Results Act Strategic Plan: 2000 Revision (GPRA)*. This strategic plan presents the goals, objectives and activities that reflect the Forest Service's commitment to a sustainable natural resource base for the American people. The Routt Forest Plan pre-dates the GPRA legislation; however the goals in the Routt Plan are consistent with the strategic plan. All goals and objectives fall under the overall mission of the Forest Service, which is to sustain the health, productivity, and diversity of the land to meet the needs of present and future generations. "Caring for the Land and Serving People" expresses the spirit of this mission. Implicit in this statement is the agency's collaboration with people as partners in caring for the nation's forests and rangelands.

The Forest Service's mission, strategic goals and objectives are derived from the laws defining and regulating the agency's activities. Goals and objectives describe tangible progress toward achieving the agency's mission through implementing land and resource management plans. These plans guide on-the-ground natural resource management to ensure sustainable ecosystems and to provide multiple benefits. The Forest Service is committed to achieving the stated goals and objectives.

Conclusions and Recommendations

The primary finding from the fiscal year (FY) 2007 report is related to the expanding bark beetle epidemic. More details can be found under the *Insect and Disease* monitoring item. The IDT developed Forestwide recommendations related to this and other resource areas. Numerous additional recommendations are contained within the monitoring items in this report concerning ways to improve both monitoring and forest resource management.

Conclusions

Insects and Disease

The Medicine Bow-Routt NFs are experiencing a continuing escalation of bark beetle epidemics that started in the late 1990s. Until 2005 the majority of the bark beetle mortality was primarily in Colorado (Routt National Forest), but in the last 2 years bark beetle populations have exploded on the Medicine Bow National Forest, particularly in the southern portions of the Medicine Bow & Sierra Madre mountain ranges. The mountain pine and spruce bark beetle epidemics will probably continue for at least another 3-5 years. When the bark beetle epidemic has completed its cycle, the potential for loss of many lodgepole and spruce stands over 6 inches in diameter is substantial. The current epidemic is unprecedented within the last 150 years.

Recommendations

Insects and Disease

The rate of spread of mountain pine and spruce bark beetle that the Forests have experienced in the last few years will probably continue for the next 3-5 years. Any vegetative management in lodgepole pine and spruce should anticipate what the condition of the stands will be in 3-5 years. In the past, forest managers have implemented silvicultural strategies to suppress beetle epidemics when recommending silvicultural treatments, and still suffered extensive mortality in the residual stands. When recommending vegetation treatments in moderate to high risk stands for beetle infestation, the forest manager should anticipate extensive mortality and consider using adaptive management and include the option for salvage treatments and reforestation of the affected stands.

Forest Plan Implementation

Continue Design Criteria and BMP implementation and effectiveness monitoring to ensure that Design Criteria are effective at meeting Forest Plan Standards and Guidelines. Resource specialists should continue to work cooperatively with all resource areas during project planning and implementation.

Pursue additional BMP implementation training over the next 2 years to increase awareness of methods of meeting BMP and design criteria.

Medicine Bow Plan Water and Aquatic Standards

Review the Medicine Bow Revised Forest Plan Water and Aquatic Standards for consistency with national and regional forest service direction, and for consistency with applicable law.

Actions Taken on FY06 Recommendations

Insects and Disease

The rate of spread of mountain pine and spruce bark beetle that the Forests have experienced in the last few years will probably continue for the next 2-3 years. Any vegetative management in lodgepole pine and spruce should anticipate what the condition of the stands would be in 2-3 years. In the past, forest managers have implemented silvicultural strategies to suppress beetle epidemics when recommending silvicultural treatments, and still suffered extensive mortality in the residual stands. When recommending vegetative treatments in moderate to high risk stands for beetle infestation, the forest manager should anticipate extensive mortality and consider using adaptive management and include the option for salvage treatments and reforestation of the affected stands.

On the Medicine Bow–Routt NFs in fiscal year 2007, the Forest Service applied direct control (spraying) of MPB and SB on 8,470 acres (21 campgrounds, 5 administrative sites) and sold eight timber sales that will treat 3,500 acres though salvaging stands affected by bark beetles. The Forest also initiated planning and analysis (Red Dirt, Owl Mountain, Prospector, Savery, and Spruce Gulch) for additional vegetation treatments utilizing Healthy Forests Restoration Act authority. All project areas were designed to salvage, or reduce the impacts of the building MPB and SB epidemics.

Forest Plan Implementation

Implementing the Forest Plan could be improved through increased training and accountability for contract and permit administration to ensure that all design criteria, contract clauses, monitoring and compliance needs are met.

Forest resource staff in fy07 continued to work together to improve implementation of design criteria. There are continuing discussions on how to increase training in this area.

Off Highway Vehicle (OHV) Use

OHV / travel management is a growing issue affecting multiple resources. There is a need for increased education, enforcement and continued work with partners to reduce unauthorized OHV use off of roads and trails.

OHV use off of allowable routes is a continuing issue on the forests. Public education efforts during 2007 include completing the Motor Vehicle Use Map (MVUM) for the Routt N.F. This map is provided to the public at point of sale locations, forest services offices and during visitor contact on the forest. Last summer, front desk personnel and Forest Protection Officers were trained on the MVUM and OHV use issues. Additional travel management decisions in FY07 (Eastern Snowy Range, Laramie Peak and Soldier Summit) and subsequent road decommissioning, scheduled to start in FY08, will likely help reduce OHV use off of allowable routes.

Routt Water and Aquatic Standard #8
Revise Routt Water and Aquatic Standard #8 in accordance to Washington Office Direction.

An administrative correction was completed in FY07 which adjusted wording of the Water and Aquatic Standards to be more consistent with applicable laws. More information can be found on the MBR website: http://www.fs.fed.us/r2/mbr/projects/forestplans/index.shtml

Forest Plan and Policy Updates

Adjustments to the Forest Plans

The Medicine Bow Revised Forest Plan was approved in 2003. Since then, the Forest has issued six errata and one administrative correction. One amendment has been approved for the Medicine Bow Plan. This amendment was a site specific amendment issued in the Eastern Snowy Range Travel Management decision for Albany Trail. The amendment changed roughly 422.5 acres of Forest Plan Management Area (MA) 1.33 - Backcountry Recreation, Summer Non-motorized with Winter Snowmobiling north of Albany to MA 3.31 – Backcountry Recreation, Year-round Motorized. A link to this decision can be found at: http://www.fs.fed.us/r2/mbr/projects/trans/index.shtml

The Routt Plan was approved in 1998. Since then, four amendments, three administrative corrections and three errata have been issued. The latest amendment, issued in Feb 2007, updated the list of Management Indicator species (MIS) for the Routt National Forest. In 2007, two administrative corrections were issued. One correction is related to transferring the direction of the Williams Fork area from the Routt NF back to the Arapaho-Roosevelt NF. The other administrative correction adjusted wording of the Water and Aquatic Standards to be more consistent with applicable laws. As mentioned earlier, the Plans are dynamic and ever changing. To stay current with these Plans, please refer to the following internet website: http://www.fs.fed.us/r2/mbr/projects/forestplans/index.shtml

Routt MIS Amendment
The Routt Five-Year Review and 2003 Implementation and Monitoring Report identified the need for a Management Indicator Species amendment for the Routt Forest Plan. The Decision Notice for the amendment was signed in February 2007. The amendment and Decision Notice can be found on the Medicine Bow – Routt (MBR) website: http://www.fs.fed.us/r2/mbr/projects/forestplans/in_progress/index.shtml

Southern Rockies Lynx Environmental Impact Statement (EIS)
The Supplemental Draft Environmental Impact Statement for the Southern Rockies Canada Lynx Amendment was released in November 2006. This amendment would amend eight forest plans to better conserve the threatened Canada lynx on national forests in Colorado and southern Wyoming, including both the Routt and Medicine Bow National Forests. The supplemental Draft EIS includes the analysis for the White River NF to supplement the 2004 Draft EIS which included analysis pertaining to the the other seven forests. Comments were due in February, 2007. The Final EIS and Record

of Decision are expected in the fall of 08. More information can be found at the following website: http://www.fs.fed.us/r2/projects/lynx/.

New Laws and Regulations

Planning Rule Suspended

The U.S. District Court, Northern District of California (9th Circuit) final decision in Citizens for Better Forestry v USDA; Defenders of Wildlife v Johanns (case 3:04-cv-04512-PJH; filed 03/30/2007), with respect to the 2005 National Forest System Land Management Planning Rule, implementation and utilization of the 2005 Planning Rule has been enjoined until the "USDA has fully complied with pertinent statutes". To be in compliance with this decision, all land management plan revision processes associated with the 2005 Planning Rule have been suspended until further notice.

Travel management

In November, 2005 the US Forest Service announced new travel management regulations. The new travel management policy requires each national forest and grassland to identify and designate those roads, trails and areas that are open to motor vehicle use.

The Routt National Forest published the Motor Vehicle Use Maps in September 2007. These maps display routes that are designated for motorized use.

In 2007, the Medicine Bow National Forest completed Travel Analysis and NEPA on the eastern Snowy Range Mountains and the Laramie Peak unit. Maps for all units on the Medicine Bow National Forest are scheduled to be published in September 2008.

More information can be found at the following website:
http://www.fs.fed.us/r2/mbr/recreation/travel_management/index.shtml

Roadless Area Conservation

Colorado Roadless Rulemaking
The State of Colorado and the US Forest Service have begun work on a state-specific rule that will guide management of over four million acres of roadless National Forest lands in Colorado.

The rulemaking process began with Under Secretary of Agriculture Mark Rey's acceptance of Governor Bill Ritter's petition to pursue state-specific rules. Rulemaking will continue with publication of a Notice of Intent in the Federal Register, joint development and release of a draft Rule and Environmental Impact Statement (EIS), then finalization and release of the final Rule, EIS, and Record of Decision. More information is available on the following website:
http://roadless.fs.fed.us/colorado.shtml

Wyoming Roadless Status
In 2001, the Forest Service enacted the Roadless Area Conservation Rule, which essentially prohibited road construction and reconstruction and timber harvesting, subject to certain limited exceptions, in inventoried roadless areas (IRAs) on a uniform nationwide basis.

In July 2003 the Wyoming District Court issued a nationwide permanent injunction against the Roadless Rule.

On May 5, 2005, the Forest Service adopted the State Petitions Rule, which is a process to provide Governors an opportunity to establish or adjust management requirements for National Forest System inventoried roadless areas within their States.

In October 2006 The State Petitions Rule was set aside by the Courts and the 2001 Roadless Rule was reinstated.

Recent courts cases on the Roadless Area Conservation Rule have led to NFS direction to forests that all decisions for projects in roadless areas must comply with the 2001 Roadless Rule. The current interim direction and other information regarding roadless area direction and management can be found at the following website: http://www.roadless.fs.fed.us/

Projects and Ongoing Activities

Community Involvement

This section includes descriptions of the task forces, community groups and other working groups, working either with or on issues associated with the Medicine Bow-Routt NFs.

The Colorado Roadless Areas Review Task Force – In 2005, a bipartisan 13-member group was created under Colorado Senate Bill 05-243 to help determine the future of roadless areas in Colorado. Based on public comment, the task force made recommendations to then-Colorado Governor Bill Owens regarding how inventoried roadless areas should be managed. In November 2006, Governor Owens submitted a petition to the United States Forest Service on behalf of the State of Colorado with guidelines to manage the state's 4.1 million acres of roadless areas. The petition requests that ski area special uses be removed from the roadless inventory. It has special provisions for certain mineral interests and selectively allows some road construction and reconstruction, in addition to some new temporary roads, primarily for public safety. Tree harvest is selectively allowed. Colorado's new governor, Bill Ritter resubmitted the petition, with some modifications, to the USDA. The State of Colorado and the Forest Service are working on a state-specific rule that began with Under Secretary of Agriculture Mark Rey's acceptance of Governor Bill Ritter's petition to pursue state-specific rules. A Notice of Intent was published in the Federal Register December 26, 2007, this will be followed by joint development and release of a draft Rule and Draft Environmental Impact Statement (DEIS), then finalization and release of the final Rule, Final EIS, and Record of Decision.

Bark Beetle Incident Management Team

In 2007, Region 2 formed a Bark Beetle Incident Management Team to facilitate aggressive and coordinated forest treatments on the Medicine Bow-Routt, Arapahoe-Roosevelt and White River national forests. The treatments have three key objectives:

- Reduce falling-tree hazards at recreation areas, roads, trails, and power lines.
- Reduce wildfire hazards to homes, communities, and drinking-supply watersheds.
- Increase stand diversity to make the next forest more resilient to beetles and wildfires.

This team has developed a strategy to achieve these objectives: T*he Bark Beetle Incident Implementation Plan 2007 – 2011*, available on the following website:

http://www.fs.fed.us/r2/bark-beetle/index.html

Additionally, the MBR forest worked with the Wyoming State Forestry Division, the Society of American Foresters and the University of Wyoming to produce a brochure: "What's Eating the Trees," and table tents about the beetle epidemic in Wyoming. The table tents were placed at restaurants, libraries and public buildings to help educate people about beetle epidemics and the future forest. "What's Eating the Trees" brochure was inserted into the Laramie Boomerang newspapers on Nov. 9, 2007, reaching more than 6,000 people.

The Bark Beetle Information Task Force (BBITF) was formed in the spring of 1999 to help residents of Routt County and surrounding areas understand potential effects of bark beetles on national forests and private land. The Task Force includes representatives from the State Forest Service, the Medicine Bow-Routt National Forests, Colorado State University Cooperative Extension, City of Steamboat Springs, Routt County, Steamboat Ski and Resort Corporation, Steamboat Chamber Resort Association, Inc., Community Agriculture Alliance and Colorado State Parks.

The Task Force's mission is to provide the public with information about bark beetles and potential tree mortality so they can make informed decisions regarding protection of their private property and provide meaningful input regarding proposed actions on public lands. In 2001, the Task Force expanded its mission to include education about the role of fire in the ecosystem, fire prevention for homeowners, and fuel reduction projects in wildland urban interface areas.

Members of the Task Force participate in discussions with civic groups, homeowners' associations, Forest Service tours and meetings, and other gatherings of people interested in bark beetles, and provide information to the media.

The Task Force continued its education efforts in 2007. The group published "Our Future Forests," a publication about utilizing beetle kill wood and looking toward the future forests, after the beetle epidemics.

In 2007, the BBITF received a grant from the City of Steamboat Springs for $7,000 to be used to explore uses for woody biomass in the wake of beetle epidemics. In 2008 The BBITF will embark on a "Bluestain Campaign" to promote the use of blue-stain lodgepole pine. The group will also host a series of educational presentation for the community about uses of beetle-kill trees.

Northern Colorado Bark Beetle Cooperative – The Cooperative was formed in late 2005 and major efforts were embarked on in 2006 to bring attention to beetle epidemics and form short-term and long-term strategies to deal with beetle epidemics and prepare for the future forest. The Cooperative has a Steering Committee, Communications Team and an Implementation Team.

Background: Aging forests, blowdown events and an extended drought with mild winters during the past several years have triggered and exacerbated beetle epidemics throughout much of the western United States. Northern Colorado has been hit particularly hard by all of these natural events.

In 2007, more than 800,000 acres of forest in northern Colorado were infested with mountain pine beetles and spruce beetles. Tree mortality from this infestation in the Rocky Mountain region is unprecedented in recorded history. The beetle epidemics cross jurisdictional lines, including National Forest System lands, Bureau of Land Management resource areas, State and private lands. Beetle epidemics also affect counties and municipalities.

Beetles could kill most of the mature lodgepole and spruce trees in northern Colorado. Beetle-killed trees create a build up of fuels that could result in disastrous wildland

fires that threaten homes and watersheds. Likewise, beetle-killed trees may negatively impact future timber supplies, wildlife habitat, recreation sites, transmission lines and scenic views. These events could cause adverse economic impacts to communities in northern Colorado.

The Northern Colorado Bark Beetle Cooperative is a collaboration of federal and state agencies, counties, municipalities and communities working together to develop and implement strategies to reduce forest mortality in high priority areas and associated adverse effects.

Goals: To develop short-term (less than two years) and long-term (beyond two years) strategies for addressing tree mortality from bark beetle epidemics; develop action plans necessary to implement the strategies; and work collaboratively to carry out the work.

Members of the Northern Colorado Bark Beetle Cooperative include:

- Arapaho-Roosevelt, Medicine Bow-Routt and White River National Forests
- Bureau of Land Management Kremmling and Glenwood Springs Field Offices
- Eagle, Routt, Summit, Grand and Jackson Counties
- Colorado State Forest Service
- Northern Colorado Council of Governments
- Congressional Representatives
- Conservation Districts
- Municipalities

Additional members may be added as the effort progresses.

Members of the Northern Colorado Beetle Cooperative participated in numerous media interviews, made trips to the Forest Service Washington Office and to members of Congress to bring attention to the severe beetle epidemics being experienced in Northern Colorado. The group also conducted several tours for local and national elected officials and the media. The Cooperative's efforts will continue in 2008.

Projects Completed During FY07

Tables 1 and 2 below list the environmental analysis projects completed on the Medicine Bow and Routt National Forests during Fiscal Year (FY) 07. The types of decisions under the National Environmental Policy Act (NEPA) include Decision Memos (DMs) for actions that fall under categorical exclusions, Decision Notices (DN) for Environmental Analyses (EAs) and Record of Decisions (RODs) for Environmental Impact Statements (EIS). The project lists were generated from the database that produces the Schedule of Proposed Actions (SOPA). The SOPA quarterly report is available at the following internet website: http://www.fs.fed.us/sopa/forest-level.php?110206

Table 1. Medicine Bow NF projects completed in FY07

Name	Decision Type	Date Signed	Primary Purpose
Projects Covering More than 1 District			
Recreation Residence Consistency Review and Permit Continuation Determination Analysis	DM	12/15/07	Special Use Authorizations
Brush Creek/Hayden Ranger District (BCH)			
Soldier Summit Analysis	DN	6/11/07	Fuels / Forest Products / Vegetation Management / Watershed Improvement
Northeast Sierra Madre AMP	DM	9/18/07	Grazing Management
North Fork Little Snake River Channel Modification	DM	1/16/07	Fisheries Habitat Improvement
Hog Park and East Fork Encampment Stream Improvement	DM	7/27/07	Watershed Improvement
Smith Road use Easement	DM	3/5/07	Special Use Authorizations
A Cross Ranch Outfitting	DM	5/25/07	Special Use Authorizations
Blackhall Lookout Radio Repeater	DM	10/11/06	Special Use Authorizations
Elk Mountain Outfitters	DM	5/25/07	Special Use Authorizations
Grand & Sierra Outfitters	DM	5/30/07	Special Use Authorizations
Horseback Adventures	DM	5/14/07	Special Use Authorizations
Mattern Road Easement	DM	2/16/07	Special Use Authorizations
Platt's Guide and Outfitters	DM	5/14/07	Special Use Authorizations
Romios Outfitters	DM	5/14/07	Special Use Authorizations
Rough Country Outfitters	DM	5/14/07	Special Use Authorizations
Silver Peak Communications Site	DM	11/28/06	Special Use Authorizations
Tim Barkhurst Outfitting	DM	6/17/07	Special Use Authorizations
Timberline Outfitters	DM	5/14/07	Special Use Authorizations
WYCON Outfitters	DM	5/14/07	Special Use Authorizations
Laramie Ranger District (LRD):			
Eastern Snowy Range Travel Mgt	DN	6/21/07	Travel Management
Devils Gate Timber Sale	DN	12/15/06	Forest Products / Vegetation Management
Rob Roy Gravel Crushing	DM	5/7/07	Road Maintenance
Communications Use Leases	DM	1/24/07	Special Use Authorization
Winter Eagle #1 and #2 Plan of Operations	DM	6/12/07	Minerals
Douglas Ranger District (Laramie Peak Unit)			
Ashenfelder Fence Relocation / Reconstruction	DM	3/20/07	Grazing Management
Laramie Peak Isolated Vegetation Management Project	DM	9/27/07	Grazing Management
Laramie Peak Travel Management	DN	6/8/07	Travel Management

Table 2. Routt NF projects completed in FY06.

Name	Decision Type	Date Signed	Primary Purpose
Projects Covering More than 1 District			
Management Indicator Species - Routt Forest Plan Amendment	DN	2/2/07	Land Management Planning
Hahns Peak-Bears Ears District (HPBE):			
Hahns Peak North Analysis (previously known as Quagmire Allotment Analysis)	DM	9/28/07	Grazing Management
Hans Peak Wetland	DM	9/4/07	Abandoned Minelands / Watershed Improvement
Mad Creek Guard Station Demolition	DM	6/12/07	Facility Maintenance
Mount Werner Water District - Water Storage Tank	DM	4/19/07	Special Use Authorization
Mountain Parks Electric - Powerline Reconstruction	DN	6/11/07	Special Use Authorization
Re-issuance of Communication Site Lease on Mt. Werner Communication Site	DM	4/9/07	Special Use Authorization
Re-issuance of Communication Site Leases on Black Mountain Communication Site	DM	4/9/07	Special Use Authorization
Re-issuance of Communication Site Leases on Buffalo Pass Communication Site	DM	4/9/07	Special Use Authorization
Re-issuance of Communication Site Leases on Thunderhead Communication Site	DM	4/9/07	Special Use Authorization
Re-issuance of Communication Site Leases on Walton Peak Communication Site	DM	4/9/07	Special Use Authorization
Scott Smith Plowing Permit - FDR 445.1	DM	2/20/07	Special Use Authorization
Re-issuance of Storm Peak Lab Special Use Permit	DM	4/9/07	Special Use Authorization
Seedhouse Fuel Reduction	DM	3/14/07	Fuels Management
Sombrero Ranch	DM	10/11/06	Fuels Management
Steamboat Lake Connector Trail	DM	12/15/06	Special Use Authorization
Steamboat Powder Cats	DM	12/14/07	Special Use Authorization
Storm Peak Laboratory Additions	DM	4/9/07	Special Use Authorization
Steamboat Snowmobile Tours	DM	12/14/07	Special Use Authorization
Windy Ridge (NFSR 238) Trailhead and Road Relocation	DM	2/9/07	Road Management / Watershed Improvement
Parks Ranger District:			
Lindsey Creek Allotment	DN	9/25/07	Grazing Management
Big Creek lakes Campground Blowdown Cleanup	DM	6/4/07	Recreation Management
Re-issuance of Communication Site Lease on Grouse Mountain Communication Site	DM	8/22/07	Special Use Authorization

Name	Decision Type	Date Signed	Primary Purpose
Re-issuance of Pittington FLPMA Private Road Permit	DM	9/18/07	Special Use Authorization
Re-issuance of Selcer FLPMA Road Easement	DM	9/18/07	Special Use Authorization
Re-issuance of Shooting Star Ranch FLPMA Road Easement	DM	9/18/07	Special Use Authorization
Recreation Residence Use of NFS Lands	DM	7/19/07	Special Use Authorization
Yampa Ranger District:			
Red Dirt Pit Expansion	DN	2/8/07	Minerals
Indian Run Fuels and Wildlife Habitat Improvement Project	DM	4/25/07	Fuels / Wildlife Habitat Improvement
Saylor Plowing	DM	4/25/07	Special Use Authorization

Figure 1. Curious black bear on the Brush Creek/Hayden Ranger District.

Monitoring items

The National Forest Management Act (NFMA) identifies specific legally required monitoring items for forest plan implementation as well as additional monitoring that is conducted based on the availability of funding and personnel. The discussion and results of the monitoring items are given below.

Ensure Sustainable Ecosystems

Soil Productivity

Routt Monitoring Item 1-1
Medicine Bow Item Subgoal 1.a 36CFR219.12(k)(2)
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

Are long-term soil health and productivity being maintained?

Monitoring Protocol/Data Collected

This item is assessed using field observations.

Results/Evaluation

Soil Quality Monitoring (Forest-wide)

In 2007, soil quality field evaluations representing 502 unique observations of soil conditions were conducted on a variety of past and ongoing management activities, including timber harvest and permitted domestic livestock grazing. Observations are classified in the following soil condition categories:

Satisfactory - Indicators signify that soil quality is being sustained and soil is functioning properly and normally. The ability of soil to maintain resource values and sustain outputs is high.

Impaired - Indicators signify a reduction in soil quality. The ability of soil to function properly has been reduced and/or there exists an increased vulnerability to exceed detrimental soil quality standards. An impaired category signals land managers that there is a need for further investigation of the activity area to determine causes and degrees of decline in soil quality. This impaired condition can be a result of inherent and natural site conditions such as: steep slopes, aspects, parent material or past activities. Changes in management practices or other preventative actions might be appropriate.

Unsatisfactory - Indicators signify that loss of soil quality has occurred and soil condition has been detrimentally impacted according to Region 2 and the LRMP soil quality standards (FSH 2509.18-92-1). Soils rated in the unsatisfactory category are candidates for improved management practices or restoration designed to recover soil quality. Detrimental soil impacts result in the inability of soil to maintain resource values, sustain outputs, and recover from impacts.

Results

Monitoring during 2007 indicates that long-term health and productivity of the soils is being maintained (Table 3).

Table 3. 2007 Forest-wide soil condition class summary.

Condition	Percent
Satisfactory	80.3%
Impaired	16.3%
Unsatisfactory	3.4%

Extensive utilization of the soil quality field evalution protocol has demonstrated its usefulness as an integral tool for forest soil monitoring. These evaluations provide a foundation for a systematic approach to soil quality monitoring that is adaptable to a wide variety of management activities, soil conditions, and resource constraints.

California Park AMP Revision (Hahns Peak/Bears Ears Ranger District)

Monitoring efforts in support of adapative management on the California Park range allotment were initiated in 2007. Efforts consisted of cover transects, infiltration measurements and soil quality field evaluations. These measurements will be repeated in 2009.

Results

Results from 2007 soil monitoring did not indicate need for modification of management in this grazing allotment. Cover transects indicated high levels of effective ground cover, infiltration measurements were consistent with expected values by soil type and soil quality conditions were consistent with Forest Plan standards. Erosion bridges installed in 2001 were not located.

Vienna Salvage Sale (Laramie Ranger District)

Soil quality field evaluations were performed in five units of the Vienna Salvage timber sale. Each transect consisted of 30 unique observations of soil condition.

Results

Table 4 summarizes the evaluation by unit. All salvage units sampled were consistent with Forest Plan standards.

Table 4. Vienna Salvage soil condition class summary by unit

	Satisfactory	Impaired	Unatisfactory
Unit 3	63%	37%	0%
Unit 5	73%	17%	0%
Unit 7	60%	30%	10%
Unit 8	53%	43%	4%
Unit 10	77%	16%	7%

Iron Mountain Prescribed Burn (Laramie Ranger District)

Four erosion bridge courses were established in three proposed prescibed burn units (one unburned control). Bridge consists of a rigid bar mounted on fixed stakes. Distance to the soil surface is measured at 40 points along the bridge. These values, when plotted, provide a micro-topographic profile. Repeated measurements allow the magnitude of soil loss to be quantified. Courses consisted of erosion bridge sites arrayed in a representative toposequence within the units. Two courses were paired with automated precipitation event loggers.

Initial data from these courses represent base soil levels prior to disturbance. Follow-up monitoring will be conducted in 2008 to assess the effects of the prescribed burn.

Results
Results of post-fire measurements will be presented in FY08 soil productivity monitoring report.

Rainbow Family Gathering Rehabilitation (Hahns Peak/Bears Ears Ranger District)
Monitoring efforts focused on rehabilitation measures implemented in 2006. Rehabiliation measures included subsoiling of main gathering trails, reseeding and temporary area closure. Monitoring efforts in 2007 consisted of of cover transects, infitration measurements and general observations.

Results
Cover transects were run in treated areas to measure effective ground cover. Region 2 has minimum ground cover standards for disturbed areas (Table 5), which are slightly higher the second year after disturbance. All three transected areas (1 moderate, 2 low) were meeting minimun percent effective ground cover standards. These will be repeated in 2008 for second year standard compliance.

Table 5. Region 2 minimum percent effective ground cover standards

Erosion Hazard Class	1st Year	2nd Year
Low	50	70
Moderate	40	60
High	30	50
Very High	30	50

Seven infiltration measurements were conducted as a proxy measurement of the reduction of detrimental soil compaction on main gathering trails. Cumulative infiltration was measured using a mini-disk infiltrometer. Mean cumulative infiltration values by treatment are presented in Table 6. Treated areas have similar infiltration rates to similar, undisturbed soils. Untreaed areas had significantly reduced infiltration rates.

Table 6. Mean cumulative infiltration rates for Rainbow Family Gathering rehabilitation treatments.

Treatment	Mean Cumulative Infiltration (cm)
Untreated	0.19
Treated	0.78
Undisturbed/Untreated	0.71

Based on observations, closure measures appeared effective and no evidence of motorized trespass or further detrimental soil impacts were observed.

2006 Monitoring Report Recommendations
The following are recommendations from the 2006 soil monitoring report:

- Add skilled seasonal staff to assist with soil monitoring efforts.
- Continue to develop a comprehensive soil quality monitoring strategy utilizing the new soil quality field evaluation protocol.
- Look for opportunities to test the new protocol against more quantitative monitoring tools (e.g. Hazard-Geist analysis).
- Propose a reduction in project support workload to Forest Leadership Team to, in part, increase the frequency and intensity of soil monitoring on all units.

Seasonal Staffing
No seasonal staff was utilized in 2007. Changes to project support workload appeared adequate to facilitate continued efforts in soil program development and expansion.

Soil Quality Monitoring Strategy
Utilization and improvement of soil quality field evaluation protocols have provided consistent, efficient and accurate means for assessing the effects of land management activities. This protocol also provides a system of measure for the determination of consistency with Forest Plan soil standard five (FSH 2509.18). These standards require detrimental soil conditions be present on no more than 15 percent of an activity area.

Protocol Testing
Planned opportunities to further test soil quality field evaluation protocols were not completed in 2007. The timber sales slated for this effort were still under contract during the 2007 field season. These items will be carried over to the 2008 monitoring plan.

Conclusions

- Monitoring during 2007 indicates that long-term soil health and productivity is being maintained. Site-specific monitoring data is on file with the Forest Soil Scientist.
- Soil quality field evaluation protocol continues to prove effective as a monitoring tool.
- Soil monitoring efforts on the MBR in 2007 were limited somewhat by additional bark-beetle emphasis workload.

Recommendations

- Continue to develop the comprehensive soil quality monitoring strategy utilizing the new soil quality field evaluation protocol.
- Look for opportunities to test the new protocol against more quantitative monitoring tools (e.g. Hazard-Geist analysis, R1 Soil Disturbance Monitoring Protocols).

FY08 Monitoring Plan

- Iron Mountain Prescribed Burn
    - Erosion bridges
    - Precipitation
- Rainbow Family Gathering Rehab
    - Repeat cover transects
- Two-Bull Timber Sale
    - Hazard-Geist Analysis
    - R1 Soil Disturbance Monitoring Protocols
    - Implementation monitoring
    - Soil quality field evaluations
- Thunder Basin Grazing Association Revised Allotment Management Plan
    - Erosion bridges
    - Repeat soil quality field evaluations

Air Quality

Routt Monitoring Item 1-2
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Are management activities maintaining or improving air quality including the Mount Zirkel Wilderness?***

The Routt National Forest (RNF) is comprised of three airsheds: Medicine Bow, Granby, and Grand Junction. The Medicine Bow Airshed encompasses the largest portion of the Forest. The goal of the air program is to conduct all management activities to comply with all applicable federal, state, and local air quality standards and regulations. The Forest Service is also responsible for protecting the Mount Zirkel Wilderness (MZW) Class I area from adverse effects caused by air pollution resulting from forest management activities.

