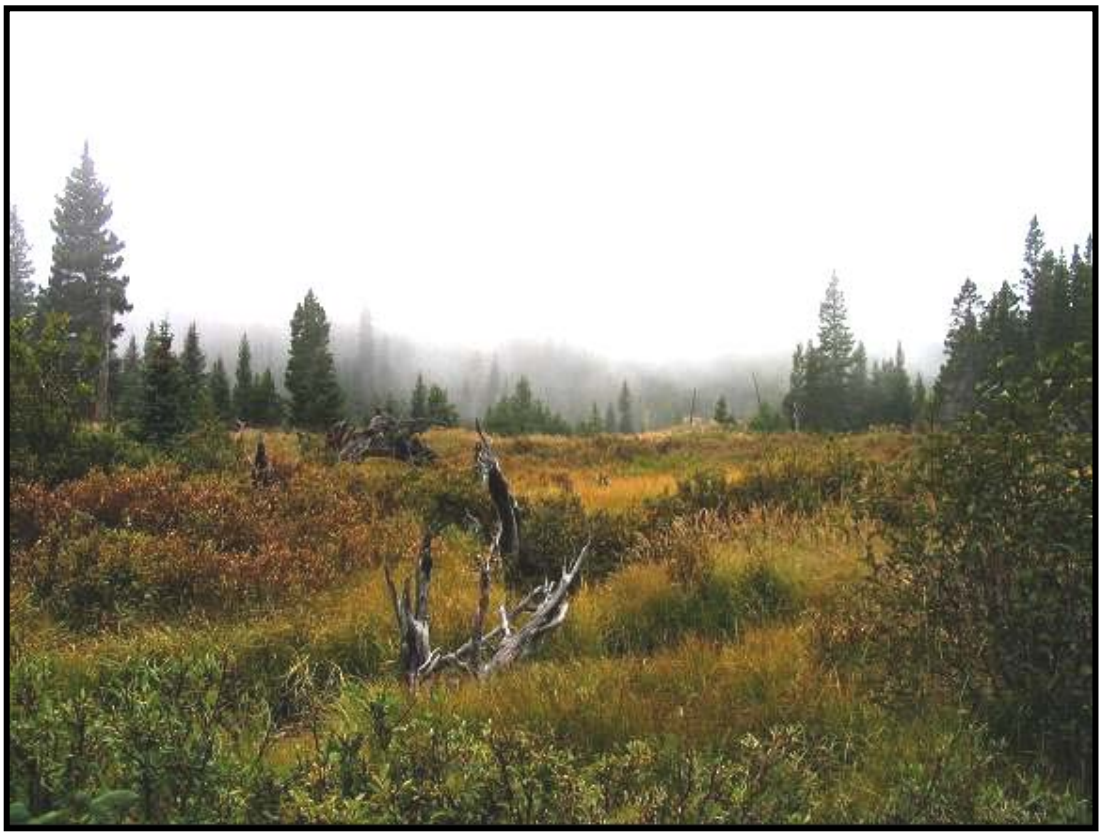
# Medicine Bow National Forest
# Routt National Forest

## 2004 Annual Monitoring And Evaluation Report

October 1, 2003 through September 30, 2004



United States Forest Service
Rocky Mountain Region

September 2005

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# Certification

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

Overall, the 2004 Monitoring and Evaluation results indicate that the management of both Forests meets goals, objectives, standards and guidelines, and management area prescriptions. I have reviewed the 2004 Annual Monitoring and Evaluation Report for the Medicine Bow and Routt National Forests that was prepared by the Forest Interdisciplinary Team. I believe that the results of monitoring and evaluation for FY 2004 meet the intent of Chapter 4 of the two Forest Plans. I also believe that the monitoring and evaluation requirements displayed in Chapter 4 of the Forest Plans have been met, and that the decisions made in the Forest Plans are still valid.

The Forest ID Team has not identified any modifications to the Plans or adjustments to management actions. The Medicine Bow Plan and Routt Plan are sufficient to continue to guide management of the Forests.

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

_/s/ Mary H Peterson _____ 9/30/05

MARY H. PETERSON
Forest Supervisor

Date

# Introduction

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

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

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

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

# Conclusions and Recommendations from the 2004 Report

Based on the information in this report, the Interdisciplinary team recommends no modifications to the Medicine Bow or Routt Forest Plans and no adjustment to management actions. The team recommends specific monitoring (m), tactical recommendations (t), or inventories (i) in the following areas:

Soil Productivity

Continue to monitor the effects of the Whiskey Timber Sale and other sales in the Green Ridge area. Monitor a variety of projects to determine the effects of management activities and the implementation and effectiveness of BMPs and soil-specific mitigation measures (m).

