Medicine Bow National Forest
Routt National Forest

2012 Annual Monitoring And Evaluation Report

October 1, 2011 through September 30, 2012

United States Forest Service
Rocky Mountain Region

May, 2014

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Cover photo is a view of Laramie Peak from the South.

Certification

The Record of Decision (ROD) for the Medicine Bow National Forest Land and Resource Management Plan (Medicine Bow Plan) was signed on December 29, 2003. The ROD for the Routt National Forest Land and Resource Management Plan (Routt Plan) was signed on February 17, 1998. The Plans are dynamic documents and may be changed or amended based on information provided in annual monitoring and evaluation reports. The conclusions and recommendations documented in these reports are intended to provide me with the information necessary to determine whether the Plans are sufficient to guide management of the Forests for the next year or whether the Plans need to be modified.

I have reviewed the 2012 Annual Monitoring and Evaluation Report (Report) for the Medicine Bow and Routt National Forests. The Report was prepared by the Forest's Interdisciplinary Team (IDT) and indicates that, overall, Forest management is meeting the goals, objectives, standards and guidelines, and management area prescriptions prescribed in the Forest Plans. My review validates that the monitoring and evaluation requirements outlined in Chapter 4 of the Plans have been met and that the Plans are sufficient to continue guiding management of the Forests.

Please contact Melissa Martin at the Medicine Bow-Routt (MBR) 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/ Phil Cruz	*May 29, 2014*
PHIL CRUZ	Date
Forest Supervisor	

Introduction

The Medicine Bow-Routt National Forests and Thunder Basin National Grassland (MBRTB) are administrative units of the US Forest Service located in eastern Wyoming and northern Colorado. Each forest and grassland is guided by a unique Land and Resource Management Plan (Plan) (available on the Forest web site at http://www.fs.usda.gov/land/mbr/landmanagement) that outlines desired conditions, goals, objectives, standards, and guidelines for the Plan area. Each Plan also provides direction to monitor resources to determine if the forest or grassland is moving toward or maintaining the desired conditions of the Plan area. Annual monitoring reports are required for each of the Plans to provide information to the public about monitoring work completed during the previous fiscal year and information to the Forest Supervisor to determine whether there is a need to make a change to the Plan.

This report provides information on the monitoring work completed during fiscal year 2012 (FY12: October 1, 2011 through September 30, 2012) for both the Medicine Bow and Routt National Forests. It provides current responses to the annual monitoring items outlined in Chapter 4 of the two Forest Plans[1].

Conclusions and Recommendations

The primary conclusions and recommendations for FY12 are related to the continuing mountain pine beetle (MPB) epidemic and spruce beetle outbreak. Additional conclusions and recommendations to improve both monitoring and forest resource management are identified in Monitoring Item sections beginning on page **.

General Conclusion

- The Medicine Bow-Routt (MBR) National Forests continue to experience bark beetle attacks. However, the overall MPB epidemic has run its course and total annual acres affected have decreased significantly.

Recommendation:

- Vegetation management should continue to mitigate the effects of the MPB epidemic and ensure public safety. Treatments should focus on salvage of dead trees and restoration of the forest.

Old Growth Conclusions

Medicine Bow National Forest

- In spruce-fir cover types interspersed with lodgepole pine, we expect a decrease in the standing, large lodgepole pine component and an increase in snags and dead and down wood. In general, we do not expect that these stands will lose old growth characteristics. On the Snowy Range area only,

[1] Where possible, and to reduce duplicity, we have combined monitoring items from the two Forest Plans.

however, recent spruce beetle mortality may cause a loss of some old growth character.

- In lodgepole pine cover types, we may not be able to maintain old growth conditions into the future as the larger, older trees die. We project a loss of virtually all old growth due to impacts from the MPB epidemic.

Routt National Forest

- Many of the provisions for sustainability of ecological functions of the forest were based upon the abundance of late successional forest prior to the MPB epidemic. Since the MPB epidemic altered the representation of late successional stands throughout the RNF, it is no longer possible to have confidence that the changed conditions will provide sustainability of pre-existing habitats.

Recommendations

- Evaluate specific forest direction (desired conditions, goals, objectives, standards and guidelines) related to old growth (MBNF) and late successional forest (RNF).
- Develop additional direction for existing old growth (MBNF) and late successional (RNF) forests and for potential recruitment stands to guide management of the two forests until the forest plans are revised.

Wildlife (Goshawk) Conclusions

- A large number of beetle-killed trees that are starting to fall may cause known territories to become unsuitable for goshawk nesting. This may be the case for the RNF since data indicates goshawk occupancy and activity are down from previous years beginning in 2010. On the MBNF, occupancy is above the 9-year average, but activity is about average. This may mean goshawks are returning to existing territories in increasing numbers but are not finding sufficient numbers of nest trees.

Recommendations

- Continue to implement the northern goshawk territory (occupancy) monitoring protocol to strengthen trend analysis.
- Conduct a formal statistical evaluation of trends in territory occupancy with the help of a biometrician.
- Territory occupancy monitoring is valuable for clarifying fledging dates for goshawks. This will be important to validate/develop disturbance mitigation criteria. Long-term territory occupancy monitoring can clarify primary and secondary nesting habitat on the Forest.

Forest Plan and Policy Updates

Adjustments to the Forest Plans

Forest Plans are dynamic documents. To stay current with Plans for the Medicine Bow and Routt National Forests, refer to the Plans posted on the Forest web site at http://www.fs.usda.gov/land/mbr/landmanagement.

The most recent amendment to the Medicine Bow and Routt Plans was the Southern Rockies Lynx Amendment of 2008. In 2007, the Medicine Bow National Forest issued an amendment to management area designations for travel management, and the Routt National Forest issued an amendment to update their list of Management Indicator Species. There were no changes to the Forest Plans in FY12.

New Laws and Regulations

2012 Planning Rule

On December 17, 2009, Agriculture Secretary Tom Vilsack announced that the USDA Forest Service was beginning an open, collaborative process to create and implement a modern planning rule to address current and future needs of the National Forest System. Throughout April and May 2010, the USDA Forest Service hosted a series of public meetings to provide opportunities for public input and dialogue on the development of a new planning rule. These meetings were followed by additional conversations with Forest Service employees, the Fourth National Roundtable in July, 2010, and the Second National Tribal Teleconference in August, 2010. The results from these meetings, as well as the formal comments received from the public, were used to develop the proposed planning rule. The draft environmental impact statement (DEIS) for the proposed planning rule came out in early 2011 and the final rule for land management planning was published in the federal register on April 9, 2012. The Planning Rule Regulations are published in the Code of Federal Regulations at 36 CFR 219. For more information visit the Forest Service Planning Rule web site at http://www.fs.usda.gov/detail/planningrule/home/.

Roadless Area Conservation

2012 Colorado Roadless Rule

In 2006, the State of Colorado and the USDA Forest Service began work on a State-specific rule that would guide management of over 4 million acres of roadless National Forest System lands in Colorado. The rulemaking process began with Undersecretary of Agriculture Mark Rey's acceptance of Governor Bill Ritter's petition to pursue State-specific rules. Rulemaking continued with publication of a Notice of Intent in the Federal Register on December 26, 2007 and publication of a Proposed Rule on July 25, 2008. On April 15, 2011, the Forest Service published a new Proposed Rule in the Federal Register in response to public comment on the 2008 Proposed Rule and a revised petition submitted by the State of Colorado on April 6, 2010. On May 2, 2012 the final EIS was released and on July 2,, 2012 Secretary Vilsack finalized the rule. The Rule, which is identified as 36 CFR 294 – Special Areas, Subpart D – Colorado Roadless Area Management, was published in the Federal Register on July 3, 2012 (Federal

Register/Vol. 77, No. 128). For more information, visit the Colorado Roadless Rule web site at <http://www.fs.usda.gov/roadmain/roadless/coloradoroadlessrules>.

Wyoming Roadless Status

In 2001, the Forest Service enacted the Roadless Area Conservation Rule (RACR). This Rule essentially prohibited road construction and reconstruction and timber harvesting, subject to certain limited exceptions, in Inventoried Roadless Areas (IRAs) on a uniform, nationwide basis. Controversy surrounded the RACR since its inception and was appealed by the State of Wyoming in 2008. On October 21, 2011, the 10th Circuit Court of appeals released its long-awaited decision, finding in favor of the Forest Service and against the State of Wyoming. The Court held that the promulgation of the 2001 Roadless rule did not violate the Wilderness Act, National Environmental Policy Act, National Forest Management Act, the Organic Act, or the Multiple-Use Sustained Yield Act. The Circuit ordered the District Court to vacate its 2008 ruling that enjoined the Roadless rule and lift its injunction:

> *"Exercising jurisdiction pursuant to 28 U.S.C. § 1291, we REVERSE the district court's order granting Plaintiff's declaratory relief and issuing a permanent injunction, and REMAND the case for the district court to vacate the permanent injunction."*

Recent court cases on the RACR have led to NFS direction to forests that all decisions for projects in Roadless areas must comply with the 2001 Roadless Rule (with the exception of those in Colorado or Idaho, which are subject to state-specific rules). The current interim direction and other information regarding Roadless area direction and management can be found on the 2001 Roadless Rule website at http://www.fs.usda.gov/roadmain/roadless/2001roadlessrule.

Projects and Ongoing Activities

Community Involvement

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

Routt County Public Information Officers

This group was formed in 2006 and is comprised of information officers from the county, city, schools, airport, hospital, emergency response, Forest Service, and others. The focus is to train together and share information so that when an emergency (fire, plane crash, etc.) occurs, everyone is prepared to work together. The group was still active in 2012.

Medicine Bow-Routt Resource Advisory Committee (RAC)

The Medicine Bow-Routt Resource Advisory Committee (RAC) reviewed natural resource project proposals in 2012 and made recommendations for approval of eight projects for funding. The projects will ultimately benefit National Forest System lands in Albany and Carbon counties in Wyoming, as well as Jackson, Rio Blanco and Routt counties in Colorado. The approved projects will use Secure Rural Schools Title II

funds. The committee was established in 2009 and, since inception, this RAC has approved over $1,009,000 of funding towards various projects in the five counties. The 15-member RAC is comprised of members representing various local agencies, organizations, and interests, appointed by the Secretary of Agriculture.

Medicine Bow Forest Plan Cooperators

In 2007, then Forest Supervisor, Mary H. Peterson, signed a Memorandum of Understanding (MOU) with the Southeastern Wyoming Conservation Districts to provide for a cooperative working relationship during implementation of the Medicine Bow Plan. The Southeastern Wyoming Conservation Districts, as well as other cooperators, continue to meet biannually (spring and fall) and provide input to the Forest Service.

Projects Completed During FY12

Tables 1 and 2 below list the environmental analysis projects completed on the Medicine Bow and Routt National Forests during FY 2012. 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 Assessments (EAs), and Records of Decision (RODs) for Environmental Impact Statements (EISs). The project lists were generated from the database that produces the Schedule of Proposed Actions (SOPA). The SOPA quarterly report is available on the web at http://www.fs.fed.us/sopa/forest-level.php?110206.

Table 1: Medicine Bow NF Decisions Signed in FY12

Name	Decision Type	Date Signed	Primary Purpose
Projects Covering the Entire Forest:			
Weather Modification Permit Renewal	DM	12/7/2011	Special Use Authorization
Communications Use Lease Reissue: State of CO and Public Service Company of CO	DM	6/1/2012	Special Use Authorization
Brush Creek/Hayden Ranger District (BCH):			
Highway 130 Bridge Reconstruction	DM	12/9/2011	Travel Management
Highway 130 Snow Bridge	DM	10/14/2011	Travel Management
Highway 70 Road Construction	DN	3/29/2012	Travel Management
NFSR 429 Road Management	DM	6/29/2012	Travel Management
NFSRs 807/879 Reconstruction	DN	4/16/2012	Travel Management
NRCS Medicine Bow SNOTEL	DM	1/25/2012	Special Use Authorization
Verde Mine Trail Relocation	DM	7/13/2012	Travel Management

Table 1 (Cont'd): Medicine Bow NF Decisions Signed in FY12

Name	Decision Type	Date Signed	Primary Purpose
Laramie Ranger District (LRD):			
Ed Sigel	DM	6/25/2012	Special Use Authorization
Fishworm Thinning and Fuels Reduction Project	DM	8/7/2012	Thinning and Fuels Reduction
Pole Mountain Water Improvements	DM	2/22/2012	Watershed Improvements
WYDOT Wetlands Mitigation Site Vedauwoo Road Improvement	DM	2/7/2012	Watershed Improvement
Douglas Ranger District (Laramie Peak Unit):			
Gateway West Geotechnical Borings	DM	7/25/2012	Special use Authorization
Closure Order for Twin Peaks Trail	DM	6/26/2012	Travel Management

Table 2: Routt NF Projects Completed in FY12

Name	Decision Type	Date Signed	Primary Purpose
Hahns Peak/Bears Ears District (HPBE):			
Armstrong Creek Restoration	DN	7/22/2012	Watershed Improvement
Dumont Lake/Muddy Creek Dam and Reservoir	DM	7/24/2012	Watershed Improvement
Lester Creek (Pearl Lake) Dam Repair	DM	7/25/2012	Watershed Improvement
Seedhouse Range Management Analysis	DN	7/12/2012	Range Management
Spring Development and Pipeline Permit Renewals	DM	5/24/2012	Special Use Management
Union Pacific Communication Use Lease	DM	5/24/2012	Special Use Management
Yampa Valley Electric Association Permit Renewal	DM	7/19/2012	Special Use Management
Parks Ranger District			
Kings Canyon	DN	7/17/2012	Vegetation Management
North Park Progeny Maintenance Project	DM	12/19/2011	Vegetation Management
Walden Administrative Site Conveyance	DM	12/15/2011	Facility Management
Yampa Ranger District:			
10 Year Outfitter Guide Permit Issuance, Silver Creek Outfitters	DM	6/20/2012	Special Use Management
Bear River Travel Management	DN	9/9/2012	Travel Management
Morrison Creek Fuels Reduction	DN	1/25/2012	Fuels Reduction
Oak Creek Roads Analysis	DN	9/23/2012	Travel Management
Poose Creek Fish Ladder	DN	8/5/2012	Fisheries Management

Table 2 (Cont'd): Routt NF Projects Completed in FY12

Name	Decision Type	Date Signed	Primary Purpose
Reissue of Yamcolo Reservoir Special Use Permit	DM	8/9/2012	Special Use Management
Renewal of Mountain Pass Monuments	DM	7/11/2012	Special Use Management
Temporary Outfitter Guide Permit Renewals	DM	6/20/2012	Special Use Management
Wheeler Creek Fish Barrier	DN	6/17/2012	Fisheries Management

Monitoring items

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

Goal 1: Ensure Sustainable Ecosystems

Soil Productivity

Routt Monitoring Item 1-1 Frequency of Measurement: Annual
Medicine Bow Item Subgoal 1.a 36 CFR 219.12(k)(2) Reporting Period: Annual

This monitoring item asks the question:

Are long-term soil health and productivity being maintained?

Monitoring Protocol/Data Collected

Soil productivity is the inherent capacity of a soil to support the growth of specified plants, plant communities, or a sequence of plant communities to support multiple land uses (FSH 2509.18). Maintaining and protecting land productivity and, where feasible, improving the quality of the soil and water resources is important for watershed management and ecosystem health. Soil disturbing activities that result in the loss of ecological capacity or hydrologic function that lasts beyond the scope, scale, or duration of the project must be avoided as they can have far-reaching and often negative resource implications.

Based on available research and current technology, a guideline of 15 percent reduction in inherent soil productivity potential is used as a threshold value for measurable or observable soil properties or conditions. No more than 15 percent of an activity area may be left in a detrimentally compacted, displaced, puddled, severely burned, and/or eroded condition. The threshold value serves as an early warning signal of reduced productive capability.

This guideline is assessed using field observations of soil characteristics that indicate detrimental conditions related to soil productivity and health.

Results/Evaluation

Several projects were monitored during FY12 to assess compliance with the 15 percent soil disturbance guideline - some recently completed projects as well as some past projects. Projects included roadside hazard tree removal, wildland urban interface (fuels reduction), and timber harvests.

Roadside Hazard Tree Removal

Brush Creek Hayden and Laramie Ranger Districts

Forest Service Roads 100, 801, 351 and Wyoming State Highway 230:

These areas were below the 15 percent detrimental soil disturbance limit. Soil disturbance was less than 5 percent of the areas. Most of the disturbance included faint "wheel" tracks less than 1 inch deep. In most instances, the organic layer (duff, forest floor) was present and intact and surface soil was not displaced. Slash was placed in areas where disturbances exceeded 100 square feet to control erosion. Soil compaction was evident but was discontinuous and only slightly greater than observed under natural conditions.

Wildland Urban Interface Projects

Laramie Ranger District

South Wildland Urban Interface Project:

Two harvest units were evaluated. The units were summer logged with a feller-buncher and rubber-tired skidder. Soil disturbance was very slight; less than 1 percent of the area. Faint "wheel" tracks less than 1 inch deep were evident. The organic layer was present and intact and surface soil was not displaced. Soil compaction was only slightly greater than observed under natural conditions. No encroachment of the Water Influence Zone was noted.

Past Timber Harvests

Laramie Ranger District

Platte Ridge Timber Sale, Squirrel Creek Timber Sale:

These sales occurred in or around 1992. The units evaluated were clearcut with a whole-tree removal prescription. Compaction in the upper four inches of skid trails was below the threshold considered detrimental. Organic matter was not sufficient to maintain long-term nutrients.

Conclusions

Monitoring indicates long-term soil health and productivity is probably being maintained.

Recommendations

Continue to monitor past projects for indicators of soil health so better conclusions can be made.

Air Quality

Routt Monitoring Item 1-2 Reporting Period: Annual

This monitoring item asks the question:

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

Monitoring Protocol/ Data Collected: 2011 and 2012 (FY12)

There are two air-quality monitoring sites located in the Routt National Forest near the southern boundary of the Mount Zirkel Wilderness Area: Buffalo Pass, Dry Lake (CO93) and Buffalo Pass, Summit Lake (CO97). Both sites are components of the National Atmospheric Deposition Program (NADP) and are included in the National Trend Network (NTN). Each site monitors precipitation (rain and snow) chemistry; data are collected from the sites four times per month for each month of the year. Atmospheric-chemistry metrics (mg/L) collected at both sites are: Ca, Mg, K, Na, NH4, NO3, Cl, SO4, PO4, conductivity (µSiemens/cm), and pH. Additionally, CO97 is part of the Mercury Deposition Network (MDN) and collects precipitation samples that provide data about atmospheric-mercury concentrations (ng/L) and deposition (ng/m^2). The Buffalo Pass, Dry Lake site has collected precipitation-chemistry samples continuously since October 14, 1986. The Buffalo Pass, Summit Lake site has collected precipitation-chemistry samples continuously since July 2, 1984. All precipitation samples are analyzed by the Central Analytical Laboratory (CAL), Illinois State Water Survey located at the University of Illinois, Urbana-Champaign.

In FY12, substantial-equipment upgrades made to CO93 and CO97 continued to improve the quality and reliability of precipitation data collected at the sites: state-of-the-art, electronic precipitation gages were installed to replace the old chart gages. In addition, the power supply at CO97 was reconfigured and upgraded so that the Forest can better track electricity use at the site. Precipitation-sample collection continued at CO93 and CO97 and the samples were submitted to the CAL for analysis.

In FY12, precipitation-chemistry samples continue to be collected at CO93 and CO97 and submitted to the CAL for analysis.

Results/Evaluation

Some "growing pains" were experienced in 2009 and 2010 operating the new precipitation gages, especially in addressing the reliability of the wireless downloads between the new gages and the operator PDA. For the most part, those issues have been resolved. As of FY12, the new gages appear to continue to provide reliable precipitation measurements.

Data from both NADP sites are publicly available on the following website: http://nadp.sws.uiuc.edu/sites/siteinfo.asp?net=NTN&id=CO93.

Substitute CO97 at the end of the URL to access data from the Buffalo Pass, Summit Lake site.

Overall, the data indicate that the Class 1 Airshed in the vicinity of the Mount Zirkel Wilderness has been in compliance with state and federal air-quality standards in FY12. Consequently, Forestwide standards and guidelines have been met during the first four years of the third, five-year monitoring interval (2009-2013).

Recommendations

Continue to collect atmospheric-chemistry precipitation samples from CO93 and CO97. Continue to implement prescribed-fire treatments within prescription, and take other management actions conducive to reducing combustion products such as smoke and soot that result from post-harvest treatments (i.e. slash-pile burning).

Water Quality

Routt Monitoring Item 1-3 — Frequency of Measurement: Annual
Medicine Bow Objective 1.a.2 — 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?*

Forest Plan Goals, Objectives, and Standards

The most pertinent direction from the Medicine Bow and Routt Forest Plans is listed below. Additional direction can be found within the Forest Plans and Watershed Conservation Practices (WCP) Handbook (FSH 2509.25).

- Medicine Bow Subgoal 1.a: Improve and protect watershed conditions to provide the water quality and quantity and soil productivity necessary to support ecological functions and intended beneficial uses.
    - Objective 2: Over the life of the plan, maintain or improve water quality by achieving an 80% reduction in the miles of State of Wyoming designated streams not fully supporting designated beneficial uses and by maintaining existing fully supporting designated beneficial uses in all streams, lakes, reservoirs and open water bodies.
- Routt Goal 1, Objective 3: 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.

Forest Plan Standards: All of the Soil and Water and Aquatic Standards address this question.

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 States of Colorado and Wyoming produce biennial comprehensive summaries of water quality conditions in each State.

Water quality is restored, maintained, or improved largely through soil and water improvement projects and stream and lake enhancement projects. Implementation of these projects focuses largely on reducing sedimentation to streams and lakes to protect the State designated beneficial use of aquatic life. Some projects also help to protect water quality by reducing input of pathogens such as E.Coli, or inorganic compounds such as metals. Cooperative watershed plans with conservation districts and state agencies provide a strategic approach to maintaining and improving water

quality, usually with a focus on streams where specific water quality concerns have been identified.

Results/Evaluation

Water quality restoration and improvement: Watershed, Soil, and Fisheries improvement project accomplishments are shown in Table 3 and summarized over time in Figure 1. **The Forest accomplished 223 acres of actual/core Soil and Watershed Improvement accomplishments in 2012; 27.5 miles of stream habitat improvement; and 11 acres of Lake Habitat improvement.** The FY12 target for Soil and Watershed improvement increased to 1117 acres, which represents a 604% increase over the previous three year average target. The concept of watershed improvement targets intended to "protect or maintain" watershed conditions was recommended at the Regional level to account for the large increase in target. The Forest counted noxious weed treatment acres as "protect or maintain" watershed improvement targets in FY12. In order to be consistent with previous years and provide an indication of projects with a direct effect on soil and watershed conditions, the "protect or maintain" watershed improvement targets are not shown in Table 3 or Figure 1.

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. Limited program funds were available to accomplish soil and watershed improvement projects in 2012; the majority of funding for on-the-ground improvement projects came from grants and integrated Forest Service funds. Watershed improvement accomplishments were primarily due to projects at road/stream crossings to improve aquatic organism passage, burn pile rehabilitation, and wetland restoration.