Management Activities

During FY07 the following management activities with potential air quality impacts, most notably particulate matter contributions, were undertaken on the Routt National Forest (RNF) (Table 7).

Table 7. Summary of FY07 management activities having potential effects to air quality on the Routt NF including the Mount Zirkel Wilderness.

Project	Type	RD	Acres
Camp Creek	Broadcast Burn	Parks	150
Gore Lakes	Broadcast Burn	Yampa	119
Gore Pass	Pile Burn	Yampa	25

Smoke from prescribed burning is managed under a cooperative agreement between the Colorado Department of Health Air Pollution Control Division Smoke Management Program and the Forest Service. Compliance with the agreement ensures that prescribed burning will not violate the state standards for particulate matter. The Forest Service completed state required Burn Plans for each prescribed fire. Burn Plans require Simple Approach Smoke Estimation Model (SASEM) results to predict the effects of smoke dispersal for all burning activities upon sensitive receptors, such as highways, cities, and Class I and II Wilderness Areas under known climatic and atmospheric conditions. Burn Plans also include considerations for possible inversion conditions, nighttime down-valley air flow, and mitigation measures for smoke effects resulting from unanticipated events. All prescribed burns were conducted during good to excellent dispersal conditions; therefore the smoke from these fires did not adversely impact the air quality in the RNF and the MZW.

Results/Evaluation

Monitoring completed during the fiscal year indicates that the air quality, especially in the MZW Class I Airshed, is being maintained. No change to the Forest Plan is needed for this item.

Recommendations

Continue to monitor the effects of prescribed burning. Monitor implementation of other project activities to determine any potential for effects upon air quality.

Water Quality

Routt Monitoring Item 1-3
Medicine Bow Objective 1.a.2
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Are management activities meeting state water quality standards and to what extent has water quality been restored, maintained or improved?***

Monitoring Protocol/Data Collected

Water quality data on the Forest are collected by various Federal, State and local governments as well as non-governmental entities and individuals. The Colorado Water Quality Control Division (CWQCD) and the Wyoming Dept. of Environmental Quality (WYDEQ) produce biennial comprehensive summaries of water quality conditions in each State

The Forests completed approximately 40 miles of stream and riparian condition assessment during 2007 using a variety of inventory and monitoring methods. Primary survey techniques used include: Proper Functioning Condition (BLM, 1998), Stream Channel Reference Sites (Harrelson, et al, 1994), and Rangeland Analysis and Management (USDA Forest Service, 1996). Methods vary from quantitative to qualitative and some are repeatable while others are not repeatable. These surveys are summarized in Appendix 3.

Results/Evaluation

Most surface waters on the Forests are believed to be meeting all designated water quality uses, but due to the sampling requirements only a small subset of the waters have recent comprehensive data to support this conclusion (see table below).

Most water quality monitoring has been conducted on streams where designated uses are known or suspected to be impaired and limited monitoring has occurred on streams likely to meet all designated uses. Table 9 and Figure 2 show the water bodies on the Forest that have been determined by the States of Colorado and Wyoming to have water quality concerns.

Table 8. 2007 Summary of Forest Water Quality Assessments for Colorado and Wyoming.

Water Body Name	Reach	Determination	Source
North Platte River Basin - Wyoming			
South Fork Little Laramie River	WYNP10180 010-664	Fully supports all designated uses.	WYDEQ, 2004
Middle Fork Mill Creek	WYNP10180 010	Fully supports all designated uses.	WYDEQ, 2004
Miller Lake	WYNP10180 010	Fully supports all designated uses, except insufficient data to determine if fish consumption and contact recreation uses are supported.	WYDEQ, 2006
Hanging Lake	WYNP10180 010	Fully supports all designated uses, except insufficient data to determine if fish consumption and contact recreation uses are supported.	WYDEQ, 2006
South Fork Hog Park Creek	WYNP10180 002	Fully supports all designated uses.	WYDEQ, 2004
Smith North Creek	WYNP10180 002-666	Fully supports all designated uses.	WYDEQ, 2004
East Fork Williams Fork in Flattops Wilderness	COLCLY08	Fully supports all designated uses.	CWQCD, 2001
East Fork Williams Fork River	COLCLY09	Not assessed.	CWQCD, 2001
Slater Creek	COLCLY08	Fully supports all designated uses.	CWQCD, 2001
North Platte Tributaries within wilderness areas	COUCNP01	Fully supports all designated uses.	CWQCD, 2003
South Fork Big Creek	COUCNP01	Fully supports aquatic life.	CWQCD, 2003
Encampment River	COUCNP02	Fully supports all designated uses.	CWQCD, 2003
North Platte River - Camp Creek to CO/WY border	COUCNP03	Fully supports all designated uses.	CWQCD, 2003
North Platte River-- Tributaries above Camp Creek	COUCNP04	Fully supports all designated uses.	CWQCD, 2003
Illinois River	COUCNP04	Not fully supporting aquatic life.	CWQCD, 2003
North Platte River-- Tributaries Camp Creek to CO/WY border	COUCNP04	Fully supports all designated uses.	CWQCD, 2003
Michigan River	COUCNP05a	Fully supports all designated uses.	CWQCD, 2003
Tributaries to Yampa River - Flattops Wilderness down to Elk River	COUCYA03	Fully supports all designated uses.	CWQCD, 2003
Elk River - mainstem and tributaries	COUCYA08	Fully supports all designated uses.	CWQCD, 2003
Little Snake River Tributaries	COUCYA19	Fully supports all designated uses.	CWQCD, 2003
Tributaries to Yampa River - in National Forest	COUCYA20	Fully supports all designated uses except primary recreation in 303(d) listed streams.	CWQCD, 2003; 2006

Table 9. 2007 Forest Water Quality Impairments for Colorado and Wyoming.

Water Body Name	Threatened or Impaired	Year first identified as T or I	Impaired Designated Use	Cause of Impairment
North Platte River Basin - Colorado				
S F Big Creek in Wilderness	M&E list1	2004	Aquatic Life; drinking water	Metals-Cu
Snyder Creek	M&E list	1998	Aquatic Life	Sediment
Illinois River	303(d) list	2006	Aquatic Life; drinking water	Metals-Fe (trec)
Colorado River Basin - Colorado				
Big Rock Creek	M&E list	2006	Recreation 1A	E. coli
Little Rock Creek	M&E list	2006	Recreation 1A	E. coli
Yampa River Basin - Colorado				
Bushy Creek	M&E list	1998	Aquatic Life	Sediment
First Creek	M&E list	1998	Aquatic Life	Sediment
First Creek	303(d) list	2006	Recreation 1A	E. coli
Elkhead Creek	303(d) list	2006	Recreation 1A	E. coli
Little Snake River Basin - Colorado				
Oliver Creek	M&E list	1998	Aquatic Life	Sediment
Little Snake River Basin – Wyoming.				
W Fork Battle Creek	Yes - Impaired	2000	Coldwater fisheries; Aquatic life	Metals
Haggerty Creek	Yes - Impaired	<1988	Coldwater fisheries; Aquatic life	Metals
South Platte River Basin - Wyoming				
Middle Crow Creek	Yes - Impaired	2004	Contact Recreation	E. coli
N Branch N Fork Crow Creek	Yes - Impaired	2004	Contact Recreation	E. coli

COLORADO

Streams on the Colorado M&E list for sediment

Data has been collected on the four stream segments on the M&E list for sediment and submitted to the CWQCD. The CWQCD has not yet made a recommendation on these stream segments regarding addition to the 303(d) list or removal from the M&E list.

Streams on the Colorado M&E list and 303(d) list for metals

The Forest has not been involved in any of the data collection or listing of the South Fork Big Creek on the M&E list or Illinois River on the 303(d) list for metals. The

[1]Streams are placed on the Colorado Monitoring and Evaluation List (M&E list) when there is reason to suspect water quality problems, but there is uncertainty regarding one or more factors.

Forest will conduct additional investigation in FY08 to determine the reason for listing and to determine if there are any implications relating to Forest management.

Streams on the Colorado M&E or 303(d) list for E. coli

The Forest initiated monitoring of bacterial concentrations on a few selected streams in response to scoping questions on grazing allotments. A total of seven reaches were sampled during 2003-04. The Forest collected additional samples in 2007 to further characterize E. coli levels in First Creek and Elkhead Creek in the California Park area, and Little Rock Creek and Big Rock Creek in the Gore Pass area. New sample sites were added on all four streams to further depict the areal extent of potential E. coli concerns in these streams. The data collected in 2007 has been sent to the Colorado Water Quality Control Division for future consideration concerning listing of these streams.

To further address the 303(d) listed streams, the Forest conducted a Use Attainability Analysis (UAA) to determine the current and potential extent of primary recreation occurring on First Creek and Elkhead Creek in California Park. The UAA provides site specific information that demonstrates minimal to no occurrence of existing primary contact recreation use in these stream segments. In addition, the potential for primary contact use to occur is minimal due to remoteness of the area and access limitations. The Forest presented a draft of the UAA to the Water Quality Control Division (Division) in September 2007. This information will be used to identify the proper recreation classification in order to help focus resources in addressing the listed stream segments.

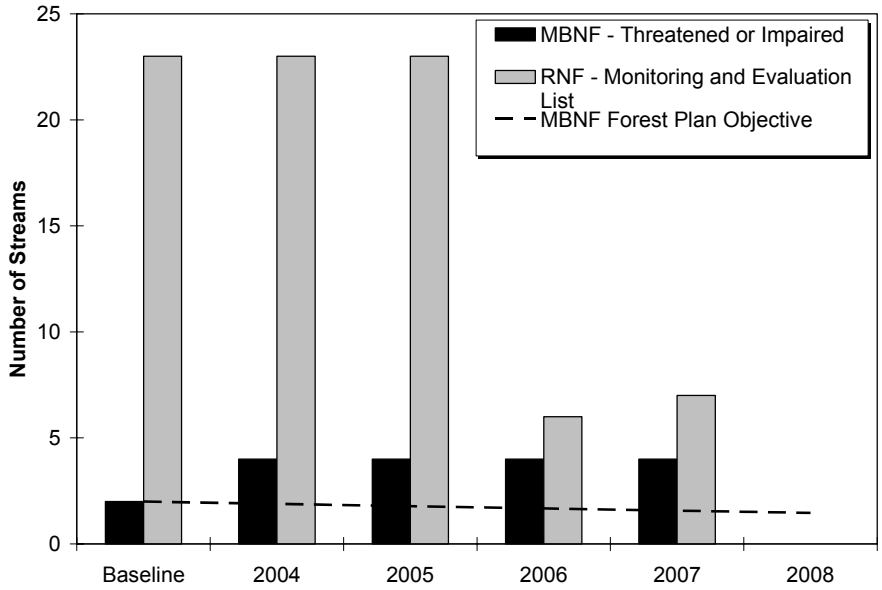

Figure 2. Water quality trends on the Medicine Bow - Routt NFs.

WYOMING

Haggerty Creek and West Fork of Battle Creek

The WYDEQ determined that these streams are not fully supporting designated uses due to metals contamination from the historic Ferris-Haggerty mine, which is located on private lands within the Forest boundary. Heavy metal contamination may also be from background levels of metals in this highly mineralized area. On-going WYDEQ

monitoring continued in 2007 and is focused on determining the extent of the impairment and the levels of natural metals in the area. WYDEQ developed a Total Maximum Daily Load[2] (TMDL) for these streams, but EPA has not fully accepted the TMDL at this time. Since the source of contamination is located in private lands WYDEQ–Abandoned Minelands program (AML) has been the primary entity with the authority for reclamation efforts. The Forest Service plays a minor role in this reclamation effort, but has cooperated with WYDEQ-AML for reclamation facilities and access across NFS lands. No active reclamation efforts took place in 2007; however the Forest approved a road use permit for exploratory mining on private lands in the watershed.

North Branch of the North Fork Crow Creek and Middle Crow Creek

These streams are not meeting their contact recreation uses due to elevated levels of bacteria. The Laramie County Conservation District worked cooperatively with the Laramie Rivers Conservation District and Forest Service in 2007 to collect 57 water quality samples (E. coli) at one monitoring station on Middle Crow Creek and two stations on North Branch North Fork Crow Creek. The majority of these samples were well below the primary recreation use numeric criteria established by the State of Wyoming for E. coli, suggesting elevated bacteria levels are not widespread or persistent on the Forest. North Branch North Fork Crow Creek met numeric criteria for water quality during sample periods at the beginning and end of the summer, but did exceed the numeric criteria from the middle of June through the middle of August in 2007. Numeric water quality criteria for E. coli were met during all the sample periods on Middle Crow Creek in 2007.

Best Management Practices continue to be implemented in these watersheds to address elevated levels of bacteria. Two additional stock water developments were completed in 2007 in the Middle Crow Creek watershed. Public contacts and signs continue to be utilized to encourage recreation users to follow "Leave No Trace" practices, especially related to disposal of human waste.

In 2007, the State of Wyoming revised and adopted Chapter 1, Water Quality Rules and Regulations – Wyoming Surface Water Quality Standards, which contains numeric water quality criteria for bacteria. Major changes include replacing fecal coliform with E. coli for the indicator bacteria and creating a secondary contact recreation designation to recognize and regulate smaller water bodies with limited or no recreational uses. The Forest and the Laramie County Conservation District summarized water quality data and best management practices for Middle Crow Creek. This information was submitted to WYDEQ so they could evaluate whether Middle Crow Creek is fully supporting contact recreational uses as part of their 2006 Wyoming 305(b) Integrated Water Quality Assessment Report.

Results

The listing of the streams on the Colorado 303(d) list as impaired in 2006 were the first to be listed since the 1997 Routt Forest Plan was signed (Figure 3). In the case of the Illinois River, the reason for listing is unclear at this time. For Elkhead Creek and First Creek in California Park, it is uncertain the source of the E. coli that is causing an

[2] Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards.

exceedance of state water quality standards as there are numerous sources in the watershed that contribute to elevated bacterial concentrations including wildlife, livestock, and humans. At this time, there is no direct connection between the adequacy of the Forest Plan for protecting water quality and the 303(d) listings. This does however move the Forest away from the Routt Forest Plan goal of 'improve water quality… in areas not meeting State water quality standards… and meet the anti-degradation clause of the Clean Water Act across the Forest (RNF p.1-2).'

Steps to address the 303(d) listed streams include additional E. coli sampling which included a new site on Upper First Creek and a new site on Upper Elkhead Creek as well as initiating the Use Attainability Analysis[3] (UAA). The additional data will be used to determine the extent of potential E. coli concerns. The UAA will help the Forest to address the issue at the level appropriate for the amount of primary recreation use.

With the 2004 listing of two streams as impaired, the number of impaired streams on the Medicine Bow National Forest has increased from two to four since the Medicine Bow Forest Plan was signed in 2003 (Figure 3). This has moved the Forest away from the objective in the Forest Plan stating "achieve an 80 percent reduction in the miles of State of Wyoming designated streams not fully supporting designated uses" (Medicine Bow Forest Plan, page 1-2). Monitoring data continue to indicate an improving trend (lower bacteria) on Middle Fork Crow Creek, but continued exceedances of numeric water quality criteria on North Branch North Fork Crow Creek, West Fork Battle Creek and Haggerty Creek. The Forest continued cooperative monitoring efforts and implementation of BMPs to address water quality issues in the Crow Creek drainage in 2007.

Recommendations

- Continue to implement watershed improvement projects that reduce sediment and connected disturbed areas in streams on the M&E list for sediment.
- Work with the CWQCD regarding implications of the additional data and UAA; make recommendations at the 2008 Upper Colorado River basin triennial hearing.
- Monitor compliance with Forest Plan Standards and Guidelines and range BMP implementation on impaired streams or on the M&E list for bacterial impairment.
- Continue to cooperate with Laramie County Conservation District and Laramie Rivers Conservation District on bacteria monitoring and range utilization monitoring in upper Crow Creek watershed.
- Continue to participate in the Watershed Planning effort for the Upper Crow Creek Watershed.

[3] A Use Atainability Analysis is an assessment to determine whether the stream should fall under primary or secondary contact recreation water quality standards based on the level of recreation the stream recieves.

- Submit a petition to WYDEQ to reclassify North Branch North Fork Crow Creek from primary to seconday recreation contact designated use.
- Continue to assist WYDEQ-AML with reclamation efforts on Haggerty and West Fork Battle Creeks.
- A sample of the soil and water mitigation measures should be monitored during and after implementation to determine the effectiveness for protecting water quality.

FY07 Actions taken to address FY06 recommendations

Work with the State to collect necessary data on streams still on the Colorado M&E list for sediment.

Additional data was collected in 2006 and submitted to the State; the State has not yet determined if additional data is needed.

Additional data was collected on First Creek to monitor changes in stream health over time, including implementation of the range management plan.

Continue to implement watershed improvement projects that reduce sediment and connected disturbed areas in streams on the M&E list for sediment.

Planned culvert replacement on First Creek including purchasing a bottomless arch culvert for installation during FY08.

Work with the CWQCD to develop a strategy for streams listed on the 303(d) list and M&E list for bacteria.

Completed draft Use Attainability Analysis to determine existing and potential primary recreation use on the 303(d) listed streams in California Park.

Presented draft UAA to CWQCD; developed a strategy to address during Upper Colorado River basin triennial review in June 2008.

Collected additional E. coli data on 303(d) listed streams (First Creek and Elkhead Creek), and streams listed on the M&E list (Big Rock Creek and Little Rock Creek). Additional sample sites were added to characterize the extent of potential E. coli concerns in these streams.

Field trip to California Park (Elkhead Creek and First Creek) and Gore Pass (Big Rock Creek and Little Rock Creek) with regional office personnel, CWQCD, and Forest personnel to help the CWQCD understand the landscape setting and potential primary recreation uses of each stream segment listed on the 303(d) list or M&E list for bacteria.

Monitor compliance with Forest Plan Standards and Guidelines, including BMP implementation, on streams on the 303(d) list or on the M&E list for bacterial impairment.

BMP implementation monitoring was conducted on First Creek and Elkhead Creek three times throughout the year: one pre-livestock grazing, one during livestock grazing, and one post livestock grazing.

BMP monitoring conducted on Big Rock Creek and Little Rock Creek in cooperation with Regional Office personnel.

Continue to cooperate with Laramie County Conservation District and Laramie Rivers Conservation District on bacteria monitoring and rangeland vegetation utilization monitoring in upper Crow Creek watershed.

> Livestock utilization monitoring and water quality E. coli monitoring continued on Middle Fork Crow Creek and North Branch North Fork Crow Creek.

Continue adjusting management of grazing and recreational activities to improve water quality in upper Crow Creek.

> Best Management Practices to maintain and improve water quality in upper Crow Creek were identified and implemented, as described in the 2007 Water Quality Action Plan.

Continue to participate in the Watershed Planning effort for the Upper Crow Creek Watershed.

> Forest Service staff attended watershed planning meetings and a field trip in 2007. The Amendment to the Crow Creek Watershed Plan was sent to WQDEQ for approval in 2007.

Implement the strategy finalized in April 2006 for addressing bacteria water quality issues on rangeland allotment management planning projects.

> Strategy incorporated into FY07 water resources input for range NEPA documents.
>
> Monitoring of Elkhead Creek and First Creek riparian areas was conducted to determine trend in riparian condition.

Continue to assist WYDEQ-AML with reclamation efforts on Haggerty and West Fork Battle Creeks.

> Neither the USFS nor WYDEQ-AML planned any reclamation effort in 2007. WYDEQ conducted water quality monitoring.

Forest staff should continue to analyze each proposed project and suggest Best Management Practices to protect water quality.

> Completed Routt Forest Plan administrative correction which included Routt Forest Plan Water and Aquatic Guideline 1: 'Incorporate appropriate practices and design criteria from the Watershed Conservation Practices Handbook (FSH 2509.25) into all project design, analysis, and decision documents.'
>
> Watershed and aquatic specialist input for NEPA projects in FY06 identified BMPs and design criteria to protect water quality based on site specific information.
>
> Watershed staff worked with Mount Werner Road contractor on proper implementation of BMPs and Design Criteria.

A sample of the soil and water mitigation measures should be monitored during and after implementation to determine the effectiveness for protecting water quality.

> BMP monitoring was conducted on 10 sites during FY07 using NFIM funding. Range, timber, and fuels projects were monitored using the draft national protocol in cooperation with the Regional Office; feedback on the protocol is being provided to the Washington Office in FY08.

Monitoring of the Rainbow Family rehabilitation site was conducted in cooperation with Routt County Emergency Management staff, and Routt County planning staff. Overall rehabilitation efforts implemented in FY06 are moving this area toward the desired condition of restoring soil productivity and protecting water quality

Watershed, Soil and Fisheries Program Accomplishments

Watershed, Soil and Fisheries Program accomplishments are shown in Table 10 and summarized in Figure 5. Acres treated through the Soil and Watershed improvement program increased annually from 2004 to 2006, then decreased in 2007, primarily due to a reduced amount of road decommissioning from previous years. The amount of soil and watershed improvement acres accomplished varies based on the complexity and cost of a project, available funding, and staffing to implement the project. The miles of stream restored or enhanced has decreased during the 2004-06 period, but rose slightly in 2007. Acres of lakes restored or enhanced have varied over the years, but have remained relatively low in the past few years, which is a reflection of the limited opportunities to restore or enhance lakes. Highlights of the watershed accomplishments are summarize below.

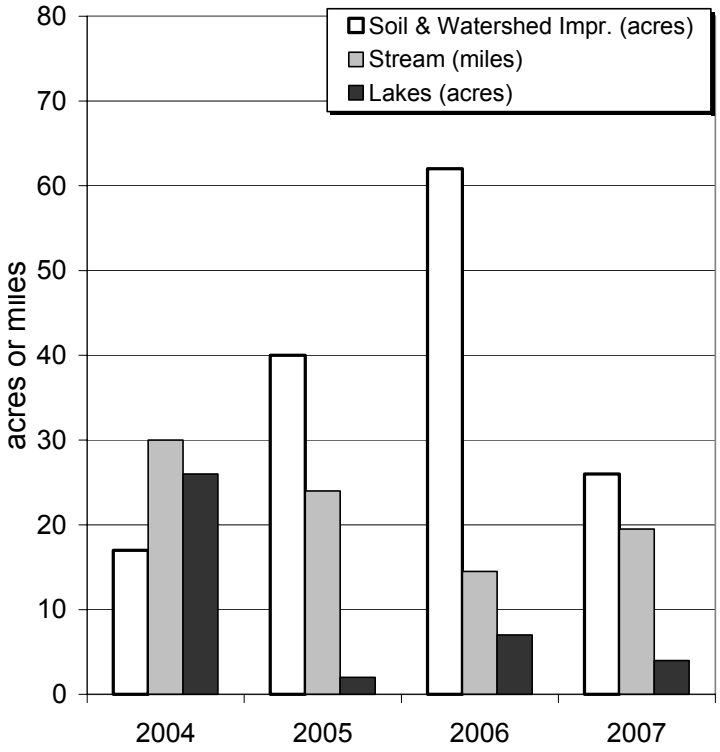

Figure 3. Soil, Watershed and Fisheries Accomplishments.

Ernest Ditch – Headgate Installation: The headgate on the Ernest Ditch had deteriorated to the point it was no longer capable of controlling the timing or amount of water entering this irrigation ditch. During high spring flows water would overtop the ditch and cause erosion on National Forest System lands. Since the headgate was not easy to close, water could be diverted during periods when it was not necessary for irrigation, which resulted in less water in the stream below the diversion. The Forest worked with the water user of this facility to install a new headgate which is capable of controlling the timing and amount of water entering the ditch. The new headgate provides the water user the ability to regulate the timing and amount of water being diverted, which results in a more efficient use of limited water resources. Benefits to National Forest System lands and resources include a reduction in erosion and more water left in the stream below the diversion which improves aquatic habitat.

Table 10. 2005 Soil, Watershed and Fisheries Improvement Accomplishments.

Project	WSI / *Lake* (acres)	Stream (miles)	Watershed
Muddy Creek bottomless arch/roadwork	3	1	140100011402
Windy Ridge road relocation/trailhead (NFSR 238)	3	0	140100011402
Elkhead Creek bank stabilization	1	1	140500010601
West Prong Culverts	2	2	140500030302
NFSR 910 road stabilization	1	4	140100012204
Heart Lake Trail stabilization	1	0	140100010301
Hog Park/E Fk Encampment Stream Rest.	0	1	1018000205
Trail 471/Middle Fork Big Creek bridge	1	1	101800020301
Middle Fork Crow Creek/NFSR 700 culvert	1	1	101900090101
Sucker Lake/NFSR 224	1	0	101800020203
Middle French Ditch - Headgate installation	0	1	101800020203
Ernest Ditch - Headgate installation	0	1	101800020506
Barber Lake - temporary water use	*3*	0	101800100603
Deep Creek Sculpin Expansion	0	3.5	140500030407
Bear Lake Road NFSR 336	1	0	101800100603
Road Decommissioning - off NFSR 520	5	0	1018001002
Rock Creek Park Riparian Exclosure	1	1	101800040201
Weston Pond	*1*	0	100902080301
Labonte Creek Dispersed Campsites	5	2	1018000803
TOTAL	30	19.5	

Hog Park Creek and East Fork Encampment River – Stream Restoration: Fish habitat and streambank stabilization structures were installed on these streams in the 1980s. The majority of the structures were effective at stabilizing streambanks and providing fish habitat. A limited number of the structures were poorly designed and/or implemented or failed over time and were causing excessive bank and/or channel erosion. Ineffective structures were removed or modified to reduce bank and/or channel erosion. Unnecessary hardware, such as cable and metal posts were also removed from the streambanks where possible.

Elkhead Creek – Bank Stabilization: Approximately 200 feet of streambank on lower Elkhead Creek were laid back to help the streambank reach its natural angle of repose. Historic grazing and downcutting resulted in vertical raw banks that erode through fracturing into large slump blocks. These large slump blocks had created new vertical banks, which results in a continuous negative feedback loop. Field observations found that streambanks, which were laid back with an angle of repose sufficient to support vegetation, had stable streambanks. The objective of the project was to break the negative feedback loop and establish an angle of repose that would improve streambank stability.

Windy Ridge road decommissioning, road stabilization, and trail relocation: This cooperative project between Watershed, Heritage, and Engineering/TRTR funding

addressed a user built road (later identified as NFSR 238 in the forest road system), that runs up the fall-line adjacent to an intermittent tributary to Muddy Creek. The road had dewatered a meadow by intercepting the subsurface flow, and had created an extensive connected disturbed area due to its proximity to the Muddy Creek tributary. This project 1) decommissioned the portion of the road dewatering the meadow and restored the hydrology of the meadow, which reduced the connected disturbed area, 2) improved the lower section of road (which also reduced the connected disturbed area), 3) created a turnaround and parking area for the special use permittee that conducts fieldtrips to the Windy Ridge heritage site, and 4) created a trail to access Windy Ridge since the decommissioned section of road had been the previous trail access.

Invasive species

Medicine Bow Item Objective 1.c.4
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***To what extent have noxious weed populations been managed (Forest-wide and within wilderness)?***

This monitoring item tracks the extent and treatment of invasive species, which is one of the Previous Chief's four threats to the National Forests.

Monitoring Protocol/Data Collected

Acres treated with chemical, mechanical and/or manual treatments, including insect releases (biological control). Data comes from the targets reported in the U.S. Forest Service budget and target tracking system (Work Plan).

Results/Evaluation

Four acres of yellow toadflax were treated in the Flattops Wilderness Area on the Routt NF and one acre each of leafy spurge and musk thistle were treated in the Platte River Wilderness area on the Medicine Bow NF.

Table 11. Invasive weed treatment in 2007.

Forest	Forest Plan Acres Expected to be Treated per year	Acres Treated	Wilderness Acres Treated
Routt	385	387	4
Medicine Bow	1,200	306	2
Total	**1,585**	**693**	**6**

Funding available for treatment of noxious weeds was substantially reduced in FY07.

In addition, Carbon County encountered difficulties in hiring its seasonal crew, and as a result, they were unable to complete several hundred acres of treatment as they had been able to accomplish in past years.

Lastly, this was the first year that all treatment data were entered in the FACTS database; it tracks "acres treated" differently that the Pesticide Reporting system (a difference in the definition of infested acres) that resulted in a further reduction of counted acres from previous years.

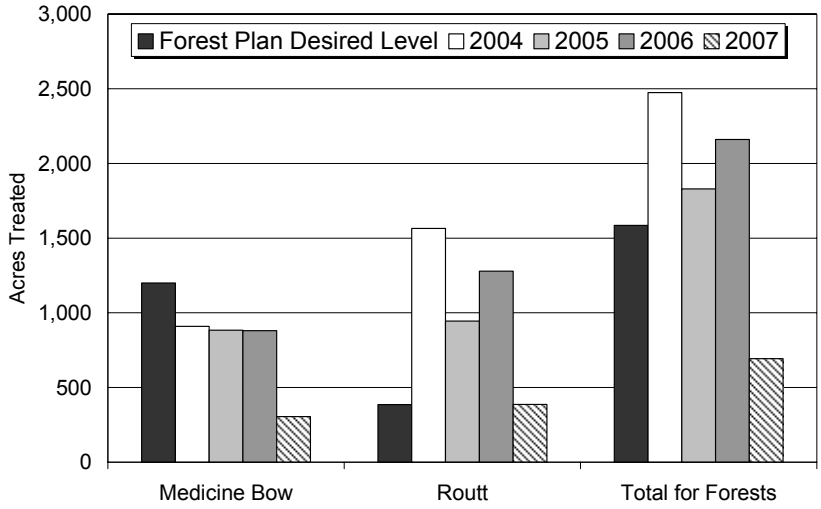

Figure 4. Acres of Invasive Weed Treatment 2004-2007.

Recommendations

Continue to report acres of noxious weeds treated each year, along with reasons for annual fluctuations in amounts and species of weeds treated; data are useful to discern trend of infestations and treatments.

Secondly, the Region and the Forests are actively working to resolve the discrepancies in the FACTS database regarding treated acres.

Aquatic Invasive Species

The Medicine Bow has detected the occurrence of didymo (*Didymosphenia geminata*), an invasive diatom, in at least four locations on the MBNF (two locations on the Sierra Madre Range and two locations on the Snowy Range). It is suspected to occur elsewhere on the Forests. Didymo has also been found in other areas of Wyoming during the summer of 2007.

The organism floats through a waterway and attaches itself to a rock by a stalk. It forms a thick, brown mat that covers rocks, submerged plants and other materials, then breaks off and moves downstream. Didymo greatly reduces available substrate for aquatic insects such as stoneflies and caddisflies, essential food for fish. People, probably fishermen, play a role in spreading the tiny plant.

Recommendations

Develop an inventory and monitoring strategy for these invasive algae (for FY08 funds have been allocated for a didymo inventory). Initiate a public education program to inform the public on methods to reduce the spread of this organism

Insects and Disease

Legally Required Monitoring Item
Medicine Bow Item Objective 1.c.3
Routt Monitoring Item 1-4
Frequency of Measurement: Annual
Reporting Period: Five Years

This monitoring item asks the question:

> ***Are insect and disease populations compatible with attainment of management area desired conditions and themes?***

Monitoring Protocol/Data Collected

Aerial surveys were conducted over the Routt and Medicine Bow National Forests between 2003 and 2007 to provide a broad indication of tree mortality resulting from forest insects and disease. The results of these surveys are presented in the graphs below. While the 2007 aerial survey data is available in time for this report, the annual summary of the data is not available until after this report is published. The analysis of the 2007 survey results will be summarized in subsequent monitoring reports. The data summary can be accessed on the following website: http://www.fs.fed.us/r2/fhm/

Results/Evaluation

Aerial surveys provide a rough estimate of acres affected and trees killed, and cannot quantify or exactly locate insect and disease impacts. The aerial surveys indicated increased losses from insect activity, especially from mountain pine beetles. The primary insects causing damage are the spruce beetle (SB), *Dendroctonus rufipennis*, and the mountain pine beetle (MBB), *Dendroctonus ponderosae*.