Water Quality

- Continue bacteria and range utilization monitoring in upper Crow Creek (m),
- Continue adjusting management of grazing and recreational activities to improve water quality in upper Crow Creek (t),
- Forest staff should continue to analyze each proposed project and suggest Best Management Practices to protect water quality (t),
- A sample of the soil and water mitigation measures should be monitored during and after implementation to determine the effectiveness for protecting water quality (m),
- A limited number of water quality samples will be taken to determine if BMPs are adequate to protect state water quality standards (effectiveness monitoring)(m).

Invasive Species

As the invasive weeds appear to be expanding in some areas, acres surveyed and infested should be tracked in addition to acres treated. Invasive weed populations and treatment should be reported for all three units – Medicine Bow, Routt and Thunder Basin (m).

Insects and Disease

- Insects and disease activity should be tracked and reported for both the Routt and Medicine Bow National Forests (m).
- Protective insecticide spray should be applied to trees in campgrounds threatened with bark beetle attack. These campgrounds included Dumont, Walton Creek, Meadows, Seedhouse Groupsite, Hinman, Hahns Peak Lake, Sawmill, Summit Lake and Dry Lake on the Hahns Peak/Bears Ears Ranger District and Teal Lake Campground on the Parks Ranger District (t).
- Because protective insecticide spray was not applied this year, it may be necessary to apply anti-aggregating pheromones on campground trees on the Routt N.F. to limit attack by bark beetles during flights this spring and summer, if the trees have not been treated for the last two years (t).

Old Growth Forests

- Continue the process of defining and mapping old growth on the Medicine Bow N.F. with a target goal of completion by December 2006 (i).
- Continue to maintain annual ground-verification to gradually expand our confidence in a primarily GIS-based mapping effort and to identify and correct incorrectly identified polygons in GIS (m).

Threatened, Endangered, Candidate and Sensitive Species

Aquatic Species

*Boreal Toads:* Continue with the hoop net study, breeding site surveys and Bd fungus sampling for FY05 (m).

*Colorado River cutthroat trout:*

- Continue with brook trout removal in the Elkhead Creek watershed and start brook trout removal in the Slater Creek watershed in cooperation with CDOW on the Routt N.F. (t).

- Monitor effectiveness of outlet spawning channel at Vaughan Lake in cooperation with CDOW on the Routt N.F. (m).

- Revisit both the Roaring Fork and Haggerty Creek Fish Barriers on the Medicine Bow N.F. in FY05 to confirm FY05 evaluations (m).

- Continue to salvage CRCT from the plunge pool in Haggarty Creek on the Medicine Bow N.F. in FY05 if necessary (t).

*Hudsonian Emerald:* Submit a project proposal for FY06 funding to contract out surveys across the Forest (t).

Terrestrial Wildlife

Develop an above-project level approach to inventory for terrestrial Sensitive Species. Continue to monitor sensitive terrestrial species (i & m).

Wildlife Habitat

As funding allows, increase funding available for habitat improvement projects and continue to partner with interested groups to complete such projects. Possibly reduce the number of projected acres of terrestrial habitat enhanced each year, as that may be an over-estimate of what can reasonably be accomplished (t).

Fire and Fuels

The NFPORS (National Fire Plan Operations and Reporting System) database should be used to track the progress of these targets (m).

Recreation

- Continue to work with the Continental Divide National Scenic Trail Alliance to foster partnerships to improve the CDNST. The Rocky Mountain Youth Corps has done a lot of work in the area and continues to improve the trail (t).
- The Brush Creek/Hayden Ranger District continues to work toward partnerships with the CDNST, the State of Wyoming and with other Volunteer groups to accomplish trail work (t).
- Continue to work on volunteer agreements, cooperative agreements and on individual volunteers to get the trails up to standard, as well as negotiate with the fire program to have the fire crews available during their down time to do trail work (t).
- Pursue funding to construct a bridge over the ditch on the Roaring Fork Trail (t).
- Continue monitoring both areas (North Spring Creek and Battle Creek on Brush Creek/Hayden) after the closures (m).
- Dispersed sites will be continually monitored for rehabilitation needs, particularly in the LaBonte Canyon area on the Douglas RD (m).