Table 3: 2012 Soil, Watershed, and Fisheries Improvement Accomplishments

Project	HUC	Ranger District	WSI Acres	Lake Acres	Stream Habitat Improved (Miles)
North Platte Headwaters (10180001)					
Sawmill Gravel Pit Reclamation	101800010301	PARKS	2	0	0
Teal Lake Shore Restoration	101800010302	PARKS	2	0	0
Newcomb Cr wetland restoration	101800010302	PARKS	1	0	0
East Branch culvert replacements	101800010403	PARKS	2	0	3
Upper North Platte (10180002)					
CPL Wetland Restoration (RAC)	101800020106	LRD	35	0	2
Eastern Snowy Range Road Decomm.	101800020106	LRD	25	0	6
Pelton Creek Culvert #3 Replacement	101800020106	LRD	1	0	2
Ryan Park Amphibian Exclosure	101800020401	BCH	15	0	0.5
100.1P / 205 spurs Road/Camp Decom.	101800020402	BCH	9	0	1

Table 3 (Cont'd): 2012 Soil, Watershed, and Fisheries Improvement Accomp.

Project	HUC	Ranger District	WSI Acres	Lake Acres	Stream Habitat Improved (Miles)
Campbell Lake ATV trail improvements	101800020402	BCH	2	0	1
Campbell Lake Reservoir Repair	101800020402	BCH	0	15	0
Coon Creek Ditch - Headgate installation	101800020503	BCH	0	0	1
Cedar Cr Allotment - Spring Development	101800020603	BCH	1	0	0
South Platte - Crow					
Pole Mtn Spring Developments	101900090101	LRD	2	0	0
Colorado Headwaters (14010001)					
Four Counties Ditch west rehabilitation	140100010702	HPBE	4	0	0
NFSR 250 culvert replacements (3)	140100011001	YAMPA	3	0	6
NFSR 225 gravel	140100011006	YAMPA	4	0	0
Shoe and Stocking culvert replacement	140100011006	YAMPA	1	0	2.5
Yampa River Basin (14050001)					
Hahns Peak Lake wetland mitigation	140500010206	HPBE	1	0	0
Armstrong Cr restoration	140500010601	HPBE	2	0	0
Little Snake (14050003)					
West Fork Ditch - Mtnce/Improvements	140500030104	BCH	5	0	1
NFSR 49 culvert removal	140500030105	HPBE	1	0	0.5
NFSR 851 Improvements	140500030106	BCH	1	0	0
NFSR 851.1B Improvements	140500030106	BCH	1	0	0
Battle Creek NFSR 807	140500030109	BCH	1	0	1
NFSR 154 gate and road improvement	140500030301	HPBE	2	0	0
Burnpile rehabilitation	Multiple	Pks/Yampa	100	0	0
FY2012 TOTALS:			**223**	**15**	**27.5**

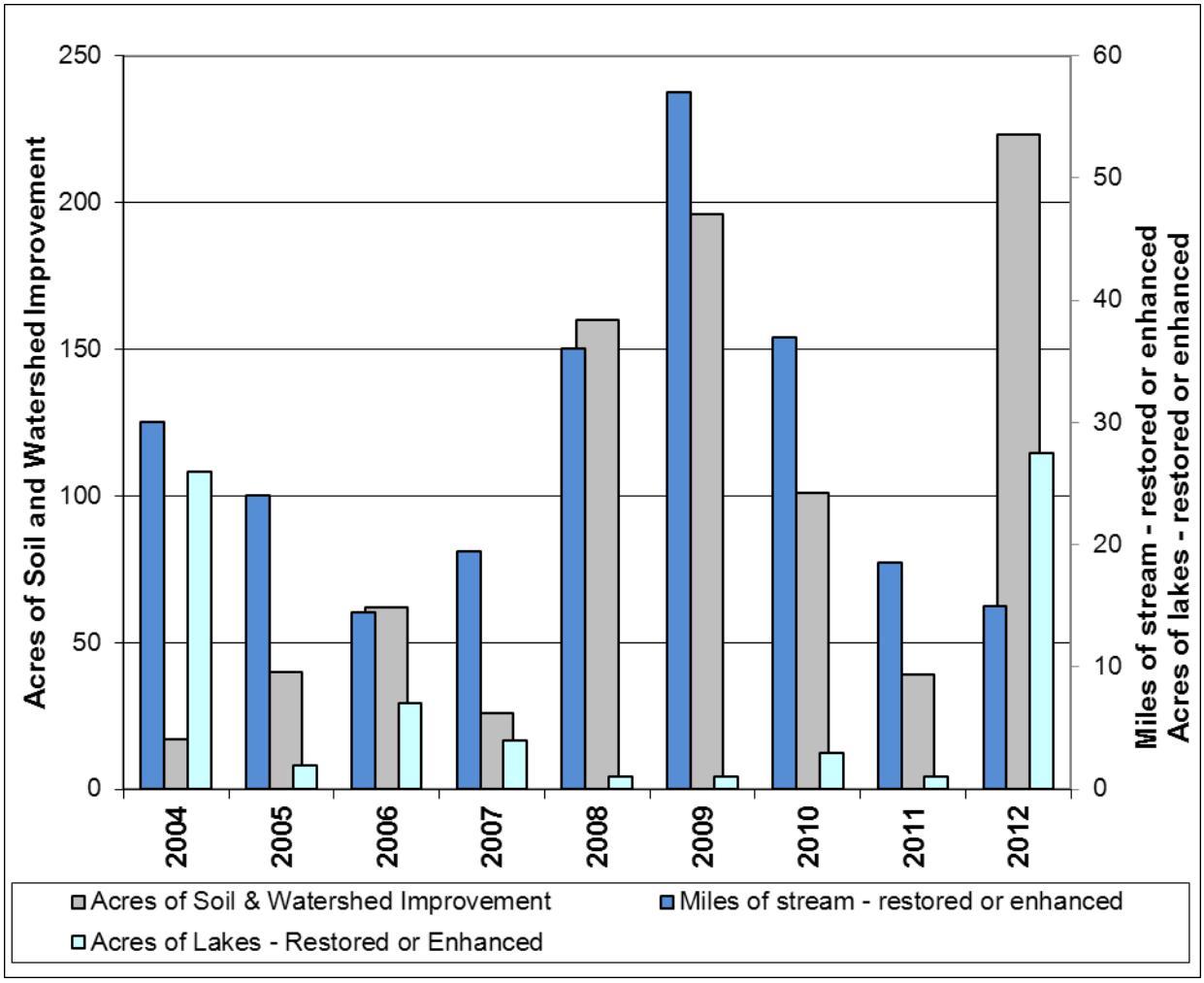


Figure 1: Soil, Watershed and Fisheries Accomplishments

Soil, water, and fisheries improvement highlights

Four Counties Ditch Rehabilitation: The Four Counties ditch was originally constructed in 1964 as part of a larger trans-basin collection and diversion project that was designed to divert water from streams tributary to the Yampa River, and deliver that water to the North Platte basin and the Colorado River basin. While the ditch was constructed, the total diversion plan was never implemented. This cooperative project with Tri-State Electric Coop will rehabilitate the now defunct Four Counties ditch to restore the hillslope hydrology while maintaining wetlands created in the ditch in a manner which will prevent future ditch failures. Work was completed on the western half of the ditch in the Colorado River basin FY12, with the remaining work in the North Platte River basin scheduled for FY13.

Sawmill Creek Gravel Pit Reclamation: This Resource Advisory Committee (RAC) funded project restored an old gravel pit that has been depleted to create a more productive environment for amphibians and other species through development of a wetland. Actions included re-grading of the existing disturbed area to develop a sinuous stream channel to better channel flows and begin the process of developing an active floodplain and associated hydric soil. Actions also included restoration of the

old road-stream crossing used to access the gravel pit to restore the channel geometry to be consistent with upstream and downstream reaches. A fence was constructed around the entire gravel pit area to protect the improvements from livestock grazing and other potential impacts.

CPL Access Control & Wetland Restoration: The project included restoring and protecting riparian and wetland habitats along approximately 6 miles of the 48 miles of Carbon Power and Light (CPL) powerline corridor on the Medicine Bow National Forest (Snowy Range Mountains) in Albany County, Wyoming. Access along sections of the CPL powerline for maintenance and operations and were maintained. Un-authorized and unnecessary travel routes, used primarily by public ATV riders, had degraded wetland, riparian and stream resources along the powerline corridor. Un-authorized motorized use had resulted in the loss of vegetation and concentration of water in wetland and riparian habitats; water quality had been impacted due to increased turbidity and sedimentation. Protection of wetland, riparian, and stream resources along the powerline corridor was accomplished using a variety of means intended to preclude un-authorized and unnecessary motorized travel. Such means included, but were not limited to, signing routes closed to motorized vehicles and installing physical barriers such as fences or rock and debris. Restoration of wetland, riparian and stream resources along the powerline corridor was accomplished using a variety of means intended to restore the form and function of degraded wetland, riparian and stream resources. Treatment methods included scarification, restoration of natural drainage patterns, revegetation, and application of erosion control materials.

Status of water quality: A summary of the status of water quality across the Forest can be found in Table 4; streams with water quality problems that are affecting designated beneficial uses are listed in Table 5. Most surface waters on the Forests are believed to be meeting all designated water quality uses; however, due to the sampling requirements, only a small subset of the waters have recent comprehensive data to support this conclusion (Table 3).

Table 4: 2012 Summary of Forest Water Quality Assessments for Colorado and Wyoming

Water Body Name	Reach	Determination	Source
North Platte River Basin - Wyoming			
Bear Creek (Horse Cr)	WYNP10180012	Fully supports all designated uses.	WYDEQ, 2003
South Fork Little Laramie River	WYNP10180010-664	Fully supports all designated uses.	WYDEQ, 2004
Middle Fork Mill Creek	WYNP10180010	Fully supports all designated uses.	WYDEQ, 2004
Miller Lake	WYNP10180010	Fully supports all designated uses, except insufficient data to determine if fish consumption and contact recreation uses are supported.	WYDEQ, 2006
Hanging Lake	WYNP10180010	Fully supports all designated uses, except insufficient data to determine if fish consumption and contact recreation uses are supported.	WYDEQ, 2006

Table 4 (Cont'd): 2012 Summary of Forest Water Quality Assessments for Colorado and Wyoming

Water Body Name	Reach	Determination	Source
South Fork Hog Park Creek	WYNP10180002	Fully supports all designated uses.	WYDEQ, 2004
Smith North Creek	WYNP10180002-666	Fully supports all designated uses.	WYDEQ, 2004
Encampment River	WYNP10180002-086	Fully supports all designated uses, except insufficient data to determine if contact recreation uses are supported.	WYDEQ, 2008
North Platte River Basin-- Colorado			
North Platte Tributaries within wilderness areas (except South Fork Big Creek)	COUCNP01	Fully supports all designated uses	CDPHE, 2003
South Fork Big Creek	COUCNP01	Fully supports aquatic life	CDPHE, 2003
Encampment River	COUCNP02	Fully supports all designated uses	CDPHE, 2003
North Platte River—Camp Creek to Colo/Wyo border	COUCNP03	Fully supports all designated uses	CDPHE, 2003
North Platte River-- Tributaries above Camp Creek	COUCNP04	Fully supports all designated uses	CDPHE, 2003
Illinois River	COUCNP04	Not fully supporting aquatic life	CDPHE, 2003
North Platte River-- Tributaries Camp Creek to Colo/Wyo border	COUCNP04	Fully supports all designated uses	CDPHE, 2003
Michigan River	COUCNP05a	Fully supports all designated uses	CDPHE, 2003
Yampa River Basin-- Colorado			
Tributaries to Yampa River—Flattops Wilderness down to Elk River	COUCYA03	Fully supports all designated uses	CDPHE, 2003
East Fork Williams Fork in Flattops Wilderness	COLCLY08	Fully supports all designated uses	CDPHE, 2001
East Fork Williams Fork River	COLCLY09	Not assessed	CDPHE, 2001
Tributaries to Yampa River—in National Fores	COUCYA20	Fully supports all designated uses	CDPHE, 2003; 2006
Elk River—main stem and tributaries	COUCYA08	Fully supports all designated uses	CDPHE, 2003
Little Snake River Basin-- Colorado			
Little Snake River Tributaries	COUCYA19	Fully supports all designated uses (except where noted in Table 5).	CDPHE, 2003

Most water quality monitoring has been conducted on streams where designated uses are known or suspected to be impaired; limited monitoring has occurred on streams likely to meet all designated uses. Table 5 and Figure 2 show the water bodies on the Forest that have been determined by the States of Colorado and Wyoming to have, or are suspected to have, water quality concerns.

Table 5: Forest Water Quality Impairments for Colorado and Wyoming.

Water Body Name	Ranger District	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	Parks	M&E list[2]	2004	Aquatic Life; drinking water	Metals-Cu, E.Coli
Grizzly Cr	Parks	M&E list	2006	Aquatic Life	Unknown
Little Grizzly Cr	Parks	M&E list	2008	Recreation; drinking water; aquatic life	E.Coli; Metals--Fe(Trec)
Lake Cr	Parks	M&E list	2008	Drinking Water; aquatic life	pH; Fe (Trec)
North Platte River Basin - Wyoming					
Bear Creek	LRD	Un-determined (Category 3)	2010	Aquatic Life; drinking water	Metals-Cu
Yampa River Basin – Colorado					
Bushy Creek	Yampa	Yes - 303(d)	2010	Aquatic Life	Sediment
Lost Dog Creek	HPBE	M&E list	2008	Aquatic Life; Drinking water	Mercury
Little Bear Creek	HPBE	M&E list	2008	Drinking water; aquatic life	Copper; Zinc
Walton Cr	HPBE	M&E list	2010	Secondary Water Supply	Mn
Little Snake River Basin - Colorado					
Slater Creek	HPBE	M&E list	2008	Aquatic Life	Selenium
Little Snake River Basin - Wyoming					
W Fork Battle Creek	BCH	Yes – 303(d) Impaired (Category 4)	2000	Coldwater fisheries; Aquatic life	Metals
Haggerty Creek	BCH	Yes – 303(d) Impaired (Category 4)	<1988	Coldwater fisheries; Aquatic life	Metals

[2]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.

South Platte River Basin - Wyoming					
N. Branch N Fork Crow Creek	LRD	Yes – 303(d) Impaired	2004	Contact Recreation	E.coli
Middle Crow Creek	LRD	Yes – 303(d) Impaired	2010	Contact Recreation	E.coli

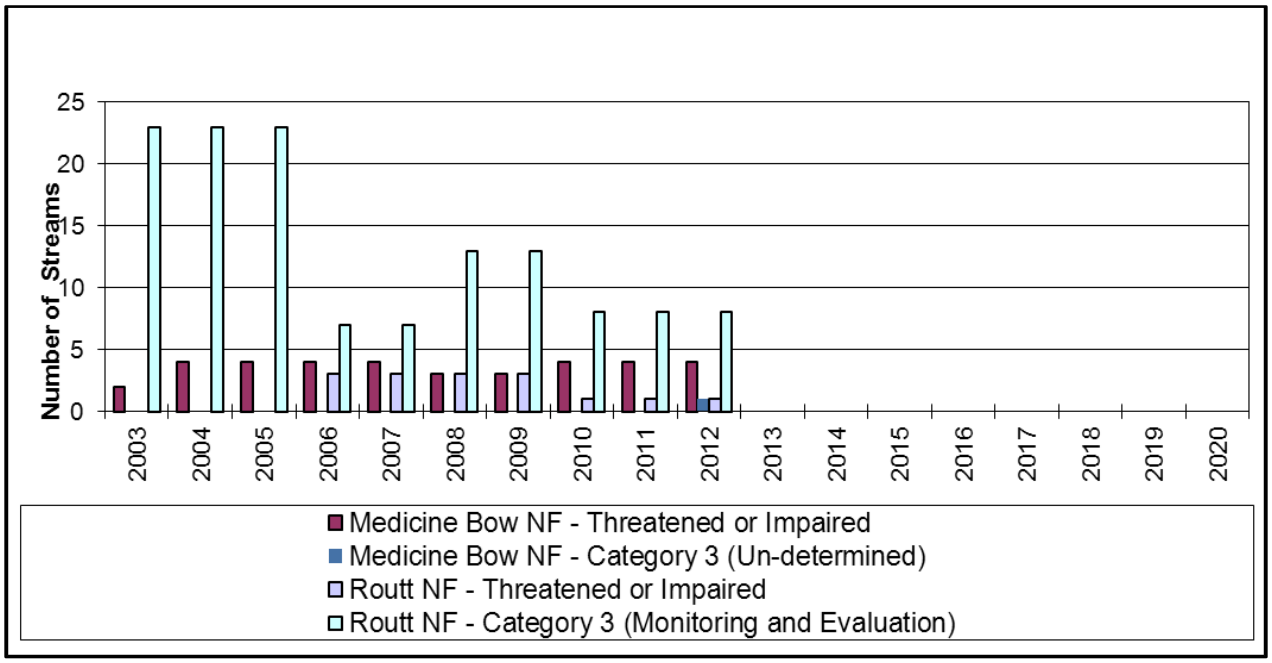


Figure 2: Forest Water Quality Impairments for Colorado and Wyoming

Colorado

Streams on the Colorado 303(d) list

In 2010 the Colorado Water Quality Control Division (Division) placed Bushy Creek on the 303(d) list due to sediment concerns. Bushy Creek is considered a low priority by the State for development of a Total Maximum Daily Load (TMDL). This is largely due to the fact that sediment is not considered a health and safety issue for humans; higher priority is given to streams listed for E.Coli or other parameters that may affect drinking water quality as these are considered health and safety issues. Forest watershed personnel will continue to work with the State to determine sources of sediment, potential remedies etc.

Streams on the Colorado M&E List

The addition of Little Bear Creek, Slater Creek, South Fork Big Creek, Little Grizzly Creek, Grizzly Creek, Walton Creek, and Lost Dog Creek is based on data collected by the Division. This data suggests potential water quality concerns that warrant further investigation. The Forest cooperated with the Division in 2009 and 2010 to collect additional data on these stream segments, and to help determine if water quality concerns extend onto the Forest. Forest personnel collected the water quality samples, including macroinvertebrates to address sediment concerns, and then sent the samples to the state for analysis. These data are being analyzed and no results

were available for the 2010 Rulemaking Hearing. E.Coli samples collected on the South Fork Big Creek and Little Grizzly Creek and analyzed by the Forest were all meeting State water quality standards. Forest watershed personnel will continue to cooperate with the Division to collect additional data and identify if these water quality concerns apply to the Forest.

Wyoming

Haggerty Creek and West Fork of Battle Creek

These streams are not fully supporting designated uses due to metals contamination from the inactive Ferris-Haggerty/Osceola Tunnel mine, which dates from 1898 and is located on private lands within the Forest boundary. WYDEQ developed a TMDL for these streams, solicited public comment, and EPA approved the TMDL in December 2011. Since the source of contamination is located in private lands WYDEQ–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. The affected streams are located primarily on public lands.

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

Since 2004, neither the North Branch of the North Fork Crow Creek nor the Middle Crow Creek have consistently met their contact recreation uses due to elevated levels of bacteria. The Laramie County Conservation District continued to collect water quality samples (e coli) at one monitoring station on Middle Crow Creek and two stations on North Branch North Fork Crow Creek during 2012. Best Management Practices continue to be implemented and evaluated in these watersheds to address elevated levels of bacteria. Off-site water developments to encourage better livestock distribution in the Middle Crow Creek watershed were recently implemented. No new practices were implemented during 2012 in the North Branch North Fork Crow Creek watershed.

Water Quality Conclusions:

The listing of Bushy Creek on the Colorado 303(d) list as impaired in 2010 for sediment is based on monitoring data submitted by the Forest. Photos and data from 1998 and 2006 indicate a decline in stream health and increase in sediment. Causes of this are uncertain, although heavy elk use may be a contributor as well as livestock use. Listing of this stream segment moves 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).'

With the 2004 listing of two additional streams as impaired, the number of impaired streams on the Medicine Bow National Forest increased from two to four since the Medicine Bow Forest Plan was signed in 2003 (Figure 2). This has moved the Forest away from the objective in the Forest Plan stating "achieve an 80% reduction in the miles of State of Wyoming designated streams not fully supporting designated uses" (Medicine Bow Forest Plan, page 1-2). Monitoring data had shown an improving trend (lower bacteria) on Middle Fork Crow Creek from 2004-07, but elevated levels were seen again in 2008-12. Numeric water quality criteria on North Branch North Fork Crow Creek, West Fork Battle Creek and Haggerty Creek continue to be exceeded.

The Forest continued cooperative monitoring efforts and implementation of BMPs to address water quality issues in the Crow Creek drainage in 2012.

The State of Wyoming will remove the streams from the 303(d) list when either a) monitoring shows that water quality is meeting State numeric standards, or b) when a Total Maximum Daily Load (waste load allocation) has been completed for the streams (currently "Low" priority for WYDEQ to develop a TMDL). It is unlikely either of those options would occur in the next 5 years.

Recommendations

This analysis identified the following recommendations to restore, maintain, and improve water quality across the Forest:

1. Continue to implement watershed improvement projects that reduce sediment and connected disturbed areas so as to meet the anti-degradation clause of the Clean Water Act.
2. Work with the Colorado Water Quality Control Division to assess all sources of sediment impacts to Bushy Creek, and develop an action plan to address and ultimately delist this stream reach.
3. Monitor compliance with Forest Plan Standards and Guidelines and range BMP implementation to ensure compliance with water quality standards for bacteria.
4. Cooperate with the Colorado Water Quality Control Divison to obtain water quality data on streams placed on the Monitoring and Evaluation list for metals, pH, E.Coli and aquatic life. Cooperate with the State on additional data collection on these streams.
5. Continue to cooperate with Laramie County and Laramie Rivers Conservation Districts on bacteria monitoring and range utilization monitoring in upper Crow Creek watershed.
6. Continue adjusting management of grazing and recreational activities to improve water quality in upper Crow Creek.
7. Continue to participate in the Watershed Plan effort for the Upper Crow Creek Watershed.
8. Work with WYDEQ, as appropriate, to implement the TMDL for Haggerty and West Fork Battle Creeks.
9. Continue to analyze each proposed project and suggest Best Management Practices to protect water quality.
10. Continue to monitor BMP implementation and effectiveness on a variety of projects and identify opportunities for improvement to protect water quality.
11. A sample of the soil and water mitigation measures should be monitored during and after implementation to determine the effectiveness for protecting water quality.

Actions taken on FY11 Recommendations

1. Continue to implement watershed improvement projects that reduce sediment and connected disturbed areas.

- FY12 Action: See Table 3: 2012 Soil, Watershed and Fisheries Improvement Accomplishments for acres of watershed improvement, all of which directly or indirectly reduced stream sedimentation.

2. Monitor compliance with Forest Plan Standards and Guidelines and range BMP implementation on impaired streams or on the M&E list for bacterial impairment.

    - FY12 Action: Range BMPs were monitored on 19 stream reaches. For several stream reaches this included pre and post livestock grazing, as well as some monitoring during the livestock grazing season. The Forest continued to cooperate with Laramie County and Laramie Rivers Conservation Districts on bacteria monitoring and range utilization monitoring in upper Crow Creek watershed.