In fiscal year 2007, insect (bark beetle) epidemics continued to develop on both the Medicine Bow and the Routt National Forests. Aerial surveys completed in the summer of 2007 indicated that on the Routt National Forest approximately 341,750 acres had been attacked by mountain pine beetle (MPB) and 19,600 acres by the spruce beetle (SB), and on the Medicine Bow National Forest approximately 170,600 acres were attacked by MPB and 17,700 acres by SB. Total acreage figures are difficult to quantify due to the timing of aerial survey and bark beetle flights, also the aerial survey flights depend on fading crowns to detect tree mortality (infestation), which limits the survey to the previous year's mortality. The aerial surveys cannot detect the most recent insect and disease activity.

Figure 5. Mountain Pine Beetle Pitch Tubes.

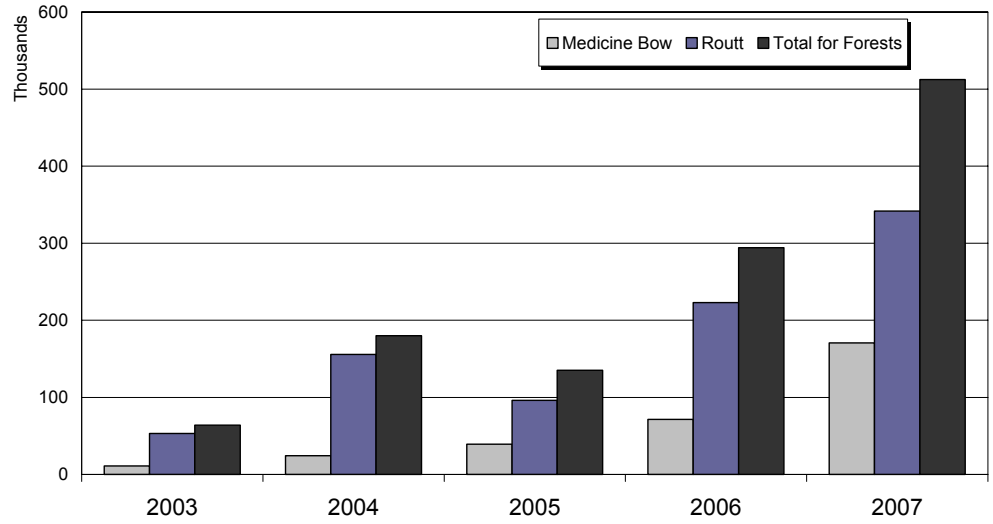

Figure 6. Annual acres affected by Mountain Pine Beetle Activity.

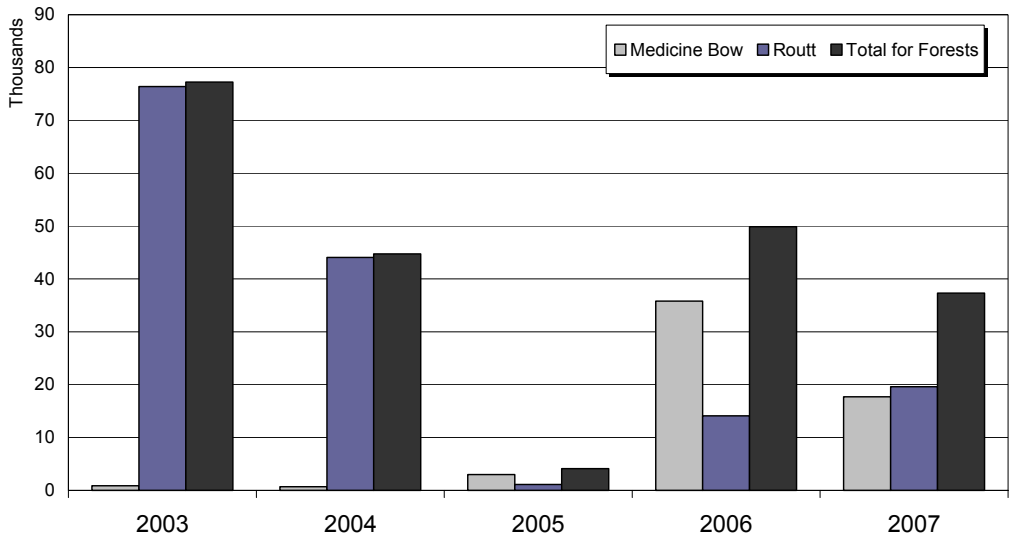

Figure 7. Annual acres affected by Spruce Beetle Activity.

The Routt National Forest is experiencing a continually expanding mountain pine beetle epidemic that seems to expand by a factor of 2 to 3 times the previous years tree mortality and acreage impacted. The predominant species affected by mountain pine beetle is lodgepole pine. Lodgepole pine stands with the following attributes are considered to be at the highest risk: average diameter at breast height[4] (dbh) greater than 8 inches, average age greater than 80 years, stand basal area greater than 120 square feet per acre, and elevation less than 10,000 feet (Amman et al. 1977). Approximately 50 percent of the lodgepole pine on the Routt NF could be considered moderate to high risk for MPB attack due to its age, dbh, and stand density. Weather conditions that adversely affect the vigor of trees (drought), and are beneficial to

[4] Diameter at breast height is a traditional measurement of tree circumference.

development of bark beetle populations (moderate winter temperature, and warm, dry summers) are also very significant contributors to the expansion of the epidemic. Areas of developing bark beetle epidemics are Green Ridge, Big Creek/Pearl vicinities on the Parks Ranger District, Elk Creek and Hahn's Peak vicinity north to the Wyoming state line on the Hahns Peak-Bears Ears Ranger District, and the Rock Creek area of the Yampa Ranger District.

The Medicine Bow National Forest is also experiencing escalating MPB epidemics. Areas of concern are the Sierra Madre mountains and the southwest and west portion of the Medicine Bow mountains. These areas have the most extensive and concentrated attacks, but other areas of the Medicine Bow National Forest are experiencing bark beetle mortality and are probably at earlier stages of potential beetle epidemics. On the Medicine Bow NF approximately 46 percent of the lodgepole pine stands can be considered at moderate to high risk of MPB attack, while approximately 70 percent of the spruce stands are at moderate to high risk of MPB attack.

The spruce bark beetle and sub-alpine fir decline epidemics seem to have peaked with both the Medicine Bow and the Routt NF seeing a decreasing rate of mortality. Spruce stands with average dbh greater than 16 inches, with stand density greater than 150 square feet per acre, and stands with a high percentage of spruce (65 percent or greater) are generally considered at high risk for SB attack. Approximately 56 percent of the spruce stands on the Routt NF can be considered to be at moderate to high risk of SB attack due to size, stand density, and high percentage of spruce in the stands. Areas of concern, with spruce beetle, still exist within the Forest, particularly the Steamboat Springs ski area and the area north of Elk River.

Actions Taken during FY07

On the Medicine Bow–Routt NFs in fiscal year 2007, the Forest Service applied direct control (spraying) of MPB and SB on 8,470 acres (21 campgrounds, 5 administrative sites) and sold eight timber sales that will treat 3,500 acres salvaging stands affected by bark beetles. The Forest also initiated planning and analysis (Red Dirt, Owl Mountain, Prospector, Savory, and Spruce Gulch) for additional vegetation treatments utilizing Healthy Forests Restoration Act authority. All project areas were designed to salvage, or reduce the impacts of the building MPB and SB epidemics.

Conclusions

The Medicine Bow-Routt NFs are experiencing a continuing escalation of bark beetle epidemics that started in the late 1990s. Until 2005 the majority of the bark beetle mortality was primarily in Colorado (Routt National Forest), but in the last 2 years bark beetle populations have exploded on the Medicine Bow National Forest, particularly in the southern portions of the Medicine Bow and Sierra Madre mountain ranges. The mountain pine and spruce bark beetle epidemics will probably continue for at least another 3-5 years. When the bark beetle epidemic has completed its cycle, the potential for loss of many lodgepole and spruce stands over 6 inches in diameter is substantial. The current epidemic is unprecedented within the last 150 years.

Recommendations

The rate of spread of mountain pine and spruce bark beetle that the Forests have experienced in the last few years will probably continue for the next 3-5 years. Any vegetative management in lodgepole pine and spruce should anticipate what the condition of the stands will be in 3-5 years. In the past, forest managers have implemented silvicultural strategies to suppress beetle epidemics when recommending silvicultural treatments, and still suffered extensive mortality in the residual stands. When recommending vegetation treatments in moderate to high risk stands for beetle infestation, the forest manager should anticipate extensive mortality and using adaptive management include the options for salvage treatments and reforestation of the affected stands.

Old Growth

Medicine Bow Item Objective 1.b.4
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Is old growth forest mapped and managed at least to minimum amounts and distribution stated in the plan?***

Monitoring Protocol/Data Collected

Medicine Bow NF

Old growth forests are ecosystems distinguished by relatively complex visible structure or external morphology, horizontal variability, relatively large old trees and related structural attributes (Thomas et al. 1988, Hayward 1991). Old growth encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics which may include tree size, accumulations of large dead woody material, number of tree top layers, species composition and ecosystem function. It can require 80-200 years for forest stands within different cover types to develop the characteristics of old growth (Mehl 1992).

Forests in the Rocky Mountain Region have used generalized descriptions outlined by Mehl (1992) to describe and inventory old growth after 1992 (Estill 1992). Using descriptions identified as applicable to the forests types of the Medicine Bow National Forest, old growth can be described in terms of the age of the largest trees, a minimum number of trees above a certain diameter (DBH) and canopy characteristics. The following table displays these three criteria of old growth by cover type.

Table 12. Old growth description by cover types.

Cover Type	Age of largest trees	Diameter of largest trees	Crown Cover %
Lodgepole	150	10 tpa > 10 inches	≥ 1 canopy layer
Spruce-fir	200	10 tpa > 16 inches	>1 canopy layer
Ponderosa Pine	200	10 tpa > 16 inches	≥ 1 canopy layer
Douglas-fir	200	10 tpa > 18 inches	≥ 1 canopy layer >50% cover
Aspen	100	20 tpa > 14 inches	≥ 1 canopy layer >50% cover
Cottonwood	100*	20 tpa > 14 inches	≥ 1 canopy layer >50% cover
Gambel Oak	80*	30 tpa > 4 inches	
Limber Pine	200*	10 tpa > 12 inches	
Juniper	200	30 tpa > 12 inches	> 35% canopy cover

tpa = trees per acre. Sources (Mehl 1992), *(Wier 1998a) and (Thorin 1999).

In addition to the characteristics detailed above, Mehl (1992) identified other stand characteristics that contribute to old growth in some but not all cover types for each characteristic. These are:

- Variation in diameter of large live trees,
- Decadence
- Multiple canopy layers'
- Standing and down dead trees
- Slow growth in large live trees,
- Stand net growth near 0
- Patchiness,
- Many stages of decomposition,
- Multiple tree species,
- Distinctive bark,
- Distinctive crowns

The chartered old growth core team completed a draft map of inventory and mapped old growth for the MBNF in 2006 based on the old growth descriptions discussed above (Mehl 1992). The draft was presented to the Forest Supervisor and three MBNF District Rangers on December 6, 2006. This review generated some additional questions on implementation and the process for selection of areas included in the inventoried and mapped old growth map. This revised strategy and implementation process is expected to be presented to the Forest Supervisor and three MBNF District Rangers in the spring of 2008.

Routt NF

On the Routt NF, in MA 5.13, within geoareas: Arapahoe Creek, Corral Peaks, Encampment River, Owl Mountain, Pinkham Mountain, Willow Creek, Little Snake, Sand Mountain, Slater Creek, Upper Elk River, Gore and Red Dirt; the LRMP identified that late successional habitats should be provided and well distributed so that individuals of species requiring those habitats can interact with others in the planning area.

Results/Evaluation

A revised edition of an inventoried and mapped old growth strategy and process for implementation was developed in FY07 (January-April), for the Medicine Bow N.F. A draft strategy and implementation process was also developed (April-November) from the review in December 2006 for the Medicine Bow N.F.

Recommendations

- Old growth team should review mapping and complete documentation of the process. The team should draft a recommendation for implementation of the LRMP standards and guidelines using the inventoried and mapped old growth. This paper should include direction on how the districts should supply information to the GIS coordinator to ensure accurate Forestwide tracking of mapped old growth.
- Brief Forest Supervisor on the results of revised mapping and implications for implementation.
- Have rangers and others review mapping, strategy and implementation process.
- Review the inventoried and mapped old growth map at 1 year intervals to assess changes.
- Continue to conduct annual ground-verification plot surveys to gradually expand our confidence in a primarily GIS-based mapping effort and to identify and rectify incorrectly identified polygons in GIS.
- Continue using the field form as a method to assess changes in the mapped and inventoried old growth; for instance, where insects, diseases or fire may have changed the quality or quantity of old growth characteristics.

Threatened, Endangered and Sensitive Species Habitat Improvement

Medicine Bow Objective 1.b.3
Routt Monitoring Item 1-6
Frequency of Measurement: Annual
Reporting Period: Annual

These monitoring items ask the questions:

> ***Are habitats for threatened, endangered and Forest Service Region 2 Sensitive species being maintained or enhanced?***
>
> ***To what extent have habitat improvement needs been identified and implemented using structural and non-structural habitat improvement treatments?***

PLANTS

Monitoring Protocol/Data Collected

Annually document the number of projects identified and/or implemented that improved habitat for Threatened, Endangered, and Sensitive (TES) plant species.

Results/Evaluation

Road Closures: New road closures were implemented and other existing road closures maintained in the Eastern Snowy Range Travel Management Area, Laramie Peak Travel Management area and on the Sierra Madre Mountain Range (Cottonwood Rim and McAnulty areas). These closures should reduce effects to sensitive and/or local concern species habitat.

Conclusions

Road closures, when implemented, will improve habitat for sensitive and/or local concern species and habitat.

Recommendations

- Continue to monitor this item yearly over the life of the plan.

AQUATIC SPECIES

Monitoring Protocol/Data Collected

Report on habitat improvement accomplished during the fiscal year.

Results/Evaluation

The Soil, Watershed and Fisheries improvements are discussed above in the water quality section, as the majority of soil and watershed projects improve fisheries habitat, either by directly improving the stream channel or through reducing erosion and sedimentation in the watershed. As displayed in Table 11, 19.5 miles of stream habitat improvement and 4 acres of lake improvement projects were accomplished in FY07.

Fisheries program highlights include working to improve Barber Lake as an important recreational fisheries facility, expanding sculpin populations in Deep Creek above the culvert on the Deep Creek Road and installing/improving headgates on two ditches.

Conclusion

Recent MIS analysis for Colorado River cutthroat summarized that populations of cutthroat trout are stable across the Forest but we should expect populations to decline where brook trout are present. Therefore, we conclude that habitats for Colorado River cutthroat trout are being maintained across the Forest. In addition, the Forest is protecting and enhancing Colorado River cutthroat habitats and populations by removing brook trout and other non-native trout in cooperation with the CDOW and the WG&FD. Non-native trout removals are restricted to streams that have been identified by the state agencies for cutthroat trout, population-management.

Recommendations

- Continue to survey stream crossings for fish passage (aquatic organism) and sediment loading problems.
- Continue whirling disease testing on the Roaring Fork Little Snake River.
- Continue coordinating activities and programs with Wyoming Game and Fish Department and with the Colorado Division of Wildlife.

Terrestrial Wildlife

Monitoring Protocol/Data Collected

The Forest tracks the number of acres surveyed for terrestrial TES species, acres of terrestrial habitat improved, and number of wildlife structures added or enhanced (see table below).

Results/Evaluation

In 2007, 3389 acres of terrestrial wildlife habitat were enhanced on the Medicine Bow-Routt National Forests. Of these, 3249 acres were accomplished on the Medicine Bow NF and 142 acres on the Routt NF.

On the Laramie Ranger District, prescribed fire was introduced into 1627 acres of sagebrush and adjacent aspen stringers to rejuvenate grasses and forbs, re-sprout bitterbrush and re-seed sagebrush over the long term. The fire created a mosaic of vegetation succession stages improving habitat conditions for mule deer, elk and other sagebrush ecosystem associates. The Rocky Mountain Elk Foundation was a contributing partner to the implementation of this project.

Brush Creek/Hayden Ranger District accomplished 1620 acres of terrestrial wildlife habitat improvement. Road decommissioning near Cottonwood Rim will improve 300 acres of summer habitat for Columbian sharp-tailed grouse (R2 Sensitive Species). Enforcement of a motorized vehicle closures on winter ranges at Sixmile, Holroyd, and the southwest Sierra Madre will reduce disturbance to mule deer, elk, moose, and bighorn sheep. Prescribed burning of 100 acres of big sagebrush and mixed shrubs in a mosaic pattern enhanced nesting and summer habitat for Brewer's and sage sparrows. Conifers were removed from within 20 acres of mature aspen habitat to maintain aspen habitat for woodpeckers, goshawks, and songbirds.

On the Douglas Ranger District, several projects were analyzed during 2007 which will provide habitat improvement opportunities in future years. The Laramie Peak Travel Management Analysis and Decision were completed and will result in modified motorized vehicle management that will provide additional security areas for big game.

The Hahns Peak-Bears Ears Ranger District performed maintenance on two exclosures, the California Park Exclosure and the Soda Creek Exclosure, protecting important Boreal toad (R2 Sensitive Species) breeding habitat.

The Parks Ranger District continued implementing the Camp Creek prescribed burn project. This was a multi-year project with multiple partnerships. In fiscal year 2007,

the Habitat Partnership Program contributed to implementing a burn which improved 120 acres of sagebrush habitat for elk and other species associated with this ecosystem.

The Indian Run prescribed burn has been planned to occur on the Yampa Ranger District. When implemented, it will improve habitat for several species, including big game, but with emphasis on winter habitat for Columbian sharp-tailed grouse (R2 Sensitive Species) in the mountain shrub community and providing early seral stages for snowshoe hare in the aspen community. Snowshoe hare is the primary prey species for the Canada lynx (federally listed, threatened species). The project encompasses 4,360 acres of National Forest, Colorado State lands, and Bureau of Land Management. As of November 2007 the project has not been implemented. The 2007 burn windows were not appropriate for burning on the Yampa Ranger District. Two additional prescribed burn projects (Bear River and Little Flat Tops prescribed burns) have been identified for the Yampa Ranger District to improve wildlife habitat, but have not been fully evaluated. The planning for the Bear River prescribed burn will occur in fiscal year 2008. Additional non-structural habitat improvement for the Yampa Ranger District was the placement of 17 bear proof food storage containers for the Bear Lake campground and implementing a Bear Aware program in the Bear River corridor. This program was implemented in collaboration with the Colorado Division of Wildlife.

Table 13. Terrestrial wildlife habitat improvement accomplished in FY07.

Ranger District	Project	Acres
Medicine Bow NF		
Brush Creek/Hayden	Road Decommissioning	300
	Winter Range Closure Enforcement	1200
	Prescribed Burn	100
	Aspen Maintenance	20
Laramie	Prescribed Burn	1627
Routt NF		
Hahns Peak-Bears Ears	Exclosure Maintenance	22
Parks	Prescribed Burn	120
Total		**3,389**

Recommendations

Continue to partner with interested groups in order to increase available funding needed to complete habitat improvement projects. Strive to increase the number of projected acres of terrestrial habitat enhanced each year.

Threatened, Endangered, Sensitive Species and MIS Habitat and Populations

Medicine Bow Objective 1.b.5
Routt Monitoring Item 1-12
Frequency of Measurement: Annual
Reporting Period: Five Year

These monitoring items ask the questions:

> ***What is the relationship between changes in habitat and population trends of management indicator species?***
>
> ***To what extent are listed species, sensitive species and species of local concern and MIS species habitat availability, habitat quality and populations maintaining stable or positive trends?***

PLANTS

Monitoring Protocol/Data Collected

Annually, document the number of Biological Assessments/Biological Evaluations (BA/BEs) for Threatened or Endangered (T&E) and Region 2 Sensitive plant species that were completed for projects on the Medicine Bow and Routt National Forests. Annually, compile and compare the determinations as a percent of BA/BEs prepared. Include an evaluation of results from project implementation monitoring when expressing conclusions for this monitoring item.

Results/Evaluation

There are no Threatened or Endangered plant species documented on the Medicine Bow or Routt NFs. Potential habitat for one threatened species (*Spiranthes diluvialis* – Ute ladies tresses) was identified on the west side of the Sierra Madre Mountain Range as part of project planning. The analysis documented that the project would not have any effect on the potential habitat and the biological determination was "no effect".

The US Fish and Wildlife Service (USFWS) determined that water depletions in the Platte River Basin have been identified to affect one threatened plant (western prairie fringed orchid) that occurs downstream in the Platte River in Nebraska. A biological assessment was prepared for this plant species in association with the re-issuance of permits for the Recreation Residences on both the Medicine Bow and Routt NFs. The biological determination for this project was "Not Likely to Adversely Impact".

Table 14. Biological Evaluations for Sensitive Plant Species Completed.

Forest	Biological Evaluations	% No Effect	% Beneficial Effect	% May Adversely Impact Individuals (MAII)	% likely to result in a trend towards federal listing or a loss of viability (TTFL)
Medicine Bow	12	0	0	100	0
Routt	10	20	0	80	0

The following information is portrayed only for Sensitive plant species. Biological Evaluations were completed for 22 projects on the Medicine Bow and Routt National Forests in FY07 (see table above).

- No Beneficial determinations were made for sensitive plant species in FY07. This is largely due to the fact that there were not any projects designed specifically to benefit sensitive plant species. However, during rapid assessments in FY 07, opportunities were identified on the Routt NF that could benefit habitat for select sensitive plant species in the future. Opportunities to benefit sensitive plant species and their habitats across the MBRTB planning unit have also been identified in the MBRTB Botany 5 year plan (USDA Forest Service 2004).
- No determinations of "likely to result in a trend to federal listing or a loss of viability" were made for sensitive plant species in FY07. This suggests that habitats for sensitive plant species are generally being maintained across the planning unit. This can be attributed to: 1) Botany participation upfront in project design. 2) Project level surveys adequate to determine presence or absence of sensitive plant species. 3) Provision of effective project mitigation to minimize or avoid negative impacts to sensitive plant species.
- Excluding narrowleaf grapefern (*Botrychium lineare)*, determinations of "may adversely impact individuals but not likely to cause a trend to federal listing or a loss of viability" (MAII) determinations were made for sensitive plant species in 80 percent of the BEs completed for projects on the RNF in FY07. These include projects where: 1) Inventory methods were not feasible or effective for providing information on presence/absence or number and location of individuals, so we assumed the species was present, and analyzed the expected effects. 2) Did not require surveys because the proposed action posed a non existent risk to sensitive plant species. 3) Potential adverse effects to sensitive plant species were avoided or minimized through project design and/or mitigation.
- MAII determinations for narrowleaf grapefern were made for 100 percent of the BEs completed for projects on the Medicine Bow and Routt NFs because presence or absence can generally not be determined through project level surveys for this species.
- The challenges of managing plant species and their habitats consistently between the RNF and MBNF with respect to the varying LRMP standards and guidelines. This is largely due to the following factors: 1) the R2 Sensitive Species List was updated after the Routt Plan was signed and before the Medicine Bow Revised Plan was completed and 2) Species of local concern were included in the MBNF LRMP but were not determined for the RNF at the time the LRMP was completed.
- Project implementation monitoring during the summer of 2007 indicated that cheatgrass, an invasive species, appears to have increased in amount and extent in some portions of the Iron Mountain burn, potentially affecting potential sensitive plant habitat . The area historically provided habitat for the R2 sensitive species large flowered triteleia.

- Rabbit Ears gilia (a R2 sensitive plant species) was found in high numbers and high densities in two locations within the action area of the Mountain Parks Electric Project. The following design features were provided:

    1. Identify on the ground and buffer all known populations of R2 Sensitive Plant Species which are associated with the permitted activities that would result in negative impacts (directly or indirectly) to plant habitat or populations including two sites of *Ipomopsis aggregata* ssp. *weberi* (Muddy Lake and Dumont Lake).

    2. If specific unforeseen impacts from the permitted activities to threatened, endangered, & sensitive species and/or their habitats are identified, then management will be adjusted as necessary to reduce those impacts and maintain consistency with Forest Plan direction.

    3. Avoid use of heavy equipment in or immediately adjacent to wet areas. Access to the powerline route and staging areas by Mountain Parks Electric will be determined and monitored by Forest Service personnel to minimize adverse impacts. A map of these access routes will be provided to the Permittee. This should reduce impacts to plant species and amphibians, their habitats, and the resources they depend on. Mountain Parks Electric will be informed as to the whereabouts of these species as to avoid these species when encountered. This will minimize the potential for negative impacts caused by powerline reconstruction and replacement activities.

- Project implementation monitoring for the Mountain Parks Electric project determined mitigation provided did not occur resulting in viability declines to two populations of the R2 sensitive species Rabbit Ears gilia where over ½ mile of occupied habitat was degraded.

Conclusions

- Biological Determinations made for FY07 projects demonstrate that sensitive plant species for the Medicine Bow and Routt National Forests are being maintained (no TTFL determinations) but are not necessarily being enhanced (no beneficial determinations). However, project implementation monitoring did not support this conclusion for two projects in FY07.
- Forest and Grassland Plan standards and guidelines vary between the Routt and the Medicine Bow. The Medicine Bow Plan incorporates guidelines concerning protection of plant species of local concern, and the Routt Plan makes no mention of species of local concern. This has limited consideration of species of local concern on the Routt NF.

Actions taken on conclusions from 2007 reports

Although the management and the plant lists for Sensitive and Local Concern species are different for the two Forests, and the standards and guidelines are not identical, sensitive plant species and plant species of local concern surveys are being conducted in the same way on both Forests.

Recommendations

Continue to apply plant survey techniques and management considerations in a consistent manner across both Forests.

AQUATIC SPECIES

Monitoring Protocol/Data Collected

Three-pass depletion, electrofishing methods were used to collect data to estimate Colorado River cutthroat trout and MIS-trout (brook trout, brown trout, and rainbow trout) populations extant in the Medicine Bow-Routt National Forests. All trout collected are identified by species, counted, measured, and weighed. The numbers of trout collected from each electrofishing pass are input into models that calculate estimates for each reach sampled. The state agencies typically extrapolate the reach estimates to "number of fish per mile".

In FY07, several streams and stream reaches located in the South and North Zones were surveyed using electrofishing methods to determine the presence of non-native trout and Colorado River cutthroat trout in the Medicine Bow-Routt National Forests. The results of the FY07 surveys are summarized in Tables 2 and 3 in Appendix 3.

Results/Evaluation

FISH

Medicine Bow NF

Collecting trout and other fish in selected streams in the Medicine Bow National Forest to test for whirling disease and other pathogens will continue in FY08. Fish samples collected and submitted to the WG&FD pathology lab (University of Wyoming) in 2007 tested negative. Two additional years of follow-up sampling are required before additional CRCT restoration activities can be implemented in selected stream within the Sierra Madre.

In FY 2007, tissue samples were collected from the following CRCT populations (on both Forests) and submitted to Pisces Molecular, LLC for genetic analysis: Cataract Creek (27 samples); First Creek (30 samples); Roaring Fork, Slater Creek (30 samples); West Coal Creek (30 samples); West Prong, Slater Creek (30 samples); Smith Creek (30 samples); Circle Creek (20 samples); Little Green Creek (20 samples); Trout Creek (20 samples); North Little Green (20 samples); Coyner Creek (19 samples); and Coulton Creek (20 samples)

Routt NF

Populations of Colorado River cutthroat trout and MIS trout appear viable in the Forest (see tables in Appendix 3). Cooperative management efforts between the Forest and two state resource-management agencies (CDOW and WG&FD) are incrementally reducing the most immediate threat to the viability of CRCT: the presence of non-native trout in their habitats. The results of MIS-trout surveys (see tables in Appendix 3) suggest that these species are abundant and well distributed, with the exception of CRCT populations (a MIS species on the Routt NF, sensitive specie on both Forests), which are locally abundant, but not well distributed.

In FY07, the South Zone Aquatics Team removed brook trout from three stations (approximately 1.0 mile) in West Prong, a tributary to South Fork Slater Creek. Brook trout were removed from the creek to protect Colorado River cutthroat trout from competitive exclusion and extirpation.

Conclusion

Colorado River cutthroat trout and MIS-trout surveys conducted in FY07 indicate that these populations are abundant and stable throughout the Districts surveyed; CRCT are locally abundant, though MIS trout are abundant and well distributed in the Forest. But, CRCT populations are expected to decline where they are in sympatry with non-native trout. Therefore, it is reasonable to suggest that CRCT populations will remain viable in the Medicine Bow-Routt National Forest in streams where they can be protected from competitive exclusion and hybridization by non-native trout.

Recommendations

Continue to monitor populations and habitats for all R2 sensitive fish and aquatic-MIS species extant in the Medicine Bow-Routt National Forests.

Table 15. Region 2 aquatic sensitive species located on the Medicine Bow-Routt NFs.

Species	Scientific Name	Forest
Fishes		
Colorado River Cutthroat Trout	*Oncorhynchus clarki pleuriticus*	Medicine Bow-Routt
Mountain Sucker	*Castostomus platyrhynchus*	Medicine Bow-Routt
HornyHead Chub[5]	*Nocomis biguttatus*	Medicine Bow
Amphibians		
Boreal Toad	*Bufo boreas boreas*	Medicine Bow-Routt
Northern Leopard Frog	*Rana pipiens*	Medicine Bow-Routt
Wood Frog	*Rana sylvatica*	Medicine Bow-Routt
Insects		
Hudsonian Emerald	*Somatochlora hudsonica*	Medicine Bow - Routt
Mollusk		
Rocky Mountain Capshell Snail	*Acroloxus coloradensis*	Routt

Colorado River cutthroat trout

1. Finalize the Routt National Forest, Colorado River cutthroat trout Management Plan (in draft).
2. Monitor and evaluate past brook-trout removal efforts in the Elkhead Creek watershed and continue to remove brook trout in West Prong Creek.
3. In cooperation with the CDOW, begin the planning process to chemically treat the Slater Creek watershed to remove non-native trout to support Colorado River cutthroat trout restoration efforts.

[5] This species has not yet been found on Forest, however it was found in the North Laramie River on private land adjacent to the Medicine Bow NF and it is assumed to occur on the Forest.

4. In cooperation with CDOW, monitor and evaluate the effectiveness of CRCT spawning in the outlet channel at Vaughan Lake

Hornyhead chub

1. Partner with the WG&FD and Colorado State University to study the distribution and abundance of the hornyhead chub in the Medicine Bow National Forest.

AMPHIBIANS

Monitoring Protocol/Data Collected:

Visual, sinuous-transverse methods were used to observe and evaluate populations and habitats of R2 sensitive and other native amphibians. Habitat and population trend data are disclosed in the monitoring and evaluation report every five years. Surveys, however, are conducted annually. Also, because of the distribution of chytrid fungus in the Medicine Bow/Routt National Forests, annual sampling to detect the spread of chytrid fungus will continue. Tissue (skin or toenail) samples and skin swabs are submitted to a laboratory for analysis.