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

    - FY12 Action: Best Management Practices were implemented in these watersheds to address elevated levels of bacteria. Off-site water developments to encourage better livestock distribution in the Middle Crow Creek watershed were completed.

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

    - FY12 Action: Forest staffs are members of the Upper Crow Creek Watershed group, but no activity occurred during this period.

5. Implement the strategy finalized in April 2006 for addressing bacteria water quality issues on Range Allotment Management Planning projects.

    - FY12 Action: 2006 range strategy to address bacterial water quality incorporated into range project NEPA.

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

    - FY12 Action: Forest staffs continued to incorporate Best Management Practices and Design Criteria to protect water quality for all resource planning projects.

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

    - FY12 Action: 15 water resources projects were monitored for BMP implementation and effectiveness using the national BMP forms. . Summary results and conclusions are on file in the corporate filing system.

Water Rights

During FY12 the Forest focused on two priorities: 1) Continuing to update and correct range stock water rights, as this is our largest group of water rights, and 2) ensuring that new water rights filed on National Forest System lands follow Forest Service directives. Principle accomplishments for FY12 on the Medicine Bow-Routt National Forests include:

- Department of Justice filed for 139 stock water rights in the Colorado water court based on data supplied by the Forest. The Forest received 18 final water rights certificates in Wyoming.
- Reviewed and responded to 24 monthly resumes (Colorado) and water right applications (Wyoming) for potential new water rights being filed on USFS land by private entities.
- Filed one Statement of Opposition (Yamcolo Reservoir 2nd filling—Yampa RD)
- Completed five (Med Bow) water rights actions (applications, abandonment, statement of beneficial use) for campgrounds and other administrative facilities.
- Inspected, mapped, and/or inventoried 27 ditches with non-Forest Service water rights on the Medicine Bow-Routt National Forests.

Stream and Riparian Condition Inventory and Monitoring

While this monitoring item is only required to be reported on every five years, annual reporting allows for tracking accomplishments each year, with summary conclusions being made every five years. The following questions are addressed:

To what extent are riparian and wetland areas meeting proper functioning condition?

How are management activities affecting riparian habitats (including wetlands) on the forest?

The Forests completed over 21 miles of stream and riparian condition assessments during FY12 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. Table 6 summarizes these locations on the Forest where some inventory or monitoring of stream and/or riparian conditions was conducted in 2012.

Table 6: 2012 Stream and Riparian Area Condition Inventories and Monitoring[1]

Stream Name	Ranger District	Reach length (miles)	Watershed#	Method/Rating
Colorado River Basin				
Gore Cr	Yampa	0.1	140100011001	Harrelson et al, 1994
Upper Red Dirt Cr	Yampa	0.2	140100010706	Harrelson et al, 1994; USDA Forest Service, 1996
Lower Red Dirt Cr	Yampa	0.2	140100010706	Harrelson et al, 1994; USDA Forest Service, 1996
Little Snake River Basin				
Big Sandstone	BCH	0.5		AOP
Little Sandstone	BCH	0.5		AOP

Stream Name	Ranger District	Reach length (miles)	Watershed#	Method/Rating
Deep Creek	BCH	0.5	140500030407	Water Quality - Temperature
W Branch NFLSR	BCH	0.5	140500030104	Water Quality - Temperature
Lost Cr	BCH	0.5	140500030109	Fish Population Inventory
W Fk Battle Cr	BCH	0.5	140500030109	Fish Population Inventory
Circle Bar Basin Cr	HPBE	0.1	140500030101	USDA Forest Service, 1996
Middle Fk Little Snake	HPBE	0.1	140500030101	USDA Forest Service, 1996
Trib to King Solomon	HPBE	0.5	140500030102	USDA Forest Service, 1996
King Solomon Cr	HPBE	0.1	140500030102	Harrelson et al, 1994; USDA Forest Service, 1996
King Solomon Cr Reference	HPBE	0.1	140500030102	Harrelson et al, 1994; USDA Forest Service, 1996
Crawford Cr	HPBE	0.1	140500030301	USDA Forest Service, 1996
Douglas Cr	HPBE	0.1	140500030301	USDA Forest Service, 1996
Slater Cr Reference	HPBE	0.1	140500030105	USDA Forest Service, 1996
Slater Cr	HPBE	0.1	140500030105	USDA Forest Service, 1996
Yampa River Basin				
Moore Park Cr	Yampa	0.2	140500010102	USDA Forest Service, 1996
Crowner Cr	Yampa	0.2	140500010103	Harrelson et al, 1994; USDA Forest Service, 1996
Upper Mill Cr	HPBE	0.3	140500010208	Harrelson et al, 1994; USDA Forest Service, 1996
Rock Cr	HPBE	1.3	140500010209	USDA Forest Service 1996
First Cr	HPBE	0.1	140500010601	USDA Forest Service 1996
Elkhead Creek	HPBE	1.0	140500010601	USDA Forest Service, 1996
Elkhead Reference	HPBE	0.1	140500010601	USDA Forest Service 1996
North Platte River Basin				
Big Bear	DRD	0.5	101800080301	Fish Population Inventory
Trail Creek	DRD	0.5	101800110303	Fish Population Inventory
Douglas Creek	LRD	0.5	101800020107	Fish Population Inventory
Jack Creek	BCH	0.5	101800020801	Fish Population Inventory
E Fk Med Bow	BCH	0.5	101800040102	Fish Population Inventory
Jim Creek	LRD	0.5	101000100601	Fish Population Inventory
Lincoln Creek	BCH	0.5	100800020402	Fish Population Inventory
Muddy Creek	LRD	0.5	101800020105	Fish Population Inventory
N. Fk. Big Creek	BCH	0.5	101800020302	Fish Population Inventory
N. Fk. Encampment River	BCH	0.5	101800020507	Fish Population Inventory

Stream Name	Ranger District	Reach length (miles)	Watershed#	Method/Rating
N. Miner Creek	BCH	0.5	101800020506	Fish Population Inventory
Rock Creek	BCH	0.5	101800040201	Fish Population Inventory
Boswell Cr trib	LRD	0.5	101800100203	Permanent Photo Point (ESRTM)
Boswell Cr trib	LRD	0.5	101800100203	Permanent Photo Point(ESRTM)
Collins Creek	LRD	0.5	101800020105	Permanent Photo Point(ESRTM)
Devils Gate Cr	LRD	0.5	101800020107	Permanent Photo Point / Harrelson et al, 1994 (ESRTM)
Elk Creek trib.	LRD	0.5	101800020104	Permanent Photo Point / Harrelson et al, 1994 (ESRTM)
Elkhorn Cr	LRD	0.5	101800020101	Harrelson et al, 1994 (ESRTM)
Hog Park Creek	BCH	1.5	101800020505	Harrelson et al, 1994
Camp Cr	Parks	0.1	101800020102	USDA Forest Service 1996
Pinkham Cr	Parks	0.2	101800010702	Harrelson et al, 1994; USDA Forest Service, 1996
Republic Cr	Parks	0.5	101800010203	Harrelson et al, 1994; USDA Forest Service, 1996; BLM, 1998
Newcomb Cr Upper	Parks	0.1	101800010302	USDA Forest Service 1996
Newcomb Cr Lower	Parks	0.1	101800010302	USDA Forest Service 1996
Newcomb Cr Reference	Parks	0.1	101800010302	USDA Forest Service 1996
TOTAL		**20.6**		

[1] Does not include sites monitored by range staff in Wyoming, due to watershed staffing time constraints necessary to summarize this data.

Monitoring using the USDA Forest Service 1996 method focused on both short-and long-term indicators. Short-term indicators of the potential effect of each year included stubble height and bank alteration. Long-term indicators used to determine how individual impacts from each year are cumulatively affecting a stream reach include streambank stability and greenline vegetation composition.

Stubble height monitoring during and at the end of the grazing season found that 44% of reaches met the Forest Plan 6 inch residual riparian vegetation guideline, and 64% of surveyed reaches did not. This is a lower percent of reaches that met this guideline in 2012 compared to 2009-2011. Residual stubble height ensures adequate plant vigor to stabilize streambanks, and helps to retain sediment to rebuild unstable streambanks (USDA Forest Service, 1996). The lower rate of compliance with this guideline may be due in part to drought conditions that persisted throughout the year.

Short-term monitoring to address streambank alteration before, during, and after the grazing season found that pre-livestock grazing bank alteration ranged from 0-23 percent, with the highest rating occurring on lower Elkhead Creek. Monitoring results found that approximately 53 percent of streams had a bank alteration of less than 10 percent, 28 percent had a bank alteration of 10-24 percent, and 16 percent

had a bank alteration of 25 percent or more. These percentages are generally lower than percent of bank alteration measured between 2009 to 2011. The lowest percent bank alteration in an active grazing allotment was 1 percent, while the highest percent bank alteration was 71 percent. Generally, streams can receive a maximum of 20-25 percent bank annual bank alteration while maintaining stream health and integrity (USDA Forest Service, 1996). Monitoring indicates that approximately 16 percent of monitored streams are receiving annual bank alteration that may not be conducive to maintaining or improving long-term stream health and ecosystem function.

Streambank stability ranged from 17-94 percent stable banks. Often times the higher streambank stability ratings correlated with lower percent bank alteration. However, this trend was not always consistent. In some cases, low streambank stability did not necessarily correlate with high bank alteration, and vice-versa. The short-term monitoring indicators are used to determine annual effects; if annual effects indicate more impact (i.e. bank alteration), then it would be expected that the long-term indicators would decline. This combination of short and long term indicators helps to determine if ungulate grazing is causing stream health and riparian problems, or if other factors are also contributing.

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 four threats to the National Forests.

Monitoring Protocol/Data Collected

Acres were treated chemically, mechanically, and manually, including insect releases. Data is reported in the U.S. Forest Service FACTS database.

Results/Evaluation

Approximately eight acres of yellow toadflax were treated in the Flattops Wilderness on the Routt NF. Approximately 15 acres of yellow toadflax, musk and Canada thistle were treated within the Platte River Wilderness on the MBNF.

Table 7: Invasive Weed Treatment in 2012

Forest	Forest Plan Acres Expected to be Treated per year	Acres Treated	Wilderness Acres Treated
Routt	385	508	8
Medicine Bow	1,200	592	15
Total	**1,585**	**1,100**	**23**

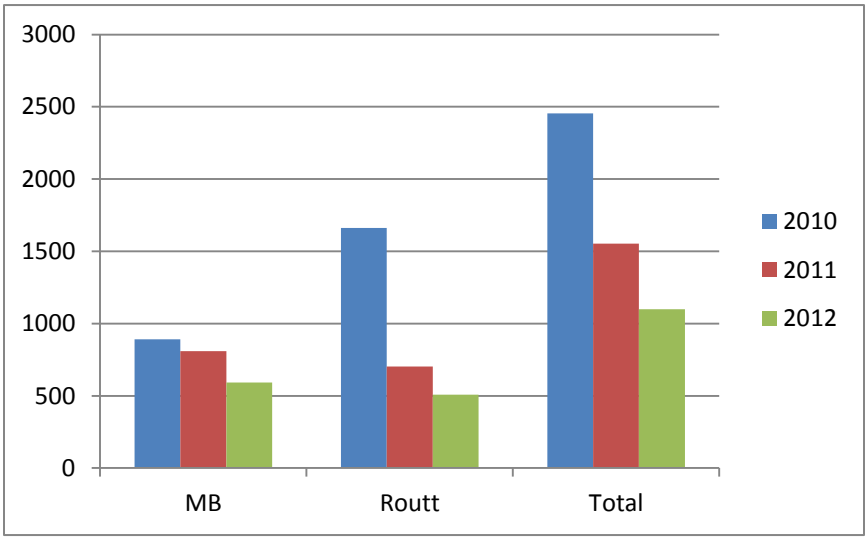


Figure 3: Acres of Invasive Weed Treatment 2010-2011-2012

The Squirrel Creek fire on the Laramie District and the three large fires on Laramie Peak (Cow Camp, Russels Camp, and Arapaho) burned nearly 120,000 acres (48,863 National Forest System acres). All fires burned through areas with populations of cheatgrass and other noxious weed species. Resource Assessment Teams determined the likelihood of required treatments in each of the fire areas, and noxious weed control will need to be carried out in several areas next Fiscal Year, especially spring and summer of 2013.

Funding available for treatment of noxious weeds has been substantially reduced for the last five fiscal years in a row; re-mixing of appropriated funds at the Regional level to cope with the bark beetle infestation has severely depleted declining rangeland vegetation dollars. However, weed populations are increasing in roadside and timbered areas affected by those same bark beetle infestations, and some of that special funding has been available to assist in treating these new areas in addition to the declining appropriated vegetation funds.

An important note is that only a percentage of all noxious weed species are treated each year due to funding levels. A large increase in funding would be required in order to treat all noxious weed acres on the MBR.

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 has limited use on tracking acres of noxious weed species. The limiting factor for noxious weed control is dollars not acres of infestations.

Insects and Disease

Legally Required Monitoring Item
Medicine Bow Item Objective 1.c.3 — Frequency of Measurement: Annual
Routt Monitoring Item 1-4 — 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

Since 2003, the MBR has conducted aerial surveys to provide a broad indication of tree mortality resulting from forest insects and diseases. More information and products from the R2 forest health monitoring program can be found on the following website: http://www.fs.fed.us/r2/fhm/.

Results/Evaluation

Although the bark beetle epidemics continue on the MBR, they have declined significantly. Aerial surveys of the MBNF indicated that approximately 13,000 acres of lodgepole pine trees were attacked by the Mountain Pine Beetle (MPB) in 2012 as compared to approximately 313,000 acres in 2011, showing a significant decrease. Spruce beetle (SB) impacts decreased from approximately 41,000 acres in 2011 to approximately 8,700 acres in 2012.

Approximately 14,000 acres on the RNF were impacted by MPBs in 2011; area of impact decreased to 860 acres in 2012. Areas affected by SB decreased from 9,800 acres in 2011 to 4,900 acres in 2012. The survey data reflects the impacts of the prior year's beetle attacks; aerial surveys rely on the fading crowns of dead trees to locate and quantify the severity of forest pest attacks. Trees attacked and killed in 2010 will not exhibit fading crowns until the summer of 2011 and trees attacked in 2011 will not exhibit fading crowns until the summer of 2012.

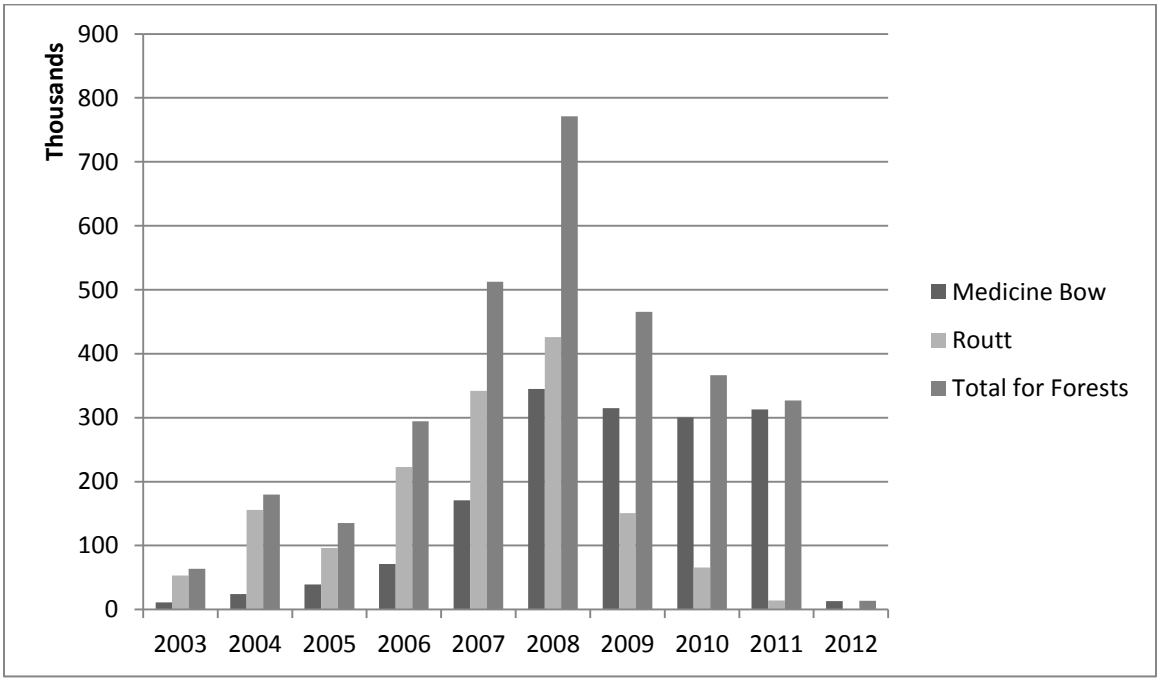


Figure 4: Annual Acres Affected by MPB Epidemic from 2003-2012

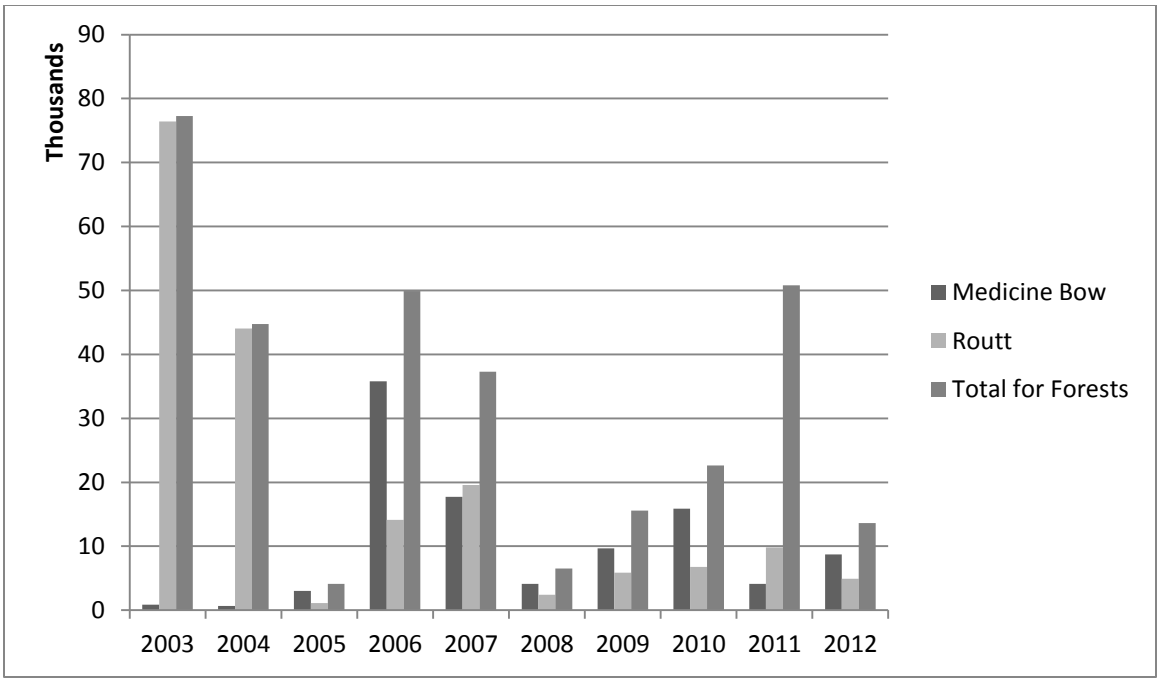


Figure 5: Annual Acres Affected by Spruce Bark Beetle Epidemic from 2003-2012

In fiscal years 2009 through 2012, the Forest Service sprayed trees to prevent infestation by MPB and SB at campgrounds and administrative sites. The MBR has also sold numerous timber sales and stewardship contracts to salvage beetle-killed trees and remove dead trees from roadsides, campgrounds, and administrative sites to improve public safety.

Subalpine fir decline (SFD), which is caused by a combination of western balsam bark beetle and various root disease pathogens, is still occurring in subalpine fir stands. On the RNF, roughly 7,700 acres were impacted by SFD in 2011 and 14,000 acres were impacted in 2012. On the MBNF, approximately 3,300 acres were diagnosed with SFD in 2011 and 2,100 acres were diagnosed in 2012. Generally SFD causes smaller amounts of mortality in stands as compared to that of the bark beetle epidemics.

White pine blister rust, a canker causing disease that is spread by a non-native fungus (*Cronartium ribicola*), is affecting limber pine stands across both Forests. The primary infections are located in the Pole Mountain and Snowy Range areas of the MBNF. Currently the MBR is working cooperatively with the Rocky Mountain Research Station, Region Two Forest Health Management, and Colorado State University to locate and develop genetically resistant strains of limber pine for future limber pine restoration.

Another mortality causing disease is sudden aspen decline (SAD) in quaking aspen. SAD is believed to be the result of the extended drought and the large amount of aspen in mature age classes. On the RNF, SAD affected approximately 4,000 acres in 2011 and only 20 acres in 2012. On the MBNF, SAD was not detected in 2011 or 2012. SAD can be detected by declining vigor in aspen (reduced leaf coverage and pale green foliage). Currently there is nothing that can be done to prevent continued dieback and mortality of affected trees.

Conclusion

The MBR continues to experience bark beetle attacks but the overall epidemic has run its course and total acres affected have decreased significantly.

Recommendations

- Vegetation management should continue to mitigate the effects of the beetle epidemic and ensure public safety. Treatments should focus on salvage of dead trees and restoration of the forest.

Actions Taken on FY11 Recommendations

- Any vegetative management in lodgepole pine and spruce should anticipate what the condition of the stands will be in two to three years. In the past, forest managers have implemented silvicultural strategies to suppress beetle epidemics 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 strongly consider salvage treatment and reforestation of the affected stands.
    - FY12 Action: Adaptive management has been incorporated into past environmental analyses and in vegetation management prescriptions to allow for flexibility as the beetle epidemics continued.

Old Growth and Late Successional Forest Structure

Medicine Bow Item Objective 1.b.4 — Frequency of Measurement: Annual
Routt Monitoring Item 1-8 — Reporting Period: Annual/5 year

These monitoring items ask the questions:

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

How are management activities affecting late successional forest structure in Management areas 5.11 and 5.13?

Introduction

The Medicine Bow and Routt National Forest Plans address old forests differently. The Medicine Bow Forest Plan contains desired conditions, objectives, and standards relating to the amount and distribution of *Old Growth*. The Routt Forest Plan includes desired conditions for *Late Successional Forest*. Both units use similar vegetative measurements to address these similar habitat conditions.

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).

Monitoring Protocol/Data Collected

Medicine Bow NF

The MBNF completed old growth mapping in 2008 using the old growth cover type descriptions provided by Mehl (1992). 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. Table 8 displays three of these old growth criteria by cover type.

Table 8: Old Growth Description by Cover Types in 2008

Cover Type	Age of Largest Trees	Diameter of Largest Trees	Canopy Description
Lodgepole pine	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
Aspen	100	20 tpa > 14 inches	≥ 1 canopy layer >50% cover

*tpa = trees per acre. Source (Mehl 1992)

The MBNF also identified an implementation strategy that mapped more than the minimum percentage of old growth, as identified in the Medicine Bow Forest Plan, for each cover type (Table 9).

The Old Growth Strategy GIS data is still based on the forest's former existing vegetation database (R2Veg). This database does not include mortality from the bark beetle epidemic. While figures indicate that the forest is meeting the required minimum percentages by mountain range and cover type, in reality many of these areas may no longer qualify as old growth due to mortality of the larger trees. This affects all of the cover types, not just lodgepole (ponderosa pine has also been killed by bark beetle, the spruce component of spruce/fir reduced by spruce beetle, and aspen reduced in areas by sudden aspen decline).

The Old Growth Strategy spatial layer has been updated to reflect changes in recommended old growth configuration due to most major harvest types, hazard tree removals, and wildlife. The base cover types were not updated on the assumption that most harvested or wildfire impacted tree stands would be expected to re-vegetate and hence would still be recorded as tree stands, just currently non-stocked. The forest's current vegetation layer (FSVeg Spatial) would have different total cover type figures due to re-delineation in some areas.

Table 9: 2012 Inventoried and Mapped Old Growth by Mountain Range

Mountain Unit	Cover Type	Total Cover (Acres)	Old Growth Strategy (Acres)	Required Minimum Forest Plan Standard (Percent)	Old Growth Strategy (Percent)
Laramie Peak	Aspen	5,441	1,310	20	24
Laramie Peak	Lodgepole	41,540	7,403	15	18
Laramie Peak	Ponderosa	29,855	7,443	25	25
Laramie Peak	Spruce/Fir	4,105	1,259	25	31
Pole Mountain	Aspen	3,886	792	20	20
Pole Mountain	Lodgepole	4,748	784	15	17
Pole Mountain	Ponderosa	5,037	1,274	25	25
Pole Mountain	Spruce/Fir	0	0	25	0
Sierra Madre	Aspen	48,639	10,663	20	22
Sierra Madre	Lodgepole	136,514	24,729	15	18
Sierra Madre	Ponderosa	0	0	25	0
Sierra Madre	Spruce/Fir	56,024	16,725	25	30
Snowy Range	Aspen	15,843	3,299	20	21
Snowy Range	Lodgepole	289,728	54,966	15	19
Snowy Range	Ponderosa	187	132	25	71
Snowy Range	Spruce/Fir	115,409	34,717	25	30

Routt NF

The Routt Forest Plan predicted that the majority of the forest would be in late successional stands and that, over time, more of the forest would move from younger and smaller age classes into older, late successional forest. The following is from the Desired Condition section of Chapter 1 of the Routt Forest Plan:

"The Forest in Ten Years

The majority of the forest will be in late successional habitats, with a portion in early to mid-successional habitats.

The Forest in Fifty Years

The vast majority of the forested areas will be in late successional habitats"

The Routt Plan grouped habitat structural stage (HSS) 4b, 4c, and 5 together as late successional forest. Amounts of the late successional component reported in the

Routt Plan Final Environmental Impact Statement (FEIS) are given in the following table.

Table 10: Routt Habitat Structural Stage Descriptions and Percentages*

Structural Stage Name and Number	Percent of Forested Total
Grass/forb – 1	1.3
Seedling/sapling – 2	2.5
Pole (Total) - 3a 3b 3c	35.4
Mature (Total) - 4a 4b 4c 5	60.9
Late Successional Component - 4b 4c 5	49.1

*From Routt Plan FEIS table 3-25

By cover type, the RNF reported the following amounts of late successional forest in 1997, as displayed in Table 11. This is a total of 539,000 acres or 43 percent of forested cover types.

Table 11: Acreage and Percent Structural Stage by Cover Type from RNF LRMP FEIS

Cover Type	1		2		3		4		Late Successional (4a 4b 5)	
	Ac	%	Ac	%	Ac	%	Ac	%	Ac	%
Spruce-fir	4,595	1.0	6,183	1.4	123,045	27.1	320,154	70.5	254,317	56.0
Lodgepole pine	5,507	1.5	15,688	4.1	138,642	36.6	219,260	57.8	180,132	47.5
Aspen	4,378	1.7	5,077	2.0	125,439	48.2	125,470	48.2	101,616	39.0
Douglas-fir			69	1.3	1,406	26.3	3,861	72.4	2,939	55.1

The R2Veg database does not include HSS 5, which is referred to in the Routt Plan. Many of the acres of HSS 5 would now be counted as HSS 4B or C. However, HSS 5 stands with widely spaced, larger diameter trees (canopy cover < 40) would now fall into other habitat structure stages, or could be considered a non-forested stand.

Results

More than 1.5 million acres of forest in northern Colorado and southern Wyoming have been affected by the MPB epidemic. Mountain pine beetle infestations continue to kill entire hillsides of lodgepole pine. Other tree species, including ponderosa pine and limber pine, also suffer from this intrusive insect. The epidemic's core area exists in the Arapaho, White River, and MBR National Forests and adjacent private forested lands. When the MPB epidemic finally ceases, it is estimated that the beetles will have killed nearly all of the mature lodgepole trees in northern Colorado and southern Wyoming. Annual monitoring and analysis of data will continue.

The full effect of the MPB epidemic on cover type changes generally occur 3-10 years after the epidemic reaches full force. Several areas of the RNF reached epidemic proportions between 2002 and 2003, while various areas of the MBNF reached epidemic proportions between 2005 and 2006. By 2012, the Medicine Bow areas were 6-7 years into effects and the Routt areas were 9-10 years into effects on late successional forest.

As this epidemic continues, late successional forests and areas providing old growth characteristics will change both in location and size. These changes are slow and ongoing; consequently, annual monitoring will continue.

The MBR surveyed 3,000 acres of old growth in 2009 and an additional 3,000 acres in 2010. This annual report represents only a small, incremental change in the reduction of old growth and late successional forests on the MBR National Forests. The accumulation of the annual monitoring will be used to provide a meaningful evaluation of the changes to old growth habitats. This evaluation will be displayed at 5 year intervals as a part of the Forest Plan 5 Year Monitoring Report. The short-term analyses of annual monitoring should not be relied upon too heavily, as they are only a snap shot in time and will continually be in a state of change.

Conclusions

Medicine Bow National Forest

- In spruce-fir cover types interspersed with lodgepole pine, we expect a decrease in the standing, large lodgepole pine component and an increase in snags and dead and down wood. In general, we do not expect that these stands will lose old growth characteristics. On the Snowy Range area only, however, recent spruce beetle mortality may cause a loss of some old growth character.
- In lodgepole pine cover types, we may not be able to maintain old growth conditions into the future as the larger, older trees die. We project a loss of virtually all old growth due to impacts from the MPB epidemic.

Routt National Forest

- Many of the provisions for sustainability of ecological functions of the forest were based upon the abundance of late successional forest prior to the MPB epidemic. Since the MPB epidemic altered the representation of late successional stands throughout the RNF, it is no longer possible to have confidence that the changed conditions will provide sustainability of pre-existing habitats.

Recommendations

- Evaluate specific forest direction (desired conditions, goals, objectives, standards and guidelines) related to old growth (MBNF) and late successional forest (RNF).
- Develop additional direction for existing old growth (MBNF) and late successional (RNF) forests and for potential recruitment stands to guide management of the two forests until the forest plans are revised.

Actions Taken on FY12 Recommendations

- Evaluate specific forest direction (desired conditions, goals, objectives, standards and guidelines) related to old growth (MBNF) and late successional forest (RNF).

  FY12 Action: Evaluation of specific forest direction will occur in FY13.

- Develop additional direction for existing old growth (MBNF) and late successional (RNF) forests and for potential recruitment stands to guide management of the two forests until the forest plans are revised.

FY12 Action: Development of additional direction related to old growth management will occur in FY13.

- Stands that displayed old growth characteristics before the MPB epidemic should be selected to be managed in the future to re-develop these characteristics.

FY12 Action: Stands mapped on the MBNF in 2008 will continue to be managed for old growth.

Threatened, Endangered, Sensitive Species and Management Indicator Species (MIS) Habitat and Populations

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

These monitoring items ask the questions:

What is the relationship between changes in habitat and population trends of MIS?

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?

Terrestrial Wildlife

Canadian Lynx

Monitoring Protocol/Data Collected

In November 2008, the Southern Rockies Lynx Amendment (SRLA) Final Environmental Impact Statement and Record of Decision amended seven Land and Resource Management Plans (forest plans) in Colorado and southern Wyoming. This amendment provides the management direction for lynx conservation while preserving multiple-use direction in existing forest plans. The Medicine Bow – Routt National Forests (MBR) follows direction set forth in the SRLA.

Results/Evaluation

The SRLA and the Biological Opinion on the SRLA direct the Forest Service and U.S. Fish and Wildlife Service to jointly update lynx habitat maps. The MBR remapped lynx habitat in 2011 which identified an additional 10,150 acres of lynx habitat.

Areas of suitable and unsuitable habitat are ground verified for vegetation projects proposed in lynx habitat. Information on habitat collected through field visits are compared to the lynx map. Adjustments are made accordingly to ground verification results. Proposed vegetation project treatments are tracked to ensure treated acres within lynx habitat are within SRLA standard and guidelines.

Snow compaction studies are being conducted on the MBR. Studies look at snowmobile trails and ski trails to analyze effects of competing predators accessing lynx habitat, thus competing with lynx for snowshoe hares. Results are forthcoming.

Conclusion

The MBR tracks and provides quarterly reports to the U.S. Fish and Wildlife Service of projects within lynx habitat. Although the Forest documents activities, tracks acres modified through vegetation treatment projects, consults with U.S. Fish and Wildlife Service projects, and monitors hare habitat within lynx analysis units, there is no information regarding lynx populations. Therefore, we cannot state if the population on the MBF is stable or increasing. However, Colorado Parks and has confirmed presence of lynx on the Routt.

Recommendations

- Continue to verify suitable and unsuitable lynx habitat.
- Continue to conduct snow compaction analysis and monitor recreational active use within Lynx Analysis Units (LAUs).
- Continue to monitor snowshoe hare horizontal cover in LAUs.

Northern goshawk

Monitoring Protocol/Data Collected

The northern goshawk is a Region 2 Sensitive Species and Management Indicator Species (MIS) for both the Medicine Bow and Routt National Forests (MBR). The goshawk serves to indicate the condition and biodiversity of late-seral lodgepole and aspen forests.

The established protocol to monitor this species is to survey known goshawk territories and determine occupancy and nesting activity within those territories. The protocol is designed to evaluate trends in territory occupancy. Results presented are not a formal statistical analysis of trends, but rather a basic summary of the data. The Routt has been using this protocol since 1991 and the Medicine Bow since 2004.

Results/Evaluation

Figure 6 below is a graphical display of the average annual territory occupancy and activity level for the Routt National Forest. Years 1991-1992 were not representative of average territory occupancy or activity levels due to limited sample size, so the years were omitted.

Figure 7 is a similar representation of data from the Medicine Bow National Forest. Surveys on the Medicine Bow are from 2004 to 2012.

Figure 6: RNF Northern Goshawk Territory Occupancy and Activity

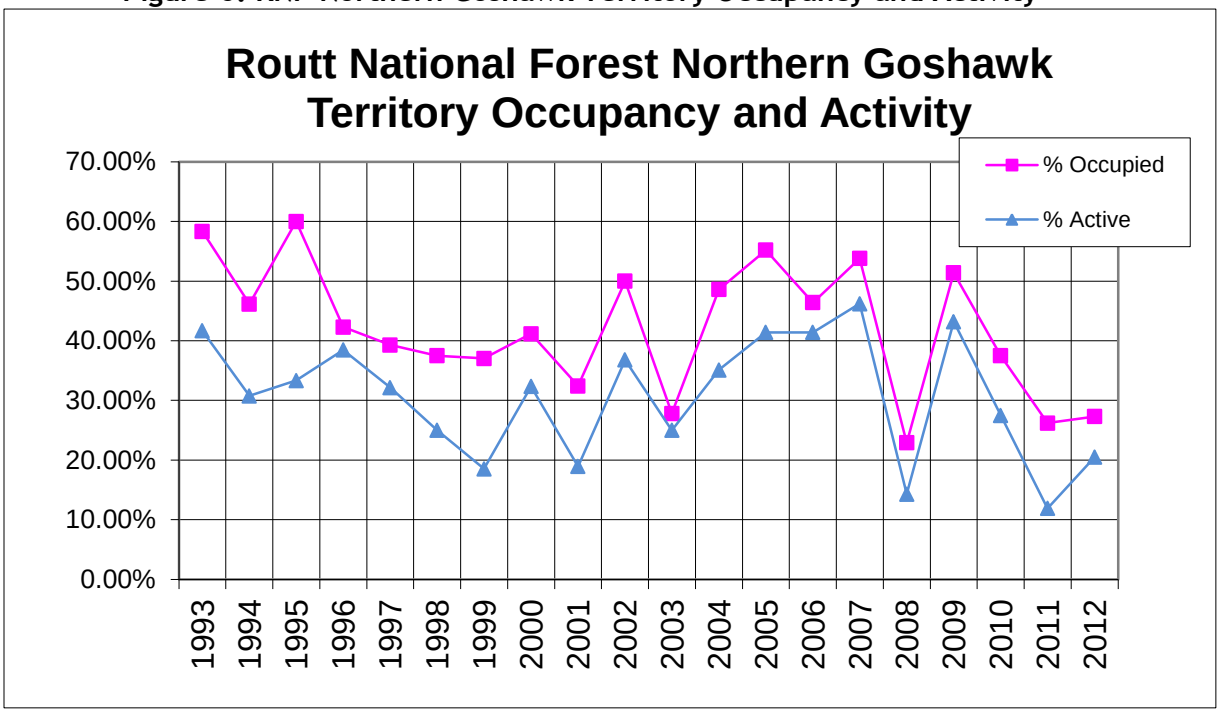
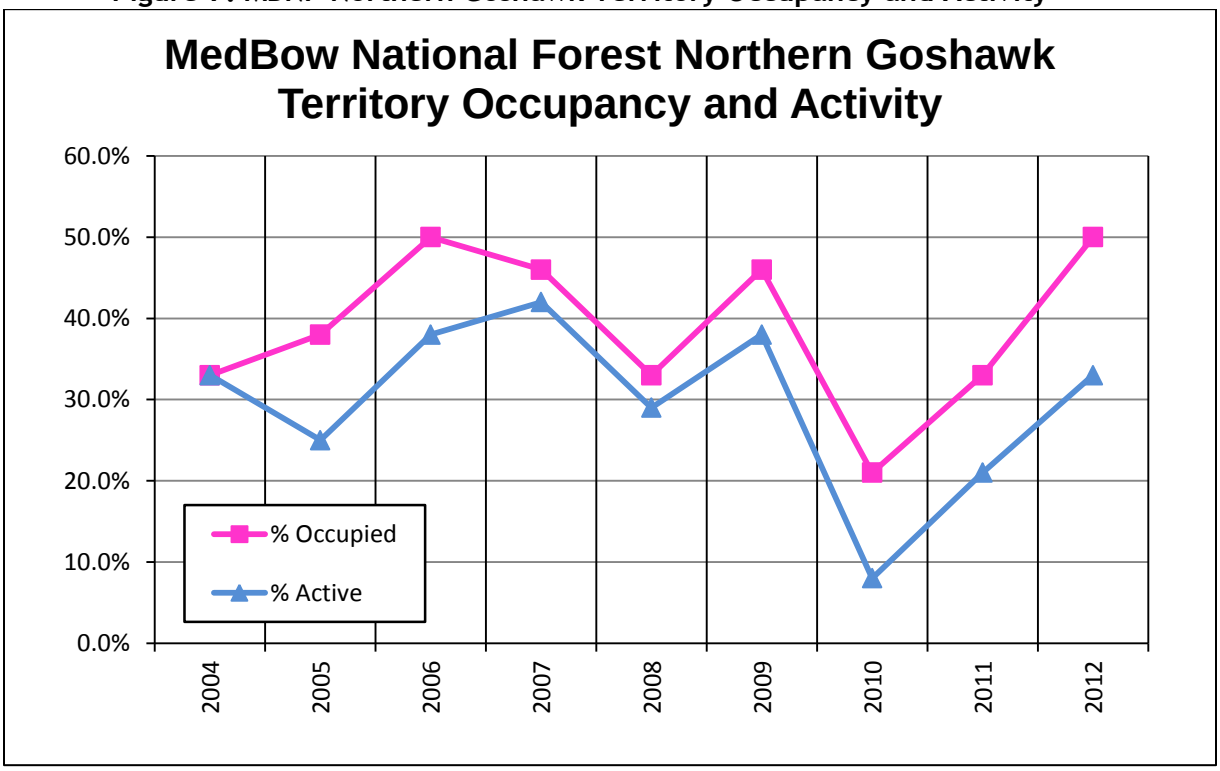


Figure 7: MBNF Northern Goshawk Territory Occupancy and Activity



In order to better understand the graphs, "Occupancy" is defined as birds were observed, heard or sign was found (e.g. feathers) in the territory; however, nesting apparently did not occur. "Active" means the nest fledged at least one young.

In 2012 activity was up from 2011 on both forests, possibly due to a mild winter and spring. Occupancy was also up on the Medicine Bow but was about the same for the Routt between 2011 and 2012.

Since 2010, monitoring on the RNF has shown a downward trend from previous years relative to goshawk occupancy and activity. On the Medicine Bow National Forest, occupancy and activity have increased since 2010. In 2012 occupancy is at 50%, well above the nine year average. However, activity is at 33%, right around the nine year average.

Conclusion

On both the Medicine Bow and Routt National Forests, a large number of beetle-killed trees are starting to fall and thus may cause known territories to become unsuitable for goshawk nesting. This may be the case for the Routt National Forest since data indicates goshawk occupancy and activity are down beginning in 2010 from previous years. On the Medicine Bow, occupancy is above the nine year average but activity is about average. This may mean goshawks are returning to existing territories in increasing numbers but are not finding a sufficient number of nest trees. We may soon see occupancy rates decrease as in the Routt National Forest.

New territories are being discovered which may mean birds are abandoning beetle killed habitat in favor of new nest stands with live trees and thus more abundant prey. This is only a guess as we have no way of knowing if these are the same birds relocating or if they are new birds in the area.

Recommendations

- Continue to implement the northern goshawk territory (occupancy) monitoring protocol to strengthen trend analysis.
- Conduct a formal statistical evaluation of trends in territory occupancy with the help of a biometrician.
- Territory occupancy monitoring is valuable for clarifying fledging dates for goshawks. This will be important to validate/develop disturbance mitigation criteria.
- Long-term territory occupancy monitoring can clarify primary and secondary nesting habitat on the Forest.

American Marten

Monitoring Protocol/Data Collected

The American marten is a Region 2 Sensitive Species and a MIS for the Medicine Bow National Forest. Although the Routt National Forest also conducts marten monitoring, , the species is not a MIS. The marten is an indicator of intact mature spruce/fir and (to a lesser extent) lodgepole forest with complex structure.

Species monitoring has been accomplished through hair collection and DNA analysis to identify sex and individuals. There were 31 hair snare sets established on the Sierra Madre Range and 31 established on the Snowy Range. Hair collection occurred from

2004 to 2011 with 48 individual martens identified over these years. Initial tracking population trend results were promising for as 70 samples were collected in 2004.

Results/Evaluation

Results indicate that fewer marten hair samples were collected over time (Table 12).

Table 12: Marten MIS Survey Results on the MBNF

YEAR	Total Marten Samples	# New Individuals	# Previously Identified Individuals	# Poor DNA Samples
2004	14	7	na	23
2005	31	15	3	7
2006	15	5	2	2
2007	21	9	5	4
2008	5	1	2	4
2009	4	2	1	3
2010	10	6	1	5
2011	5	3	0	3

Only five marten were detected in 2011. Additionally, a total of 51 samples were contaminated or not useful for DNA analysis to determine species. The lack of marten detections prompted the search for a revised sampling method.

During the 2011 field season, remote cameras were set up on four of the hair collection sites. Marten were recorded on cameras at two of the four hair collection sites, but these sites did not contribute hair samples for DNA analysis. This result confirmed the need for a reevaluation of the marten monitoring program and prompted a subsequent recommendation to incorporate remote cameras into the survey effort. In 2012, field trials were conducted to improve remote camera operation and animal detection on both the Medicine Bow and Routt National Forests.

Conclusion

Prior DNA analysis of marten hair analysis proved to be expensive and unreliable. It is difficult to answer the monitoring questions posed until a reliable protocol is developed and more data is collected.

Cameras are a viable method to monitor for multiple sensitive species, including the American marten. Results from the 2012 field trials on both the Medicine Bow and Routt National Forest are being analyzed and an evaluation of the protocol needs to be continued in 2013.

Recommendations

- Finalized the photo monitoring protocol for American marten and continue to build a database.
- Continue to evaluate the remote camera protocol by monitoring marten populations in 2013.
- Produce an annual American marten report.
- Develop partnerships to assist in the monitoring program.

Snowshoe Hare (MIS)

Monitoring Protocol/Data Collected

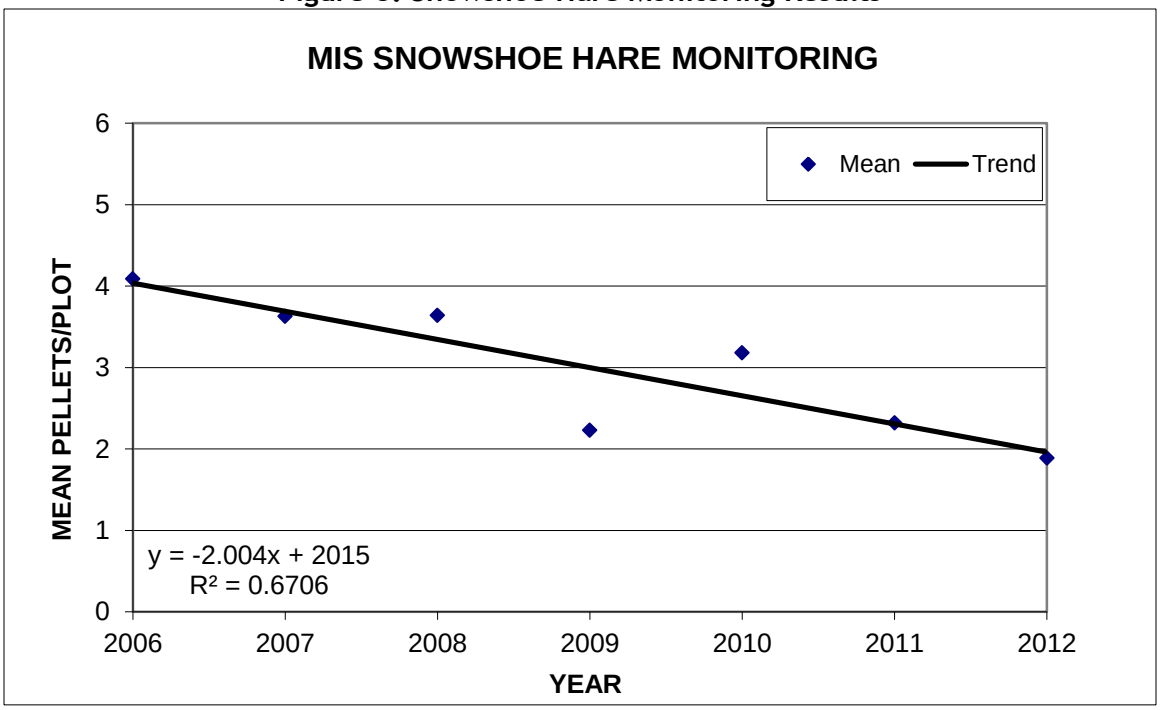
The snowshoe hare is a MIS for the Medicine Bow National Forest. Selection of the snowshoe as an MIS addresses the management question of adequacy of habitat to support forest TES prey species (e.g., lynx, goshawk, marten).