Results/Evaluation

In 2007, amphibian surveys suggest that all of the Forest amphibians are doing well, with the exception of the boreal toad (see tables in Appendix 3). Although boreal toads continue to breed in the Forest, their populations are not nearly as abundant and well distributed as they were several decades ago. The reasons for the decline in boreal toad populations (southern population) are not well understood, but limited, successful reproduction and low survival of early life stages are certainly contributory.

Table 16. FY07 Boreal Toad breeding sites monitored.

Ranger District	Number of Sites	# sites with Boreal Toads
BCH	2	2
Laramie	2	1
HPBE	1	0
Parks	1	1

Boreal Toads: In FY07, almost all district biologists conducted boreal-toad surveys, at least to some extent, to evaluate the abundance, distribution, and reproduction within the Medicine Bow/ Routt National Forests.

Routt NF

Several boreal toad surveys were conducted in the South Zone (Routt NF) in FY07 to evaluate known breeding sites. Yampa Ranger District evaluated boreal toad breeding activity in Red Dirt Creek. No tadpoles or juvenile toads were observed during the breeding-site survey, but adult toads have been observed in the vicinity of the potential breeding site in Red Dirt Creek. Boreal toad surveys conducted in the Parks Ranger district produced a single sighting of an adult toad in the Big Creek watershed; the toad was observed near a stream. In addition, boreal-toad surveys conducted in the Hahns Peak/Bears Ears Ranger District (HPBE), in California Park, found toadlets in the vicinity of an active breeding site (Elkhead Creek), but did not find adults. Finally, surveys conducted in Circle Creek, a tributary to Elkhead Creek, did not reveal any amphibians. Breeding continues to occur at known breeding sites, but annual survival rates of embryos (eggs) and toadlets are unknown.

Medicine Bow NF

Boreal toad surveys found adults on Sourdough Creek, juveniles at Ryan Park (BCH) and eggs on the North Fork of the Laramie River (LRD) (Table 4 in Appendix 3). No toads or eggs were found in Rock Creek Park, a historical boreal toad breeding site.

Unfortunately, chytrid fungus appears to persist in some amphibian habitats in the Forest. In FY07, nine tissue samples from the Medicine Bow NF were submitted to Pisces Molecular LLC for polymerase chain reaction (PCR) assay to test for the presence of chytrid fungus (*Batrachochytrium dendrobatidis*). One sample, collected in the vicinity of Commissary Park (Sierra Madre) tested positive, which is the first known occurrence of chytrid fungus on the Sierra Madre Range.

Figure 8. Boreal Toad.

As mentioned in the FY05 Monitoring Report, a boreal toad abundance and distribution study was conducted in the Medicine Bow-Routt National Forests in cooperation with the Rocky Mountain Research Station during FY04 and FY05. A manuscript entitled, "Distribution of Boreal Toads (*Bufo boreas boreas*) and *Batrachochytrium dendrobatidis* in South-Central Wyoming and North-Central Colorado", was accepted for publication in 2006 and published in the journal, ***Herpetelogical Review*** in 2007.

Wood Frog: Wood frog populations appear to remain abundant and well-distributed within their historical habitats in the Snowy Range portion of the Medicine Bow Mountains. Survey results can be found in Table 5 in Appendix 3. Wood frogs have not been known to exist or observed in the Sierra Madre.

Other Amphibians: Surveys on Parks and Yampa RDs found multiple locations with boreal chorus frogs. These frogs were also observed at one location each on Laramie and HPBE RDs. Tiger Salamanders were observed on all three Routt NF districts in FY07.

Conclusion

With the exception of boreal toads, Forest amphibian populations and habitats appear to be abundant and well distributed. Amphibians are breeding and surviving in most of the riparian and wetland habitats extant in the Forest. Reproduction and survival rates for the boreal toad appear to be low based on survey results, although the actual mean rates are unknown. Low observations of egg masses, and in some cases tadpoles, are likely due to the timing of field surveys.

Recommendations

Boreal Toads and other amphibians:

1. Continue population surveys and evaluate breeding-site activities in FY08.
2. Continue to collect tissue and swab samples to evaluate the presence of chytrid fungus.

Northern Leopard Frog: Surveys for northern leopard frog occurred on the Parks Ranger District. The frogs were observed on 15 sites across the district. A summary of the observations can be found in Appendix 3.

INSECTS

Hudsonian Emerald: No surveys for this insect occurred in FY07.

MOLLUSKS

Rocky Mountain Capshell Snail: No surveys for this snail occurred in FY07.

AQUATIC THREATENED AND ENDANGERED SPECIES

Monitoring Protocol/Data Collected

Threatened and Endangered Species: No direct monitoring/evaluation protocol is applicable to these species.

Results/Evaluation

The Forest continues to comply with all of the requirements to consult with the U.S. Fish and Wildlife Service when projects that could deplete water from the upper-Colorado/Yampa River basins and the Platte River basin are proposed for implementation. Proposed projects that are not yet covered by programmatic Biological Opinions will undergo consultation.

Table 17. Colorado River and Platte River listed aquatic species.

Species	Scientific Name	River System	Federal Status
Bonytail	*Gila elegans*	Colorado	Endangered
Colorado Pikeminnow	*Ptychocheilus lucius*	Colorado	Endangered
Humpback Chub	*Gila cypha*	Colorado	Endangered
Pallid Sturgeon	*Scaphirhynchus albus*	Platte	Endangered
Razorback Sucker	*Xyrauchen texanus*	Colorado	Endangered

The federally-listed fish species found in Table 16 occur scores of miles downstream from the Forest boundaries. However, natural-resource management projects that occur within the Forest that could change the timing and/or magnitude of streamflow due to water depletions have been found to adversely affect habitats and populations of these species in the Colorado River, Platte River and Yampa River basins. In addition, in FY07 and in past years, there has been a concerted effort by Forest personnel to process Ditch Bill Easements pertinent to water-depletion facilities in the Platte, upper Colorado, and Yampa River basins.

Recommendations

For FY08, continue to consult with the USFWS about proposed projects that could deplete water from the Upper-Colorado and Platte River basins and that are not covered by a programmatic Biological Opinion.

Conclusion

There are no federally-listed, aquatic species or designated, critical aquatic habitats in the Medicine Bow-Routt National Forests. Given that the MBR continues to consult with the USFWS about proposed projects that could result in water depletions in the Forest, we conclude that the impacts to downstream populations and critical habitats of federally-listed fishes extant in the aforementioned basins are mitigated.

Terrestrial Wildlife

Monitoring Protocol/Data Collected

The Terrestrial Wildlife Program continues to focus on completing inventories to establish baseline distribution information and to begin to assess relative trends. Partnerships are an important part of achieving these accomplishments. To emphasize the importance of TES species, both Plans have goals to maintain or increase TES habitats and to protect biological diversity. MIS are monitored to assess the potential affects of forest management practices on wildlife populations over time.

The Routt National Forest amended its Forest Plan in February of 2007 to revise its MIS list. This revised MIS list now consists of: golden-crowned kinglet, northern goshawk, vesper sparrow, Wilson's warbler, Colorado River cutthroat trout, and brook trout.

The Forest tracks the number of acres surveyed for terrestrial TES and MIS species. Surveys may range from general TES project clearances, to species-specific detection methods such as songbird point counts, goshawk call-playback, monitoring of activity of known raptor nests, DNA-analysis of hair snares, monitoring snowshoe hare pellet abundance, baited-camera stations, or snow-track surveys. Some surveys were conducted as part of monitoring for Management Indicator Species (MIS). Individual species reports are located in the Supervisor's Office[6] for specific protocols.

Results/Evaluation

TES Surveys: During fiscal year 2007, terrestrial wildlife biologists surveyed 53,020 acres for TES species. In addition to conducting surveys of project areas for TES species (termed "project clearances"), the bald eagle and Preble's meadow jumping mouse were the focus of larger-scale surveys for specific Endangered Species Act (ESA)-listed species in 2007.

Some species are designated as Management Indicator Species as well as Sensitive Species. Those species are monitored at a minimum using the MIS protocols. The two Forests accomplished 29,280 of MIS monitoring in 2007. This MIS monitoring is augmented through general TES/MIS clearance surveys for approximately 13,844 acres

[6] Filed electronically at: k:/lmp/1920_planning/monitor/mis.

of proposed projects. The biologists continue to assist in project design to maintain, avoid, or enhance TES habitat wherever possible.

One known nest and one historic (inactive the last 10 years) bald eagle nest sites on the Brush Creek/Hayden District were active in 2007 with three and two juveniles, respectively. Approximately 200 acres were surveyed between the known and newly active nests.

Many surveys and monitoring projects were completed in 2007 for TES and MIS species. Much of the survey work was completed in conjunction with project support.

Through a cooperative agreement with Wyoming Natural Diversity Database, the Medicine Bow surveyed 200 acres for the Preble's meadow jumping mouse. This was the fourth year of a 5-7 year project intended to inventory and monitor Preble's populations at fixed points, correlate population trends with general habitat characteristics, and measure population responses to fire and livestock grazing. The Douglas and Laramie Ranger Districts conducted Preble's surveys at eight locations during the summer of 2007. These surveys resulted in a total of 60 suspected Preble's Meadow Jumping Mice being captured. All 8 locations produced at least 1 suspected Preble's Meadow Jumping Mouse. One site on the Douglas District produced 11 suspected Preble's and one site on the Laramie District produced 26.

The Medicine Bow NF continued its ongoing effort to monitor marten numbers across the Forest by collecting hair samples in hair snares located in stratified random positions across the Forest. A DNA analysis of these hair samples will determine the presence and genetics of American marten in the area.

Snowshoe hares (prey for the listed Canada lynx) were monitored on approximately 10,000 acres across the Medicine Bow National Forest.

TES and MIS songbirds were again monitored across both the Medicine Bow and Routt NFs through MIS songbird surveys in partnership with the Wyoming Natural Diversity Database (WYNDD) and Rocky Mountain Bird Observatory (RMBO) on 20,088 acres using point-transect methodology developed by RMBO.

In 2007 the Douglas Ranger District performed active and passive surveys for all species of bats, to detect presence or absence on the Laramie Peak Unit. We have three sensitive species of bats in Region 2, all three of which have potential to occur on the Douglas Ranger District. Bat surveys were conducted on the North Laramie River August 1 using both the Anabat Bat Detection system, and mist nets. A total of 5 different bat species were identified (1 big brown bat, 1 hoary bat, 2 little brown bats, and 1 silver haired bat).

In addition, the Wyoming Game and Fish Department augmented the Laramie Peak Big Horn Sheep population with an additional 42 sheep from Paradise-Perma herd in southeast Montana. This augmentation was made up of 31 ewes, 6 lambs, and 5 yearling rams.

Table 18. Acres of surveys for Threatened, Endangered, or Sensitive species and Management Indicator Species on the Medicine Bow-Routt National Forests in FY 2007.

Species	Project Clearances	Wildlife Surveys	MIS Surveys	National Protocol Surveys	Total
Bald Eagle (T)	0	200	0	0	**200**
Boreal Owl		1,090	0	0	**1,090**
Columbian Sharp-tailed grouse	0	0	0	0	**0**
Flammulated Owls	0	200	0	0	**200**
Goshawk	7,006	0	1,890	0	**8,896**
Purple Martin	0	0	0	0	**0**
Raptors	90	0	0	0	**90**
Sage Grouse	90	0	0	0	**90**
Songbirds	0	0	20,000	0	**20,000**
Woodpeckers	0	0	See Songbirds	0	**0**
Bats	0	650	0	0	**650**
Pine Marten	0	0	4,390	0	**4,390**
Preble's Meadow Jumping Mouse	0	200	0	0	**200**
Pygmy Shrew	0	250	0	0	**250**
Snowshoe Hare	0	0	4,500	0	**4,500**
General TES/MIS surveys	12,464	0	0	0	**12,464**
Total	**19,650**	**2590**	**30,780**	**0**	**53,020**

.**Figure 9. Northern Goshawk.**

Recommendations

- Complete the prioritization of terrestrial Sensitive Species for landscape level inventories.

- In accordance with the decision to amend the MIS on the Routt NF, develop monitoring protocols for the songbird MIS (golden-crowned kinglet, vesper sparrow, and the Wilson's warbler) and for the northern goshawk.

Progress on FY06 Recommendations:

Submit a project proposal for NFIM funding for FY08 to inventory a priority list of terrestrial Sensitive Species across the Medicine Bow and Routt National Forests.

NFIM funded a project proposal to complete an initial inventory of bats on the Medicine Bow and Routt National Forests and the Thunder basin National Grasslands.

Fire Management Plans

Medicine Bow Item Objective 1.c.1
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

Has the Forest developed a fire management plan, which allows for implementing wildland fire use plans to work towards desired conditions?

Monitoring Protocol/Data Collected

This item is answered with an annual update of the progress on wildland fire use plans.

Results/Evaluation

The Northwest Colorado Fire Management Plan, an interagency plan that has included the Routt portion of the Medicine Bow–Routt National Forests, was completed in 2002. Yearly updates to this plan have been completed allowing for adherence to changing national guidance and direction. The Fire Management Plan (FMP) for the Medicine Bow portion of the Forests was updated in 2005. However, in the previous Medicine Bow Forest Plan, Wildland Fire Use was not incorporated. The 2003 Forest Plan Revision of the Medicine Bow now provides for fire use if the application of this strategy is determined to be feasible.

New changes in the Medicine Bow-Routt Fire organization have resulted in the desire to combine the Medicine Bow and Routt Fire Management Plans. Therefore, a new FMP for the Medicine Bow-Routt National Forests and Thunder Basin National Grassland is being developed. This FMP will include fire use areas on both the Medicine Bow and Routt National Forests. There are nine new areas proposed for fire use on the Medicine Bow Forest. These areas are currently being examined in order to determine their suitability for fire use. The examination consists of modeling fire spread in these areas based on fire history, fuels data, and weather history. Since some of the proposed areas are relatively small and are bordered by lands with suitable timber or other resource concerns, it is possible that fire use may not be an appropriate fire management strategy in all areas. Once the proposed fire use areas are fully studied, a determination will be made on whether to include or discard a respective area for a fire use strategy.

We expect to have a Fire Management Plan that includes the full spectrum of appropriate fire management strategies for the Medicine Bow-Routt National Forests and Thunder Basin National Grassland for the 2008 fire season.

Fuels Treatments

Medicine Bow Item Objective 1.c.2
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***How many acres in high hazard/high risk and residential interface areas were treated with mechanical treatments or prescribed fire in an effort to move affected landscapes toward their desired vegetation composition and structure as described in the Geographic Area direction?***

Monitoring Protocol/Data Collected

The US Forest Service moved reporting of planning and accomplishment activities from the National Fire Plan Operations and Reporting System (NFPORS) database to the FACTs database. Annual accomplishment reports can be generated listing acres treated by Wildland Urban Interface (WUI) vs. non-WUI, and mechanical vs. prescribed fire.

Results/Evaluation

Implementation of mechanical treatments costs many times the per acre cost of prescribed burning treatments. As a result, mechanical treatments are often left on the shelf and replaced by prescribed burning, which yields the Forest many more acres for the dollar spent. This may have the potential to influence the number of WUI mechanical acres treated annually. Washington Office and Regional Office direction outlines an optimum treatment ratio of 60 percent WUI to 40 percent non-WUI. For FY06 the ratio of WUI to non WUI was approximately 65 percent WUI and 35 percent non-WUI (including the fuels projects on the Thunder Basin National Grassland).

Table 19. Fuels treatments on the Medicine Bow–Routt NFs, 2004-07.

Treatment Type	2004	2005	2006	2007
Mechanical Treatments				
WUI	4,818	346	1429	1290
Non-WUI	115	409	592	452
Mechanical Treatment Total	4,933	755	2021	1742
Prescribed Fire				
WUI	1,097	3,586	1563	200

Non-WUI	2,310	1,780	3070	1861
Prescribed Fire Total	3,407	5,366	4633	2461
Treatment Total	8,340	6,121	6654	4303

Multiple Benefits to People

Outdoor Recreation

Medicine Bow Objective 2.a.3
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

How many miles of trail meet agency standards?

Monitoring Protocol/Data Collected

This item is answered using the data collected by the districts on trail maintenance.

Results/Evaluation

Medicine Bow NF

Table 20. Miles of summer trails meeting agency standards.

District	Trails on District (miles)	Trails meeting agency Standards (miles)	Percent (%)
Medicine Bow			
Brush Creek/Hayden	251	116	46%
Douglas (Laramie Peak)	77	42	55%
Laramie	153	126	82%
Routt			
Hahns Peak-Bears Ears	419	214	51%
Parks	271	150	55%
Yampa	218	153	70%
Total	1389	801	57%

Brush Creek/Hayden Ranger District

- For FY07, the District had more volunteer trail assistance than in FY06. Volunteers completed approximately 728 hours in FY07 working on Lower Rock Creek and Verde Mine trails.
- The Brush Creek/Hayden trail crew also worked on the Verde Mine Trial Project with the volunteer group. The Verde Mine trail had not received any maintenance for many years. During this project the 4.6 miles of trail was cleared, drainage work completed and additional cairns were added.
- Trail use is staying at historical levels or increasing depending on location.

- Due to various insect and disease issues, especially in the foothills or lower elevations on both mountain ranges in south central Wyoming, trail clearing in the near future is going to spike to levels that may exceed our ability to complete. The potential dead fall that is expected in the next 5 years in just the Encampment River Wilderness Area will far exceed the District's trail maintenance funding allocation. The beetle-killed trees will create trail clearing issues for many years to come.

Table 21. Miles of winter trails meeting agency standards.

District	Trails on District (miles)	Trails meeting agency Standards (miles)	Percent (%)
Medicine Bow			
Brush Creek/Hayden	293	285	97%
Douglas (Laramie Peak)	0	0	
Laramie	127	115	91%
Routt			
Hahns Peak-Bears Ears	143	132	92%
Parks	62	55	89%
Yampa	90	81	90%
Totals	715	668	93%

Douglas Ranger District (Laramie Peak Unit)

- With a combination of roads, trails and watershed dollars, a full trail/sign crew was hired; however, only high use trails were maintained to make time for other priorities (signing, facilities maintenance).
- Numerous heavy rain events this spring and late summer caused drainage features on many of the trails to fail.

Figure 10. Hensel fire area in the Ashenfelder Basin.

- Continued blow down in the Ashenfelder Basin from the Hensel fire of 2002, is proving to be a continuing maintenance problem; requiring trail maintenance at least twice a season to maintain the trails to standard, which did not happen in 2007.
- Illegal ATV use continues to be a problem, with more illegal routes and use noted throughout the Laramie Peak Unit.

- The Laramie Peak Travel Management Plan was completed. Implementation is scheduled for summer FY09, once the motor vehicle use map is published in fall FY09.

Figure 11. Sign closing an illeagal trail across LaBonte Creek

Laramie Ranger District

- The LRD relies heavily on volunteers and partners to maintain its trails. The Medicine Bow Nordic Association grooms over 19 miles of skate/cross country ski trails at least three times weekly to a standard comparable to similar private facilities. Individual volunteers groom over 15 miles of skate/cross country ski trails twice weekly. The Medicine Bow Mountain Bike Patrol performs trail maintenance activities at least once monthly on over 25 miles of multiple use non-motorized trails. The Snowy Range Backcountry Horsemen donated over 520 hours of trail work in 2007, primarily in the Platte River Wilderness.
- Other groups and FS employees inspected and maintained another 65 miles of summer trails in 2007.
- One-quarter mile of summer/winter trail was relocated to avoid riparian area impact; construction of five new Rail-Trail trailheads and one new diversified trailhead was completed in 2007 (improvements included lot construction and surfacing, toilet installation, well drilling, picnic site construction, perimeter fencing, and sign installation). One-half mile of trail near Brooklyn Lake was marked with scree walls and cairns and social trails revegetated.
- Twenty three miles of new gravel-surfaced bike trail was marked and signed in 2007 (Rail-Trail); 1.2 miles of surfaced pedestrian trail was completed around Lake Owen. Six trailhead registers were repaired or replaced.
- Beetle-killed blowdown trees blocked trails in Savage Run Wilderness considerably in 2007. All trails were cleared.
- Illegal motorized use of the railtrail (both summer and winter) continues to be a problem.

Routt NF

Hahns Peak-Bears Ears Ranger District

- The State funded motorized trail crew maintained 100 miles of motorized trails on the District, worked with the Timberline Trail Riders on maintenance and

other trail projects, and patrolled motorized use areas to ensure that users were complying with area regulations. There continues to be problems with user-created ATV and motorcycle trails in the Big/Little Red Park area, as well as other parts of the north end of the District. There are also problems with ATV use on single-track (motorcycle) trails, which reduces the opportunity for off-road motorcycles to recreate on the District. Approximately 90 percent of the motorized trails were maintained to standard because of the availability of the motorized crew.

- Four people were hired to maintain non-motorized trails, including wilderness trails, in FY07. The wilderness crew consisted of one person, who coordinated work with the Friends of the Wilderness, maintained 70 miles (out of 100) of wilderness trails to standard. Duties also included patrolling system and non-system trails to ensure users were complying with area regulations. The non-wilderness/non-motorized trail crew (two people) maintained 100 miles of trail. While 300 miles of trails were maintained in FY07, many trails were not maintained to standard and most maintenance work consisted of clearing down trees from the trail and hazard trees adjacent to the trail. Hazard Tree removal on all trails (wilderness, motorized and non-motorized) became a more time consuming and costly portion of the overall workload. This will continue in the future. Heavy maintenance was not accomplished on most trails, except for two. Several complaints were received regarding the condition of the trails, particularly on the lightly used west side of the District.
- Several volunteers and partners assisted with trail maintenance. The Friends of the Wilderness group contributed trail work including trail clearing and heavy maintenance. The District also benefited from time from a sierra Club service trip in the Mt Zirkel Wilderness, and the Rocky Mountain Youth Corps assisted on construction of a turnpike on a motorized trail. Other volunteer groups such as bike clubs and outfitter/guides assisted with trail maintenance and clearing in several areas.
- Over 50 miles of the Continental Divide National Scenic Trail (CDNST) are located on HPBE. The existing trail received general maintenance this year. Rights-of-ways will need to be acquired for completion of the trail.
- Winter recreation trails are primarily maintained by snowmobile clubs, and other volunteer groups. The Smartwool Company donated a day of time, and assisted in replacement of winter recreation signs on Rabbit Ears Pass.

<u>Parks Ranger District</u>

- Maintaining trails to standard is achieved through the dedication of a trail manager and three seasonal trail crews. Trails were cleared of deadfall and the tread maintained (cleaning and reconstructing waterbars, pruning branches, and maintenance on berms).
- Northern Colorado Trail Riders (motorized trails), Volunteers for Outdoor Colorado (CDNST trail), Continental Divide Trail Alliance (CDNST trail) all volunteered to help maintain or build new tread on our trail systems.
- Continental Divide Trail work included 4.5 miles of construction, mapping and signing.
- The Illinois Pass to Bowen Pass segment of the CDNST was re-aligned to follow the original trail tread. This work was done to eliminate wildlife conflicts with

the previously constructed trail segment that was on the Sulphur Ranger District of the Arapaho/Roosevelt NF.

- The District participated in meetings with the Continental Divide Trail Alliance (CDTA), the BLM, the Regional Office, and individual landowners to determine an optimum route for the Muddy Pass segment of the CDNST. This route would have to cross numerous private parcels between the Antelope ridge and the Parks Range, crossing State Highway 125 or Highway 40. There are three routes under consideration.
- There is an increase in deadfall due to the beetle epidemic that the Forest is going through; on the Grizzly-Helena Trail, we cut out over 250 trees. An average 100 trees were cut from every trail that was opened this year. Trailhead improvements were done mostly to improve visitor safety by reducing hazard trees at high use areas.
- Trail funds are combined with recreation/wilderness funds that pay for our Wilderness crew to help maintain the wilderness trails. The vast majority of the trail maintenance and improvements are done with partnership funds, including motorized trail funds and Continental Divide Trail funds. The District will look into applying for additional non-motorized trail funds next year.

Yampa Ranger District

- The Friends of the Wilderness volunteer group assists the District with wilderness trail maintenance.
- Trail reconstruction was performed this year with roads and trails funds (TRTR) utilizing the Rocky Mountain Youth Corp.
- Trail reconstruction on the Heart Lake Trail and Morrison Slide Trail were performed this year with TRTR funds utilizing the District trail crew.
- OHV trails have been requiring a much higher maintenance commitment compared to the foot/horse trails.
- Current budgets only allow us to do maintenance on high use trails (approximately 70 percent of total). Any construction or reconstruction project funding must come from other monies, such as TRTR.
- Combining wilderness and trails positions and funding have been the most efficient way for us to manage the backcountry.

Recommendations

- Continue to emphasize and utilize partnership programs.
- Increase education and enforcement efforts to reduce illegal motorized use both on non-motorized trails and off-road.
- Work with the Region and the Continental Divide Trail Association (CDTA) to resolve trail connections across private land.
- Implement summer motorized trail system plan for the Laramie Ranger District Eastern Snowy Range Travel Management Decision, which includes trail construction, adoption, and decommission components.

Progress on FY06 Action Items

- Planning work was completed this year on the Troublesome Basin Trail #51 and Snyder Creek Trail Reroute. Both of these projects will be implemented in 2008.
- An initial ID Team meeting was held to determine the feasibility of a new winter trailhead parking lot at the Grizzly Creek Guard Station. The team recommended that the recreation staff commit to collecting use numbers this winter and then develop a proposal for any changes.

Recreational Opportunities

Medicine Bow Objective 2.a.2
Routt Monitoring Item 2-1
Frequency of Measurement: Annual
Reporting Period: Annual / Five Year

These monitoring items ask the questions:

Where can we plan for and improve recreation sites?

Do recreational opportunities respond to Forest users' desires, needs and expectations?

This monitoring item is best suited to a five-year reporting schedule and will be addressed in the upcoming five-year review for the Medicine Bow Plan scheduled for completion in 2009.

Figure 12. Accessible boardwalk through wetlands at Lake Owen.

Effects of Recreation Activities

~~Medicine Bow Objective 2.a.1~~
Routt Monitoring Item 2-3
Frequency of Measurement: Annual
Reporting Period: Annual / Five Year

These monitoring items ask the questions:

> ***To what extent have dispersed recreation sites been rehabilitated?***
>
> ***How are recreational activities affecting the physical and biological resources of the Forest?***

The primary effect of recreation on other resources is from unauthorized off road vehicle use, which is discussed in the next monitoring item. Another significant effect of recreation is from the use of dispersed camping sites, particularly those near streams, lakes, and wetlands.

Monitoring Protocol/Data Collected

This monitoring item is answered using field observation, inventory data and the actions taken to reduce the effects of recreation on forest resources.

Results/Evaluation

Medicine Bow NF

Brush Creek/Hayden Ranger District

- Under the Cottonwood Rim analysis, the decision was made to close the dispersed sites below Battle Creek Campground. Much of this work was completed in FY 2005. During FY06 the District installed standard information signs to replace the existing temporary signs. These signs were installed along NFSR 807 to educate and inform the public of the closure. During FY07 the District reviewed these closures as part of a Forest Plan Monitoring field trip. The field trip found much of the travel management and dispersed campsite closure working well.
- The District worked at cleaning litter up around dispersed sites in the spring of 2007 that forest users left during the heavy snow storm on October 17, 2006.
- Dispersed camping adjacent to developed campgrounds is impacting campground operations. For example, Deep Creek and French Creek Campgrounds have dispersed camping occurring close to the campgrounds. Many of the people camping next to these and other campgrounds use the facilities of the campground, i.e. the trash containers and toilet.

Douglas Ranger District (Laramie Peak Unit)

With the use of awarded TRTR funds, post and pole fencing and large boulders were placed in critical areas in LaBonte Canyon, to reduce motorized access from the main road into dispersed campsites, and to close off campsites that were too close to LaBonte Creek. The fencing and boulders have proven effective and an attractive addition to the dispersed recreation areas.

- Only one boulder site has been tampered with and used as an ATV jump from the main road to a dispersed site. Post and pole fencing will be placed at this site next summer in place of the boulders.

Figure 13. Buck and pole fence constructed in 2007 at LaBonte Canyon dispersed sites on Laramie Peak.

Laramie Ranger District

- Lake Owen Dispersed Site Improvements: plans are underway to designate some of the dispersed campsites at Lake Owen and improve the sites to mitigate ongoing resource impacts; informal surveys of campers at these sites indicate a willingness to pay for services, especially trash removal.
- Lake Owen: The District closed four sites due to overuse (soil compaction/ vegetation loss) and poor location (wet crossings). Fire rings were dispersed, access routes ripped, and barriers placed at entrances (signs and/or physical barriers). Several (10-15) newly created dispersed sites on Pole Mountain were closed via signage.
- Dispersed use on Towner Lake Road has decreased, possibly due to signing and compliance efforts.
- Roughly half of recent dispersed site rehab District wide has been effective, with the other half of the sites being re-opened and re-used.

Routt NF

Hahns Peak-Bears Ears Ranger District

- Dispersed sites outside wilderness on HPBE had no rehabilitation in FY07. Rehabilitation was accomplished on illegal campsites in the Mount Zirkel Wilderness by the Friends of the Wilderness volunteer group and one wilderness ranger. The wilderness ranger also completed Limits of Acceptable Change (LAC) monitoring on sites formerly rehabilitated.
- Dispersed site rehabilitation in the past has been associated with wildlife, timber, hydrology and fuels projects. All District project proposals and geographic area assessments include a discussion of recreation activities and dispersed recreation impacts. Dispersed campsites and user-created trails causing resource damage or impacts to wildlife are often considered for rehabilitation. Many dispersed campsites are associated with roads located close to streams, with resource damage occurring both from the road and from dispersed camping.

- HPBE worked with The Rocky Mountain Region's Center for Design and Interpretation (CDI) on plans for renovation of the Hahns Peak Lake Campground and Day Use area, scheduled for reconstruction in FY08. This renovation will bring this developed area up to today's standards as well as improve accessibility at the site.
- The spread of mountain pine beetle mortality began to affect the availability of developed campsites by reducing the days campgrounds were open to the public. Hazard tree removal shortened the season for several of the campgrounds on the unit.

Parks Ranger District

- Dispersed campsite cleanup work has been done in past years. During the summer and fall seasons, patrols are done in dispersed camping areas. Visitors are contacted and attempts are made to mitigate impacts.
- Campsites that have been developed within 100 feet of streams are being reviewed to determine if resource damage is occurring. These sites are either being hardened (i.e. graveled) with fire rings or are being rehabilitated and closed. Use of alternative campsites is being encouraged by signing or identifying in brochures.

Yampa Ranger District

- During the Rock Creek EIS, dispersed campsite inventory data was analyzed for risks to the biophysical resource. This data will guide future dispersed site management.
- The current mountain pine beetle infestation will most likely alter the availability and setting of dispersed camping.

Recommendations

- Implement a Forest wide special order that would allow for enforcing the Forest Plan Standard of restricting dispersed camping within ¼ mile of a developed campground. This would have great potential to reduce impacts on the fringe of the campgrounds.

Action taken on 2006 recommendations

- Progress with the Soldier Summit NEPA process to address management of the North Fork of the Encampment River dispersed sites.

  The Soldier Summit EA decision was signed in FY2007 that does result in addressing the dispersed camping on the North Fork of the Encampment River. From this decision campsites will be closed, moved or hardened as per the decision. Implementation plans are being prepared for spring of 2008.
- Develop and install permanent signage for the closed Battle Creek dispersed sites.