A final draft protocol was developed in 2005. The protocol describes how to monitor hare populations based on establishing pellet plots in spruce, lodgepole pine, and aspen stands. Pellet counts provide an indication of snowshoe hare population trends, which may be tied to habitat quality. Analysis of trend is completed every 5 years on the plot means. The first year's data (from uncleared plots) is omitted from the trend analysis.

Results/Evaluation

Figure 8 displays monitoring results from 2006 - 2012.

Figure 8: Snowshoe Hare Monitoring Results



Conclusion:

It appears that the hare population decline may be related to beetle-kill and the current lack of overstory and understory cover. More data is needed before a relationship between pellet counts, hare populations, and habitat quality can be made. The Medicine Bow National Forest continues to monitor, refine plot selections, and validate if the snowshoe hare is an appropriate MIS. The hare may not be a good MIS due to the species dramatic population fluctuation cycles every 8 – 11 years.

Recommendations:

- Complete an annual snowshoe hare MIS report.

- Seek partnerships for cooperation in conducting monitoring with other agencies and with outside groups interested in the species.
- Assess whether continuing to monitor 2006 - 2007 sites (with a likely value of zero pellets for at least a decade) will meet the desired objectives of MIS monitoring.
- Assess whether the snowshoe hare is a good MIS to monitor.

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.

The Medicine Bow NF Botany program and partners conducted plant surveys during the 2012 field season covering approximately 6,000 acres. Surveys resulted in the discovery of eight new populations of sensitive species and over 20 populations of other rare plant species tracked on the forest (Table 13). In FY12 the MBNF Botany program completed three BAs/BEs.

The Routt NF Botany program conducted over 65 plant surveys during the 2012 field season covering over 1,500 acres. Surveys resulted in the discovery of one new population of sphagnum moss (*Sphagnum angustifolium*), a R2 Sensitive Species, and 19 populations of other species tracked on the Forest (Table 3). In FY12, the RNF Botany Program completed seven BEs.

Recommendations:

- Remove selected species from the SOLC list (with documentation). Continue monitoring known locations.

Table 13: Summary of Forest-wide 2012 Field Survey Findings by Species

			Imperilment Ranking			Total Found	
Species	**Common Name**	**USFS R2 Status**	**G**	**CO**	**WY**	**South Zone**	**North Zone**
Allium schoenoprasum var. *sibiricum*	Wild chives	Other Emphasis	5	1	NR	3	0
Besseya plantaginea	White River coraldrops	Other Emphasis	NR	NR	1	0	2
Carex buxbaumii	Buxbaum's sedge	Not evaluated	5	NR	2	1	0
Carex halli	Deer sedge	Not evaluated	4	NR	1	0	1
Carex interior	Inland sedge	Not evaluated	5	NR	2	0	2
Carex leptalea	Bristle-stalk sedge	Other Emphasis	5	1	2	0	2
Carex magellanica	Boreal bog sedge	Insufficient	5	NR	2	2	0

			Imperilment Ranking			Total Found	
Species	Common Name	USFS R2 Status	G	CO	WY	South Zone	North Zone
ssp. *irrigua*		Information					
Comarum palustre	Purple marshlocks	Insufficient Information	5	1	1	1	1
Eriophorum angustifolium	Tall cottongrass	Not evaluated	5	NR	NR	0	2
Gentiana affinis var. bigelovii	Bigelow's prairie gentian	Not evaluated	5	NR	4	0	5
Lewisia rediviva	Bitterroot	Other Emphasis	5	2	3	1	0
Lomatogonium rotatum	Marsh felwort	Insufficient Information	5	NR	2	0	3
Menyanthes trifoliata	Buckbean	Other Emphasis	5	NR	2	1	1
Penstemon cyathophorus	Sagebrush beardtongue	Other Emphasis	5	3	1	1	0
Petasites sagittatus	Arrowleaf sweet coltsfoot	Insufficient Information	5	NR	2	0	1
Pyrocomma crocea	Curlyhead goldendweed	Insufficient Information	4	NR	2	3	0
Pyrola picta	White-veined wintergreen	Other Emphasis	4/5	3	2	1	0
Rhododendron albiflorum	White-flowered rhododendron	Other Emphasis	4	2	NR	1	0
Salix candida	Sageleaf willow	Sensitive	5	2	2	0	3
Salix serissima	Autumn willow	Sensitive	4	1	1	0	2
Sparganium natans	Small bur-reed	Insufficient Information	5	NR	1	1	0
Sphagnum angustifolium	Sphagnum moss	Sensitive	5	2	NR	1	0
Triglochlin palustris	Marsh arrowgrass	Other Emphasis	5	NR	2	0	1
Trillium ovatum	Pacific trillium	Other Emphasis	5	3	1	2	0
Utricularia minor	Lesser bladderwort	Sensitive	5	2	2	0	4

Imperilment rankings come from state natural heritage programs (G=Global ranking) and reflect the ranking of populations within that state. 1=Critically imperiled (typically >5 populations within ranking area); 2=Imperiled (typically 6-20 populations within ranking area); 3= Rare or uncommon (typically 21-100 populations within ranking area); 4=Widespread, abundant and secure (uncommon but not rare), but with cause for long-term concern (typically >100 populations); 5=Demonstrably widespread; NR = Not ranked.

Actions taken on FY 11 Recommendations

- Add newly discovered species to the Species of Local Concern (SLC) list
  - FY12 Action: No plant species new to the forest were discovered in 2012. Extensive inventory was conducted across forest lands but no plant species new to the forest or otherwise unknown and rare were discovered.
- Remove selected species from the SLC list (with documentation). Continue monitoring known locations.

- FY12 Action: No species were removed from the species of local concern list in 2012. Reevaluation of the SLC list is planned in future years through implementation of the new planning rule. Monitoring included revisiting multiple known populations of USFS Region 2 sensitive species. The persistence/health of all populations was confirmed for monitoring purposes.

Habitat Improvement

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

These monitoring items ask the questions:

To what extent have habitat improvement needs been identified and implemented using structural and non-structural habitat improvement treatments?

Are habitats for threatened, endangered and Forest Service Region 2 Sensitive species being maintained or enhanced?

Monitoring Protocol/Data Collected:

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

Terrestrial Wildlife

Results/Evaluation

The Medicine Bow and Routt National Forests restored or enhanced approximately 12,920 acres of wildlife habitat. This was accomplished by a variety of treatments, both structural and non-structural.

Brush Creek – Hayden Ranger District:

- Road Decommissioning, 320 acres
- Riparian Enhancement, 2 acres
- Noxious Weed Treatment, 320 acres
- Installation of Bear Resistant Trash Containers, 200 acres

Laramie Ranger District:

- Prescribed burn on Bald Mountain, 75 acres Decommissioned "user-created" trails and old roads on the eastside of the Snowy Range, approximately 6,530 acres Spring developments and fencing of riparian areas on Pole Mountain, 800 acres, some of which was habitat for the Preble's meadows jumping mouse, a threatened species.

Hahns Peak – Bears Ear Ranger District:

- Closure of Forest Road 154, 960 acres
- Soda Creek Fence Removal, 40 acres
- Rock Creek Spring Development, 456 acres

Yampa Ranger District:

- Installation of bear proof containers, 500 acres

- Restored/rehabilitated 6 acres of burn piles
- Nest box installation, 440 acres

Parks Ranger District:

- Nest box installation, 120 acres
- Teal Lake Campground restoration, 26 acres

Forest-wide

- Scarification and seeding of old logging landings, 795 acres
- Noxious weed treatment, 1,330 acres

Inventory

The Medicine Bow – Routt National Forests inventoried approximately 111,830 acres in 2012. Surveys were completed using a combination of forest personnel and partners. Inventories covered an array of species and habitats, including threatened species (e.g., lynx), Region 2 sensitive species (e.g., pygmy shrew, bighorn sheep), MIS (i e.g., goshawk, snowshoe hare), and species of local concern (e.g., sage-grouse).

Conclusion

Inventories are conducted in support of many proposed projects, species' assessments, and developing, refining, and maintain monitoring programs. Information is used for habitat assessments and population trends. Habitat restoration, enhancement and maintenance opportunities are identified through these inventories.

Recommendations

- Maintain existing partnerships and develop new partnerships.
- Continue to refine monitoring protocols when needed.
- Continue to support updates to the Region 2 Sensitive Species list.
- Continue to coordinate with the Colorado Natural Heritage Program, Wyoming Natural Diversity Database, and federal and state agencies.

Actions taken on FY11 Recommendations

- Continue to move toward increasing funding available for habitat improvement projects and continue to partner with interested groups in order to complete such projects. Strive to increase the number of projected acres of terrestrial habitat enhanced each year. Place more emphasis on habitats that contribute to maintaining well-distributed populations of TES species native to the Medicine Bow and Routt.
    - FY12 Actions: The MBR National Forests continue to develop integrated resource projects with other resource program areas (engineering, recreation, range, and fire), which maintain or enhance terrestrial habitat.

Plant Habitat

In 2012, a Forest Service inventory and monitoring project was implemented in collaboration with Wyoming Natural Diversity Database (WYNDD) to catalog sensitive wetland plants, uncommon wetland habitats, and associated human and livestock disturbance/damage to these resources on Pole Mountain on the Laramie District (Cooperative Agreement No. 12-CS-11020600-010). Other projects included restoration

and habitat improvement projects that benefited vegetation and rare plant habitats and inventory and monitoring of known sensitive species populations.

Results/Evaluation

There are no populations or suitable habitat identified for federally listed threatened or endangered plant species on the MBR. Data collection conducted by WYNDD on Pole Mountain in 2012 yielded new or expanded occurrence records for sensitive plant species. Data collection also identified areas where habitat improvement projects may improve sensitive wetland plant habitats and protect newly discovered populations from grazing pressure and disturbance. Most newly discovered populations were found in wetland habitats with low accessibility and were naturally protected from disturbance by humans and livestock; however, two populations were in a degraded state and suitable for habitat improvement. These will be cataloged in a project report authored by WYNDD (expected March 2013). These newly discovered populations will be managed in accordance of the Medicine Bow National Forest Land and Resource Management Plan.

Habitat improvements that benefit vegetation and rare plant habitats accomplished during 2012 are listed below:

- One acre of wetland was enhanced at Newcomb Creek (Parks RD) through planting of local genetic willow materials. This project improved habitat for two Region 2 sensitive amphibian species (Northern leopard frog and wood frog) and improved wetland habitat in general.
- 10 acres of uplands were replanted at Teal Lake Campground (Parks RD). Plantings of local genetic shrub and seed materials include edible species that enhance avian and terrestrial wildlife habitat and allow visitors to gather wild foods in season. The plantings also enhance the benefits of existing aquatic habitat structure by adding to the linkages between terrestrial and aquatic food webs (i.e., shrubs and trees along the shore line will attract insects and provide beneficial shade). These plantings will provide site screening for improved recreation experience and re-attraction of the visitor base to this facility after several years of it being closed.
- 1.5 acres of wetland created at the Sawmill Gravel Pit (Parks RD). Habitat improvement work at the site will continue in 2013 with additional plantings of local genetic willow materials.
- The South Zone Botany Program completed the second of a two-year native species restoration plantings project at the historic Grizzly Guard Station (Parks RD). Due to drought conditions and poor planting conditions the project has been extended for another year. This project is done in partnership with the North Park School District.
- The MBR Native Species program made over three native seed collections targeting five key species for restoration projects. These collections were completed through partnerships with Wildland Restoration Volunteers, the Rocky Mountain Youth Corps, The Nature Conservancy LEAF Program, the Upper Colorado Environmental Plant Center and MBR staff. Collections came from the Hahns Peak, Parks, and Yampa Districts. Planned collections on the Medicine Bow NF were cancelled due to drought and fires.

- 34 acres of plant habitat were improved as a result of road closures and road decommissioning on the Medicine Bow National Forest, Eastern Snowy Range Travel Management (Laramie District) and on the Sierra Madre Mountain Range (Brush Creek – Hayden District).
- 35 acres of wetland plant habitat were improved as a result of volunteer projects that restored unauthorized vehicle damage under power line right of ways on the Laramie Ranger District.

Inventory

- 7,500 project acres were surveyed for sensitive species and other rare plants in 2012 (estimated), including 20 miles of stream reach and eight wetland swales on Pole Mountain.

Region 2 Sensitive Species:

- Nine new occurrences of three USFS sensitive plant species were discovered on the forest, including autumn willow (*Salix serissima),* sage-leaf willow (*Salix candida),* lesser bladderwort (*Utricularia minor),* and sphagnum moss (*Sphagnum angustifolium*).
- State of Wyoming occurrence records of autumn willow (*Salix serissima)*, a USFS Region 2 sensitive species, were tripled after inventory efforts in 2012. Previously known from only one site in the state of Wyoming, two additional populations were discovered on Pole Mountain.

Figure 9: Autumn willow (*Salix serissima)* in fruit

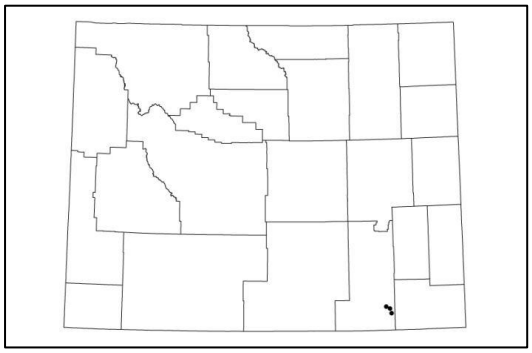


Figure 10: Distribution of autumn willow in Wyoming

- 10 previously known populations of USFS Region 2 sensitive species were re-visited and three were expanded recording a larger number of plants over a greater area than previously identified. The persistence/health of all populations was confirmed for monitoring purposes.

Forest Species of Local Concern:

- Revisits of *Botrychium* sites along on the 740 Road (Parks RD) indicated that the populations (discovered in 2010) were healthy and robust and that the buck and rail fencing installed in 2010 protected them from the hazard tree clearcutting activities.
- Revisits of clustered lady-slipper orchid populations on Yampa Ranger District indicated that several populations have expanded into a single larger population.

- 10 new populations of four Wyoming plant species of concern and 10 new records of USFS species of local concern were recorded.

Conclusions

Forest Service partnerships with cooperating agencies, such as Wyoming Natural Diversity Database and Colorado Natural Heritage Program, are valuable resources that can help the Forest Service achieve inventory, monitoring, and habitat improvement goals. There is opportunity for restoration and habitat enhancement benefitting rare plants and habitats across the forest, but opportunities must be identified and cataloged before efforts can proceed. Collaborate, multi-discipline projects such as road closures and wetland restorations can improve habitat for rare plant species and habitats while accomplishing other resource goals.

Recommendations

Continue and expand on current efforts to identify restoration and enhancement opportunities that benefit plants and habitats on the forest. Opportunities include:

- Wetland enhancement and restorations on Rabbit Ears Pass (HPBE),
- Sensitive wetland species habitat enhancement on Pole Mountain (LRD),
- Fen and wetland restoration along North Platte River (Parks),
- Wetland restoration on tributary to Jack Creek (Parks),
- Fencing cattle out of Kettle Lakes RNA (see RNFLMP and Kettle Lakes ER).

The Botany Program continues to seek funding for and expanding native seed programs across the forest and collaborating with FS and other partners to expand the scale of restoration activities across land ownerships and resource concerns.

Actions Taken on FY11 Recommendations

- FY12 Action: A Forest Service inventory and monitoring project was implemented in collaboration with Wyoming Natural Diversity Database for human and livestock disturbance/damage to these resources on Pole Mountain on the Laramie District. One sensitive species population was identified as suitable for future restoration/protection projects. Habitat improvement projects that benefited vegetation and rare plant habitats included road decommissioning and wetland restorations conducted for watershed improvement purposes. See the Habitat Improvement (plants) section for details.

Aquatic Species Habitat

Results/Evaluation

Medicine Bow National Forest:

In FY12 (field season) the Medicine Bow National Forest (north zone) monitored several structural-improvement and non-structural improvement projects to assess their ability to protect and improve aquatic and riparian-habitat conditions for amphibians, fish, and other aquatic biota:

- Restored aquatic-organism passage (AOP) in Pelton Creek by replacing damaged round-pipe culverts with a bottomless-arch culvert. The project connected three miles of stream habitats upstream of culvert inlet (LRD).
- Assisted the Wyoming Game and Fish Department (WGFD) in stocking more than 20,000 brook trout in beaver ponds in Pole Mountain (LRD).
- Sampled 15 aquatic MIS (brook trout, brown trout, and rainbow trout) sites (streams) to monitor population trends. Data about species composition, total lengths, and weights were collected and analyzed. Also, aquatic macroinvertebrates were sampled to determine abundance and community diversity. Finally, stream-temperature data loggers were installed at each stream sample site (all north zone ranger districts).
- Participated as an instructor in an Upward Bound, Riparian Ecology Program.
- Gave a career-orientation presentation to the Principals of Fisheries and Wildlife class at the University of Wyoming.
- Organized and participated in Resource Education Day held at Saratoga Lake. More than 150 elementary-school students attended the event (BCH).
- Assisted a Colorado State University (CSU) graduate student in assessing the population distribution and habitat conditions of the horneyhead chub in the North Laramie River (DRD).
- Planted willow cuttings and implemented erosion-control cuttings at the East Fork, Encampment River weir-removal and restoration site (BCH).
- Conducted pre-treatment longitudinal profile and habitat surveys at Big and Little Sandstone Creeks to facilitate AOP designs and installation for a Federal Highway Administration-funded Sage Creek (NFSR 801) reconstruction project (BCH).
- Constructed a boreal toad habitat (aka riparian) exclosure fence at Ryan Park to protect one of three known breeding habitat in the MBNF (BCH).
- Repaired boat dock at Hog Park and painted fishing platform on North French Creek adjacent to the Snowy Range Scenic Byway (BCH).
- Monitored, in conjunction with the WGFD, the effectiveness of the plunge-pool modification associated with the lower North Fork, Little Snake River waterfall. Electrofishing yielded several trout that appeared to be cutthroat trout-rainbow trout hybrids. The putative hybrids are being genetically tested to confirm their genetic integrity.
- Investigated and assessed the impacts to fisheries and aquatic and riparian habitats due to the Arapaho wildfire (LRD).
- Conducted fish- presence/absence surveys at seven sites.
- Stocked Colorado River cutthroat trout at four sites in cooperation with the WGFD (BCH).
- Inspected and monitored two AOP culverts, seven fish barriers (e.g. gabion barriers), and one habitat-restoration project.

The conclusions of the aforementioned monitoring are: protect and improve CRCT habitats upstream of the lower NFLSR waterfall; and reduce sedimentation and improve fish-passage conditions for MIS trout in the Medicine Bow National Forest.

Continue to periodically monitor national grassland ponds and lakes – if feasible – for the narrow-foot Hygrotus.

Routt National Forest:

During FY12, the Routt National Forest (south zone) implemented and monitored several structural and non-structural habitat improvements designed to benefit CRCT habitats. Most of the work was accomplished in cooperation with Forest zone engineering and hydrology personnel. Other projects were implemented and monitored in cooperation with Colorado Parks and Wildlife (CPW), Trout Unlimited (TU), and other non-federal partners. For example, the Routt National Forest has implemented and monitored the following structural and non-habitat improvements:

- Coal Creek fish barrier (Yampa) repaired in cooperation with Colorado Parks and Wildlife (CPW).
- Replaced four round-pipe culverts with bottomless-arch pipes in the Rock Creek watershed to provide aquatic-organism (i.e. fish) passage in an additional nine miles of stream (Yampa).
- Initiated habitat-improvement treatments in Armstrong Creek to provide enhanced habitat conditions for Colorado River cutthroat trout (CRCT) and other aquatic biota (HPBE.).
- Constructed Wheeler Creek fish barrier to protect CRCT populations and habitats from invasion by non-native trout (Yampa.).
- Initiated the Poose Creek fish-ladder monitoring project in cooperation with Trout Unlimited and CPW (Yampa.).
- Monitored the Willow Creek restoration project in cooperation with CPW (HPBE). Two miles of additional CRCT habitat reclaimed from non-native trout invasion.
- Completed and monitoring riparian-fencing (buck & pole) project adjacent to the South Fork, Little Snake River on the Three Forks Ranch (HPBE).
- Removed and replaced a deteriorated round-pipe culvert located on NFSR 49 to improve aquatic-organism passage.
- Replaced a round-pipe culvert in the East Branch, Willow Creek with a bottomless-arch pipe to improve aquatic-organism passage (Parks.).
- Monitored thirty-two air/water-temperature data loggers in south zone watersheds to monitor the resiliency of stream temperatures to air temperature increases associated with Climate Change (HPBE, Parks, and Yampa districts).
- Monitored four boreal toad-breeding sites to document breeding activity or the lack thereof. Breeding continues to occur (HPBE and Yampa Districts).
- Assisted in implementing a Pilot Boreal Toad Breeding-Site protocol in six catchments in cooperation with the Wyoming Natural Diversity Database (WYNDD) and CPW. Two new breeding sites were located.
- Annual monitoring on four boreal toad breeding sites occurred in conjunction with our terrestrial counterparts and CPW. Successful breeding occurred at all sites and juvenile and adult toads were tested for chytrid fungus.

- Continued to monitor 28 year-around, air/water-temperature data loggers located at various aquatic-MIS monitoring sites to assess habitat-restoration effectiveness.
- Monitored – using electrofishing techniques – at six sites to estimate fish populations including three sites dedicated to CRCT (south-zone wide).
- Monitored four culvert-replacement projects, post treatment, to determine the effectiveness of aquatic-organism passage improvement goals (south-zone wide).
- Monitored, post treatment, three fish barriers and one aquatic-habitat restoration project.

Some CRCT habitat conditions in the Routt National Forest are stable to improving while a few others have been impacted (e.g. Lost Dog Creek) or are at risk of degradation due to both authorized and unauthorized multiple-use activities and water developments.

Habitat-improvement projects completed for aquatic habitat are included in the Water Quality Monitoring Item (watershed, streams and lakes improvements).

Aquatic Threatened and Endangered Species

No direct monitoring/evaluation protocol is applicable to federally-listed species (see Table 14) because they do not exist in either the Medicine Bow National Forest or in the Routt National Forest.

Table 14: Federally-listed Fish in the Colorado River and Platte River Basins

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 MBR continues to comply with all of the requirements to consult with the U.S. Fish and Wildlife Service (USFWS) when projects that could deplete water from the upper-Colorado River (including the Yampa River) and the Platte River basin are proposed for implementation. Proposed projects that may indirectly affect habitats for the species listed in Table14 undergo consultation with the USFWS.