  Permanent signage was installed during the summer of 2006 and 2007.
- Patrol and monitor LaBonte Canyon as the campground is checked by the campground compliance officer.

  LaBonte Canyon was patrolled in 2007.

- Continue to pursue a long-term solution for the north end of the Grizzly-Helena trail.

  A feasible solution has not yet been developed.

Effects of Off-Road Vehicles

Legally Required Monitoring Item
Medicine Bow Item Subgoal 2.a.
Routt Monitoring Item 1-3
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

What are the effects of vehicle use off roads?

Monitoring Protocol/Data Collected

This item is assessed using field observations, Forest patrol responses, and official law enforcement statistics.

Results/Evaluation

Numbers of warnings and tickets issued for motor vehicle violations was drastically reduced in 2007. This is directly related to the number of law enforcement officers (LEOs) on the Forest. During 2007 the Forest had one of two positions filled. This position covered both Forests and the grassland. In prior years we have had three to four LEOs.

Table 22. Off road vehicle violations FY05-FY07.

Special order area closure to vehicle travel off Forest Development Roads. (36CFR261.56)	2005		2006		2007	
	MBNF	RNF	MBNF	RNF	MBNF	RNF
Warnings	20	27	18	15	5	3
Incidents	124	98	105	213	93	54
Violation tickets	39	6	40	36	13	9
Total	183	131	163	264	111	66
MBR Total	**314**		**427**		**177**	

Medicine Bow NF

Brush Creek/Hayden Ranger District

- On Brush Creek/Hayden Ranger District, it appears that off road vehicle use is increasing. An increase in OHV use is being observed earlier in the season, and across the entire District with the exception of wilderness areas.
- The District has sought and received funding from the State of Wyoming for additional patrol and education activities. At this time, monitoring has shown little evidence of reduced activity.
- The District continues to complete sign maintenance on road and area closures as time and funding allows.

- The District has made efforts to address any reports from the public or cooperating agencies (i.e. Wyoming Game and Fish Department) about off road violations.
- Another related item to OHV/ATV is the significant increase in winter snowmobile travel. Snowmobile use for the Forest, identified by the National Visitor Use Monitoring, found snowmobiles to be the number four primary activity for visitors to the Forest. Limited resources and funding are available for the "winter season" and "winter use on the Forest. Issues that have been identified that need attention would be: travel off designated trail segments, wilderness incursions, and travel into winter range closure areas.
- The District does receive cooperative funding from Wyoming State Trails program to assist in education, patrol and enforcement. The Wyoming State Trails emphasis is on enforcing their registration compliance program, grooming and sign work on the trails.

Laramie Ranger District

- OHV use on Pole Mountain occurs year long, with mostly 4WD vehicles, and less ATV use. Violations have included resource damage due to mud bogging and off road travel.
- On the Snowy Range, the principle OHV use is in the Fallen Pines, Cinnabar Park, WyColo/Fox Park and Lake Owen areas. ATVs are the most popular OHV on the Snowy Range, with 4WD vehicles secondary. The use is primarily for off road travel, dispersed site access with some mud-bogging.
- In 2007, one LEO and two FPOs were used for patrolling the District.
- Resource concerns include effects on sedimentation, sensitive plants, soil erosion, and wildlife.
- The Eastern Snowy Range Travel Management EA, evening patrols by FPOs, signage, and partnering with Wyoming State Trails in outreach efforts are all being used to address this issue.
- Most actions from previous years have been ineffective, with some notable exceptions on Pole Mountain, where illegal roads were successfully closed and rehabilitated.
- Compliance with ORV registration has increased; while greater numbers of riders now understand and comply with travel regulations, numbers of new and uninformed riders are also increasing.

Douglas Ranger District (Laramie Peak)

- Recreation riders (as opposed to hunters) continue to be a growing user group.
- Patrolling has been fairly effective. The majority of ATV use violations are for not having a state OHV sticker (CFR 261.54d), and not for illegal travel off roads (CFR 261.56).
- During hunting season, the District tries to have three pairs patrolling Laramie Peak. The patrol areas divided up so there is thorough coverage. The pairs are usually one FPO and one non-FPO. Again, most tickets are for not having a state OHV sticker, not for illegal off-road use.

- The Wyoming Game and Fish wardens have been very effective in sending information on off-vehicle violators, as they are better able to be where the abuse is occurring.
- The District is using signage to address this issue. Additionally, the Laramie Peak Travel Management Plan will help address these issues with proposed seasonal closures and year-long closures in sensitive areas.
- The Cow Creek Mountain and Curtis Gulch Trails, both of which had been designated as motorized, were identified in the Forest Plan to be closed to motorized use. These also access very popular hunting areas where success has become less assured as ATV use by hunters has increased. Both areas were gated and signed closed in 2007, with a special closure order, and the success rate increased (as per the Wyoming Game and Fish Warden's report). No hunters appeared to drive behind the sign during the season.
- There has been an increase in complaints from the public, Game and Fish, adjacent landowners and other law enforcement regarding the plethora of off-road use and the subsequent conflicts.

Routt NF

Hahns Peak-Bears Ears RD

- A motor vehicle use map (MVUM) was developed to provide information to the public where motorized routes are located.
- OHV use seems to be increasing on HPBE although there is no way to track actual use numbers. NVUM surveys will help to compare this trend from 2001.
- Problem areas on HPBE are on the northeast section of the District in Big/Little Red Park, Whiskey Park and toward the Continental Divide and Wyoming border. Most of the problems are associated with illegal OHV use. There are some user-created trails that impact soil and water resources because they travel through streams or wet areas.
- HPBE receives a state grant annually to hire a motorized trail crew to maintain and patrol system trails. The crew also closes user-created trails by installing signs and contacting users when they are found on an illegal trail. However, the location of many of these user-created trails is not known and they are difficult to keep closed without constant presence.
- The main action to reduce illegal OHV use is patrol and law enforcement. The motorized trail crew works weekends during the summer and fall conducting patrols and contacting OHV users at their camps. Forest past actions have been effective in reducing illegal OHV use in certain areas, but the problems are often shifted to a different area. HPBE identifies problem areas each year and focuses law enforcement and education efforts in those areas.
- Winter OHV use is very heavy on HPBE, both in the Rabbit Ears/Buffalo Pass area and in the Hahns Peak/North Routt area. The District is open to snowmobile use except in wilderness and the designated non-motorized areas on Rabbit Ears/Buffalo Pass. FY06 was the first year of implementation of the Winter Recreation decision. Winter motorized use continued to occur in the non-motorized area and wilderness. However, increased Forest Service presence seemed to reduce the overall number of motorized incursions into non-motorized areas from previous years.

Parks Ranger District

- A motor vehicle use map (MVUM) was developed to provide information to the public where motorized routes are located. User-created trails will still be a fixture on the landscape until we can physically eliminate them.
- Principal areas of OHV use are District wide. The use is throughout the summer and especially during the fall hunting seasons.
- Problems arise as people venture off the existing motorized routes and create new routes. Old closed logging roads are a magnet for all of the OHV enthusiasts, especially during the hunting seasons. We are still getting motorized use on some of our non-motorized trails (trails 1135, 1187, and 1197).
- The trail crews are working in some of these key areas, but it is often difficult to catch anyone in the act. The District has done saturation patrols on the busy weekends in these same problem areas, in addition to hunter patrols in the fall to inform and educate motorized recreation users.
- The Colorado Off Highway Vehicle Coalition, Front Range Trail Riders and Northern Colorado Trail Riders are all good partners and have been helpful with peer pressure.
- Resource concerns would include the proliferation of illegal user created routes. All of which can lead to erosion, damage to sensitive plants and disturbance of wildlife. Every year there are comments from the CDOW regarding people riding OHVs on closed routes. The District has received outside funding (State OHV trail grants) to help with signing and travel management patrols.
- Snowmobile tracks into the Mount Zirkel Wilderness indicate a need for more presence during active use periods.
- There were annual reports of ATVs riding through the river on Silver Creek Road (NFSR 780). A temporary closure order has been developed and will be posted until the drainage problems can be addressed, and a new road prism with a fence is developed.
- There is still off trail motorcycle use occurring in the Jack Park area.

Yampa Ranger District

- A motor vehicle use map (MVUM) was developed to provide information to the public where motorized routes are located.
- Observations indicate that the majority of use occurs during the big game hunting season. Incident reports are highest during this time of year. Most open NFSRs are utilized during this time. During the summer, use is generally on OHV trails.
- Travel Management has received a lot of attention on this District in recent years. Areas with illegal use are mapped, closed and monitored for compliance. During each hunting season, each area is patrolled, weather permitting.
- Resource concerns include: big game security, soil erosion and impacts on other recreationists.

- When illegal use is discovered, we use a combination of signage, T-posts and various amounts of woody debris and rock. During big game season, public contacts stress responsible OHV use.
- The majority of the illegal routes that were closed in previous years remain closed.

OHV Effects on Rangeland Management

Increasing levels of OHV use on the District continue to compromise the ability of livestock managers to effectively manage livestock on some grazing allotments. The number of OHV users is increasing and the primary use period, which used to be immediately prior to and during hunting season, is now extending through the summer. On one allotment on the Brush Creek/Hayden District, where an OHV loop travels through 2/3 of an allotment, the permittee has indicated he will likely not run cattle in 2008 because livestock disturbance from OHV use is a significant contributing factor for the permittee.

Effects of OHV use on livestock and rangelands include:

- Altering livestock distribution by causing animals to move away from OHV activity areas, leading to excessive trailing or forage utilization in some areas
- Negative effects on livestock behavior – animals are unsettled and more difficult to manage
- Trampling impact to vegetation as cattle run back and forth along ATV routes
- Gates left open between pastures, allotments, or at the Forest Boundary, undermining rotational management systems or enabling unauthorized use
- Creation of new, illegal trails off open routes, increasing the amount of impacted ground and livestock disturbance

Recommendations

- Continue to work with the state to increase education of OHV riders when they register their vehicles
- Conduct patrols in OHV problem areas throughout the season of use.
- Look for opportunities to increase funding for physical closure of illegal routes/damaged areas.
- Evaluate existing ATV trails with livestock management conflicts and consider whether seasonal restrictions would be appropriate to reduce conflict.
- Continue to use funds from the Wyoming state trails program, for increased monitoring and enforcement on ATV trails.

Actions taken on FY06 Recommendations:

- Complete Snowy Range Travel Management analysis to designate an official OHV trail system for the east side of the Snowy Range of the Laramie Ranger District.

  The decision for Eastern Snowy Range Travel Management was issued in 2007.
- Monitor effectiveness of a selected closure in FY06.

  Brush Creek/Hayden Ranger District did review closures created under the Cottonwood Rim Decision in the summer of 2007. Some closures that were completed were found to be more effective than others. Sign maintenance

was required in many places. There was difficulty in determining off road use by permittees versus illegal use.

- Work with Wyoming Game and Fish Department to identify new illegal routes in Laramie Peak unit.

  As part of the Laramie Peak Travel Analysis, the District inventoried routes.

- Add additional Forest Protection Officer patrols at the District level.

  Fill vacant LE&I positions.

Scenery

Routt Monitoring Item 2-4
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

How are projects and programs affecting visual quality?

Monitoring Protocol/Data Collected

The effects of management on visual resources are assessed through field evaluation of Forest Service activities. Three timber sale projects were selected for monitoring: Two Bull and Bearclaw Timber Sales on the Hans Peak-Bears Ears Ranger District (HPBE) on the Routt NF and the Singer Peak Timber Sale on the Brush Creek/Hayden Ranger District on the Medicine Bow NF. The Big Creek Ridge Prescribed Burn project on HPBE was also evaluated.

Results/Evaluation

Routt NF

The MBR monitoring IDT and HPBE District staff visited three units in Two Bull Stewardship Timber Sale area and the Bearclaw Timber Sale area of the HPBE District on July 31, 2007. The sale units were part of the Bark Beetle Analysis. The units are situated within MA 5.13 with emphasis on forest product. The adopted visual quality objectives are *Partial Retention* in the foreground of arterial/collector roads and primary trails and *Modification* on all other areas for MA 5.13. National Forest System Road 429, a local road, is the main access road to these units. National Forest System Trail 1188, which is a primary recreation trail, routes through unit 7 of the Two Bull TS. Units 14 and 18 of the Bearclaw TS and unit 7 of Two Bull TS were designed to blend with the surrounding forest landscape and meet Modification VQO in the middle ground zone. Feathering and irregular edges were created within the units. When viewed from Trail 1188, a small portion is noticeable but over time, when the new vegetation is established, it would become less noticeable. These units are not visible from Seedhouse Road (NFSR 400), which is a primary travel route. The two timber sales meet the adopted visual quality objectives of Partial Retention and Modification for MA 5.13 and move toward to the desired landscape character of the Upper Elk River Geographic Area.

Big Creek Ridge Prescribed Fire Project area on the HPBE District was also visited. The project area is situated within MA 5.41 with emphasis on deer and elk winter range. A

series of small size prescribed burns on several sites were conducted for elk habitat improvement and hazardous fuels reduction adjacent to the private lands from 2004 to 2006. After the burns, new young oak/shrub communities were reestablished. Most of the burn sites are barely noticeable and some burned old shrubs and trees are evident but do not dominate the landscape. This project benefits the scenic values due to new young oak/shrub communities that enhanced scenic quality. This project meets the adopted visual quality objective of Partial Retention.

The MBR monitoring IDT and Brush Creek/Hayden District staff reviewed the Singer Peak Timber Sale on the Brush Creek/Hayden District in August 2007. The project is situated in MA 5.13 with emphasis on forest product. The adopted scenic integrity objectives (SIO) are *Moderate* in the foreground of arterial/collector roads and primary trails and *Low* in all other areas.

Two units located adjacent to NFSR 801, an arterial road, were reviewed. The overstory removal and sanitation/salvage units were harvested to improve and maintain the forest health. Mitigation for scenic resources was applied within the immediate foreground of NFSR 801 to meet *Moderate* SIO. Young understory trees and shrubs were protected from timber harvest activities and slash was removed within the immediate foreground. These two units meet the adopted SIOs of *Moderate* and *Low* and move toward the desired landscape character of the North Savery Geographic Area.

Livestock Use

Medicine Bow Item Objective 2.c.2
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***What levels of grazing use are permitted while still meeting or moving toward desired vegetative condition?***

Monitoring Protocol/Data Collected

Animal Unit Months (AUMs) grazing use for the year and Head Months (HMs) grazing use for the year. Numbers are displayed for cattle and for sheep and for total livestock.

Results/Evaluation

Medicine Bow NF

Southeastern Wyoming once again received less than average winter precipitation. Spring rains were better in some areas; however, amounts were highly variable across the landscape and much of that rain came too late to produce good forage levels. Many areas did receive more frequent, but highly scattered, summer showers that resulted in the vegetation remaining green a little later in the season than it has in some of the recent years. Laramie Peak had very little winter snowpack and only sporadic rain. Being the eighth consecutive year of this prolonged and severe drought, quite a few operators across the Units went home early, a few went on late. Still about one-third of the producers have not replaced their depleted herd numbers,

waiting for land and water resources to better recover before doing so. Lower outputs result from the non-use for resource protection. The amount of grazing use on the Medicine Bow was only about 78 percent of the projected Forest Plan level for sheep allotments and only about 80 percent for cattle allotments.

Routt NF

Year 2007 was the eighth consecutive year of this extended drought. Most of the Routt received far below average winter snowfall, but about average spring/summer precipitation. The Routt was, once again, in far better shape than much of the rest of Colorado. Most operators were able to run a majority of their permitted numbers; many have not yet fully replaced all of their herds sold off in earlier years, taking partial non-use for resource protection. Some went on a little later than normal, some came off early. 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. Cattle allotments were stocked at 80 percent of capacity and sheep allotments were stocked an average of 78 percent of capacity.

Table 23. Planned and actual livestock use during 2007.

	Unit of Measure (in thousands)	Planned Level	2007 Level	Percent of Planned Level
Routt				
Active Allotments	Allotments	126	126	100%
Sheep Grazing	Head-Months	174.0	127.5	78%
	AUMs	52.5	37.7	77%
Cattle Grazing	Head-Months	39.6	26.9	78%
	AUMs	49.5	33.7	81%
Total Grazing	Head-Months	214.0	154.4	78%
	AUMs	102.0	71.4	78%
Medicine Bow				
Active Allotments		104	104	100%
Sheep Grazing	Head-Months	42.0	20.1	81%
	AUMs	12.6	5.7	80%
Cattle Grazing	Head-Months	57.0	40.3	79%
	AUMs	74.0	43.9	78%
Total Grazing	Head-Months	99.0	60.4	80%
	AUMs	86.6	49.6	79%

Recommendations

Continue to report actual grazing use each year in relation to the planned level, and explain in the narrative section the annual climatic fluctuations that account for the differences.

Costs of implementing the rangeland management program

The table below gives the 2007 appropriated budget for rangeland management to the Forest, in addition to the planned levels in the Medicine Bow and Routt Forest Plans. The dollars below do not count overhead/administration amounts and so the figures

differ from the overall budget amounts shown below under the *Costs* monitoring item.

Cost Pool (administrative overhead) amounts for FY07 for all Units in NFRG and in NFVW (the rangeland vegetation portion only) are unknown because the Washington Office now pulls these funds for all forests in the system prior to distributing funds to the field.

Figure 14. Cattle grazing on the west side of the Sierra Madre Mountain Range.

Congress continues to fund NFVW at constant or slightly increasing levels (the rangeland vegetation portion of that Budget Line Item, which also includes soils and watershed management, air quality, reforestation, and thinning), with increases predominantly to conduct noxious weed control work and to manage non-native species. Increases in funding are dedicated to those efforts, and most of the noxious weed management work is focused in pass-through cooperative monies to the Counties. About 20 percent of the identified NFVW funds (rangeland vegetation portion only) are committed to weed management. The remainder pays for allotment/NEPA inventory and analysis efforts for all functional specialists, and for monitoring of rangeland vegetation by rangeland management specialists.

Congress has increased NFRG funding by an average of approximately eight percent in previous 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 2004-07. The funding is actually continuing to drop at the forest and ranger district level, with a resulting fall-down in target completion.

Table 24. 2007 Rangeland Management Budget

Activity	Planned Budget	2007 Budget Received	Percentage of Planned Level
Rangeland Vegetation (NFVW)			
Routt	370.0	372.9	101%
Medicine Bow	436.0	511.0	117%
Grazing Permit Administration (NFRG)			
Routt	464	172.4	37%
Medicine Bow	529	318.2	60%
Rangeland Resource Improvement (RBRB)			
Routt	61	24.4	40%
Medicine Bow		49.6	----

Table 25. Rangeland management outputs.

	Planned Level of Output (acres)	2007 Level (acres)	Percentage of Planned Level
Rangeland Vegetation Inventory			
Medicine Bow		148,663	
Routt	373,381	209,875	
Thunder Basin National Grassland		316,472	
Total	373,381	675,010	181%
Rangeland Vegetation Improved			
Medicine Bow	60,000	19.856	
Routt			
Thunder Basin National Grassland		47,903	
Total		67,759	113%

Rangeland resource improvement dollars (returned from collected grazing fee receipts) were down slightly as a result of reducing grazing levels (in number of head-months) due to drought. Total amount should be about $78,000 - $80,000 if full numbers were run; amount received was $74,000.

Recommendations

Continue to display these costs. It is valuable to state what work is able to be accomplished even though the planned budget levels are usually considerably below the stated planned levels necessary to perform all required work items.

Across the entire Unit, NFIM funded approximately seven percent of the efforts ($26,000 for 42,510 acres) to complete inventory on a total of 675,010 acres. NFVW (rangeland vegetation portion) funded the remainder. Inventory was completed on 209,875 acres on the three Ranger Districts on the Routt and 148,663 acres on the Brush Creek/Hayden and Laramie Districts of the Medicine Bow.

Acres of vegetation improved is the number of acres (pastures) on which previous NEPA decisions were implemented. Allotment management plans were updated as needed and implemented on the Big Creek allotment on the Brush Creek/Hayden Ranger District.

Harvested Land Adequately Restocked

Legally Required Monitoring Item
Medicine Bow Subgoal 2.c.
Routt Monitoring Item 1-10
Frequency of Measurement: Annual
Reporting Period: Annual

CFR 219.27 requires a determination of compliance with the Forest and Rangeland Renewable Resources Planning Act of 1974 that lands when harvested to achieve

timber production are adequately restocked within 5 years after final harvest as specified in the Routt and Medicine Bow National Forest Land & Resource Management Plans. In addition, this monitoring item asks the question:

Are stands adequately restocked within 5 years of final harvest treatment?

Monitoring Protocol/Data Collected

The yearly monitoring report relies on the FACTS database to list stands and acreages that had final harvest 5 years prior, and which of those stands and acres have a regeneration certification code. If a harvested stand is adequately restocked, but lacks the regeneration certification code in the database, the stand is considered not adequately stocked.

Results/Evaluation

According to CFR 219.27(c)(3) "When trees are cut to achieve timber production objectives, the cuttings shall be made in such a way as to assure that the technology and knowledge exists to adequately restock the lands within 5 years after final harvest". Final harvest is defined as "clearcutting, final overstory removal in shelterwood cutting, seed tree removal in seed tree cutting, and selection cutting for a regeneration purpose". "Research and experience shall be the basis for determining whether the harvest and regeneration practices planned can be expected to result in adequate restocking".

The process for monitoring 5 year restocking success is scheduling and recording the results of regeneration (restocking) surveys in the FACTS database. If a regeneration survey indicates a lack of seedlings, the District can schedule planting or seeding with scheduled regeneration surveys to monitor restocking success. The table below gives the acres harvested in 2001, which should be restocked as of 2006.

Table 26. 2007 Acres not adequately stocked.

Forest	Final Harvest (acres)	Acres not Adequately Restocked
Medicine Bow	236	0
Routt	459	0

Medicine Bow National Forest

Of the two hundred thirty six acres harvested, all acres are adequately stocked within 5 years for a failure rate of zero, a 100 percent success restocking.

Routt National Forest

Of the 459 acres harvested with a final harvest, with all acres determined to be adequately stocked within 5 years, for a failure rate of zero, or a 100 percent success in restocking.

In 2006, 32 acres were not stocked within 5 years of harvest on the Routt NF. These acres were planted in the spring of 2007. Plantation survival surveys will be completed in future years to ensure the stand is stocked.

Costs

Legally Required Monitoring Item
Medicine Bow Subgoal 2.c
Routt Monitoring Item 3-2
Frequency of Measurement: Annual
Reporting Period: Annual

These monitoring items ask the questions:

> ***Are costs of implementing programs occurring as predicted in the Supplemental Table S-3 of the FEIS?***
>
> ***Comparison of estimated and actual costs***

Due to changes in how the US Forest Service tracks budget and finance, costs are tracked for all three units (the Medicine Bow and Routt NFs and Thunder Basin National Grassland) as one and cannot be allocated to individual units. Forest allocation for the years 2003 through 2007 are displayed in Figure ??. Changes to budgets in 2007 included a resumption of Timber Sale Salvage Funds, which the Forest did not receive in 2006. The Forest received funds in both 2006 and 2007 from the conveyance of two facilities, one site in Kremmling and one in Steamboat Springs. The funds from these facilities will remain on Forest to be used to reduce deferred maintenance on other Medicine Bow-Routt Facilities. Funds received through partnership are tracked under the ***Partnerships*** monitoring item below.

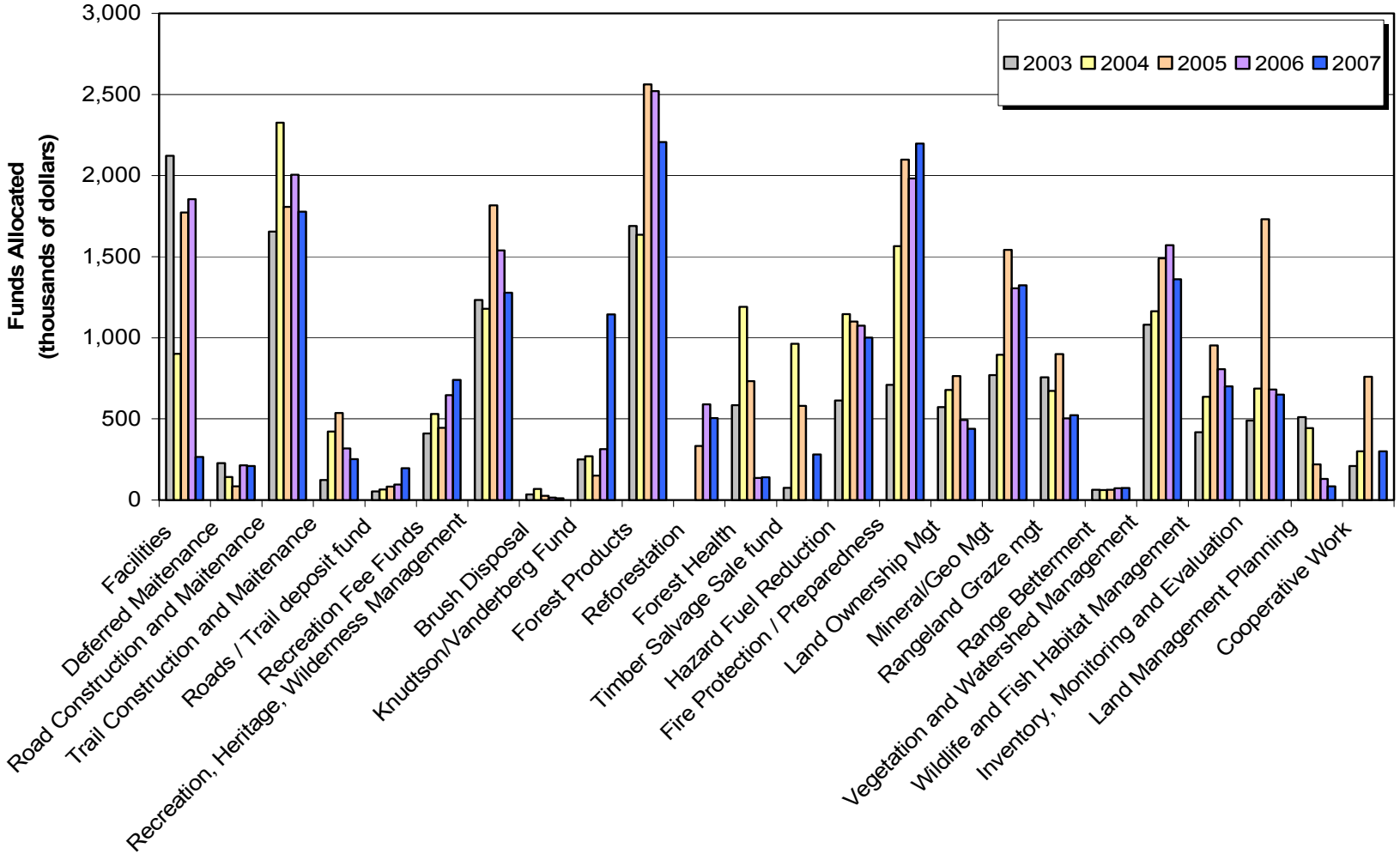

Figure 15. Allocated budget for Medicine Bow - Routt NF, Thunder Basin National Grassland for fiscal years 2003 to 2007.

Comparison of Estimated and Actual Outputs and Services

Legally Required Monitoring Item
Medicine Bow Objective 2.c.1
Routt Monitoring Item 3-1
Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Are outputs of goods and services being produced at a rate consistent with the projections in Supplemental Table S-2 of the FEIS?***

The Forest Service output reporting is in transition, making it difficult to report outputs that can be compared to previous years for the two Forests. A further complication is the difficulty in comparing the categories of outputs in S-2 tables in the EISs for the two forest plans and in comparing these categories to the current target and outputs currently reported for NFS administrative purposes. Outputs are reported in monitoring items as appropriate and feasible, such as in the monitoring items for water quality, livestock grazing and facilities.

Scientific and Technical Assistance

Partnerships

Medicine Bow Item Objective 3.a.2
Routt Monitoring Item 2-5
Frequency of Measurement: Annual
Reporting Period: Annual

These monitoring items ask the questions:

> ***To what extent is public assistance and participation being utilized in implementing monitoring activities?***
>
> ***How are partnerships contributing to maintaining or enhancing recreation resource opportunities?***

Monitoring Protocol/Data Collected

Partnership activities are tracked on Forest by the grants and agreements specialist. These amounts include agreements both for the MBR portion of the Forest, but also the TBNG due to the three units being administered centrally.

Results/Evaluation

Partnerships have greatly enhanced the Forests' ability to accomplish work. In FY07, a total of 100 agreements[7] resulted in over $2.5 million worth of work being accomplished on the Forests and Grassland, which is down slightly from partnerships in FY06. Many different types of work are being accomplished.

[7] Includes new modifications of previously existing agreements.

Working with counties has helped the MBR to accomplish invasive weed treatment, fire and law enforcement activities. Agreements with WGFD, CDF and WYNDD increase our ability to inventory and monitor terrestrial and aquatic wildlife in addition to plants.

Utilizing the skills of the Rocky Mountain Youth Corps and of trail user groups such as Front Range Trailriders increases our ability to maintain and improve trails and recreation sites.

Agreements with the BLM, State of Wyoming and private landowners enable cooperative prescribed burning projects. Organizations such as the Owl Mountain Partnership have contributed to fencing and other rangeland management projects.

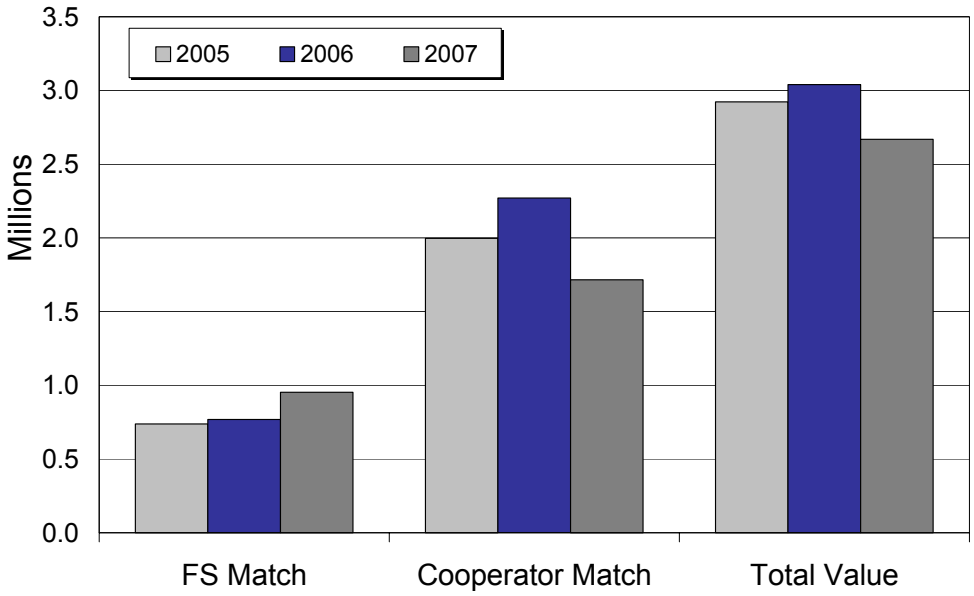

Figure 16. Value of Partnerships in FY05 -FY07.

Collaborating with researchers, such as from the UW and the RMRS have enabled forest specific research studies tailored to the needs of forest management.

Watchable Wildlife

Medicine Bow Objective 3.a.3
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

To what extent have watchable wildlife activities been developed?

Monitoring Protocol/Data Collected

Annually, document the number of Watchable Wildlife sites, which include plants that are identified and managed for the MBNF. Annually, document the development and interpretation activities at existing sites.

Results/Evaluation

Watchable Plant Sites:

- MBNF Special Interest Areas (SIAs) with botanical emphasis: Ashenfelder, Cinnabar Park, Medicine Bow Peak, Kettle Ponds, Sunken Gardens, and Ribbon Forest. RNF SIAs with botanical emphasis: Camp Creek, Little Snake.
- Snowy Range Visitor Center (BCH).
- Vedauwoo Interpretive Area and Interpretive Handout (LRD).
- Pole Mountain Rest Area Interstate 80 (LRD).
- Centennial Visitor Center (LRD).
- Libby Flats Interpretive Area (LRD).
- Brooklyn Lake Interpretive Area (LRD).
- Big Creek Lakes Interpretive Trail (PRD).

Watchable Plant Activities:

- North Zone Botanist provided information dissemination for Celebrating Wildflowers week.
- North Zone Botanist (along with Southeast Wyoming Chapter of Society of American Foresters) provided assistance and plant collection for interpretive floating island.
- North Zone Botanist provided information to visitors and to reporters on wildflower and fall color (aspen) viewing opportunities.
- Yampatika (a FS partner) conducted eight naturewatch activities:
    - Hunting the Wild Mushroom - which was two hours of classroom and two-thirds of a day in the Routt NF looking for and identifying mushrooms.
    - Wild Edible Feast - a gourmet feast of spring edible plants, some from the forest, and local fare.
    - Invaders of the West - a workshop and field trip about weeds.
    - Fish Creek Falls Hike - plants and animals and water.
    - Vista Nature hike on the Steamboat Ski Area - plants, animals.
    - Junior Naturalists camps on RNF - all about nature.
    - Windy Ridge Archeology Hikes - included identifying plants and flowers along the way, led by archeologist and Hands-on nature photography workshop.
- Yampa VIS participated in "Project Budburst" a plant phenology study with Yampa Elementary School fifth graders.
- South Zone Botany Technician led Rocky Mountain Youth Conservation Corps on a 5 day native grass seed collection effort (Parks RD on Routt NF).
- South Zone Botany Technician led North Park High School students on a one day monitoring effort of a re-vegetation effort (using local native seed) of a decommissioned road in Grizzly Creek Campground.

The six botanical SIAs for the MBNF were identified in the MBNF LRMP and ROD, so FY04 was the first year that these sites were noted as available for watchable plant activities. The RNF SIAs were identified in the RNF LRMP and ROD and have been available for watchable plant activities since 1998. The six other sites noted have existed for some time and generally have moderate to heavy visitor use.

The weather was not conducive to Celebrating Wildflowers on the MBNF during that designated week.

Three watchable plant activities occurred on the MBNF in FY07 (up from two activities in FY05, same as FY06). Three watchable plant activities occurred on the Routt in FY07 (down from nine activities in FY06).

Figure 17. Columbine on the Continental Divide near Bridger Peak.

Action Taken on FY06 Recommendations

- A need to complete official documentation for 12 "Watchable Wildlife-Plant sites" was identified in FY04-FY06. Official documentation of these sites as "Watchable Wildlife-Plant sites" remains to be completed as of FY07. Increases in MBRTB botany program seasonal personnel may allow the MBNF to move forward on this task in FY08.
- In FY05-FY06, coordination between front desk VIS, Engineering (sign locations) and Botany program personnel was identified as need in order to inform publics about where "Watchable Wildlife-Plant sites" occur on the MBNF. No actions were taken in FY07 to move forward on this recommendation.

Aquatic Life

There is one fish-observation platform (Ralph Hesson memorial) located adjacent to North French Creek, along Highway 130.

Watchable Wildlife Activities:

The Laramie Ranger District wildlife personnel initiated the "Live the Miracles of Nature" experience for 10 youth enrolled in community social service programs that typically don't have the opportunity to visit the National Forest. This experience provides these youth the opportunity to experience wild areas in a quiet, nearly alone setting, where the emphasis is on discovery, learning and introspection. The District was given the Rocky Mountain Regional Forester's Honor Award for this project. The District also participated in the 2007 Migratory Bird Day activities, providing nearly 150 children and adults with bird field identification techniques, habitat use and conservation issues.

The Brush Creek/Hayden Ranger District completed 9 presentations or classroom exercises for 158 students and 99 adults in 2007.

The Douglas Ranger District wildlife personnel conducted multiple wildlife interpretation events.

- Friend Park 5th Grade Environmental Education Day: A 1 day field trip with approximately 20 students, 3 parents, and 1 teacher to Friend Creek and nearby burn area to discuss riparian and beaver interactions as well as discussions associated with the historic Friend Park Burn. TES and other wildlife habitats and human interactions are discussed.

- Laramie River Bat Night: A 1 night cross training and bat awareness program at the Rainbows End historical fishing camp on the North Laramie River. It was attended by 15 non-wildlife Forest Service Employees. The Anabat Bat Detection System and Mist Netting protocols were demonstrated, as well as an opportunity to see bats up close.

- Douglas Middle School Bat Awareness program: Members of the District Wildlife Staff provided an all school Bat education program. It was attended by approximately 390 students and 37 teachers.

Yampa Ranger District, in cooperation with the Visitor Information Services personnel, developed and implemented regular spring school programs and field trips. The programs include scat and tracks, raptor identification, and wetland ecology.

In 2007, the Hahns Peak-Bears Ears Ranger District:

- Participated in International Migratory Bird Day;
- Hosted a Colorado Breeding Bird Atlas II training for the Yampa Valley Bird Club;
- Participated in the Oak Creek Fishing Derby; and
- Established an endangered fishes aquarium at the Steamboat Office.

The Parks Ranger District wildlife personnel took 25 Okalahoma State University students on an all-day Watchable Wildlife Field Trip.

Effective Public Service

Road System – Passenger Cars

Medicine Bow Objective 4.a.1
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

Does the road system meet public safety and management needs for passenger vehicles while protecting resources?

On the Medicine Bow and Routt National Forests, 892 miles of roads suitable for passenger cars received maintenance in FY07. Approximately 192 miles (16 percent) of the 1200 miles suitable for passenger cars are considered to be maintained to

standard. Current budgets are insufficient to meet the backlog of deferred maintenance needs to bring roads up to standard. Road improvement projects were conducted on 9.2 miles of road to help reduce deferred maintenance needs.

An assessment of hazard trees has begun in FY07 and will continue in FY08. Hazardous trees along roads can present a critical health and safety concern for public and employee travel. A plan to address these needs will be developed after the NEPA decision is finalized.

Roads– High Clearance Vehicles

Medicine Bow Objective 4.a.2
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

Does the road system meet public safety and management needs for high clearance vehicles while protecting resources?

On the Medicine Bow and Routt National Forests, 150 miles of high clearance roads received maintenance in FY07. The normal maintenance cycle for these roads is every 5 years. Approximately 2010 miles (64 percent) of the 3140 miles of high clearance vehicles roads are considered to be maintained to standard, even though all those miles do not receive maintenance on an annual basis.

Roads – Road Decommissioning

Medicine Bow Objective 4.a.3
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

To what extent have roads that have been identified as unneeded by a roads analysis been decommissioned?

On the Medicine Bow National Forest, 13.6 miles of road were decommissioned in FY07. The Routt NF decommissioned 0.2 miles. Decommissioning was accomplished with forest road funds.

Table 27. FY07 Road related ouputs compared to outputs projected in the Forest plans.[8]

* Resource Program Activity/Outcome	Units	Forest Plan Desired Condition Level	Forest Plan Experienced Budget Level	FY07 Level
Medicine Bow NF				
Roads Maintained to National Standards	Miles	2,291	1,250	1650
Road Construction	Miles/yr	4.1	2.0	0

[8] Forest Plan outputs are from the S-2 tables in the EIS documents for the Routt and Medicine Bow Revised LRMPs. "Roads Maintained" includes miles of road meeting national standards, since this measure was used in the past. Roads actually receiving maintenance are discussed above.

Road Reconstruction	Miles/yr	9.2	4.0	0.2
Roads Decommissioned System and Non-System	Miles/yr	27	18	13.6
Routt NF				
Roads Maintained	Miles	1,500	1,448	970
Road Construction	Miles/yr	16.2	9.3	2.6
Road Reconstruction	Miles/yr	9.8	5.2	9.0
Road Obliteration	Miles/yr	18.4	18.4	1.0

Facilities – Safety and Security

Medicine Bow Objective 4.a.5
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Do the existing facilities with the potential for reconstruction provide for safety and security of the public and employees?***

Major construction and reconstruction projects are funded through the Regional Capital Improvements Program (CIP). The CIP funding is limited and must cover projects throughout the Rocky Mountain Region.

Construction was started in FY07 on the following CIP projects which were awarded in FY06 and are anticipated to be completed in FY08:

- Esterbrook Work Center Consolidated Storage, Douglas RD.
- Saratoga Work Center Consolidated Storage, Brush Creek/Hayden RD.
- Brush Creek Work Center historic renovation.

Facilities - Maintenance

Medicine Bow Objective 4.a.5
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***To what extent are the existing buildings, bridges and other facilities maintained to standard?***

Planning and accomplishment activities are compiled and reported in the INFRA database, an NFS corporate database. For buildings, annual accomplishment reports can be generated listing total deferred maintenance and the end of year facility condition index ratings. Maintained to standard requires a condition survey be accomplished no less than every 5 years and the facility condition index be good or

fair. In FY07, the Forest building inventory included 372 recreational and administrative buildings, 58 percent of those were maintained to good or fair condition and approximately 97 percent received the required facility condition survey. Dams, water systems, and waste water systems were in a similar condition.

Declining budgets require the Forest to assess and prioritize facility needs and then focus limited funds on our highest priorities. At the end of FY07, the backlog of deferred maintenance on all facility classes, including buildings, bridges, dams, drinking water systems and wastewater systems was nearly $7.2 million. In order to balance the constrained budget and deferred maintenance backlog, the Forest is aggressively pursing a facility disposal program. Progress is slow but small steps are made each year.

In FY07, four Forest facilities were disposed of by demolition and two were disposed of through a real property transfer to the BLM. Additionally, all Forest real property records in the NFS corporate database, I-Web, were reviewed and validated this year per the Federal Real Property Profile reporting requirements.

Implementation Monitoring

Endangered Species Act

Medicine Bow Item Subgoal 1.b
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***Are actions identified in national recovery plans for threatened and endangered species being implemented where opportunities exist on the Forest?***

Monitoring Protocol/Data Collected

A review of the opportunities to implement national recovery plans, and a description of any actions taken in support of a National Recovery Plan.

Plants

Prior to 2007, there were no Threatened or Endangered plant species documented on the Medicine Bow or Routt NFs and no identified habitat.

New information on Ute ladies tresses (ULT), a threatened plant species (Fertig et al. 2005) has identified that habitat for this plant reaches up to 7,000 feet in elevation. Potential habitat for ULT was identified in three project areas and surveys were completed. The Biological Assessments completed for two projects determined that there were no effects to the ULT potential habitat from the projects (Roche 2007a,b,c) and made the biological determination of "no effect" for ULT. The analysis and biological determination for the remaining project will be completed in FY08. There is a draft recovery plan for ULT (USFWS 1995). There is not any critical habitat identified for ULT.

The effects of water depletions in the Platte River Basin have been identified to affect one threatened plant (western prairie fringed orchid) that occurs downstream in the Platte River in Nebraska (Kelly 2007). A biological assessment was prepared for this plant species in association with the re-issuance of permits for the Recreation Residences on both the Medicine Bow and Routt NFs (Roche 2007d,e). The biological determination for this project was "Not Likely to Adversely Impact". Implementation of the recovery plan for Platte River T&E species issued in 2006 (USFWS 2006) began in 2007 (Parker 2007). Although consultation with FWS occurred prior to the release of the recovery plan, all actions were in compliance with the recovery plan.

Conclusion

All actions were in compliance with the recovery plan for the Platte River T&E Species (USFWS 2006). There were not any actions that were not in compliance with the draft recovery plan for ULT.

Recommendations

Continue to monitor this item annually over the life of the plan.

Terrestrial Wildlife

The bald eagle was the only ESA-listed species on the Medicine Bow and Routt National Forests with a recovery plan. The bald eagle was delisted in August 2007. The recovery plans for the Canada lynx and the Preble's meadow jumping mouse are both under development. At this time the bald eagle is only an incidental visitor to the Laramie Peak Unit whereas, on Brush Creek/Hayden District, bald eagle nesting sites and winter-roosting sites are surveyed for activity. Very few bald eagles inhabit the Medicine Bow and Routt National Forests. In 2007, as in the past, we continued to incorporate bald eagle considerations into project design as appropriate - including the use of a ½-mile no surface occupancy buffer prohibiting construction of new above-ground structures. In addition, we identify and monitor bald eagle communal roosts as specified in the Recovery Plan. No further opportunities were identified to implement action items in the Bald Eagle Recovery Plan on the Medicine Bow and Routt NFs.

Several documents do speak to conservation actions appropriate for the Canada lynx. Though the lynx has only recently been observed on the Medicine Bow and Routt National Forests, the Forest does adhere to the Lynx Conservation Strategy and Assessment. Since 1999, one, and possibly two, female lynx had litters on the Medicine Bow National Forest; but both lost their litters. Colorado Division of Wildlife tracks radio-collared lynx and reproductive patterns of the reintroduced population. The Hahns Peak-Bears Ears District field validated 1500 acres of Canada lynx habitat.

In 2007, the Forest completed its fourth year of monitoring this mouse through a partnership with the Wyoming Natural Diversity Database (WYNDD) in an effort to ascertain baseline presence, numbers, and to eventually increase our understanding of how management impacts this mouse.

Recommendations

Continue to track lynx movements onto the Medicine Bow National Forest in partnership with the Colorado Division of Wildlife. Identify potential future actions in

support of recovery for lynx. Continue monitoring bald eagle nest and roost sites and Preble's meadow jumping mouse as funds allow.

Continue to monitor this item annually over the life of the plan.

Implementation of Standards and Guidelines

Legally Required 36 CFR 219.12 (k)
Routt Monitoring Item 2
Frequency of Measurement: Annual
Reporting Period: Annual

These monitoring items ask the questions:

> ***Are the standards and guidelines prescribed in the plan being incorporated in NEPA documents and implemented on the ground?***
>
> ***Have site-specific decisions successfully implemented the Forest Plan's Direction?***

Monitoring Protocol/Data Collected

The Forest Interdisciplinary Monitoring Team (IDT) visited several sites on the Medicine Bow-Routt NFs during the 2007 monitoring field trip. This trip stopped at the Toponas and Two Bull Timber Sales and Big Creek Ridge Prescribed Burn on the Routt NF. On the Medicine Bow, the team evaluated Singer Peak Timber Sale, Battle Stewardship Project and the beetle treatments at Silver Lake Campground.

Day1, Stop 1: Two Bull Stewardship Timber Sale, Unit #7
Objectives: Review timber sale in relation to Soil and Water Conservation Practices (also known as Best Management Practices (BMPs)) (FSH 2509.25, Routt LRMP)

The planning process for this timber sale went well. The appropriate BMPs were incorporated into the NEPA documents and decision. Additional mitigation was contained in the decision related to taking spruce beetle out of the riparian zones.

The BMPs and mitigation were incorporated into the logging plan, but were not implemented on the ground.

Landings and a temporary road authorized during the winter (January 06) deviated from the logging plan, which was developed during the field season.

The result was a temporary road which was located in a drainage bottom and a landing placed across a drainage. As the changes in location were made in winter, not all wetland and stream channels were visible, although it would have been apparent from the topography that the road and landing were located in a valley bottom.

Objectives for protecting soil and water resources were not met in this unit. Routt LRMP water and aquatic standards 2,4,5, 6 & 7 were not met. The project did meet silvicultural objectives.

Discussion: Logging plan should be developed during the field season, and should be followed unless you can see the ground to know that the changes are appropriate. Caution should be used if changing the logging plan while snow is on the ground.

It is critical to have adequate sale administrator coverage – adaptive NEPA requires more sale administrator time than do more traditional timber sales.

Adaptive NEPA also requires more specialist time during implementation, which should be considered during project planning.

There was confusion over the chain of command for the sale administration staff at the time, which has since been clarified.

Good planning does not always guarantee a good result on the ground. It is important to have coordination and involvement between the planning team and the implementation team throughout both the planning and implementation phases. This requires more staff time but results in a better project and a higher likelihood that the project will meet objectives for all resources.

Additional monitoring needs: These units were not accepted as final by the Sale Administrator as of the day of the field trip. The district will determine what rehabilitation needs for the road and landing to reduce impacts to the stream channel and riparian area. This work can be accomplished through the contract.

The district will need to evaluate whether additional work is needed after the contract is completed.

Follow up actions: The Forest is pursuing additional staff for sale administration.

Stop 2: Bearclaw Unit 14.
Objectives: Review timber sale in relation to Soil and Water Conservation Practices (also known as Best Management Practices (BMPs)) (FSH 2509.25, Routt LRMP)

The original design was to have multiple skid trails. This was changed to one snow road with 70 to 80 loads. One factor in the change was to reduce skid trail stream crossings of an intermittent stream channel which was identified in the logging plan but not in the contract. The sale administrator had the ability to limit the number of stream crossing to one rather than having multiple stream crossings.

The decision included design criteria to treat skid trails for soil compaction and erosion. An existing temporary road was used during project implementation as a snow road. This road was compacted and so needed treatment. As this did not get into the contract, the district submitted a KV plan to accomplish the work.

Logs were placed in the stream channel to protect the channel at the temporary road crossing as a result of discussion between the sale administrator and the specialists. These logs were intended to have been removed prior to the spring high flows but were still in place at the time of the field trip.

The original project included harvesting of trees within 100 feet of the stream to try to reduce the spread of beetles. By the time the project was implemented, it was too late to have an effect on beetle spread and so most of the trees in the riparian area were not harvested.

Discussion: Many skid trails and temporary roads need treatment, especially on compactable soils. This is becoming a larger issue with more year-round operations. Compacted skid trails and temporary roads will generate increased runoff and increase connected disturbed area and sediment delivery to streams. There was discussion on whether to treat every skid trail / temporary road or to have the soil scientist review every trail / temp road to determine the need. Limited soil scientist resources (one person to cover the two forests and grassland) make site specific review of all sales impracticable.

The forest soil scientist is working with sale administration to develop an option to specify a winged subsoiler for ripping skid trails or temporary roads where appropriate. A winged subsoiler is more effective in reducing compaction than traditional ripping and appears to also be more effective at discouraging use by off road vehicle on skid trails and old temporary roads.

Recommendations: Pursue increased use of winged subsoilers and other methods, where feasible, to improve treatment of compacted trails.

Stop 3: Big Creek Ridge Prescribed Burn

Objectives: Review implementation of Big Creek Ridge Prescribed Fire Partnership Project (HPBE).

This prescribed burn was designed to improve elk winter range and reduce hazardous fuels adjacent to private lands in a wildfire urban interface area.

Two decisions were signed in 2004 (CE, split for different units) authorizing 2500 black acres within a 4000 acre target area. Up to 50 acres of mechanical treatment were included to ensure control of the prescribed burn. The decision included monitoring and treatment for noxious weeds

Cheatgrass was mapped in the area prior to project implementation. Known populations were treated with herbicide prior to burning – however it was difficult to spray (using a backpack sprayer) the steep south facing slopes in some of the burn units.

Discussion: From 2004 to 2007, 5 burn windows have allowed 1900 acres to be burned, however only 398 acres had burned with enough intensity to regenerate the shrubs important for elk winter range.

Design criteria included treating cheatgrass before burning, avoiding a goshawk nest, avoiding lynx habitat as feasible, no ignition in riparian areas. These design criteria measures were feasible and were followed.

It works best it have the burn boss involved in the planning process so the burn plan and mitigation can be developed together during the NEPA process.

Flexibility is key to accomplishing prescribed burns to increase the number of burn windows available for burning. This decision allowed both spring and fall burning.

Fall burning is more likely to accomplish the target of regenerating the winter range shrubs. The end of fiscal year (Sept 30) date for target accomplishment is artificial. It would be good to have multiple year fuels dollars and targets.

Cheatgrass is hard to spray (from the ground) on steep slopes. These areas should not be burned until the cheatgrass populations are eliminated from the area to avoid cheatgrass overtaking the elk winter range.

The area has been designated a community at risk (from wildfire) by the State of Colorado. The home / landowners in the area were not accustomed to prescribed fire and had some minor concerns, but overall were in favor of the project.

Recommendations: Large prescribed fire projects, such as this one, require resources from other districts during implementation. The forest needs more trained burn bosses for implementation.

Day1, Stop 1: Singer Peak Timber Sale, Unit #7

Objectives: Review application of Medicine Bow Revised Forest Plan snag and coarse woody debris standards on two Singer Peak Timber Sale units.

The Singer Peak Decision was made under the old forest plan and so did not include the new standards. The new forest plan snag standards were incorporated into the prescriptions – leaving more snags and reducing volume harvested by approximately 20%.

Discussion: The units were harvested using a feller buncher which delimbs the trees in the skid trails – resulting in slash accumulations on the trails. The coarse woody debris (CWD) left on the unit is smaller pieces. Larger pieces of wood last longer on the site and provide better small mammal habitat. The large amount of snags left on site will become large coarse woody debris when they fall over.

The forest biologist determined that the slash left in the unit was effective CWD for wildlife. With the release and weed trees being cut, the unit should meet the CWD standards. There was concern over concentrating the slash and the resulting nutrients and organic matter in the skid trails rather than spread throughout the unit. The depth of the slash may inhibit regeneration on the skid trails, however it also should keep ATVs off of the trails.

The sale administrators are working with purchasers to scatter the slash throughout the unit – the purchasers have the ability to do this with the same equipment used to harvest this unit. Using an adaptive approach to slash treatment to scatter slash and cones where needed.

Layout and marking crew should work with biologist to develop marking guidelines for snags – site specific to the unit. Also need a common sense approach to leaving snags in light of the beetle epidemic.

One unit reviewed used a prescription (designation by diameter) to take trees that are 9" diameter at 6" high (to represent 7" diameter at breast height (dbh)) to avoid painting trees and thereby reducing timber sale preparation costs.

Whole tree yarding near roads was a mitigation measure for visual quality, however on the unit reviewed this did not occur. The landscape architect determined that the unit still met visual partial retention guidelines.

Some units have a few acres set aside for snags, which leaves the rest of the unit for harvest. This can reduce timber sale preparation costs.

Some beetle hit trees were taken during harvest, especially near skid trails. Could harvest the most recent beetle hit trees and still meet timber sale objectives if this can be done within the sale timeframes.

Additional Monitoring: Evaluate a clearcut with live tree retention and evaluate a shelterwood prep cut to determine if enough wildlife trees are retained.

Follow up actions: Clarify forest plan standards so that areas adjacent to units can be designated for snag retention that are not within the unit on the Timber Sale map.

Stop 2: Battle Fuels Stewardship Project

Objectives: Review the lessons learned on this stewardship project

This stewardship contract to thin lodgepole stands along Battle Highway was awarded to the Little Snake River Conservation District. The contract was more general than a typical timber sale contract. This project was a balance between inexpensive service work and giving the contractor greater flexibility to accomplish the work as the contractor tried to figure out how to accomplish the work.

Discussion: This project had difficulties during implementation, which has led to the following lessons learned and recommendations. The project did result in the NFS paying $15 to $20 an acre for fuels work, which generally would cost from $150 to $400 an acre.

The District did not anticipate the volumes of fuels created from thinning the unmerchantable materials. This resulted in short term increases in fuel loadings. The fire management officer recommended that future projects should consider staging the fuels work to reduce the amount of area with increased fuels during any one year.

The prep work on the ground, i.e. painting boundaries of the units, was not completed prior to the contract award, which resulted in problems during implementation. The contract did not identify improvements / infrastructure such as fences and ditches. When harvest operations damaged these structures, there were no provisions in the contract to deal with the repairs such as fixing fences or removing materials from the ditch.

There was no funding for the administration of this contract, which meant funding came out of the timber program funding. Administration was difficult as the contractors worked a little bit in every area and did not focus on and complete

specific units. Keeping track of miscellaneous products removed (i.e. transplants and Christmas trees) required extra administration time.

The fuels target (and funding) was claimed the first year – when the contract was awarded. It would be more realistic to claim the target as areas are completed – and to spread the target out over multiple years.

Recommendations: Ensure the Stewardship contract is fully prepped on the ground before the contract is awarded (i.e. unit boundaries ground truthed and painted, etc). Newer stewardship contracts have improved with more details which have more teeth and less holes, which could have eliminated some of the problems with this project.

Ensure the contractor has the proper equipment and skilled employees to perform the work in a timely manner.

Consider having a schedule for slash treatment work to avoid having large areas with short term increased fuel loading.

Need to increase contracting expertise on the forest for these types of service contracts.

Stop 2: Sliver Lake Campground

Objectives: Review past bark beetle treatments and harvest at Silver Lake Campground, develop recommendations for continued work.

Silver lake campground has large, old spruce trees which have been hit by spruce bark beetles. The campground was closed in 2003 for harvest to treat the spruce beetle infestation. Beetle hit trees were harvested, with the unmerchantable portions and the stumps debarked to reduce beetle populations. Spraying and pheromone treatments for beetles were applied in 2004 and 2007. A hazard tree analysis after this harvest in 2005 identified many hazard trees throughout the campground. An additional salvage sale (850 trees) was offered twice to remove the hazard trees, in 2005 and 2006, but there were no bids.

Discussion: This very popular campground is a high value site, has been closed since 2003, and it is important to have it operating again. With the large amount of hazard trees in this campground, the forest should consider doing an overstory removal on the entire campground. A vegetation management plan should be completed, which could evaluate the campground after an overstory removal. This may be an opportunity to plan for increased camp sites, and there may be recreation money available for improvements since this is a high value site.

Best Management Practice Monitoring

Evaluating management activity Best Management Practices (BMPs) with regard to implementation and effectiveness is a critical step in ensuring that Region 2 Watershed Conservation Practices (WCPs; FSH 2509.25)) are properly applied. If used properly, WCPs will meet Federal and State laws and regulations, including State BMPs. The WCPs consist of management measures and design criteria that are used to achieve specific management objectives that fit into five basic areas: hydrologic function, riparian areas and wetlands, sediment control, soil quality, and water purity.

By using a national or regional BMP evaluation protocol, regional WCPs and Forest Plan Standards and Guidelines can be evaluated and the results used as a feedback mechanism to modify land management activities, adjust WCPs, or recommend changes to State water quality standards as needed.

BMP evaluations were funded through NFIM with a target of ten sites to be monitored in FY07. Monitoring was conducted with the assistance of Regional Hydrologist Joan Carlson, South Zone Hydrologist Liz Schnackenberg, and Hydrologist Jody Kougioulis. Projects in which the analysis was completed under the 1997 and that had been recently implemented were randomly selected for evaluation. The random selection resulted in all projects monitored being on the Yampa Ranger District. BMP evaluations were completed using the 2007 Draft Washington Office BMP evaluation forms and protocol with the specific exception for the evaluation of prescribed fire, which was conducted using Region 5 BMP evaluation forms and protocol since the WO has not completed evaluation forms for prescribed fire.

Overall, a total of ten evaluations were completed with seven evaluations related to grazing, two evaluations related to timber harvest activity, and one evaluation related to prescribed fire. All BMP evaluations focused on the Stream Management Zones (SMZ's) as the primary physical resources area of concern. The completed evaluation forms are a record of the general results of the assessments, but do not capture all of the visual surveys and qualitative impressions gathered from field observations. The following is a brief narrative description of the evaluations in each BMP category, general trend indications, and how the evaluation reflects on the implementation of WCPs and Forest Standards and Guidelines.

Results:

1) Grazing: The grazing BMP evaluation form is designed to assess whether desired condition objectives in the Allotment Management Plan (AMP) provide for the protection of water quality. The evaluation records the kind and class of livestock, season of use, and the specific stream reach evaluated. The evaluation of grazing BMP implementation assesses whether the AMP considered effects to water quality with respect to the timing, intensity, frequency, and duration of livestock grazing, and the effects of range improvements. The evaluation also considers whether relevant triggers, objectives, requirements, and guidelines are in place with regards to the protection of water quality. The annual indicator which is monitored and recorded at each of the BMP grazing sites is the measurement of Carex stubble height. In all cases, stubble height was determined to be either less than or equal/greater than 6"; therefore stubble height percents do not reflect the average stubble height for the reach.

Effectiveness measurements are tied in with WCPs Management Measures 1, 2, 3, and 5 which in general terms deal with hydrologic function. Specifically, they address hydrologic function by allowing only that action s that maintain or improve long term stream health, prevent changes to channel morphology, conserve site moisture and organic cover, and prevent the damages cause from increased runoff. With regards to grazing, effectiveness was evaluated through four separate indicators. For each stream reach within the grazing BMP sites, ground cover, bank stability, rilling, and bank trampling were evaluated.

The Egeria allotment was the first site evaluated and because of a scheduling error, the evaluation of the Smith Pasture within this allotment was conducted prior to grazing. This afforded the opportunity to compare pre and post grazing on a specific stream reach. The Pre-grazing stubble height was measured at 96% > 6" and post-grazing at 66% > 6". Ground cover was evaluated by toe point method and based on 1 square foot area. It was decided through professional judgment that > 75% cover was considered adequate given land type. Pre-grazing ground cover was 98% adequate while post-grazing was 89%. Bank stability was evaluated by paced transect toe point on both sides of the reach. A qualitative call of Stable or Unstable was given at each point and was to reflect an area 3' upstream and downstream of the toe point. The bank stability evaluations showed the greatest variation between pre and post grazing. Pre-grazing assessed that 96% of the reach was stable while post-grazing indicated that only 52% of the reach was stable.

Professional judgment was employed with regards to ground cover and bank stability because of the lack of applicable reference data from which to establish baseline. Bank trampling was evaluated using the same paced transects method and points as bank stability except that the observer was to assess the relative occurrence of bank trampling based on the area (segment) between each toe point. Categories included none, low, moderate, and high, with each having specific percentages. Pre-grazing indicated that 88% of the reach had no trampling and 0% had high trampling, while post-grazing indicated that 1% had no trampling and 30 % had high. This change in bank stability is the greatest change between any of the metrics used to evaluate the site and yet the change in the annual indicator (stubble height) does not necessarily translate to an expected exceedance in bank stability.

The Sunnyside pasture, also in the Egeria allotment was evaluated on the last day of the pastures permitted grazing season. The livestock were being moved off of the pasture as the evaluation was taking place. Overall, ground cover was considered adequate, stubble height measurements indicated that 64% of the Carex was still greater than 6" while 20% was less than 6". The evaluation of bank stability however indicated that only 50% of the reach was stable. This is another example of how the use of stubble height as a trigger for livestock movement is not always an adequate surrogate for stream health with regards to bank trampling and bank stability. While the main annual indicator (stubble height) may be within management objectives, other long-term effectiveness indicators such as bank stability are being exceeded and perhaps overall not compatible with WCP management measures.