Although the federally-listed fish species found in Table 14 are typically found several miles downstream from the Routt and Medicine Bow National Forest boundaries, natural-resource management projects that occur within the Forest boundary have the potential to affect the timing and/or magnitude of streamflows for many miles downstream. Water depletions have been found to adversely affect habitats and populations of species in the Colorado River, Platte River and Yampa River basins. In FY12 and in previous 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.

Follow-up Actions to FY11 Recommendations: Medicine Bow-Routt N.F.

- Implemented several aquatic-organism passage (AOP) projects (i.e. culvert replacements) that connected 34 miles of stream habitats that were previously disconnected from the rest of their respective watersheds.
- Improved 17 acres of lake habitats that support trout: native and non-native species.
- Continued to consult with the USFWS about projects that may deplete water in the Platte River Basin (e.g. North Platte River).
- Cooperated with the CPW, WGFD, and the Wyoming Natural Diversity Database to implement the Pilot Amphibian Monitoring Program. Two new boreal toad breeding site were found.
- Continued monitoring air/stream temperatures at dozens of sites in the Forest to determine changes in aquatic-habitat conditions that may be associated with a warming climate.
- Continued to coordinate, via several meetings, with partners such as CPW, the WGFD, and TU to cooperate on implementing aquatic-habitat improvement projects.
- Continued to assess populations of aquatic MIS (e.g. trout) to use as indices to habitat condition. Most populations being monitored appear to be stable and have good age-class distributions.

Recommendations for FY13

- Continue to consult with the USFWS about the potential impacts of proposed projects that could deplete water from the Upper-Colorado, Yampa, and Platte River basins.
- Continue to improve habitats for aquatic and amphibian R2 Sensitive Species and MIS trout using a variety of well-chosen structural and non-structural improvement treatments. Monitor and assess the efficacy of the treatments.
- Continue to move toward increasing funding available for aquatic and riparian-habitat improvement projects and continue to partner with interested groups to complete these projects. Strive to increase the number of projected acres of terrestrial habitat enhanced each year. Place more emphasis on habitats that contribute to maintaining well-distributed populations of TES species native to the MBR.

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

Annual fire statistics are reported in the Fire Stat database. The fire reports are divided by individual forests, thus separate reports are generated for the MBNF and the RNF.

Results/Evaluation

The 2012 fire season set new records for number of acres burned on the MBRTB. There were 147 wildfires which burned 49,343 acres. With one of the driest winters on record, fire season started early. There were four large fires in the months of June and July, three of which were located on the Douglas Ranger District; all fires were lightning caused. The forth large fire occurred on the Laramie Ranger District and was human-caused. All four incidents required mobilization of overhead teams.

Earlier in the year, before fire season, the Forest Service's Washington Office issued supplemental direction to put all fires out regardless of location if it could be done safely. This direction was in conflict with national policy of managing fires for multiple-resource benefit. Hence, there were no opportunities to manage any of the fires for resource benefit. In hindsight, the Forest missed several excellent opportunities. Nevertheless, some benefits still results from the large fires. Notably, there are now several large areas adjacent to Wildland Urban-interface (WUI) areas which will significantly lessen future fire behavior for many years to come.

Recommendations

Continue to evaluate each fire for the possibility of using strategies other than full suppression. Given the current MPB situation, with thousands of acres of red needles, it becomes very challenging for fire managers and line officers to select strategies other than full suppression, especially during times of high-fire danger. However, if weather conditions become hot and dry for extended periods of time, and we have multiple ignitions, the odds increase for multiple, large extended-attack fires and there will logically be a need to focus on point protection and let fires follow more of a natural course. Logically, as the forest continues to evolve after the bark beetle epidemic, red needles will drop to the ground and the fire danger will subside. Fire danger will again increase as the trees begin to fall to the ground or hang up on each other. There is an infinite variety of scenarios of what type of fire behavior will be possible, all of which is totally dependent on the weather for any given year. As seen in 2010 and 11, the weather was cool and wet with ample snowpack and there was very little fire activity. One year later, with meager snowpack and hot dry weather, the fire activity increased dramatically. Dependent on weather conditions and associated fire activity, there may be a need to bring in more suppression resources for initial attack funded with severity funding. If indeed we do experience continued drought conditions, we can expect more large fires and the need for incident management teams to help manage those events.

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

Annual accomplishment reports can be generated listing acres treated by WUI vs. non-WUI and mechanical vs. prescribed fire. These reports can be found in the FACTS database, reference Key Points 3 and 6.

Results/Evaluation

The 2012 fires substantially increased the creation of defensible space in the WUI setting. This defensible space will help alleviate fire danger in those areas. It should be evident now to anyone who lives in a WUI area that the creation of defensible space, either through natural events or by mechanical means, is of the utmost importance to firefighter and public safety. For those WUI areas that have not gained defensible space through recent wildfire events, the need for mechanical treatments is even more important. The Forest's recent Long-term Stewardship Contract, together with traditional timber sales and prescribed fire, is an important tool that should help increase the safety of firefighters and the public. In FY 2012 there were 8179.8 acres treated through prescribed fire and mechanical fuel reduction. There were also 49,343.27 acres burned in wildfires, most of which were beneficial in terms of fuel reduction.

Table 15: Fuels Treatments on the MBR, 2004-12

Treatment Type	2004	2005	2006	2007	2008	2009	2010	2011	2012
Mechanical Treatments									
WUI	4,818	346	1,429	1,290	3,036	3,550	2,175	3,099	3,861.5
Non-WUI	115	409	592	452	1214	552	6,065	1,020.9	105
Mechanical Total	4,933	755	2,021	1,742	4,250	4,102	8,240	4,069.9	3,906.5
Prescribed Fire									
WUI	1,097	3,586	1,563	200	289	205	71	200	151
Non-WUI	2,310	1,780	3,070	1,861	1,535	2,000	2,719	5,937.8	4,122.3
Prescribed Fire Total	3,407	5,366	4,633	2,461	1,824	2,205	2,750	6,137.8	4,273.3
Treatment Total	8,340	6,121	6,654	4,303	6,074	6,307	10,990	10,207.7	8,179.8

Goal 2: Multiple Benefits to People

Outdoor Recreation

Medicine Bow Objective 2.a.3 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 trail maintenance data collected by the Ranger Districts.

Table 16 gives the miles of trail meeting agency standards in FY2012. Note that the values depicted in the table were generated from the "Infra Trails" module of the USFS Natural Resource Manager application. While this is the official record of trail accomplishments in FY12, low numbers for some districts are partially an artifact of data entry rules; the actual number of trail miles meeting agency standards was likely somewhat higher than shown here.

Table 16: Miles of Trails Meeting Agency Standards

District	Trails on District (miles)	Trails meeting agency Standards (miles)	Percent (%)
Medicine Bow			
Brush Creek/Hayden	464	220	47%
Douglas (Laramie Peak)	199	19	10%
Laramie	351	51	15%
Routt			
Hahns Peak-Bears Ears	836	271	32%
Parks	437	0*	0%
Yampa	237	184	77%

*Due to data entry rules

Brush Creek/Hayden Ranger District

- District personnel groomed the Battle Highway (A trail) and the Hog Park Road (B trail); grooming was completed in cooperation with Wyoming State Parks.
- District personnel groomed two cross-country ski-trail systems, one at the Bottle Creek Campground area and one at the Brush Creek Work Center.
- A joint BCH-Laramie District trail crew cleared fallen trees from 35 miles of wilderness system trails and 43 miles of non-wilderness trails.
- Volunteers were used to repair and maintain a short section of the Continental Divide National Scenic Trail (CDNST).
- Coordinated with WY State Trails to repair resource damage along the Campbell Lake Trail.
- Constructed, repaired and painted wilderness trailhead information boards.

Douglas Ranger District (Laramie Peak Unit)

- 2012 presented challenges for trail maintenance as the budget wasn't complete to hire a full crew and the recreation program manager position was vacant with only a part time detailer. In addition, most of the Laramie Peak Unit was closed for the majority of the summer due to an extremely active fire season. The work planned with the Wyoming State Trail Crew on the Laramie Peak Trail was not accomplished due to fire danger ratings and hazards.

Plan of Work for FY13

- The Wyoming State Trail Crew is scheduled to work on switch-back reroutes and OHV pullouts on the Laramie Peak Trail. The rerouting of the switch backs will make the trail more maneuverable for ATVs, and the pullouts will enable riders to turn around safely if continuing up the trail is no longer feasible for their ability.
- The Rocky Mountain Conservation Crew is scheduled to do trail rehabilitation work on Trail 609 (Friend Park trail) as a means to help the area recover from the Arapaho Fire in 2012.
- Two seasonal employees are planned and will be instrumental in installing buck-and-rail fence at the Laramie Peak Trailhead to ensure that vehicles over 50" do not access the trail. They are also scheduled to install: buck-and-rail fence around the entrance to the La Bonte Trail at the Curtis Gulch Campground; signs on trails indicating ability level; and other signs to increase safety. Finally, they will increase presence on the trails throughout the season.

Laramie Ranger District

- The District made facility rehabilitation a priority in 2012: the Keystone Work Center water leaks and heaters were repaired and the water system at the Fox Park Work Center was replaced.
- Trail work that was accomplished was mostly done by additional volunteer crews like the Montana Conservation Corps.
- The State continues to groom all the snowmobile trails on the District.
- The District has an agreement with the Medicine Bow Nordic Association to groom over 19 miles of cross country ski trails at least 3 times/week.
- The District groomed 15 miles of cross-country ski trails at least once per week.
- Trailhead kiosks were painted and refurbished for Platte River and Savage Run Wilderness Areas.
- Substantial deadfall/blowdown on wilderness trails was removed by an additional trail crew dedicated to wilderness areas on Laramie and Brush Creek-Hayden Ranger Districts.

Recommendations

Douglas Ranger District (Laramie Peak Unit)

- Continue to find additional funding sources to accomplish trail maintenance and rehabilitation.

- Hire a dedicated trail crew that is trained in trail construction and maintenance techniques.
- Prioritize trail work and actively patrol trails to maintain visitor compliance with rules and regulations, increase presence on trails.

Laramie and Brush Creek/Hayden Ranger Districts

- Ensure that data-entry rules are followed so that records accurately reflect all the work accomplished in a given year.
- Continue to use volunteers and partners that do excellent work on maintaining summer use trails and grooming winter trails for cross-country skiing and snowmobiling.
- Hire a dedicated trail crew to be shared by the Brush Creek/Hayden and Laramie Districts.
- Consider identifying which trail bridges should/should not be replaced in case of future flood/debris events.

Forest-wide

- Continue to emphasize partnership programs to help keep our trails open and maintained.
- Provide on-forest or on-district trail-crew trainings so they can learn new techniques and refresh their knowledge and general education on trails maintenance, reconstruction and construction.
- Increase education and enforcement efforts to reduce illegal motorized use 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 plans for the Laramie Peak and Snowy Range Travel Management decisions, including trail construction, adoption, and decommission components.

Recreational Opportunities

Medicine Bow Objective 2.a.2 Reporting Period: Annual

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?

Results/Evaluation

Brush Creek/Hayden Ranger District

Like last year, we continued the trend of moving beyond treating hazard trees and toward other aspects of deferred maintenance, vegetation management, and site design at developed recreation sites. Work this year included:

- Operations and general maintenance at 12 campgrounds and two picnic areas

- Planting and watering 7,200 seedlings at campgrounds and administrative sites
- Continued spraying approximately 785 high-value trees to defend against bark beetles
- Completed fill and grade work at seven new campground toilets that were installed late last year
- Completed numerous improvements at the Brush Creek VIS including installation of a new toilet, water faucets, paving, RV pullouts, and construction of a new picnic shelter

Douglas Ranger District

- The short staff and numerous fires throughout the field season put a halt to projects at recreation sites. However, the program's one Forest Protection Office continued her education and enforcement of the Laramie Peak Unit to the best of her ability. Fiscal year 2012 funding was used to purchase new hand pumps for three of the four campground wells. Because of this purchase there is now water at each Laramie Peak Unit campground.

Laramie Ranger District

The Laramie District continues to address the mountain pine beetle/spruce beetle epidemics. Whereas most of the other districts have begun rehabilitation efforts, the Laramie District is still working on the safety issue of the hazards. Nash Fork and Spruce Campgrounds on the Scenic Byway are both closed and likely will not be logged for two more years. The North Fork Campground, which is one of the largest at a lower elevation, will be closed for logging in the spring of 2013, followed by logging at Rob Roy Campground.

All of these campgrounds are integral to the program, and still need attention. Beyond hazard tree removal, the remaining furniture and roads are the next hazard; there are more projects than the District has funds for. One of the recent benefits of the Snowy Range Scenic Byway grant funds is that we will be able to make much needed improvements along the Snowy Range Scenic Byway. However, that work will mean that labor will be diverted from other areas on the District.

- There continues to be hazard tree work and cleanup done at Vedauwoo campground and picnic area.
- The Little Brooklyn Guard Station will again have work done through an agreement with HistoriCorps. The windows will be replaced the last week in July.
- Maintenance work will happen again at Spruce Mountain Fire Lookout Tower (rental cabin) through a partnership with the Wyoming Chapter of the Forest Fire Lookout Association. Work to be done has yet to be determined, but a full list will be ready once we access the tower after snow melt.
- The Centennial Visitor Center will be a focus in April and May. The landscaping has yet to be completed, as well as interior furnishings designed, built, and installed. A large Forest Service boundary sign will be installed on State Highway 130.

Recommendations

Douglas Ranger District

- Continue hazard tree mitigation and slash clean up.
- Complete critical deferred maintenance and clean-up at sites and find additional funding sources to complete this work.
- Continue to work on signing and a sign inventory and plan.

Brush Creek/Hayden and Laramie Districts

- Rehabilitate developed campsites where hazardous trees were removed. Continue hazard tree mitigation and slash clean up.
- Complete critical deferred maintenance and clean-up at sites that have been closed for hazard tree work, and "welcome the public back."
- Continue to work on signing and a sign inventory and plan.
- Educate winter and summer visitors to ensure that limited funds are being spent where they believe we will make the most difference.

Hahns Peak/Bears Ears Ranger District

Although this is not a Routt NF monitoring item, substantial work was completed on the Forest in 2012)

Hazard tree removal in campgrounds, resulting from the mountain pine beetle epidemic, is slowing on HPBE and work has shifted to rehabilitation and restoration.

- The third and final year of seedling plantings was accomplished in campgrounds – 6,580 trees were planted in seven campgrounds.
- Clean-up of slash and other debris left from tree removal/logging was completed in four campgrounds. Only one campground remains closed, but plans are to open by mid-summer 2013 (Granite Campground)
- The Freeman Campground continues to be operated by Moffat County under a Granger/Thye Permit.
- Hahns Peak Lake Campground and Day Use Area was fully operational in 2012 after years of partial and full closure for hazard tree removal and renovations. Work was substantially completed on the wheelchair accessible "Shoreline Trail" in partnership with Colorado Parks and Wildlife, Trout Unlimited, and several donor partners.
- New CXT toilets were installed in four campgrounds.
- Completed NVUM surveys to help to answer the Forest Plan Monitoring question above. Results are pending.
- The Steamboat Ski Area submitted an Amended Master Development Plan for review and USFS acceptance. Master Development Plans are amended periodically to address changing market conditions and recreational needs of ski resort customers. The Forest Supervisor accepted the Amended Master Plan in early 2013. The District worked with the ski area on downhill bike trails, a use allowed under new legislation.

Effects of Recreation Activities

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

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

Brush Creek/Hayden Ranger District

- Completed public involvement activities and a draft decision memo for the Long Park trail stock reroute in the Huston Park Wilderness. The reroute will avoid a wet area and reduce seasonal impacts from hunting-stock use.
- Completed purpose and need and received grant funds for the west-side Snowy Range travel management project.
- Received WY state trail grant funds for OHV patrolling and continued to concentrate on enforcing the travel management rule (no motorized travel more than 300 feet off routes). This measure helped to reduce the spread of dispersed camping along many forest roads.

Douglas Ranger District (Laramie Peak Unit)

- The busy fire season and limited program oversight did not allow for any additional rehabilitation of dispersed recreation sites.

Laramie Ranger District

- Removal of hazard trees from developed recreation sites has limited the time available to address other concerns, such as dispersed campsite rehabilitation.
- In general, implementation of the travel management plan on the District and availability of motor vehicle use maps has helped to reduce the number of new roads being developed.

Hahns Peak/Bears Ears Ranger District

- Illegal off-road and off-trail motorized use continues to affect the physical and biological resources on the District. Closing and rehabilitating these non-system routes is ongoing and relatively successful at reducing resource impacts.
- Roadside clearing of hazard trees has allowed the District to implement the Forest Plan Standard for dispersed campsites and proximity to water (page 1-18 Recreation – Dispersed Recreation, #3).
- An increased presence in the Mount Zirkel Wilderness by seasonal rangers helped to share the Leave No Trace message. They also, monitored and enforced camping closures in heavily-used areas.

Parks Ranger District

- Proliferation of illegal off-road and off-trail motorized use continues to affect the physical and biological resources on the District. Identifying, closing, enforcing, and rehabilitating these non-system routes is an ongoing effort aided by partnerships, seasonal employees, and close work with Forest Law Enforcement Officers.
- After a tremendous, extended effort by many parties, the Grizzly-Helena Bridge was completed and the associated multiple-use trail was re-opened.
- Work continued to move permitted outfitter/guide camps away from hazard tree areas. This task is challenging because alternate sites are often in riparian areas or sites with archaeological resources.

Yampa Ranger District

- Analysis of campsite inventories in the Flat Tops and Sarvis Creek Wilderness areas show improved conditions over the past 20 years.
- The Gore Restoration EIS identifies the closure of poorly located dispersed sites in the proposed action.
- "Leave No Trace" (LNT) ethics are promoted to backcountry users in order to minimize impacts of their use. An ongoing LNT program for elementary school children targets the next generation of recreation users.

Recommendations

Brush Creek/Hayden Ranger District

- Continue to monitor dispersed campsites. Relocate or close dispersed campsites that are causing resource damage.

Douglas Ranger District (Laramie Peak Unit)

- Continue to monitor dispersed campsites. Harden popular dispersed campsite pads to minimize impacts to resources. Relocate or close dispersed campsites that are causing resource damage.
- Continue to work on decommissioning roads and trails that do not align with Forest policies and directives.

Laramie Ranger District

- Continue to provide visitor information in locations that will be useful and friendly, such as the Summit Visitor Center and local Chambers of Commerce.
- Work on cleaning up popular campsites that have been affected by hazard tree removal operations.
- Work with the public affairs office to write more articles of local interest in the newspaper and to coalesce with the public affairs offices at UW, Wyoming Technical Institute, and at the F.E. Warren Air Force Base.

Routt National Forest – all districts

- Continue to monitor off-road motorized use and close roads and trails that were created illegally.

- Continue to monitor dispersed campsites. Harden popular dispersed campsite pads to minimize impacts to resources. Relocate or close dispersed campsites that are causing resource damage.

Effects of Off-Road Vehicles

Legally Required Monitoring Item
Medicine Bow Item Subgoal 2.a. 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

Continued emphasis patrols during key periods (holiday weekends, hunting season) have proven effective in educating the OHV riding public and thereby leveling and sometimes reducing the number of off-roading incidents. Increased violations in 2012 are the result of more intensive effort by law enforcement.

Table 17: Motor Vehicle Violations FY09 – FY12

Based on 36 CFR 261.13, 261.54a, 261.54d, 261.54e, 261.55b, & 261.56	2009		2010		2011		2012	
	MBNF	RNF	MBNF	RNF	MBNF	RNF	MBNF	RNF
Warnings	78	64	119	26	73	9	106	46
Incidents	32	102	27	91	26	47	44	42
Violation tickets	32	13	39	7	18	54	25	32
Total	142	179	185	124	117	110	175	120
MBR Total	**321**		**309**		**227**		**295**	

Brush Creek/Hayden Ranger District

- Continued to work cooperatively with the State of Wyoming for enforcement of OHV regulations on Forest Service roads and ATV trails using state funding.

Douglas Ranger District (Laramie Peak Unit)

- Recreation riders (as opposed to hunters) continue to be a growing user group. This is especially true in the Big Bear Canyon motorized trail area where recreational riders have expanded the trail system well beyond the designated portions. This is a difficult area to get into and requires an OHV to be effective. As a result, no patrolling has occurred in this area, so there has been extensive damage in a boggy aspen stand and several other sensitive areas.
- WGFD wardens continue to be an excellent back-up for patrolling as well as a source for information to help enforce the motor vehicle regulations.

Laramie Ranger District

- Keeping map boxes containing MVUMs full has been part of portals on Pole Mountain, but there are still numerous unsanctioned OHV trail systems.
- Resource damage has been occurring in all locations with illegal use, especially when that use occurs during the wet periods of the spring and late summer.
- The ground-opening effects of the Squirrel Creek Fire south and west of the Medicine Bow Rail Trail meant more opportunities to drive into areas previously obstructed naturally. Signs along the rail corridor helped remind off- road drivers that they had to remain out of the area. This did not stop everyone, but it was mostly effective.
- There are more encroachments into non-motorized areas by motorized vehicles, and newly installed signs have disappeared. There is a need for more weighty barriers to be set in places where tracks indicate encroachment.

Recommendations

Brush Creek/Hayden Ranger District

- Develop ATV routes that would reduce conflicts with other recreation users and prevent resource damage.
- Continue to work with the Wyoming State Trails Program on funding and education plan.

Laramie Ranger District

- Purchase and install signs at portals.
- Develop sign plans for various 'hot spots.'
- Complete and enforce closure of illegal routes.

Douglas Ranger District

- Develop plans to work with the Wyoming State Trail Crew to block off and reclaim areas.
- Develop a recreation management plan for LaBonte Canyon which is the access point for Big Bear Canyon.
- Enforce the Motor Vehicle Use Map with more education outreaches, patrols, and better signage.
- Work with the Wyoming State of Trails Program to better educate the public about OHV Safety.
- Utilize seasonal trail crews to actively patrol trails on foot and via OHV.
- Continue to reduce conflicts between hunters and ATV riders through patrols and have WGFD wardens share information with the Douglas District recreation staff.
- Continue to work with the Wyoming State Trails Program on funding and education plan.

Scenery

Routt Monitoring Item 2-4 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 scenic/visual resources are assessed through field evaluation of Forest Service activities. Landscape restoration projects that were implemented on Dry Lake Campground and Day Use Area, Walton Creek Campground, and Hahns Peak Lake Campground of the Hahns Peak/Bears Ears District were visited during the summer of FY 2012. Dead and dying trees were removed from many developed campgrounds and day use areas on the Routt and Medicine Bow National Forests for several years as part of the forest-wide hazardous tree removal project. The project resulted in the loss of shade and screening trees in many sites as well as the scenic aesthetics of developed areas.

Results/Evaluation

Routt NF

Landscape restoration of developed areas by planting a diversity of tree species was implemented after the completion of forest-wide hazardous tree removal project. Excellent work was done on the tree planting in all three developed areas as many planted trees are well-established and growing. In 10 to 15 years, the new trees should provide shade and screening and enhance the scenic quality of developed areas. The desired landscape character and visual quality would be maintained for new generations of campers and day users.