The remaining four grazing sites all occurred in the Rock Creek drainage and were co-located with existing E-coli sampling sites. Each site was evaluated post-grazing and the evaluation was conducted using the same protocol as described above. Because these sites double as E-coli sites, E-coli data can be used in conjunction with evaluations to assess management activities. Stubble height was determined to be adequate with all sites measuring 72% adequate or above. Ground cover was also considered adequate with all sites measuring above 80% adequate or above given land type. However, bank stability and bank trampling were considered moderate to severe. Without previous assessments regarding these specific metrics it is difficult to assess trend and whether or not stream health is being maintained or improve. Based on E-coli results, there appears to be an improvement in water quality. Lower Little Rock Creek has improved water quality based on E-coli from 2003 which recorded a

geometric mean (GM) of 167 colonies per 100ml to 2007 GM of 36 colonies per 100ml. Lower Big Rock Creek has seen similar improvement with 2003 GM of 101 colonies per 100ml, 2004 GM of 192 colonies per 100 ml to 2007 GM of 42 colonies per 100 ml. All grazing units were evaluated for the presence of rills and there were no detections during any of the evaluations.

2) Timber Harvest Activities: BMPs relating to timber harvest activities are primarily concerned with erosion control, the location skid trails and landings, and water body crossings. These measures tie directly into the regional WCPs which expressly state the protection of watershed conditions from detrimental and irreversible impacts. Of the 17 listed Management Measures in the WCP, only Management Measures # 7 and 8 do not directly tie into timber harvest activities. The remaining 15 Management Measures can be influenced to some degree by timber harvest activities. The key points of these Management Measures is the protection of SMZ's by maintaining surrounding upland organic ground cover, conserving site moisture, reducing erosion and sediment transport to streams, designing adequate stream crossings, maintaining flow patterns, water budgets, and channel morphology. Additionally, the Management Measures include the creation of stream buffers, the reduction of soil disturbance, and emphasize minimizing the impacts of roads on the watershed.

The Toponas Creek Beetle thinning Project was evaluated with regards to landings and ground based mechanical harvest activities within or near SMZ's. The evaluation emphasis was on the proper implementation of erosion control, location of skid trails and landings, and whether or not there is evidence of erosion and if so is the transport of sediment connected to any water body or stream course. Overall, the units evaluated were all within the prescribed design criteria with little to no evidence of erosion, no rills, and no offsite transport of sediment. All design buffers related to SMZ's were more than adequate, skid trails and roads were all adequately located and constructed. There were no issues related to SMZ's, implementation of WCPs, or overall soil and water resources.

3) Prescribed Fire: The BMP evaluation of prescribed fire activities is primarily concerned with the protection of soil and water resources. Evaluation focused on burn plan implementation, and consisted of whether or not SMZ's were adequate protected during ignition, and the evaluation of burn targets for aerial burn extent and severity. In determining effectiveness, the evaluation assessed the extent of post fire ground cover, the existence of erosion in the form of rill formation, and whether stream courses were actively protected during ignition.

The Stagecoach Prescribed Fire Project was implemented in 2005, and was evaluated with regards to each of the above described objectives; ground cover, rills, and SMZ protection. With the exception of ground cover, all metrics were within prescribed fire prescriptions and soil and water resource standards and guidelines. Ground cover was again assessed using professional judgment to establish a baseline percent for reference conditions and perhaps this judgment call is inherent in the unit not achieving an overall > 90% adequate ground cover.

The other issue within this unit was the direct ignition within one unnamed intermittent channel. Ignition occurred within 10" of channel and burned upslope. This failure to adhere to the prescription of no direct ignition within 100'of

intermittent or perennial stream channels and allowing only backing fires did not appear to contribute to increased erosion near the channel at this point in time, which is three years after implementation.

Summary:
The following summarizes the implementation and effectiveness of BMPs by project type. Recommendations for future BMP implementation and monitoring are also identified.

1) Grazing: While the stubble height BMP appears to have been properly implemented on the grazing allotments, it does not appear to be effective at meeting resource objectives. This suggests that other annual monitoring measures be incorporated into grazing allotment plans, with percent of bank trampling appearing to be the most effective measure for the allotments monitored.

Recommendation: Develop reference conditions for bank trampling. Use the Design Criteria of 74% of reference conditions specified in the WCP as an implementation monitoring measure, and see if this measure is more effective at meeting resource objectives and Forest Plan direction.

2) Timber harvest: Design Criteria and BMPs related to timber harvest appear to have been properly implemented, and effective at meeting resource objectives and Forest Plan direction.

Recommendation: Continue to monitor these BMPs on different timber sale projects, particularly in areas adjacent to SMZs to ensure proper implementation and effectiveness.

3) Prescribed fire: BMPs were not properly implemented on the prescribed fire. While no direct resource impacts were noted, this raises a concern regarding implementation. Many projects rely on design criteria and BMPs to ensure that resources are protected. If these measures are not properly implemented, there is potential for resource damage, and the project extending outside the effects analyzed through the NEPA document, and Forest Plan direction.

Recommendation: Monitor prescribed fire projects for proper implementation of BMPs; if BMPS are properly implemented, then determine effectiveness of BMPs for meeting resource objectives.

Conclusion:
Overall the BMP monitoring effort showed mixed results. BMPs were successfully implemented and effective at protecting resources, or were implemented but may not be meeting resource objectives, or BMPs were not properly implemented. It is recommended that BMP monitoring continue to evaluate the appropriate BMPs to protect resources, as well as ensure that BMPs are properly implemented.

Table 28. Summary of BMP monitoring by project type.

Project type	Proper Implementation?	Is BMP effective?	Recommendations
Grazing allotment	Yes	Needs further evaluation	Due to methodology used, the results do not reflect average stubble height. Further evaluation needed with consideration of other BMPs for annual implementation to be effective at meeting resource objectives
Timber harvest	Yes	Yes	Continue to monitor timber projects for both implementation and effectiveness monitoring to ensure resource objectives being met
Prescribed fire	No	N/A	Continue implementation monitoring to 1) ensure BMPs properly implemented, and 2) effective at protecting resource objectives and fitting within the scope of effects analyzed..

District Project Monitoring

Brush Creek-Hayden Ranger District

The Brush Creek-Hayden Ranger District reviewed three projects which were included in the Cottonwood Rim EA / DN signed in January 2005.

Battle Creek Dispersed Site Renovation

This project closed dispersed sites in 2005 along Battle Creek near Battle Creek Campground. The sites were closed with ripping, mulching and seeding compacted areas and closing off access with sections of buck and pole fencing.

A ford across Battle Creek near the bridge was also ripped and blocked with a buck and pole fence. A fence was used so it can be removed in case the ford is necessary due to weight restrictions on the bridge.

The treated areas have revegetated well and the buck and pole fence has stopped people from using the old campsites.
Seeds used on this project were native species but were not local to the area. One plant not common to the area was observed during the field trip and likely came from the seed mix. Under the current revegetation guidelines (not in place for this project) the project would likely either have not seeded or used a sterile hybrid for erosion control to allow the local native plants to seed in.

There are inconsistencies in equipment washing requirements to prevent the spread of noixous weeds. For timber sales, equipment must be washed in between sites, for the forest road crew, the policy is to wash the equipment when moving between districts.

This project appears to have met the project objectives of improving the riparian area and decreasing human waste in Battle Creek.

Figure 18. Dispersed site in 2005 prior to treatment.

Recommendations: Clarify equipment cleaning requirements to improve consistency between different types of projects and between forest equipment and contractors.

Follow up monitoring: Monitor the area for noixous weeds. Treat noixous weed populations as necessary.

Figure 19. Same dispersed site in 2007, two years after treatment.

Travel Management

The Cottonwood Rim decision included closing 32 miles of roads within the analysis area and converting 7 miles of road into an ATV trail. The IDT reviewed three of these road closures and the ATV trail conversion.

Road in open sagebrush are hard to close as people often drive adjacent to the road. Tehcniques included a series of tank traps or small berms at the beginning of the road, recountouring road sections, piling debris on the road and signs.

The series of small berms for the sight distance along the road appears to be somewhat effective. Signs also were effective. Signs which state the benefit of road closures to wildlife and soils are more positive and may be more effective. There has been use on portions of some roads near road ends.

One closed road had a two track created adjacent to the road for admin use for a project which was administered out of the Laramie office, which did not have the updated road closure information. This two track has now recieved more use and is

more apparent on the ground. The project could have used the nearby ATV trail instead of creating a new road.

The road converted to an ATV trail was narrowed down using two long berms. The disturbed area has been seeded twice but has not revegetated well as it is a dry site. The trail is no longer being used by full size vehicles, but ATV use is also low, however the trail is not yet on the state ATV trail map, but is scheduled to be on both the 2008 state ATV trail map and the Medicine Bow motor vehicle use map.

Recommendations**:** Ensure updated road system information reaches all offices to prevent re-opening closed roads. Gather information on administrative road needs to better determine which roads should be closed and which left open for administrative use.

Laramie Ranger District

Iron Mountain South Prescribed Burn

Objectives: To evaluate the success of the prescribed burn, compliance with Forest Plan Standards and Guidelines, and effectiveness of design criteria and mitigation measures.

Standards and Guidelines related to review objectives:
Page 5 of the Decision Memo (April 6, 2005) indicates that the project is consistent with applicable Management Area direction, General Direction, and Standards and Guidelines.

Pages 3 and 4 of the Decision Memo (DM) contain mitigation measures applicable to project implementation. Mitigation measures dealt primarily with preventing the spread of cheat grass, retaining willow vegetation to provide diverse habitat for wildlife species, protection of heritage resources.

Cheat grass: Areas with known cheat grass infestations were avoided. The county also sprayed to prevent future infestations. These measures appear to have been successful as cheat grass did not dominate following the burn.

The Decision Memo was incorporated as an appendix to the burn plan. Standards and Guidelines and mitigation measures were applied during project implementation.

Standards and Guidelines implemented and effective? Forest Plan Standards and Guidelines were successfully implemented and the goal of achieving a good mosaic of burned areas and retained vegetation was achieved.

Standards and guidelines were effective to help achieve project goals and objectives. A desired vegetation mosaic was achieved, fuels were reduced, willow vegetation was protected, and areas with cheat grass were avoided.

Recommendations: Re-assess the cheat grass situation in 3 – 5 years.

Rob Roy Pre-commercial Thin Project

Objectives of the Review: To evaluate the success of the pre-commercial thin project, the effectiveness of mitigation measures, and compliance with Forest Plan Standards and Guidelines.

Forest Plan Standards and Guidelines were incorporated into the project decision and into the project design. Tree spacing and allowed variability were designed to protect goshawk habitat, promote healthy timber stands and to allow a native looking stand to remain. Additional design features were included to protect of riparian/wetland areas, snag retention, slash height, and live tree retention for biological diversity. Yes. Several units were reviewed during the monitoring field trip. The field verified that tree spacing requirements were met, slash requirements were met, and there was ample snag retention.

The field review of several units indicated that the tree spacing and slash requirements were met and that there was ample snag retention.

The project appears to have met objectives and the thinned stands should allow for future growth of healthy stands that will produce sawtimber-sized trees.

Hahns Peak-Bears Ears Ranger District

Seedhouse Fuel Reduction

This project treated fuels adjacent to private lands. These treatments reduced ladder and ground fuels and so increase the ability for direct attack due to lower fire intensities in the case of a wildfire. The District is also working with local land owners who are also doing fuel reduction work.

Forest Plan standards and guidelines were incorporated into the project design criteria and implemented on the ground.

Recommendations: Allow fuel wood gathering in areas where defensible space treatments are occurring to further reduce fuels. This is being allowed and encouraged. When prescribed fire is planned, prescriptions should require cheatgrass and noxious weed monitoring by establishing transects.

Parks RD

Camp Creek Aspen Treatment & Wildlife Enhancement Project

This project was designed to treat up to 1,500 acres of aspen and sagebrush both using mechanic treatments (dixie harrow) and with prescribed fire over a 5-year period to enhance or improve wildlife habitat and to reduce hazardous fuels. Treatments in aspen stands were designed to have the aspen stands regain their natural ability to function as firebreaks. Prescribed fire was implemented between 2005 to 2007. The dixie harrow was used to reduce sagebrush and be able to avoid areas with rabbitbrush, and so reduce the spread of undesireable species such as rabbitbrush as would occur with prescribed fire.

Additional design criteria / mitigation measures included buffering sensitive plants, a snow course, no ignition near streams and riparian areas and working with the hydrologist on erosion control measures if any fire line was built.

The project met the primary project objectives, however the burns did not result in as much of a mosaic as desired. Some of the units were too small to feasibly apply prescribed fire. Bitterbrush and aspen are regenerating well and cheatgrass did not appear to have increased from the burn. The IDT preferred the results of prescribed fire over using the dixie harrow.

The project met the primary project objectives, however the burns did not result in as much of a mosaic as desired. Some of the units were too small to feasibly apply prescribed fire. Bitterbrush and aspen are regenerating well and cheatgrass did not appear to have increased from the burn. The IDT preferred the results of prescribed fire over using the dixie harrow.

Figure 20. Camp Creek prescibed burn unit.

Implementation issues including burning some areas that the Colorado Dept. of Wildlife requested not be burned due to fire control problems; the hydrologist was not involved with fire line building, as specified in the decision memo; and there was miscommunication over what units were to be treated with a harrow and which were to be burned.

Figure 21. Dixie harrow treatment area.

Recommendations:

- Look at larger landscapes for non WUI (wildland urban interface) treatments.
- Consider overall restoration, not just wildlife objectives. Range improvement could also have been accomplished with this project.
- Treat fire as a tool, not a purpose in non-WUI areas.
- Improve IDT involvement throughout the project.

Yampa RD

Blacktail Salvage Sale

The objectives of this review were to review the silvicultural prescriptions and evaluate how they are meeting the objectives outlined in the Rock Creek EIS wildlife design criteria.

The Forest Plan standards were incorporated into the decision. Additional mitigation included live tree retention, protection of goshawk nests, conservation of late successional lodgepole pine and Douglas fir, conservation of coarse woody debris.

Standards and guidelines were implemented on the ground using the following methods:

- Two hard snags per acre were marked as wildlife reserve trees.
- All spruce, fir, aspen and Douglas fir trees were held in reserve and will function as recruitment snags.
- All known goshawk nest locations were buffered and reserve stands identified.
- Any new goshawk nests discovered during the life of the sale would be covered by the contract provisions.
- Any late successional component occurring in spruce/fir and Douglas fir dominated portions of the sale area will be preserved (there will not be much opportunity for maintaining mature, let alone late successional lodgepole pine).
- To the extent practicable and where available coarse woody debris will be left.

Conclusions:

- The silvicultural methods are effective and will aid in the establishment of the new forest.
- The effectiveness of the TES and Wildlife standards and guidelines, in light of the scale of beetle epidemic and subsequent mortality is highly speculative. It is believed that goshawks will continue to utilize the dead stands so those protective measures are being implemented. The lynx habitat in spruce/fir will be maintained and the young pine regeneration will provide for snowshoe hare habitat and hence good lynx foraging habitat. A large percentage of the geographic area will be left untreated and will provide for excellent lynx denning habitat (as well as portions of the treated areas).
- Due to the scale of the current mountain pine beetle epidemic, the objective to reduce insect and disease populations is likely not achievable.

Recommendations:

- Retain all spruce, fir, aspen and Douglas fir within the project area.
- Retain all advanced regeneration within the treatment units.
- The Sale Administration should monitor the contract closely to assure that the objectives are being met.
- Re-evaluate the thresholds of lynx habitat effectiveness in light of the current and expected pine mortality.

Action taken on Recommendations from FY06 Field Monitoring

Powerline – Rabbit Ears Pass, Hahns Peak-Bears Ears Ranger District

Follow up Actions Needed: Map poles and access routes for utility lines. Work with the utility company to come up with an implementation plan that meets their needs while still protecting wetlands and other resources.

FY07 actions taken: Forest staff including a lands specialist, hydrologist, soil scientist, archeologist, and botanist met with Mountain Parks Electric to further refine power pole locations that would best protect all resources. Pre-implementation meetings with the contractor implementing the project were conducted to identify specific concern areas and the best management practices that would minimize impacts to wetlands and heritage sites.

FY08 follow up actions: Continue to work directly with the Mountain Parks Electric contractor to achieve desired results on the ground.

Winter Recreation – Rabbit Ears Pass, Hahns Peak - Bears Ears Ranger District

Follow up Actions Needed: Continue to pursue funding for snow compaction research.

FY07 actions taken: Funding for snow compaction research was requested and approved for FY08 NFIM funding.

Toponas Timber Sale – Yampa District

Follow up Actions Needed: Evaluate the temporary road to determine if additional action is needed to meet revegetation objectives. Determine if additional work is needed to rehabilitate the ruts in the wet area near the road.

FY07 actions taken: No action has been taken on these items.

Allotment Management Planning

Additional Monitoring Needs: Continue to monitor sensitive plant populations in this area to determine population trends. Continue to monitor upland and riparian conditions in the Big Creek Watershed.

FY07 actions taken: Upland and riparian conditions are being monitored as part of the range allotment monitoring program. Sensitive plant habitat condition is assessed during the summer and during FY07 the sensitive plant habitat area in Holyroyd Park was lightly grazed with limited impacts from cattle use.

Brush Creek/Hayden Ranger District

Lake Creek Allotment / Pennock Prescribed Burn

Recommendations: If riparian stubble height is not effective in protecting streambanks, then the IDT should develop quantitative streambank alteration guidelines for the AMP.

FY07 actions taken: The Permitee took voluntary non-use in FY07 so it is not yet known if riparian stubble height standards will be effective in protecting streambanks in this allotment.

Continue riparian monitoring as planned in future years, the weather in 2006 may have resulted in atypical cattle use patterns.

FY07 actions taken: The Permitee took voluntary non-use in FY07 so no riparian monitoring was conducted.

Continue to monitor cheatgrass within the Pennock Burn to determine the long term effects of prescribed fire on cheatgrass populations.

> FY07 actions taken: Cheatgrass was monitored by retaking established photo points. In FY07, it appeared that cheatgrass was increasing in portions of the burn on both BLM and NFS lands.

Consider including periodic rest years into the AMP for allotments with riparian areas at risk of overuse to have more tools available to improve riparian area recovery.

> The NFS currently has the authority to rest riparian areas as needed through the grazing permit which allows pastures to be rested as needed for resource protection.

Douglas Ranger District (Laramie Peak Unit)

Wildcat Hazardous Fuels Reduction

Recommendations: It was noted that if monitoring items are to be included, then they should be completed. It is a recommendation of this review team to utilize the project list for the District and decide which projects are to be monitored and by which group of folks on a yearly basis. This monitoring project list will be developed during a winter Douglas District Leadership Team meeting from projects that occurred the previous year.

> FY07 actions taken: In FY07 the Douglas Ranger District started prioritizing monitoring efforts on the district.

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District Staff from all of the districts contributed much of the content in addition to photographs for this report.

Photographs are by USFS personnel unless otherwise noted.

Acronyms

4WD	Four-Wheel Drive
AML	Abandoned mineland
AMP	Allotment managment plan
ATV	All terrain vehicle
ARNF	Arapahoe Roosevelt National Forest
AUM	Animal Unit Months
BA / BE	Biological Assessment, Biological Evaluation
BAER	Burned Area Emergency Response
BBITF	Bark Beetle Information Task Force
BCH	Brush Creek / Hayden Ranger District
BLM	Bureau of Land Management
BMPs	Best Management Practices
CDF	Colorado Division of Forestry
CDI	The Rocky Mountain Region's Center for Design and Interpretation
CDNST	Continental Divide National Scenic Trail
CDOW	Colorado Division of Wildlife
CDTA	Continental Divide Trail Alliance
CIP	Capital Improvement Program
CRCT	Colorado River Cutthroat Trout
CWQCD	Colorado Water Quality Control Division
DM	Decision Memo
DN	Decision Notice
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FACTS	Forest Service Activities Tracting System
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Management and Policy Act (1976)
FMP	Fire Management Plan
FPO	Forest Protection Officer
FWS	Fish and Wildlife Service
FS	Forest Service
FSH	Forest Service Handbook
FSM	Forest Service Manual
FY	Fiscal Year
GA	Geographic Area
GIS	Geographic Information System
GPRA	Government Performance and Results Act
HM	Head Months
HPBE	Hahns Peak - Bears Ears Ranger District
IDT	Interdisciplinary Team
INFRA	Forest Service Database for Infrastructure
IRA	Inventoried Roadless areas
LAC	(*found on page 64)*
LE&I	Law Enforcement and Investigations
LEO	Law Enforcement Officer
LRD	Laramie Ranger District
LRMP	Land and Resource Management Plan
MA	Management Area
MAII	May Adversely Impact Individuals
MBR	Medicine Bow – Routt National Forests
MBNF	Medicine Bow National Forest
MBRTB	Medicine Bow – Routt National Forests, Thunder Basin National Grassland
M&E	Monitoring and Evaluation List Colorado)
MIS	Management Indicator Species
MPB	Mountain Pine Beetle
MVUM	Motor Vehicle Use Map

MZW	Mount Zirkel Wilderness
NEPA	National Environmental Policy Act
NF	National Forest
NFIM	National Forest Inventory and Monitoring funds
NFMA	National Forest Management Act
NFPORS	National Fire Plan Operations and Reporting System
NRCS	National Resources Conservation Service
NFRW	National Forest Recreation Wilderness Funds
NFS	National Forest System
NFSR	National Forest System Road
NRIS	National Resource Information System
NVUM	National Visitor Use Monitoring
OHV	Off-Highway Vehicle
PCR	Polymerase Chain Reaction
PFC	Proper Functioning Condition
R2	Region 2 (Rocky Mountain Region of USFS)
RMBO	Rocky Mountain Bird Observatory
RMEF	Rocky Mountain Elk Foundation
RMRS	Rocky Mountain Research Station (USFS)
RNF	Routt National Forest
ROD	Record of Decision
SASEM	Simple Approach Smoke Estimation Model
SB	Spruce Beetles
S&G	Standards and Guidelines
SIA	Special Interest Area
SIO	Scenic Integrity Objective
SLC	Species of Local Concern
SOPA	Schedule of Proposed Actions
SS	Sensitive Species
T&E	Threatened and Endangered Species
TBNG	Thunder Basin National Grassland
TES	Threatened, Endangered and Sensitive Species
TMDL	Total Maximum Daily Load
TRTR	Roads and Trails Funding
TS	Timber Sale
TTFL	Trend Towards Federal Listing
UAA	Use Attainability Analysis
ULT	Ute ladies tresses
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United State Geologic Service
UW	University of Wyoming
VQO	Visual Quality Objectives
WGCD	Water Quality Control Division (Colorado)
WGFD	Wyoming Game and Fish Department
WUI	Wildland Urban Interface
WYDEQ	Wyoming Department of Environmental Quality
WYNDD	Wyoming Natural Diversity Database

Appendix 1 – Medicine Bow Goals and Objectives

Goal 1: Ensure Sustainable Ecosystems: Promote ecosystem health and conservation using a collaborative approach to sustain the Nation's forests, grasslands, and watersheds.	
Subgoal 1.b: Provide ecological conditions to sustain viable populations of native and desired non-native species. (USDA Forest Service Strategic Plan 2000 Revision Objective 1.b)	
Objective 4. Within 3 years, identify and map old growth forestwide to be used in project planning to ensure that desired old growth amounts and distribution are maintained as defined in Chapter 1-Standards and Guidelines.	**Year Due** 2006
A draft map of inventoried and mapped old growth was completed in 2006. This map is under review and is expected to be approved in FY08. More information can be found under the *Old Growth* monitoring item.	
Subgoal 1.c: When appropriate or where necessary to meet resource management objectives, increase the amount of forests and rangelands restored to or maintained in a healthy condition with reduced risk and damage from fires, insects and diseases, and invasive species. (USDA Forest Service Strategic Plan 2000 Revision Objective 1.c)	
Objective 1. Within 2 years, complete Forestwide Fire Management Plan including Wilderness areas.	**Year Due** 2005
The Medicine Bow FMP is currently being updated to include Fire Use Management for all Wilderness Areas and other areas on the Forest that are suitable for this type of wild land fire. The FMP will be in place and functional for fire season 2008.	
Goal 2: Multiple Benefits to People: Provide a variety of uses, values, products, and services for present and future generations by managing within the capability of sustainable ecosystems.	
Subgoal 2.a: **Improve the capability of the Nation's forests and rangelands to provide diverse, high-quality outdoor recreation opportunities. (USDA Forest Service Strategic Plan 2000 Revision Objective 2.a)**	
Objective 3. Annually maintain or reconstruct up to 20% of National Forest trails to meet resource standards.	**Year Due** Annually
In 2005, 57% of the total Forest Summer Trails and 93% of winter trails of 'trails meeting standards' was met. See the ***Outdoor Recreation***	

monitoring item for more information.

Subgoal 2.b: **Improve the capability of wilderness and protected areas to sustain a desired range of benefits and values. (USDA Forest Service Strategic Plan 2000 Revision Objective 2.b)**

Subgoal 2.c: **Improve the capability of the Nation's forests and rangelands to provide a desired sustainable level of uses, values, products, and services. (USDA Forest Service Strategic Plan 2000 Revision Objective 2.c)**

Objective 1. Between the Medicine Bow and Routt National Forests, implement a consistent timber program each year. **Year Due** Annually

Since fiscal year 2004 the Medicine Bow – Routt NFs have offered or plans to offer approximately 45,000 to 50,000 CCF (100 cubic feet) per year. this volume include sawlogs in addition to post and poles, firewood permits and other wood products. The level of timber sale offer is currently constrained by funding. Planned offer for 2006-2010 is based on 2004/2005 funding levels.

Fiscal Year	Volume offered (CCF)	Estimated / Planned Offer (CCF)
2004	46,894	35,000
2005	51,432	50,000
2006	62,253	50,000
2007	103,294	51,000
2008		44,100
2009		49,000
2010		49,500

Objective 3. Meet annually with Wyoming Game and Fish to coordinate population management issues including big game herd objectives. **Year Due** Annually

This coordination generally occurs at the district level, and it varies from unit to unit on degree of coordination and who attends. Efforts to improve coordination are ongoing. Coordination meetings concerning fisheries resources inventory and management are held annually.

Goal 3 - Scientific and Technical Assistance: Develop and use the best scientific information available to deliver technical and community assistance and to support ecological, economic, and social sustainability.

Subgoal 3.a: Provide better assistance in building the capacity of Tribal governments, rural communities, and private landowners to adapt to economic, environmental, and social change related to natural resources. (USDA Forest Service Strategic Plan 2000 Revision Objective 3.a)

Objective 2. Annually, provide opportunities for individuals and organizations to assist the Forest Service in implementing and monitoring the Plan.	**Year Due** Annually
There are numerous ongoing projects that are making progress towards this goal, which are detailed under many of the other objectives. Examples include: • Partnerships with various organizations to accomplish trail construction and maintenance • Cooperative agreements with counties to inventory and treat noxious weeds. • Forest Service, Laramie County and Laramie Rivers Conservation Districts have entered into an MOU to address range and water quality issues in the Crow Creek watershed on Pole Mountain.	

Appendix 2 – Routt Goals and Objectives

Goal 1 – Ecosystem management on the Routt National Forest shall provide for multiple-use outputs and the habitats and processes necessary to maintain the biological diversity found on the Forest.

Maintain Soil Productivity

Management activities are monitored annually to determine compliance with Forest Plan and R2 soil productivity standards. The following actions addressed this goal in 2006:

- Quantitative monitoring of effects of livestock grazing in the California Park grazing allotment.
- Quantitative monitoring of effects of watershed improvement projects in the Rainbow Family Gathering Area.
- Completion of 31 soil quality field evaluations throughout the Routt National Forest.

Work cooperatively with National, State and local interests to protect water related values in perpetuity on National Forest System Lands.

The following actions addressed this goal in 2007:

- Reviewed 24 monthly resumes for potential new water rights being filed on USFS lands by private entities
- Two statements of opposition to water rights filed on USFS lands
- Upper Yampa Water Conservancy District Augmentation plan (134 pgs)
- Thomas Spring development (80 pgs)
- Two letters to proponents regarding water rights incorrectly filed on USFS lands
- Issues were resolved
- Field inventory of 74 range water development facilities on the Yampa Ranger district

Improve water quality , channel stability, and aquatic habitat in areas not meeting State water quality standards and in watersheds of concern and meet the anti –degradation clause of the Clean Water Act across the Forest

The following actions addressed this goal in 2007**:**

- 303(d) listed streams: Elkhead Cr and First Cr (HPBE)
    - BMP monitoring of Elkhead and First Creeks prior to livestock grazing and at the end of livestock grazing in cooperation with range staff
    - Collected E.coli data at 4 sampling locations to address listed streams
    - Completed Use Attainability Analysis for California Park to determine the potential for primary contact recreation, presented

draft to the Colorado Water Quality Control Division

- Sampled 4 sites on Colorado state Monitoring and Evaluation to help determine if streams should be removed from M&E list or placed on 303(d) list
- Stream health surveys completed on 9 streams.
- PFC surveys on Trail Creek for range AMP.
- 11 acres of watershed restoration accomplished through cooperative efforts with other resources.

Avoid activities which contribute to air quality degradation and atmospheric deposition in the Mount Zirkel wilderness.

The goal of the air program is to conduct management activities to comply with all applicable federal, state, and local air quality standards and regulations. The Forest Service is also responsible for protecting the Mount Zirkel Wilderness (MZW) Class I airshed from adverse effects caused by air pollution resulting from forest management activites. Management activities with potential air quality impacts, specifically particulate matter contributions, will be summarized annually for compliance and impacts. NADP, MDN, and IMPROVE data from Buffalo Pass will be tabulated and summarized at 5 and 10 year intervals for trend evaluation.

Conduct project analysis at the landscape scale, where appropriate. Sent email to Rhonda 12/19/07

One Landscape scale project was completed in FY07 on the Bear River Analysis Area on the Yampa Ranger District.:

Maintain or create habitats suitable for a stable or increasing population of federally listed threatened and endangered species and Forest Service, Region 2 sensitive species for the Routt National forest, including the Colorado River cutthroat trout.

Plants

- The botany program is working to develop IDIQ contracts for rare plant surveys and NEPA in order to respond to bark beetle treatments and other forest priorities.
- MBRTB is a recognized leader in the Region and in the Nation in the number of Rare Plant Survey Data and Rare Plant Element Occurrence Records that have been input into the relatively new NRIS-TESP database and GIS. This database will serve as institutional knowledge for the MBRTB botany program for years to come and will help provide efficiencies and accuracies in future analysis, planning and monitoring. In FY2008 we plan to input all rare plant data that has been collected since 2002 (when the first botanist was assigned to MBRTB).
- Plant species formally collected during a floristic inventory of the Routt NF in 2001 and 2002 have been organized into a new herbarium cabinet at Parks RD by a volunteer whom is a UW floristics graduate student. Those specimens will help increase accuracies and efficiencies in plant Identifications on the South Zone as well as the greater MBRTB.
- Plant species from historic collections will be remounted if needed then organized into two new herbarium cabinets at HPBE district by a volunteer whom is a UW floristics graduate student in the spring of 2008.
- FY 2007 was a very successful year in the early implementation efforts of the MBRTB Botany Zone Agreement which identified the

botanist's primary emphasis and support to IDT on Parks, HPBE and Yampa RD.

- CCS Partnership Agreement is now in place with Colorado Natural Heritage Program and in FY2006 Two of Ten planned Empirical Surveys was completed for the Owl Mountain Geographic Area. That effort provided a landscape perspective of the plant resources and rare plant communities needed to analyze proposed fuels and beetle treatments in the Owl Mountain Analysis Area. Data collected were input into NRIS-TESP database and will serve as baseline data for future monitoring and institutional knowledge. Four separate Potential Conservation Areas (PCA) were identified in the Owl Mountain Geographic Area due to their high Global or State heritage significance.
- The Effects Matrices effort for R2 Sensitive plants is in phase II (document revision that incorporates peer review and new data from completed species conservation assessments). The Routt NF has volunteered to revise effects matrix documents for 7 of the 80 R2 sensitive plants.
- Three of ten planned Empirical Surveys (Broad Scale Surveys) will be conducted in FY08. The survey area corresponds with the West Side Assessment Area on Parks RD. The survey will be accomplished with a CCS agreement with Colorado Natural Heritage Project (CNHP). In addition, surveys will be implemented through force account in proposed treatment units and areas of actual livestock use within the West Side Assessment Area.
- The MBRTB institutionalized a revegetation policy in November of 2007. That policy will help avoid the introduction of persistent exotic plant species and genetically inappropriate plant materials during routine revegetation efforts. That policy also identified recommended species revegetation mixtures that would be often be appropriate for use in many standard revegetation projects on the MBRTB.
- The MBRTB continued to develop local sources (by seed zone and elevation) of native plant materials with an emphasis on those species identified in recommended revegetation mixtures in the November 2007 MBRTB revegetation policy. Challenge cost share agreements with Upper Colorado Environmental Plant Center, CSU, Owl Mountain Partnership, North Park High School, Rocky Mountain Youth Conservation Corp and the Ute Conservation Corps were put in place in 2006 and are continued to be developed.
- In FY2008 plans are being made to reorganize the botany fileset on the K drive so anyone can easily navigate there and find information (literature, species accounts, species photos, habitat photos, species assessments, etc) specific to TES and SLC plants and rare plant communities, NRIS protocols, MBRTB botany protocols, etc.
- Progress is being made annually on components of the Botany 5 year plan which identifies action items specific to moving toward meeting this objective (2003). So many items have been checked off since it was drafted in 2003 that it needs to be updated in FY2008 or FY2009.

Terrestrial Wildlife

This complex objective contains both a habitat component and a population component, and addresses numerous species. For terrestrial wildlife, there are 2 ESA-listed species, potentially 35 regional forester sensitive species, and 23 MIS. The Forest has begun to make progress towards this objective, though limited funding necessitates focusing on a subset of species (our MIS) that, taken together, depend on the primary covertypes available on the Routt NF – namely, mature lodgepole, mature spruce/fir, riparian areas, and, to some degree, aspen.

Thus far, our habitat availability information is limited to broad assumptions that associate a given species with a combination of vegetation attributes in GIS such as dominant tree species and habitat structural stage. For example, we defined marten habitat as ≥75% T (timbered), ≥17% TSF (spruce/fir), and ≤20% in habitat structural stage 1T or 2T (non-stocked or seedling/sapling). For many species, we do not know the true population trend on the Forest, though a non-exhaustive literature and data review suggests that, with the exception of Wilson's warbler, all MIS have stable populations on the Routt. Since funding limits the number of species we can survey for population trends, we assume that where the appropriate combination of vegetation characteristics exists, there is suitable habitat that is occupied by the species in question. Such suitable habitat tends to be surveyed for TES species only where projects are scheduled to occur and usually only using visual detection while walking through an area for less than a day.

We have not created a GIS layer of likely habitat for all of our species, and do not have field data to distinguish the varying quality of habitats. Despite this lack of field data, we can make some broad assumptions about habitat quality with regards to forest-wide changes. For instance, the increased number of mountain pine and spruce beetles can reasonably be expected to improve the quantity (number of snags or acres of snags) and quality of habitat (increased beetles equate to increased forage) for the three-toed woodpecker. At the same time, we can predict that beetle kill trees are creating a natural influx of coarse woody debris that may be used as lynx denning sites, whereas beetle treatment and salvage may reduce the quality of lynx habitat. In addition, wildfires in beetle-infected mature forest can change lynx denning habitat to lynx foraging habitat. Therefore, it is not a simple analysis for any of these 60-odd species to assess whether the Forest is maintaining habitat, nor can we expect to increase habitat for multiple species that have conflicting habitat requirements – creating habitat for one species could simultaneously degrade the habitat for another species.

In some cases, the Forest can rely on partners, such as the Colorado Division of Wildlife (CDOW) to monitor wildlife populations. For instance, CDOW is intensively tracking the progress of the lynx reintroduction with the use of radio-collars. CDOW then provides brief reports on lynx movements, numbers, and reproduction approximately 1 year after breeding occurs.

During the past 9 years, several habitat improvement projects were completed that create or improve habitat for at least one, and usually multiple, species. The Forest continues to make progress maintaining and creating habitat for species such as deer, elk, boreal toads, and Colombian sharp-tailed grouse. During the past 3 years, in addition to creating or improving habitat for the above species, the Terrestrial Wildlife Cadre focused on developing and executing protocols to monitor MIS. In 2007, the Wildlife Cadre is prioritizing the list of sensitive species in order to focus limited future funding on those species where concern is relatively high, knowledge is relatively low, and forest activities can be expected to either improve or degrade their habitat or population trends. It is not likely that funding will allow the Forest to maintain or create habitat or accurately demonstrated population trends for all of these species within the life of the Plan.

Aquatic Wildlife

- The south zone fisheries biologist has been making incremental progress in maintaining and expanding lotic habitats for Colorado River cutthroat trout by removing non-native, competing species such as brook trout; some of the work has been conducted in cooperation with the Colorado Division of Wildlife.

- A draft management plan has been constructed to manage Colorado River cutthroat trout habitats and populations in the south zone; the plan should be finalized in FY07.

Limit the proliferation of undesirable nonnative plant and animal species through various activities and practices.

A total of 693 acres of noxious weeds were treated on the Forest in 2007 (for trend comparison, 1,565 acres were treated in 2004, 965 acres in 2005, and 1,279 in 2006).

Widely-fluctuating funding levels from one year to the next dictate much of what can be accomplished; funding available was substantially reduced in FY07. In addition, Carbon County encountered difficulties in hiring its seasonal crew because of oil and gas activity recruiting virtually the entire available workforce around Wyoming; as a result, they were unable to complete several hundred acres of treatment that they have done in previous years. Lastly, this was the first year that all treatment data were entered in the FACTS database; it tracks "acres treated" differently than the Pesticide Reporting system (a difference in the definition of infested acres) which resulted in a further reduction of counted acres from previous years.

Efforts are designed to control existing populations and to limit further expansions of noxious weed species. Primary species treated were yellow toadflax, knapweeds, whitetop, houndstongue, musk thistle, and Canada thistle. Jackson, Grand, and Routt counties are cooperating parties with the Forest Service in controlling noxious weed infestations. We are currently expanding efforts to establish a Cooperative Weed Management Area in Routt county. It is quite possible that efforts to limit noxious weed expansion on the federal lands may not be successful if all land ownerships and landowners are not equally committed to the desired outcomes (infestation sources may remain on adjacent lands or on intermingled ownerships).

Goal 2 – Provide a wide variety of outdoor recreational opportunities and experiences to meet the full range of visitor expectations.

Identify appropriate programs and compatible levels of use for Forest recreation and resource programs in collaboration with user groups, communities, and other agencies.

Through their relationship with Yampatika, the Routt National Forest has an active environmental education and interpretation program. In addition, forest recreation program managers work closely with a number of user groups and other agencies to enhance the recreation program.

Provide Forest visitors with a full range of interpretive experiences.

See response to the above objective.

Provide recreation opportunities to accommodate a wide range of abilities.

Accessibility is one of the main components of our Forest capital improvement program. Whenever deferred maintenance is performed on a developed site, accessibility is taken into consideration. Not all facilities are accessible, however, and continual maintenance of trail access is vital - this includes access to toilets, picnic and camping areas.

Goal 3 – Cooperate with local governments and communities to develop opportunities that contribute to economic viability.

Support development and maintenance of a sustained flow of market and nonmarket products to regional and local economies.

Non-market products are issued as personal use permits to the public through VIS or front-liners at district offices. These products are not sold competitively and are issued for personal use, rather than commercial re-sale.

Non-market Products (Routt NF)

Fiscal Year	Fuelwood (permits	Transplants (each)	Christmas Trees (permits)	Post & Poles (permits)	Misc (ferns, botanicals,etc (permits)
2004	1,301	189	1,728	46	393
2005	1,492	464	1,492	101	383
2006	1,155	65	1,446	43	343
2007	1,265	99	1,672	60	3

Non-market Products (Medicine Bow NF)

Fiscal Year	Fuelwood (permits	Transplants (each)	Christmas Trees (permits)	Post & Poles (permits)	Misc (ferns, botanicals,etc (permits)
2006	3,564	123	2,986	204	10
2007	3,511	75	1,995	204	10

Sawlog Volume Offered and Sold (ccf)

Fiscal Year	Routt NF	Medicine Bow NF
2004	31,600	
2005	32,200	
2006	48,960	8,775
2007	56892	17,706

Market products are generally prepared as commercial products (sawlogs, post & poles, firewood) through vegetative treatments that are designed to improve forest health, achieve resource objectives, or salvage damaged trees.

Develop programs and projects that are complementary to local community objectives and plans.

Northern Colorado Beetle Cooperative – the Routt National Forest was instrumental in the formation of the Cooperative**.** The Cooperative organization is focused on the future – future impacts to local economies and wildfire risk to communities and watersheds. Our charge is to initiate and guide actions that address these impacts and risks - future industry capability, future organizational capacity to deal with wildfire risk to communities and watersheds, and collective prioritization of cooperative projects that erase limiting boundaries.

Bark Beetle Information Task Force - local city and county government, state and federal agencies, the local chamber, and local non-profits joined forces to provide information and education about the huge bark beetle epidemics and the resulting effects on natural resources, the landscape, and tourism. Many projects have come from leveraging funds with all these entities – exhibits, brochures, interpretive signs, PSAs, events, etc.

Yampatika Interpretive Association – the FS partners with the association to provide interpretive opportunities across the forest, on the Steamboat Ski area, and in communities. The focus is natural and cultural interpretation. Projects include interpretive brochures, educational displays, walks, talks, children's programs, natural resource education for adults, and fund raisers that get needed work accomplished on the ground. These efforts contribute to tourism and community economic viability.

Routt County Wildland Fire Council (Education Committee) – an interagency educational group that promotes wildland fire prevention and mitigation.

North Park High School Greenhouse – continue to work in partnership with the school district to collect native seeds and raise them in the greenhouse to revegetate National Forest Lands and private lands with native plants.

Rocky Mountain Youth Corps and Steamboat Community Youth Corps – The FS works with this organization to get needed work done on the forest and to mentor youth into natural resource appreciation.

Natural Resource Interpretation – Numerous interpretive projects have been planned and implemented in partnership with local entities including Fish Creek Brochure, Teller City signs, ski area signs, signs across the forest about blowdown, beetles, and forest health, Red Elephant trail, local history and tourism signs and brochures and kiosks in Yampa and Hayden.

Yampa Valley Info – participated in their mission to gather and display valley-wide information to promote the spirit, culture and heritage of our communities. Linked the MBR website to Yampa Valley Info, which is one-stop website

shopping for information about the Yampa Valley, especially for people desiring to recreate here or to relocate to Routt County.

Assist local governments in developing specific programs that promote economic stability

North Park Natural Resources Group – a local group in Jackson County that works to market beetle-kill timber and seek economic development opportunities for the county. It is also involved in promoting stewardship opportunities on the Forest.

Bio-mass Generator – A partnership between Jackson County (school district), Forest Service, and county commissioners worked to bring a pilot project to provide electricity for the high school greenhouse first and then the entire high school. This project was a Department of Energy pilot project and it is anticipated that it will serve to start up other biomass industry in the area. North Park high School won the National rural Community Assistance Spirit Award for it biomass project.

Owl Mountain Partnership – A partnership with BLM, the Forest Service and local ranchers to accomplish rangeland improvements.

Rural Development Grants -There was no money to offer grants in 2007.

Fuel reduction projects – working with private/adjacent landowners on several ongoing fuel reduction projects.

Moffat County and Routt County Public Information Officers group – helped develop public information officer groups so that all entities work together in talking about issues that affect local communities. In 2007, the Routt County PIO group hosted “Meet the Media” to help spokepeople for various organizations better interact with the media. The class, taught by R2 public affairs professionals, was maxed out at 30 participants.

Appendix 3 – FY07 Survey Information

Table 1. FY07 stream and riparian area condition inventories.

Stream Name	Reach length (miles)	Watershed HUC Code	Method/Rating
Colorado River Headwaters			
Trail Creek	1.0	1405000101	BLM, 1998 / Functional at risk
Beaver Creek	1.0	1405000101	Harrelson, et al, 1994
Willow Creek	1.0	1405000101	Harrelson, et al, 1994
Coal Creek	1.0	1405000103	Harrelson, et al, 1994
Elkhead Creek	1.2	1405000106	Harrelson, et al, 1994; USDA Forest Service 1996;
First Creek	1.0	1405000106	Harrelson, et al, 1994; USDA Forest Service 1996
Frantz Creek	0.5	1401000114	Harrelson, et al, 1994
Red Dirt Creek	1.0	1401000114	Harrelson, et al, 1994
Trib. M Fk L Snake	1.0	140500030102	Permanent Photo Point
Trib. E. Sweetwater	0.25	140500030201	Permanent Photo Point
Trib. M Fk L Snake	0.5	140500030102	Permanent Photo Point
Trib. L Snake – Spg Cr	0.25	140500030106	Permanent Photo Point
Trib. L Snake – L Big G	0.25	140500030110	Permanent Photo Point
Slater Creek	1.0	1405000303	Harrelson, et al, 1994
Big Sandstone Creek	8.2	140500030407	BLM, 1998 / PFC
Little Sandstone Creek	3.7	140500030409	BLM, 1998 / PFC
Dry Sandstone Creek	0.7	140500030409	BLM, 1998 / Functional at risk; Permanent Photo Point
Hell Canyon	1.7	140500030403	BLM, 1998 / PFC
Trib. to Dirtyman Fork	0.5	140500030402	BLM, 1998 / Functional at risk
North Platte River			
Silver Creek	1.0	1018000103	Harrelson, et al, 1994
S.Fk. Michigan River	1.0	1018000103	Harrelson, et al, 1994
Porcupine Creek	1.0	1018000103	Harrelson, et al, 1994
Fall Creek	1.0	101800081001	BLM, 1998 / PFC
Collins Creek	0.5	101800081001	BLM, 1998 / PFC
Little Brush Creek	0.5	101800020401	Permanent Photo Point & USDA Forest Service, 1996
Collins Creek	0.5	101800081001	BLM, 1998 / Functional at risk
Trib. Big Creek	0.50	101800020303	Permanent Photo Point
North Brush Creek	0.25	101800020402	Permanent Photo Point & USDA Forest Service, 1996
Barrett Creek	0.25	101800020403	Permanent Photo Point & USDA Forest Service, 1996
Trib. Med. Bow River	0.33	1018000401	Permanent Photo Point & USDA Forest Service, 1996
Unnamed N Platte Trib	0.50	1018000200101	Permanent Photo Point
Unnamed N Platte Trib	0.10	101800020101	Permanent Photo Point
Unnamed N Platte Trib	0.10	101800020101	Permanent Photo Point
North Fork Big Creek	1.0	101800020302	Permanent Photo Point
Middle Fork Big Creek	0.50	101800020303	Permanent Photo Point
South Fork Big Creek	1.50	101800020301	Permanent Photo Point
Trib. N. Brush Creek – Cecil Park	0.25	101800020402	Permanent Photo Point
Trib. N. Brush Creek – Harden Cr	0.5	101800020402	Permanent Photo Point
Trib. N. Brush Creek – Fish Cr	0.5	101800020402	Permanent Photo Point

Stream Name	Reach length (miles)	Watershed HUC Code	Method/Rating
Troublesome Creek	0.25	1018000206	Permanent Photo Point
Little Beaver Creek	0.25	101800020205	Permanent Photo Point
North Cedar Creek	0.50	101800020603	Permanent Photo Point
Trib. Mid. Cedar Creek	0.5	101800020603	Permanent Photo Point
Trib to Calf Creek	0.5	101800020602	Permanent Photo Point
Trib EF Encampment R.	0.25	101800020503	Permanent Photo Point
TOTAL:	**39.78 miles**		

Table 2. Brook trout and Colorado River Cutthroat Trout (CRCT) surveys conducted in the Routt National Forest in FY07.

Stream Name	Ranger District	Species Present	Population Estimate (per mile)	# Adult Trout / mile[9]	# Juvenile Trout / mile
Draper Creek	Yampa	N/A	No fish detected		
Red Dirt Creek	Yampa	Brook trout	1,648	375	1,273
Unnamed tributary to Red Dirt Creek	Yampa	Brook trout	352	70	282
Lower W. Red Dirt Creek	Yampa	Brook Trout	897	237	660
Middle W. Red Dirt Creek	Yampa	No trout observed			
Upper W. red Dirt Creek	Yampa	No trout observed			
Beaver Creek	HPBE	No trout observed			
Lower Cataract Creek	HPBE	CRCT	229	0	229
Upper cataract Creek	HPBE	CRCT	352	158	194
E. Fk. Boulder Creek	HPBE	Brook trout	36	18	18
Lower Roaring Fk. Slater Creek	HPBE	CRCT	221	85	136
Upper Roaring Fk. Slater Creek	HPBE	CRCT	146	70	76
W. Prong Creek	HPBE	CRCT	85	34	51
W. Prong, S. Fk. Slater Cr. #1	HPBE	CRCT	63	undocumented	undocumented
W. Prong, S. Fk. Slater Cr. #2	HPBE	CRCT	42	undocumented	undocumented
W. Prong, S. Fk. Slater Cr. #3	HPBE	CRCT	53	undocumented	undocumented
W. Prong, S. Fk. Slater Cr. #4	HPBE	Brook Trout	375	undocumented	undocumented
W. Prong, S. Fk. Slater Cr. #5	HPBE	CRCT	237	undocumented	undocumented
W. Prong, S. Fk. Slater Cr. #6	HPBE	CRCT	232	undocumented	undocumented

[9] Adult Trout at least 150 mm in length.

NF Little Snake	BCH	CRCT	Not yet estimated		
Dirtyman creek	BCH	CRCT	Not yet estimated		
Solomon	BCH	CRCT	Not yet estimated		
Rose	BCH	CRCT	Not yet estimated		
Green Timber	BCH	CRCT	Not yet estimated		

Table 3. North Zone (Medicine Bow N.F.) fisheries surveys conducted in FY07 to evaluate populations of aquatic management indicator species (MIS) and R2 sensitive species.

Stream Name	Mountain Range	Ranger District	Species	Population Estimate/mile	Classification
Fence Creek	Medicine Bow	BCH	BKT	N/A ; 10 trout between 8-10”	MIS
Lake Owen Creek	Medicine Bow	BCH	BKT	1,144	MIS
Shellrock Creek	Medicine Bow	BCH	N/A	Dry channel	MIS
Gramm Creek	Medicine Bow	BCH	N/A	Dry Channel	MIS
Sevenmile Creek	Medicine Bow	BCH	Brook trout	2,482	MIS
Trail Creek	Medicine Bow	BCH	BKT	1,373	MIS
North Fork Little Laramie River	Medicine Bow	BCH	BKT	717	MIS
Silver Run Creek	Medicine Bow	BCH	BKT/BNT	1,183/55	MIS
Gold Run Creek	Medicine Bow	BCH	BKT	973	MIS
Libby Creek	Medicine Bow	BCH	BKT	High water-no survey	MIS
Nash Fork	Medicine Bow	BCH	BKT/BNT	1,003/92	MIS
Lincoln Creek	Medicine Bow	BCH	BKT/RBT	2,394/18	MIS
North Fork Rock Creek	Medicine Bow	BCH	BKT	1,514	MIS
Middle Fork Rock Creek	Medicine Bow	BCH	BKT	158	MIS
South Fork Rock Creek	Medicine Bow	BCH	BKT	914	MIS
Little Brush Creek	Medicine Bow	BCH	BKT	1,249	MIS
South Barrett Creek	Snowy Range	BCH	BKT	469	MIS
Barrett Creek	Medicine Bow	BCH	BKT/RBT/BNT	95/16/142	MIS
Porter Creek	Medicine Bow	BCH	N/A	Low flows/no fish	MIS
North French	Medicine	BCH	BKT	2,605	MIS

Stream Name	Mountain Range	Ranger District	Species	Population Estimate/mile	Classification
Creek (1)	Bow				
South Brush Creek (control)	Medicine Bow	BCH	BKT/BNT	1,918/651	MIS
Roaring Fork of LSR	Sierra Madre	BCH	CRCT	Not yet estimated	R2 Sensitive
Cottonwood Creek	Sierra Madre	BCH	CRCTBKT/RBT	Dry/deep pools	R2 Sensitive
West Fork Battle Creek	Sierra Madre	BCH	BKT/RBT	370/18	MIS
Battle Creek	Sierra Madre	BCH	BKT/RBT	35/88	MIS
West Branch Haskins Creek	Sierra Madre	BCH	BKT	1,338	MIS
Smith Creek	Sierra Madre	BCH	BKT	338	MIS
Beaver Creek	Sierra Madre	BCH	BKT	264	MIS
McAnulty Creek	Sierra Madre	BCH	BKT	898	MIS
Big Sandstone Creek	Sierra Madre	BCH	BKT	264	MIS
Big Sandstone Cr. (headwater)	Sierra Madre	BCH	BKT	N/A; water, some fish	MIS
Little Sandstone Creek	Sierra Madre	BCH	N/A	Low water; non-game fish	MIS
Douglas Creek	Sierra Madre	BCH	BKT	766	MIS
Camp Creek	Sierra Madre	BCH	BKT	827	MIS
North Fork Big Creek	Sierra Madre	BCH	BKT/BNT/RBT	677/809/66	MIS
Middle Fork Big Creek	Sierra Madre	BCH	BKT/BNT	998/19	MIS
South Fork Big Creek	Sierra Madre	BCH	BNT	2,200	MIS
Quimby Creek	Sierra Madre	BCH	BKT	1,268	MIS

Note: BKT = brook trout; BNT = brown trout; RBT = rainbow trout; CRCT = Colorado River cutthroat trout.

Table 4. Boreal toad surveys conducted in FY07 to evaluate known and suspected breeding sites and count adults/juveniles in the MBR N.F.

Ranger District	Watershed	Acres Surveyed	Species	Adults	Juveniles	Tadpoles	Eggs
BCH	Sourdough Creek	No data	Boreal toad	1	0	0	0
BCH	Ryan Park	No data	Boreal toad	0	25	0	0
Laramie	N. Fork Laramie River	site	Boreal toad	0	0	0	100 + eggs

Ranger District	Watershed	Acres Surveyed	Species	Adults	Juveniles	Tadpoles	Eggs
Laramie	Rock Creek Park	No data	Boreal toad	0	0	0	0
Parks	Big Creek	53,400	Boreal toad	1	0	0	0
HPBE	Elkhead Creek	No data	Boreal toad	0	several	0	0

Table 5. The results of positive surveys conducted in the MBR N.F. for northern leopard frogs in FY07.

Water Body	Ranger District	Adults	Juveniles	Tadpoles	Eggs	Area Surveyed (sq. meters)
Newcomb Cr.	Parks	0	26	0	None observed	10,500
	Parks	0	11	0	None observed	10,500
	Parks	36	0	0	None observed	25,000
Big Creek	Parks	5	10	0	None observed	4,700
Colorado Creek	Parks	1	0	0	None observed	12,000
	Parks	3	0	0	None observed	10,000
Teal Lake	Parks	7	11	0	None observed	40,000
	Parks	119	0	2 groups	None observed	40,000
	Parks	2	0	Too many to count	None observed	40,000
Tiago Lake	Parks	5	9	0	None observed	12,500
	Parks	0	2	0	None observed	400
	Parks	22	2	0	None observed	12,500
	Parks	7	4	0	None observed	12,500
Burns Reservoir	Parks	0	1	0	None observed	10,000
	Parks	9	0	0	None observed	3,500

Table 6. The results of positive surveys conducted in the MBR N.F. for wood frogs in FY07.

Water Body	Ranger	Adults	Juveniles	Tadpoles	Eggs	Area

	District					Surveyed (sq. meters)
Newcomb Cr.	Parks	0	2	0	0	10,500
	Parks	0	2	0	0	10,500
Lily Lake	Parks	2	0	0	0	3,000
	Parks	0	1	0	0	3,000
Big Creek	Parks	1	5	0	0	940
	Parks	0	2	0	0	540
Bird Creek	Laramie	0	1	0	0	

Table 7. The results of positive surveys conducted in the MBR N.F. for boreal chorus frogs in FY07.

Water Body	Ranger District	Adults	Juveniles	Tadpoles	Eggs	Area Surveyed (sq. meters)
Newcomb Cr.	Parks	5	0	0	None observed	10,500
	Parks	6	0	0	None observed	10,500
	Parks	0	100	0	None observed	500
	Parks	4	3	0	None observed	25,000
Lily Lake	Parks	100	0	0	None observed	3,000
	Parks	5	30	0	None observed	3,000
Big Creek	Parks	21	0	0	None observed	53,400
	Parks	1	0	0	None observed	2,400
Colorado Creek	Parks	0	1	0	None observed	10,000
N. Fk. Laramie River	Laramie	1	0	0	None observed	No data
Red Dirt Creek #1	Yampa	Boreal chorus frog	Many frogs heard, but none observed	Many tadpoles observed	None observed	No data
Red Dirt Creek #2	Yampa	Boreal chorus frogs		Likely boreal chorus frog tadpoles – no positive ID	None observed	No data
Red Dirt Creek #3	Yampa	Boreal chorus frogs	Adults of both species observed	Tadpoles observed	None observed	No data
West. Red Dirt #2	Yampa	Boreal chorus frogs	Two observed	None	None observed	No data
Sarvice Creek	Yampa	Boreal chorus frog	Chorus frogs heard but not observed	None	None observed	No data

Water Body	Ranger District	Adults	Juveniles	Tadpoles	Eggs	Area Surveyed (sq. meters)
W. Boulder Creek	HPBE	Boreal chorus frogs	Two observed	No observations	None observed	No data

Table 8. The results of positive surveys (incidental) conducted in the MBR N.F. for tiger salamanders in FY07.

Water Body	Ranger District	Adults	Neotenic Forms	Larvae	Area Surveyed (sq. meters)
Lily Lake	Parks	17	0	0	3,000
Sarvice Creek	Yampa	0	0	Several observed	No data
Red Dirt #1	Yampa	0	0	Many observed	No data
Red Dirt #3	Yampa	A few observed	0	Several observed	No data
Beaver Creek	HPBE	No observation	No observations	Several larval salamanders observed	No data

Table 9. Acres of surveys for threatened, endangered, or sensitive species and management indicator species on the Medicine Bow- National Forest in FY07.

	THREATENED		SENSITIVE													
District / Survey Type	**Bald Eagle**	**Preble's Meadow Jumping Mouse**	**Boreal Owl**	**Columbian Sharp-tailed grouse**	**Flammulated Owls**	**Goshawk**	**Purple Martin**	**Raptors**	**Sage Grouse**	**Songbirds**	**Wood-peckers**	**Pine Marten**	**Pygmy Shrew**	**Snow-shoe Hare**	**General TES/MIS surveys**	**TES/MIS Totals**
Brush Creek – Hayden Ranger District																
Project Surveys	0	0	0	0	0	4996	0	0	0	0	0	0	0	0	0	4996
Wildlife Surveys	200	0	0	0	0	0	0	0	90	0	0	0	0	0	10	300
MIS Surveys	0	0	0	0	0	300	0	0	0	0	0	0	0	3000	0	3300
BCH Total:	**200**	**0**	**0**	**0**	**0**	**5296**	**0**	**0**	**90**	**0**	**0**	**0**	**0**	**3000**	**10**	**8596**
Laramie Ranger District																
Project Surveys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildlife Surveys	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	100
MIS Surveys	0	0	0	0	0	420	0	0	0	0	0	0	0	1500	0	1920
Laramie Total:	0	100	0	0	0	420	0	0	0	0	0	0	0	1500	0	2020
Douglas Ranger District																
Project Surveys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildlife Surveys	0	100	0	0	0	0	0	0	0	0	0	0	0	0	640	740
MIS Surveys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Douglas Total:	**0**	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**640**	**740**
Medicine Bow Total:	**200**	**200**	**0**	**0**	**0**	**5716**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4500**	**650**	**11,356**

Table 10. Acres of surveys for threatened, endangered, or sensitive species and management indicator species on the Routt National Forest in FY07.

	THREATENED		SENSITIVE													
District / Survey Type	**Bald Eagle**	**Preble's Meadow Jumping Mouse**	**Boreal Owl**	**Columbian Sharp-tailed grouse**	**Flammulated Owls**	**Goshawk**	**Purple Martin**	**Raptors**	**Sage Grouse**	**Songbirds**	**Wood-peckers**	**Pine Marten**	**Pygmy Shrew**	**Snow-shoe Hare**	**General TES/MIS surveys**	**TES/MIS Totals**
Hahns Peak-Bears Ears Ranger District																
Project Surveys	0	0	0	0	0	1500	0	0	0	0	0	0	0	0	7164	8664
Wildlife Surveys	0	0	1090	0	200	0	0	0	0	0	0	0	0	0	0	1290
MIS Surveys	0	0	0	0	0	630	0	0	0	0	0	0	0	0	0	630
HPBE Total:	**0**	**0**	**1090**	**0**	**200**	**2130**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7164**	**10584**
Parks Ranger District																
Project Surveys	0	0	0	0	0	510	0	0	0	0	0	0	0	0	300	810
Wildlife Surveys	0	0	0	0	0	0	0	60	0	0	0	0	0	0	0	60
MIS Surveys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Parks Total:	0	0	0	0	0	510	0	60	0	0	0	0	0	0	300	870
Yampa Ranger District																
Project Surveys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5000	5000
Wildlife Surveys	0	0	0	0	0	0	0	30	0	0	0	0	250	0	0	280
MIS Surveys	0	0	0	0	0	540	0	0	0	0	0	0	0	0	0	540
Yampa Total:	**0**	**0**	**0**	**0**	**0**	**540**	**0**	**30**	**0**	**0**	**0**	**0**	**250**	**0**	**5000**	**5820**
Routt Total:	**0**	**0**	**1090**	**0**	**200**	**3180**	**0**	**90**	**0**	**0**	**0**	**0**	**250**	**0**	**12,464**	**17,274**

Table 11. Total Acres of surveys for threatened, endangered, or sensitive species and management indicator species on the Medicine Bow - Routt- National Forests in FY07.

	THREATENED		SENSITIVE													
District / Survey Type	**Bald Eagle**	**Preble's Meadow Jumping Mouse**	**Boreal Owl**	**Columbian Sharp-tailed grouse**	**Flammulated Owls**	**Goshawk**	**Purple Martin**	**Raptors**	**Sage Grouse**	**Songbirds**	**Wood-peckers**	**Pine Marten**	**Pygmy Shrew**	**Snow-shoe Hare**	**General TES/MIS surveys**	**TES/MIS Totals**
SO Wildlife Survey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SO Forest MIS Survey	0	0	0	0	0	0	0	0	0	20,000	See songbirds	4390	0	0	0	24,390
MBR National Protocol Surveys	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total SO:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20,000**	**See songbirds**	**4390**	**0**	**0**	**0**	**24,390**
MBR Grand Total:	**200**	**200**	**1090**	**0**	**200**	**8896**	**0**	**90**	**90**	**20,000**	**See songbirds**	**4390**	**250**	**4500**	**13114**	**53,020**