Medicine Bow NF

Hazardous tree removal within the Wyoming State Highway 130 ROW fence was implemented in the winter of FY 2012. Dead and dying trees were removed along the fence by the logging contractor on the east end of the highway corridor. The combination of the WYDOT ROW fence project and forest-wide hazardous tree removal project created a more open landscape appearance when viewed from the state highway. Clumps of young trees were retained to minimize visual impacts, to provide diversity in age classes, and to meet a Scenic Integrity Objective (SIO) of Moderate. Stumps are noticed in numerous created openings adjacent to the highway when the ground is not covered with snow thus causing some visual impacts. The west end of the state highway fence clearing is scheduled for completion this spring. District fire crews began burning slash piles within the highway corridor this winter; this work will be completed by FY 2014. When the new vegetation is established within created openings, the scenic quality would improve and meet the assigned Moderate SIO in the foreground of the Wyoming State Highway 230 in a decade.

Harvested Land Adequately Restocked

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

Code of Federal Regulation (CFR) 219.27 requires a determination of compliance with the Forest and Rangeland Renewable Resources Planning Act of 1974. The CFR requires that harvested lands be adequately restocked within 5 years after final harvest, as specified in the Routt and Medicine Bow National Forest Plans.

In addition, this monitoring item asks the question:

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

Monitoring Protocol/Data Collected

Annual monitoring reports rely on the FACTS database to list stands and acreages that had final harvest 5 years prior and to identify which 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 based on 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 2007, which should be restocked as of 2012.

Table 18: 2011 Acres not Adequately Stocked

Forest	Final Harvest (acres)	Acres Not Adequately Restocked
	2007	2012
Medicine Bow	138	45
Routt	152	49

Medicine Bow NF

As of 2012, all but 45 of the 138 acres harvested in 2007 were adequately restocked. Of the 45 acres, 7 acres will be scheduled for planting and 38 acres will be re-surveyed

in 2013. Surveys on the 38 acres in 2011 showed small seedlings present. It is anticipated that these acres will naturally meet stocking. Should the 2013 surveys show inadequate stocking then fill-in planting will be considered.

Routt NF

Of the 152 acres harvested in 2007, all but 49 acres were adequately restocked. Of the 49 acres, 10 acres are planned for full planting and 39 acres are planned for fill-in planting.

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

Annual Animal Unit Month (AUM) grazing use and Head Month (HM) grazing use data was collected. Data is displayed for cattle, sheep, and for total livestock.

Results/Evaluation

Routt National Forest

2012 was a year of below-average precipitation. The previous three years were generally above average in precipitation. March was unseasonably warm, and Colorado and Wyoming recorded the hottest June on record; incessant winds seemed to constantly sap soil moisture quickly whenever small showers, or even monsoonal flows, occurred.

Many operators turned out on the on-date with fewer numbers and many had to leave early. A combination of low snowpack, early spring, and an initial hot, dry early summer led to below-average forage production. Some operators chose to take non-use due to this low-forage production. Mid-summer rains prevented more severe impacts to operators. Overall, many cattle and sheep operators were not able to run their permitted numbers. The voluntary reduction in livestock numbers and leaving the Forest early are good examples of proper rangeland vegetation management techniques – reducing livestock commensurate with the level of site-specific forage production and water availability. Cattle and sheep allotments were stocked at only 90% of capacity based on AUM's, mostly because of the dry spring and early summer.

Medicine Bow National Forest

Conditions throughout southeastern Wyoming were generally about the same as for northern Colorado. Summer rains were more scattered and limited; however, amounts were highly variable across the landscape. The spring arrived early and turned into a hot, dry summer; as a result, the seasons were at least somewhat shortened for many operators. Due to the dry conditions, some portions of the Forest had large wildfires. This resulted in the loss of multiple miles of fence.

The Squirrel Creek fire on the southeastern corner of the Snowy Range on the Laramie District burned 9,375 acres. Eight miles of fence were destroyed. The fire burned through numerous low-elevation areas containing cheatgrass populations, which will undoubtedly result in increased populations of that species and perhaps several other species of noxious weeds that will need funding and treatment next summer.

Three project fires on Laramie Peak burned a total of 39,488 National Forest acres, and an overall total of 111,401 acres of all ownerships; this total was slightly over half of all acres in grazing allotments on the Peak. This resulted in the loss of over 80 miles of fence, four spring developments, and siltation of several dams. In addition, the livestock operations for nearly three dozen permittees and landowners were immediately interrupted; several were forced to remove their cattle from the Forest to avoid livestock losses, and forage loss sent many of them home early.

Because of the dry conditions, the amount of grazing use (AUM's) on the Medicine Bow was only about 81% of the permitted level for sheep allotments and only about 86% for cattle allotments.

Table 19: Planned and Actual Livestock Use During 2012*

	Unit of Measure (in thousands)	Permitted Level	2012 Level	Percent of Permitted Level
Routt				
Active Allotments	Allotments	127	120	94%
Sheep Grazing	Head-Months	143.5	121.9	85%
	AUMs	42.7	36.6	86%
Cattle Grazing	Head-Months	31.7	26.2	83%
	AUMs	38.7	36.8	95%
Total Grazing	Head-Months	175.2	148.1	85%
	AUMs	81.4	73.4	90%
Medicine Bow				
Active Allotments		109	102	94%
Sheep Grazing	Head-Months	21.4	22.3	104%
	AUMs	6.4	6.3	98%
Cattle Grazing	Head-Months	52.6	43.7	83%
	AUMs	56.0	48.4	86%
Total Grazing	Head-Months	74.0	66.0	89%
	AUMs	62.4	53.6	86%

*Does not include livestock numbers issued under a term private land permit.

Recommendations

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

Costs

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

This monitoring item asks 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

Forest costs are tracked for the Medicine Bow and Routt NFs and Thunder Basin National Grassland as one. The following table presents 2012 expenditures.

Table 20: 2012 Expenditures for the MBR and TBNG

Program	Expenditures
Bark Beetle Mitigation	$7,385,300
Recreation Management	$2,108,759
General Administration	$4,074,791
Road/Trail Maintenance & Construction	$1,979,264
Mineral and Mining Management	$902,459
Fire Preparedness	$1,950,706
Fire Suppression	$14,493,905
Timber & Vegetation Management	$2,334,626
Fleet/Vehicles/Fuel/Maintenance	$1,811,637
Facilities Maintenance and Construction	$539,885
Lands and Realty	$404,720
Wildlife & Botany Management	$944,112
Range Administration	$1,076,865
Planning, Inventory, and Monitoring	$887,555
Wildland Fuels Reductions	$593,002
Cost Recovery (permit processing fees)	$37,921
TOTAL	$41,525,507

Comparison of Estimated and Actual Outputs and Services

Legally Required Monitoring Item
Medicine Bow Objective 2.c.1 — Measurement Frequency: Annual
Routt Monitoring Item 3-1 — 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?

Outputs, services, and accomplishments are reported in detail in the MBRTB Annual Accomplishment Report, available online at

http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5415036.pdf or from the forest web site under "Quick Links" at http://www.fs.usda.gov/main/mbr/home.

The Forest Service no longer tracks outputs and services as presented in Table S-2 of the Forest Plans. However, outputs are reported in monitoring items as appropriate and feasible, such as in the monitoring items for water quality.

Goal 3: Scientific and Technical Assistance

Partnerships

Legally Required Monitoring Item
Routt Monitoring Item 2-5 Reporting Period: Annual

This monitoring item asks the question:

How are partnerships contributing to maintaining or enhancing resource opportunities?

Partnerships

These are just a few examples of the many partnerships established with the Forest or individual districts.

- The MBRTB has a long-standing relationship with the City of Cheyenne's Board of Public Utilities, which is permitted to operate three reservoirs and associated water pipelines. In addition to the City being a cooperative permit holder, they have contributed dollars to fisheries research projects on streams associated with their permit and in-kind contributions to pine beetle hazard tree mitigation.
- Since 2007, the MBRTB has been implementing travel management planning in the Snowy Range to improve watersheds and reduce resource damage. With extensive public involvement and help from partners, roads/trails identified as unnecessary have been decommissioned, many of which were user-created. This totals 337 miles of roads/trails, 202 stream crossings restored, 169 wetlands restored/protected, and 107,840 acres of wildlife habitat improved.
- IN 2012, the forests solicited and awarded a 10-year Long Term Stewardship Contract to Confluence Energy of Kremmling, CO for non-traditional/biomass products.
- For the past several years the MBR has partnered with several groups to complete hazard tree mitigation work in recreation sites across the unit, including campgrounds, picnic areas, trailheads, and trails. Crews included the Rocky Mountain Youth Corps, Wyoming Conservation Corps, Colorado Department of Corrections and the "Green Veterans." These programs provided dozens of young men and women the opportunity to work in our natural environment while learning more about our mission and building job skills. The MBR benefited from multiple tours from each of these crews across each Ranger District.
- The MBR has developed a partnership with Wyoming Natural Diversity Database (WYNDD) and Colorado Natural Heritage Program to monitor amphibians across the entire unit. WYNDD also completed a rare wetland plant inventory on Pole Mountain in 2012, for which the FS contributed $11,534 and WYNDD contributed $5,564.

- Formal partnerships with Colorado Corrections Industries, Historicorps, Montana Conservation Corps, Rocky Mountain Youth Corps, University of Wyoming Haub School of the Environment and Natural Resources, Wyoming Conservation Corps, and Yampatika yielded more than 21,300 hours of volunteer work, worth an estimated $465,900.

Interpretation and Watchable Wildlife

Medicine Bow Objective 3.a.3 Reporting Period: Annual

This monitoring item asks the questions:

To what extent have watchable wildlife activities been developed?

Does the Forest provide interpretive experiences that describe ecosystem functions and the Forest Service Mission?

Monitoring Protocol/Data Collected:

Annually, document the number of watchable wildlife and plant sites, the development and interpretation activities at existing sites, NatureWatch, and interpretive programs and experiences that provide environmental interpretation and awareness.

Terrestrial Wildlife

Results/Evaluation

The MBR sponsored several programs and projects in 2012 with the help of forest personnel and many partnerships. Programs were distributed through schools districts, county fairs, and special events. Programs included Children's Forest: Environmental Literacy, Project Learning Tree, Earth Day and many more.

Conclusion

- The MBR has a strong and successful environmental educational program.

Recommendations

- Continue to work with partners to deliver environmental educational programs.

Plants

Results/Evaluation

In 2012, the Laramie Ranger District initiated planning and design of a new educational pollinator garden in Centennial, WY. Funding was obtained through a partnership with the Wyoming Office of Tourism and the Laramie Ranger District. The pollinator garden will feature educational panels, native flowers, and native pollinator habitat. The education panels were created in 2012 and the landscaping and garden installation is expected to be completed in 2013. Future Celebrating Wildflowers outreach events will take place at the new garden site.

Parkview Mountain Area (Parks RD) was added to the Celebrating Wildflowers viewing sites. There are now five designated wildflower viewing sites on the Medicine Bow – Routt National Forest. Information on these five sites can be found at: http://www.fs.fed.us/wildflowers/viewing/forest.php?areaforest=Medicine+Bow-Routt.

In 2012, multiple Celebrating Wildflowers interpretive presentations were given in local Wyoming and Colorado communities. In Wyoming, approximately 85 adults and 110 children were reached. Topics included native plant gardening, native pollinators, the science of pollination, the ecological importance of pollinator conservation, and raising wild bees.

Celebrating Wildflowers outreach activities:

- Elementary School Pollinator Education - The Routt NF Botany Program conducted six programs for elementary school children about the different types of pollinators and their ecological importance. Walden, CO.
- Jackson County Outdoor Education Network (JCOEN) JCOEN is a collaborative effort between USFS, FWS, BLM, CSU-Extension, FFA, and Owl Mountain Partnership and is aimed at networking local resources pertaining to education. The Routt NF Botany Program helps develop botany educational materials that are presented at JCOEN events throughout the school year. Jackson County, CO.
- Elementary School Celebrating Wildflowers Education - The Routt NF conducted three Celebrating Wildflowers interpretive programs for elementary school children. Walden, CO.
- Laramie Local Foods Gathering "Utilizing Native Bees for Home Garden Pollination" presentation (28 adults reached) and booth (15 adults reached). Laramie, WY.
- Garden Workshop: Laramie Rivers Conservation District "Native Bee Workshop" presentation (25 adults reached). Laramie, WY.
- Boy Scout Bumble Bee Brigade: University of Wyoming "See Like a Bumblebee" presentations (100 children and 15 adults reached). Laramie, WY
- Upward Bound Natural Resources/Forestry Class: University of Wyoming "The Science of Pollination" presentation and activity (10 children reached). Laramie, WY.

Recommendations

- Continue Celebrating Wildflowers outreach activities forest-wide.

Actions taken on FY 11 Recommendations:

- Designate additional Celebrating Wildflowers wildflower viewing sites on the Routt National Forest and engage in a larger number of Celebrating Wildflowers outreach activities forest-wide.
    - FY12 Action: Multiple Celebrating Wildflower outreach activities were conducted in Wyoming and one new Celebrating Wildflower site was designated on the Routt.

Knowledge Base

Medicine Bow Objective 3.b.1 Reporting Period: Annual

This monitoring item asks the question:

How can we build technical knowledge bases across all land ownerships?

Monitoring Protocol/Data Collected:

Annually, document methods used to increase knowledge and share information between the Forest Service and other agencies across all land ownerships.

Plants

Results/Evaluation

Rare plant surveys (began in 2004 and following various scientific protocols) have been completed for NEPA purposes on projects covering between 2/3 and 3/4 of the MBNF. At this time, a majority of the available survey data collected by forest employees has been entered in the NRIS threatened, endangered and sensitive species (TES) database. In 2012, this effort was continued by initiating a data merge with Wyoming Natural Diversity Database that will import the USFS NRIS TES database into the State of Wyoming rare plant database. Exports from this database are available upon request to cooperating state and federal agencies and the general public.

In 2012, several reports on the flora of the MBRTB were written by cooperating agencies. WYNDD completed the first draft of a publication detailing a rare wetland plant and fen inventory on the Pole Mountain unit of the Laramie Ranger District (expected 2013) and researchers at the University published a publication detailing a floristic inventory of the MBNF (Lukas *et al*. 2012).

The RNF botany program cooperates with Colorado Natural Heritage Program (CNHP) to record data on Colorado rare plants. Through a challenge cost-share agreement in the MBRNF Hydrology Program, the botany program also worked with CNHP to compare current riparian conditions in the Elkhead Watershed (identified as class 3 watershed in the 2011 Watershed Condition Classification) to the conditions recorded in the 1990's. The full report can be found at: http://www.cnhp.colostate.edu/download/documents/2012/Routt_NF_Riparian_Revisit_and_Condition_Assessment_-_FINAL.pdf.

The RNF Botany, Hydrology and Soils Programs are collaborating with the Rocky Mountain Research Station on a comparative study of different burn pile rehabilitation methods (no treatment vs. scarification vs. scarification and seeding). The study compares no treatment vs. scarification vs. planting with local genetic native seed material vs. scarification and planting with local genetic seed material. Results are anticipated in 2014 and may benefit other bark-beetle forests, as well as help guide future vegetation management treatments with respect to slash pile development and management.

Conclusions

Agency-wide NRIS database and protocols for data collection have standardized field methods and created a source for botanical information accessible to all agency employees and partners. This improves botany data collection and dissemination across the forest. Additionally, cooperative efforts between the MBR and other federal agencies and academic institutions further increase the quality, quantity, and diversity of the botanical information collected on the forest and contributes to the body of knowledge used to make management decisions.

Recommendations

The MBR should continue to use standardized protocols and databases and continue to support and fund cooperative efforts for data collection, data merge, and collaborative research with outside agencies.

Actions Taken On FY11 Recommendations

- FY12 Action: A data merge with Wyoming Natural Diversity Database imported the entire USFS NRIS TES database into the state of Wyoming rare plant database. Exports from this database are available upon request to cooperating state and federal agencies and the general public. Several reports on the flora of the MBRTB were written by cooperating agencies such as Wyoming Natural Diversity Database and students and faculty at the University of Wyoming. See the Knowledge Base section for details.

Range

Results/Evaluation

On average, approximately 60-65 percent of the active allotment acres are inspected annually (about a million and a half acres). In 2012, 407,025 acres on the Routt and 576,324 acres on the Medicine Bow were administered to standard, for a total of 983,349 acres. (An additional 124,201 acres were administered on the Grasslands, for a grand total of 1,107,550 acres). Generally, at least 600,000 acres also have site-specific short-term or long-term monitoring data collected for active allotments (including the Grasslands).

Data are collected in accordance with standard monitoring protocols detailed in the Interagency Technical Guides for *Utilization Studies and Residual Measurements* and for *Sampling Vegetation Attributes*. Several of the more commonly-used methods are found in the *R-2 Rangeland Analysis and Management Training Guide*. Monitoring results are annually recorded for individual pastures and allotments. Results are located either in the appropriate database or are located in individual allotment file folders.

Goal 4: 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?

In FY 12, 784 miles of roads suitable for passenger cars received maintenance. Road improvement projects were also conducted on 8.4 miles of road to help reduce deferred maintenance needs.

Current budgets are insufficient to meet annual maintenance targets or to reduce the backlog of deferred maintenance needed to bring forest roads up to standard.

Upcoming deadlines to meet sign reflectivity requirements will increase the burden on construction and maintenance funding further reducing the amount of funds available for road surface, drainage, and vegetation maintenance.

In FY12 hazard tree removal was accomplished on 116 miles of forest roads. Hazardous trees along roads can present a critical health and safety concern for public and employee travel.

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?

In FY 12, 102 miles of high clearance roads received maintenance. The normal maintenance cycle for these roads is every five years. Current budgets are insufficient to meet annual maintenance targets or to reduce the backlog of deferred maintenance needed to bring forest high clearance roads up to standard.

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?

In FY 12, a little more than 22 miles of non-system roads were decommissioned on the MBNF. The Routt National Forest decommissioned 0.0 miles. Decommissioning was accomplished with Legacy Road and Trails funding and Integrated Resource Service Contract funds (Stewardship Contract).

Table 21: FY12 Road-related Ouputs vs. Outputs Projected in the Forest Plans[3]

Resource Program Activity/Outcome	Units	Forest Plan Desired Condition Level	Forest Plan Experienced Budget Level	FY12 Level*
Medicine Bow NF				
*Roads Maintained to National Standards	Miles	2,291	1,250	437
Road Construction	Miles/yr	4.1	2.0	1.5
Road Reconstruction	Miles/yr	9.2	4.0	1.0

[3] 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.

Resource Program Activity/Outcome	Units	Forest Plan Desired Condition Level	Forest Plan Experienced Budget Level	FY12 Level*
Roads Decommissioned System and Non-System	Miles/yr	27	18	22.4
Routt NF				
*Roads Maintained	Miles	1,500	1,448	449
Road Construction	Miles/yr	16.2	9.3	1.5
Road Reconstruction	Miles/yr	9.8	5.2	2.6
Road Obliteration	Miles/yr	18.4	18.4	0

*The current accomplishment reporting standards per Work Plan are; Miles of Passenger Car System Roads Maintained, defined as; *miles of road on which at least one physical maintenance activity is performed to applicable standards for that activity during the fiscal year. Maintenance includes all activities not meeting the definition of Improvement*. The current standards were used to compile the numbers in this column.

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. In FY 12, the funds available regionally for CIP projects were reduced drastically from an initial budget of $11,627,000 to $4,948,000. The Regional Leadership Team decided to fully fund the Regional Major Project List and make up all of the budget reduction by reducing funds transferred to the Forest. In FY 12, the MBRTB received zero CIP funds, and the Forest. is not scheduled to receive any CIP funds until FY 15 or later.

No new facility construction was started in FY 12 using appropriated funds. The Forest received a $2,800,000 Scenic Byway grant from the State of Wyoming for improvements along the Snowy Range Scenic Byway (Wyoming Highway 230). Improvement to the Snowy Range Scenic byway include demolishing the original Centennial Visitor Center and replacing it with a new building and parking lot; asphalt paving 0.6 miles of the Sand Lake road to eliminate gravel washboard; asphalt paving the Mirror Lake to Lake Marie trail to make it wheelchair accessible; and site improvements at the Brush Creek Visitor Center including construction of a new picnic shelter. All of the above projects were completed in FY 12 with the exception of the Centennial Visitor Center, which was completed in December, 2012.

The Walden Bunkhouse CIP project on the Parks RD, which was awarded in FY10, was completed in December, 2012.

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 In FY 12, the Forest building inventory included 358 recreational and administrative buildings, 66% of which were maintained to good or fair condition. Dams, water systems, and waste water systems were in a similar condition; however, due to lack of CMFC funding at the Forest level, no dams, water systems or waste water condition surveys were completed in FY 12.

Declining budgets require the Forest to assess and prioritize facility needs and then focus limited funds on our highest priorities. At the end of FY 12, the backlog of deferred maintenance on all facility classes, including buildings ($4.6 million), bridges ($0.7 million), dams ($1.5 million), drinking water systems and wastewater systems ($0.5 million) was nearly $7.3 million. In order to balance the constrained budget and deferred maintenance backlog, the Forest is aggressively pursuing a facility disposal program. Progress is slow, but small steps are made each year.

In FY 12, two Forest facilities in Walden, Colorado were disposed of by public auction under Pilot Conveyance authority. Additionally, all Forest real property records in the NFS corporate database, I-Web, were reviewed and validated 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:

The MBR reviewed opportunities to implement national recovery plans and described actions taken in support of a National Recovery Plan.

Plants

Results/Evaluation

To date, there are no threatened or endangered plant species or suitable habitat documented on the MBR. Three plant species occur in the vicinity or downstream of the MBR, and impacts to these species are considered during the NEPA process. These species are Ute ladies' tresses (*Spiranthes diluvialis,* threatened), western prairie

fringed orchid (*Platanthera praeclara,* threatened), and blowout penstemon (*Penstemon haydenii,* endangered).

Ute Ladies' Tresses

Ute ladies' tresses occurs in perennially and seasonally flooded low gradient landforms typically associated with water bodies and shallow aquifers in the plains, foothills, and low valleys of Wyoming, Colorado, Idaho, Montana, Nebraska, Nevada, Utah, and Washington. No suitable habitat has been located on the MBR during field surveys and no undiscovered suitable habitat is thought to exist due to vegetation, elevation, and climatic constraints on this species. No projects initiated or implemented in 2012 were expected to have adverse or beneficial impacts on Ute ladies' tresses and determinations of "no effect" were made during environmental impact analyses. No surveys for Ute ladies' tresses were conducted or considered necessary on the MBR in 2012.

Western Prairie Fringed Orchid

Upstream water depletions to the Platte River watershed have been found to negatively impact the habitat of western prairie fringed orchid, found downstream in calcareous prairies and sedge meadows near the Platte River in Nebraska (USFWS 2011b). No projects initiated or implemented on the MBR in 2012 were determined to cause water depletions to the Platte River. Determinations of "no effect" were made for western prairie fringed orchid during environmental impact analyses.

Blowout Penstemon

Blowout penstemon occurs on the actively eroding surfaces of sand dunes and sandy blowouts below 8,000 feet in elevation (USFWS 2011a). To date no individuals, populations or suitable habitat have been discovered on the Medicine Bow National Forest, but all projects continue to include evaluations and/or field surveys for this species. No projects initiated or implemented on the MBR in 2012 were expected to have adverse or beneficial effects on this species or suitable habitat. Determinations of "no effect" were made for blowout penstemon during environmental impact analyses.

Conclusion

All actions were in compliance with the draft recovery plan for Ute ladies' tresses (USFWS 1995), the Platte River Recovery Implementation Program (USFWS 2006), and the blowout penstemon recovery plan (USFWS 1992).

Recommendations

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

Actions Taken On FY11 Recommendations

- FY12 Action: The list of Threatened, Endangered and Proposed species in the vicinity of the MBR was re-evaluated in 2012. It was determined that no potential habitat exists on the MBR for any plants species listed under ESA and no surveys were conducted. See the Endangered Species Act (plants) section for more details.

Terrestrial Wildlife

Results/Evaluation

Although there is a recovery outline for Canada lynx (Threatened status) but no developed recovery plan, the MBR is meeting objectives in the recovery outline. This includes incorporation of management direction for lynx into the Forest Plan through the incorporation of the Southern Rockies Lynx Amendment (SRLA). The SRLA includes guidance for maintaining and improving lynx habitat, an objective of the recovery outline.

There is no recovery plan for the Preble's Meadow Jumping Mouse (Threatened status).

Conclusions

Although there are no national recovery plans for Canada lynx or the Preble's Meadow Jumping Mouse, the MBR does follow direction as outlined in the SRLA. The MBR also consults with the U.S. Fish and Wildlife Service on the lynx and Preble's jumping mouse.

Recommendation

- Continue to consult with the U.S. Fish and Wildlife Service.
- Implement recovery plans when they are developed.

Implementation of Standards and Guidelines

Legally Required 36 CFR 219.12 (k) — Frequency of Measurement: Annual

Routt Monitoring Item 2 — 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

Several implementation monitoring efforts occur each year on the MBR. Many are documented as part of other monitoring items, but each year interdisciplinary teams from the forest and districts visit projects specifically to monitor implementation of Forest Plan standards and guidelines and project-specific design features. The following sections describe the 2012 Forest IDT field trip and the Laramie RD, the BCH, and the Parks RD IDT field trips.

2012 Forest Monitoring Team Field Trip

The Forest IDT visited the Squirrel Creek Fire area on the Laramie Ranger District (~11,000 acres) and the Arapaho Fire on the Douglas Ranger District (~98,000 acres), with cooperators in attendance, as their monitoring trip. Objectives were to review

the fires, gain a better understanding of the Burned Area Emergency Response (BAER) process, and discuss site-specific BAER recommendations.

SQUIRREL CREEK BAER DISCUSSION

STOP 1: Fox Creek Road by hiking trail

BAER Process: The BAER process is used to evaluate post-fire threats to critical values, magnitude or risk of consequences, and to identify recommendations for area rehabilitation. The skills of the BAER Team are variable and are based on the complexity of the fire. At a minimum, teams typically include a soil scientist, hydrologist, and a heritage resource specialist. The BAER process also includes components for engaging with cooperators (e.g., NRCS, WGFD, and Conservation Districts). BAER is not used for long-term rehabilitation; it is used primarily to focus on immediate threats to resources. BAER was also not designed to cover fire suppression rehabilitation (hand lines, dozers, etc.).

Vegetation: The Squirrel Creek fire burned forested and un-forested mountain slopes. Un-forested areas (grasslands and sagebrush) burned predominantly at a low intensity/severity while forested areas along the north facing slopes and select forested patches along the east side and top of Sheep Mountain burned with moderate intensity.
Hydrology: The Squirrel Creek fire burned within the City of Laramie's public water supply watershed; this was initially identified as a concern. Following field reconnaissance, however, the BAER hydrologist determined that post-fire activities did not result in a lot of ash, erosion, or increased turbidity to nearby streams. The area had received rain, but there was very little soil/detritus movement. Consequently, Laramie's water supply was not identified as a critical value at risk.
Soils: The area contains shallow soils with a lot of rock. There weren't issues with run-off or soil movement; thus, soils were not identified as a critical threat.
Invasive Species: The majority of the burned area occurred in Crucial Deer and Elk Winter Range and in the Sheep Mountain Wildlife Area and created a high probability of expansion of invasive plants. Cheatgrass is a primary threat and could create large-scale and possibly irreversible degradation to the landscape appearance and ecosystem function. Probable areas of concentration include road and trail corridors and other high-use or disturbed areas. The BAER Risk Assessment for this critical value is 'very high' since the probability of population expansion is 'very likely.'

Invasive plant species cannot be treated aerially since the Forest has not yet completed the Invasive Species Environmental Impact Statement. Completing the work 'from the ground' will be a daunting task due to topography and lack of water. Given these limitations, as well as funding constraints, the BAER Team prioritized treatment areas and will be focusing efforts along roads, in riparian areas, and in meadows. Treatments must be accomplished within one year; the Forest will treat areas this fall and next spring during green-up.

Monitoring: Monitoring is an important component of the BAER process; consequently, test sites will be established to ensure that treatments are effective.

STOP 2: Fox Creek Road and 311.A
The group stopped here to look at issues with yellow toadflax. Post-fire expansions of this species are typical due to the species ability to quickly re-sprout from unburned underground structures, flower, and wind disperse seeds throughout the recently burned and barren landscape. This species is tricky to treat because pulling actually exacerbates the problem and spraying has limited success. Mechanical treatments are recommended.

Wrap-up Discussion: The only critical value identified was invasive species. For the most part, the fire did not burn real hot or for long periods of time in a specific location. In terms of soil, there is little change from pre-burn conditions. Most of the vegetation burned in low severity burn areas still has roots intact and there is good water infiltration. Consequently, recovery is expected to be fast.

ARAPAHO FIRE BAER DISCUSSION
BAER Team: Most of the recommendations from the BAER report culminated from drive-arounds and field observations. The Team also used remote sensing (before and after satellite imagery) to help determine the burn pattern.

Hydrology: No threats to municipal water supplies were identified.
Soils: Most of the soils are granitic and are not well-developed due to a lack of organic matter to bind materials together. Soils and vegetation are not very productive due to a lack of water. However, a significant reduction in soil productivity is not anticipated.
Invasive Species: Dalmatian toad flax is prevalent on Laramie Peak, Hounds Tongue is on most roads, and Canada thistle can be found throughout the burned area. Work was also completed to determine overlap between invasive species and wildlife concerns. There are concerns with Preble's Meadow Jumping Mouse in some riparian areas that are experiencing noxious weed infestations. The recommendation was to 'weed and seed' in these areas. Total treatment is as follows: 900 acres of regular noxious weed treatments and 325 acres of 'weed and seed' Preble's treatments. Domestic livestock grazing is also recommended to be excluded for no less than one year and no more than three years to allow for the best vegetative recovery.
Fisheries: The Horny Head Chub, a State of Wyoming Species of Concern, is located in the North Laramie River downstream of the fire. There was a huge flush of ash into the river post fire. This will be hard to mitigate. Surveys will need to be conducted next year to determine the extent of impact to the species.
Roads/Trails: There is a fairly large threat of increased run-off/sedimentation that could damage infrastructure (culverts, roads, trails, etc.). Almost every road/trail was impacted in some way by the fire. Recommended treatments include conducting storm patrols (culvert clean-out), adding more culverts, increasing armoring at some culverts, and replacing some culverts along 38+ miles of roads/trails.
Heritage Resources: There was some discussion about impacts to a critical heritage site and whether or not the resource was adequately addressed in the BAER Report. The status of this site should be verified.

Recommendations:

- Check the status of one critical heritage site (Amanda and Kolleen)

Douglas Ranger District Project Monitoring

Elkhorn Road Decommissioning /Travel Management

Project objectives included closing the road to reduce resource damage.

Forest Plan Standard and Guidelines (S&Gs) and design criteria were incorporated into the decision. These were incorporated into project design and implemented on the ground.

Recommendations:

- Leave the fence in place until the old road has disappeared.
- Possibly plant native sage brush in the middle of the road.
- Possible re-seeding in the bare spots on the old road.

Laramie Ranger District

Happy Jack Endurance Ride – Pole Mountain

Background

The Happy Jack Endurance Ride has been permitted on the LRD since 2001 and is a two-day series of endurance horse rides with 10, 25, and 50 mile loops. The event typically takes place the second weekend of August with approximately 100 participants in the three races and 30 spectators.

The monitoring group stopped at (1) the base of operations to determine whether or not project implementation met the intent of the Decision Memo, Special-use Permit, and Operating Plan in this area and (2) the Ft. Francis E. Warren Military Training and Maneuver Reservation historical site to evaluate if participants remained on the trail and avoid historical resources.

Stop 1: Base of operations. Kassidy Kern provides background on the endurance ride.

Stop 2: Remains of the dining hall at the military historical site. Participants rode alongside these stone walls in 2012. The route will likely be altered for a new 5-year permit.

Recommendations:

- Set a limit on the number of participants, based on the size of base camp and the condition of point-crossings along routes. Enforcement may be a challenge since the permittee does not have exclusive use of the area. However, the permittee would be responsible for limiting the number of official participants. The group suggests establishing a participant limit before the permittee approaches or exceeds the proposed limit.
- Continue use of the base of operations area in order to limit impacts to other nearby areas. Consider putting boundaries on the base of operations to limit site expansion.
- Change the route so that the endurance ride does not cross through the historical site.
- Establish a re-route before winter so that specialists can complete analyses this winter before issuing new permit. A distant 2-track road that the monitoring group observed is outside of historic site and may be a reasonable re-route.

Pole Mountain Improvements Spring Development

Background

This project was implemented to improve habitat for Preble's meadow jumping mouse (*Zapus hudsonicus*) and increase water quality in the Pole Mountain Unit. This project involves rangeland improvements including installation of 4 new water developments, repair/refurbishment of 2 existing developments, and hardening of 2 stream crossings used by livestock and recreation groups. Riparian areas are the primary water source for livestock in these allotments and the development/repair of additional water sources will increase livestock distribution throughout the allotment and improve riparian conditions. The IDT visited two spring refurbishment sites at Green Mountain.

Stop 1: Green Mountain 2-1 Refurbishment. Water tank with fence to keep large animals out. Equipped with escape ramp for small animals that may enter water.

Stop 1: Green Mountain 2-1 Refurbishment. The water source and a large area surrounding it will be protected from grazing by the new fence. The original fence (collapsed near photo center) only protected the spring source.

Are the standards, guidelines, and design criteria effective?

So far, they appear to be effective. Sites will be monitored over time to check effectiveness of dispersing cows, moving cows out of riparian areas, and allowing riparian areas to recover.

Recommendations:

- Continue to monitor sites over time for effectiveness.
- Try out solar pump to see if tanks can be located further from the water supply.

Parks Ranger District

North Park Progeny Maintenance Project

The Decision Memo for this project authorized: Fence Repair, inventory, thinning, and pile burning.

Inventory and thinning have been completed. Additional thinning (follow-up treatments) will be done once a thinning protocol for the progeny trees has been created by the Regional Geneticist. Repair of the fence surrounding the site has begun and will be completed by the end of the year. There was a considerable number of volunteer and mistletoe infected trees within the project site that would have left too much residue on site with lop and scatter. No pile burning occurred but machinery was used to chip trees cut within the progeny site. After consultation with the Botanist and Forester it was decided to chip on site to a depth of less than three inches for disposal.

Recommendations

- Establishing long-term monitoring plots in the chip piles could yield useful insights for maximum/minimum chip depths on other projects.
- Monitoring members liked the idea of the districts having these sites, and they may help build out future forests.

Vohs Cabin Rec. Residence Removal & Restoration

Objectives of Review

To evaluate whether or not: a) the requirements for the termination of the special use permit were completed properly; b) project implementation complies with Forest Plan Standards and Guidelines, especially for protection of soil, water resources; and c) project design criteria are effective.

Heritage specific: The proposed project was determined to have an adverse effect on the Vohs Cabin site (5JA.1731). As a result, a Memorandum of Agreement (MOA) was created between the FS and the State Historic Preservation Office (SHPO) in order to mitigate the adverse effects to the site. In the MOA it was agreed that the FS would perform Level II Documentation of the site. This entailed an update of any existing cultural resource forms to reflect the current conditions and known information regarding the site, production of detailed blueprints or building plans on archival quality material, and detailed photographic documentation using traditional archival standards and photographic materials. The SHPO concurred that the Level II Documentation was adequate and that the Vohs Cabin Recreation Residence Removal & Restoration Project could proceed as planned in August 2011.

Are S&Gs and Design Criteria implemented on the ground?

Field discussions with the monitoring review team revealed that many of the activities were not completed and most of the completed activities were not done according to the S&Gs and design criteria. Currently efforts are underway to remedy the situation.

Recommendations

- A follow-up letter with a list of requirements to meet resource needs, S&Gs, and termination conditions of the special use permit needs to be sent to the permit holder. *Paula Guenther, Recreation Program Manager, met with Justin*

Sollenbarger, Permittee's Agent at the site on 09/25/12 for subsequent resolution of issues described above.

- A violation notice may be appropriate for the trees cut in the riparian area. Three of them are hung up creating a safety hazard and the others need to be lopped down. *The hung up trees were cut down, bucked, lopped and stacked to block access to the spring box by agreement between Paula Guenther and the Permittee's Agent on 9/25/2012.*
- Follow up with this project in FY13. This site should be revisited as part of the District Monitoring Program to see if any improvements have been made as a result of the FY12 Monitoring findings.
- Stones within the burn piles that are above ground should be removed and scattered before burning to prevent blackened stones that don't blend with the natural ground cover. The second pile that was burned still have some unburned materials lying around the edge and these left over materials should be thrown in the bigger pile that will burned in the winter by FS crew. The District Ranger has given permission for the concrete and stones to be buried in the old foundation of the cabin. The problem from the resource specialists' point of view is that there is still a considerable amount of concrete/stone above ground that will not be buried.
- The buildings that comprised the site have been removed and the site no longer has integrity. However, the cultural site forms(s) should be updated to reflect the current conditions (i.e., the cabins are no longer present).

Hahns Peak-Bear's Ears Ranger District

Storm Peak Lab Remodel

Objectives of Review

To evaluate whether or not: a) project implementation complies with Forest Plan Standards and Guidelines, especially for protection of Ski Based Resorts including the Visuals and Facilities Guideline; and b) project design criteria are effective.

Forest-wide & Management Area Standards and Guidelines

Visuals: The site is located within MA 8.22 Ski Based Resorts: Existing/Potential and the visual quality objectives are to meet the adopted visual quality objective of modification. Facilities: Design and construct structures to blend and harmonize with the natural features of the area.

Background

The Storm Peak Lab is permitted as a natural resource and environmental monitoring communication site. The site is located on the west summit of Mt. Werner, within the Steamboat Ski Area boundary, and approximately 30 feet west of the Morningside chairlift top terminal.

A decision was signed by Jamie Kingsbury to allow Desert Research Institute to remodel the Storm Peak Lab as proposed in plans developed by the Collaborative Design Studio, stamped on 03/23/2011, and submitted by the Desert Research Institute. The remodel project enclosed two sections of exterior decking within the existing footprint of the building to be integrated as part of the interior building space. The garage area was converted to a new guest instrument laboratory. The

decking on the west side of the building beyond the main footprint will remain. The barn shed on the roof deck was removed and a 12’ x 34’ x 10’4” (ht) second level was added in its place.

Are the S&Gs and Design Criteria Effective?

Yes, they were effective for the building complies with ADA standards. All construction staging was confined to pre-existing disturbed areas. Holder has furnished as-built plans to the Forest Service.

Brush Creek Hayden Ranger District

East Fork Encampment River Weir Removal

Background:

The weir, constructed for research purposes in the late 1960’s, blocked juvenile and adult fish from moving up the East Fork and may have prevented amphibian migrations along the riparian corridor. The Forest Service partnered with Trout Unlimited, Wyoming Wildlife and Natural Resources Trust, Wyoming Game and Fish Department, Medicine-Bow/Routt Resource Advisory Committee, and the Embrace-a-Stream Program to accomplish the project. Long-term benefits include improved aquatic habitat for fish and amphibians, improved watershed condition, and increased aesthetic quality of the East Fork Encampment River.

The monitoring group stopped at (1) the access route cut through the forest for equipment, (2) a revegetation site at the base of the access route downstream of the

weir site, and (3) the weir removal site to determine whether or not project implementation met the intent of the decision.

Are standards, guidelines, and design criteria implemented on the ground?

- The access route was cut through the IRA as described in the decision. However, slash is over 24", the access route was not returned to a natural state, and crews left excess vegetation on site rather than burning it. Logs were left and slash left in place on purpose to deter ATVS, which commonly use cleared areas like this as trails. Without the high slash and consistent coverage, it's likely that ATVs would follow the access route all the way to the stream

Access route for East Fork Encampment River weir removal.

- Willows were planted along streambanks with about 1-2 feet of stem above ground and 6-12 inches below. Most reviewers anticipate that revegetation efforts will be successful along stream channel.

Willow plantings downstream of EFE weir removal.

- Workers dewatered the channel for in-stream channel reconstruction by rerouting the river. The dewatering plan was the most effective that Gloss

(hydrologist) has seen. There was very little increase in turbidity, which is unusual for in-stream projects.

Erosion control at weir removal site.

Are standards, guidelines, and decision criteria effective?

- Revegetation is better than expected after 1 year. Upstream of the weir, 14 of 20 willow stems were alive.
- Trout unlimited has reported brown trout moving back upstream beyond the old weir. The have a monitoring plan in place.
- Trade-offs made for the access route were probably the right ones. In the end, we removed the weir and improved the stream channel. Although not all decision criteria were adhered to, we left the access route in a condition that most people will never notice and never appreciate, and that we hope will not be used as a motorized trail.

Did the project meet the intent of the decision?

Yes. The weir was removed and we achieved aquatic organism passage and channel stability.

Forest-wide Hazard Tree Removal Project, Burn Pile Rehabilitation:

Background

Burn piles and burn pile rehab effectively removed slash as a visual detriment and mitigated fuels. Roadside hazard trees along Forest Road 550 were cut in 2010, piled, and left to set for one year. All the piles along FR 550 were burned in one day in fall 2011. Crews used luma gel bags for lighting--hardly any drip torch was used. Piles burned well, and there was no re-piling along FR 550. The burn pile areas were scarified in June/July 2012. The dozer with a brush rake was a great tool for piling and scarifying. Fuels funded the dozer and operator for 20 days for burn piles along FR 550 and Hwy 70 at a cost of ~$50/acre.

The review team made five stops to inspect the burn pile areas along FR 550.

Are standards, guidelines, and design criteria implemented on the ground?

- Yes. Reviewers agreed that burning and raking is a good final step for the hazard tree removal.
- Will need to watch for thistle and weeds over the next couple of years.

Stop 1: Burn pile rehab along FR 550. Slash and scarification look good.

Stop 2: Burn pile rehab along FR 550. Recommend more slash on surface. Scarification looks good.

Are standards, guidelines, and decision criteria effective?

Standards, guidelines, and design criteria related to piles were effective at removing slash from the roadside, removing roadside fuels, and reducing the visual impact of slash piles. Future monitoring will determine the effectiveness of pile rehabilitation at maintaining soil health and re-vegetating pile areas.

Did the project meet the intent of the decision?

Reviewers agreed that the objectives of burn pile rehabilitation were achieved. The visual impact of burn piles was removed from the roadside, and the slash fuels were consumed. Recommendations below are for refining techniques for pile rehabilitation.

Recommendations:

- Try out and compare the success of different methods for seeding. We may start to be able to answer questions about why sites are not re-vegetating. Comparisons could include:
    - Season—spring or fall, moist or dry,
    - Operational timing—before dozer treatment, directly following dozer treatment, or later in the season, and
    - Methods—mixing or not mixing seed into the soil.
- Revisit language for slash in decisions and contracts. Do we want more slash on site? Is it worth it to require the dozer operator to re-cover the burn area with slash?
- Remain cognizant of placement of piles—soil is disturbed in these areas, so we should remember to keep them out of wetlands and riparian areas.

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Vern Bentley	Fire

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
AFS	American Fisheries Society
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
CAL	Central Analytical Laboratory
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
CNHP	Colorado Natural Heritage Program
COHVCO	Colorado Off Highway Vehicle Coalition
CP&L	Carbon Power & Light
CRCT	Colorado River Cutthroat Trout
CT	Commercial Thin
CWQCD	Colorado Water Quality Control Division
DBH	diameter at breast height
DC	design criterion
DEIS	Draft Environmental Impact Statement
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
HPP	Habitat Partnership Program
HWY	Highway
IDT	Interdisciplinary Team
IMO	Information Management Officer
INFRA	Forest Service Database for Infrastructure
IRA	Inventoried Roadless area

LCCD	Laramie County Conservation District
LE&I	Law Enforcement and Investigations
LEO	Law Enforcement Officer
LNT	Leave No Trace
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
MDN	Mercury Deposition Network
M&E	Monitoring and Evaluation List Colorado)
MIS	Management Indicator Species
MOU	Memorandum of Understanding
MPB	Mountain Pine Beetle
MVUM	Motor Vehicle Use Map
MZW	Mount Zirkel Wilderness
NAPD	National Atmospheric Deposition Program
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
NIMO	National Incident Management Organization
NFRG	Budget Code for Grazing Permit Administration
NFRW	National Forest Recreation Wilderness Funds
NFS	National Forest System
NFSR	National Forest System Road
NFVW	Budget Code for Rangeland Vegetation Management
NOI	Notice of Intent
NPSD	North Park School District
NRCS	Natural Resources Conservation Service
NRIS	National Resource Information System
NTN	National Trend Network
NVUM	National Visitor Use Monitoring
OGC	Office of General Council
OHV	Off-Highway Vehicle
PAO	Public Affairs Officer
PCR	Polymerase Chain Reaction
PFC	Proper Functioning Condition
R2	Region 2 (Rocky Mountain Region of USFS)
RAC	Resource Advisory Committee
RBRB	Budget Code for Rangeland Resource Improvement
RD	Ranger District
RHAP	Rangeland Health Assessment Program
RMBO	Rocky Mountain Bird Observatory
RMEF	Rocky Mountain Elk Foundation
RMRS	Rocky Mountain Research Station (USFS)
RMYC	Rocky Mountain Youth Corps
RNF	Routt National Forest
ROD	Record of Decision
SAD	Sudden aspen decline
SASEM	Simple Approach Smoke Estimation Model
SB	Spruce Beetles
SCEP	Student Career Experience Program
SFD	Subalpine fir decline
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
USDA	United States Department of Agriculture
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
WCP	Watershed Conservation Practice
WGCD	Water Quality Control Division (Colorado)
WGFD	Wyoming Game and Fish Department
WO	Washington Office
WUI	Wildland Urban Interface
WWNRT	Wyoming Wildlife Natural Resources Trust
WYDEQ	Wyoming Department of Environmental Quality
WYDOT	Wyoming Department of Transportation
WYNDD	Wyoming Natural Diversity Database