Livestock Use

Combine reporting monitoring items for the Medicine Bow and Routt NFs, using both AUMs (animal unit months) and HMs (head months) for cattle and sheep grazing as they both display valuable information (m).

Harvested Lands Adequately Restocked

Harvest units not meeting standards for adequate stocking should be scheduled for additional surveys to monitor regeneration progress. If additional time cannot assure adequate stocking, planting or seeding will be implemented as soon as possible to insure adequate stocking is attained (m & t).

Costs

A consistent method of reporting costs for the Medicine Bow-Routt National Forests should be established for the 2005 monitoring report (m).

Outputs

A consistent method of reporting outputs for the Medicine Bow-Routt National Forests should be established for the 2005 monitoring report (m).

# Adjustments to the Forest Plans

The Medicine Bow Plan was approved in 2003. Since then, we have issued six errata and one administrative correction. No amendments have been approved for the Medicine Bow Plan. The Routt Plan was approved in 1998. Since then, we have issued five errata, no administrative corrections and we have approved three amendments. As mentioned earlier, the Plans are dynamic and ever changing. To stay current with these plans, one can reference the following internet website: http://www.fs.fed.us/r2/mbr/projects/forestplans/index.shtml

The Routt Five-Year Review and 2003 Implementation and Monitoring Report identified a Management Indicator Species Amendment for the Routt Forest Plan. This project was not completed in 2004 or 2005 due to insufficient funding. It will be completed in 2006 if sufficient funding is received.

The Southern Rockies Canada Lynx Amendment is still in progress. The White River Forest Plan was recently incorporated into the EIS so progress on amending the initial Region 2 forests was halted to allow for public involvement related to the White River. That amendment will modify direction in both the Medicine Bow and Routt Plans. It is expected to be completed in 2006.

# New Laws, Regulations and Policies

**Government Performance and Results Act of 1993 (GPRA)**

The Government Performance and Results Act of 1993 (GPRA) provided for the establishment of strategic planning and performance measurement in the Federal Government. In 2000 and again in 2004, the Forest Service produced a Strategic Plan under GPRA. The Medicine Bow Plan is structured according to the GPRA. Since the Routt's Revised Plan predates GPRA, it does not reflect the GPRA format.

**Healthy Forests Initiative and Healthy Forests Restoration Act**

In 2002, President Bush announced the Healthy Forests Initiative, which allowed the administration to work within the boundaries of legal authority to thin out the forests and remove the underbrush and small trees that were causing the wildfires

The Healthy Forests Restoration Acts of December 2003 (P.L. 108-148) provides guidance to aid in implementing HFI. Included in this law are: NEPA categorical exclusions, guidance for Environmental Assessments of forest health projects, modification of Forest Service appeals rules, expedited administrative review, more efficient Endangered Species Act procedures use stewardship contracting

The act helps rural communities, States, Tribes, and landowners restore healthy forest and rangeland conditions on State, Tribal, and private lands. It also encourages biomass removal from public and private lands, provides technical, educational, and financial assistance to improve water quality and address watershed issues on non-Federal lands, authorizes large-scale silvicultural research, authorizes acquisition of Healthy Forest Reserves on private land, and directs the establishment of monitoring

and early warning systems for insect or disease outbreaks. More information can be found at the following website: http://www.fireplan.gov/healthyforest/index.html

**Planning Regulations**

On January 5, 2005, a final planning rule was published in the federal register. This rule supercedes the 2000 rule and implements the 1976 National Forest Management Act (NFMA). The 2005 Rule contains direction for modifying Forest Plans that were developed under previous planning rules. We initiated this review prior to publication of the new rule. If this review results in a decision to correct, amend or revise the 2003 Medicine Bow Plan or the 1998 Routt Plan, The Forest will adhere to the 2005 rule, specifically 36 CFR 219.14 to accomplish that work.

# Monitoring items

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

# Ensure Sustainable Ecosystems

## Soil Productivity

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

This monitoring items asks the question:

***Are long-term soil health and productivity being maintained?***

**Monitoring Protocol/Data Collected**

During fiscal year 2004 (FY04), soil resource monitoring was conducted on the Whiskey, Village Belle, and Powerpole Aspen Timber Sales on the Parks District of the Medicine Bow-Routt National Forest (MBR). This work served two main purposes: (1) continued testing of the Region 2 Soil Health Assessment Protocol, and (2) additional effectiveness monitoring for the MBR soils program.
Overall, field inspections indicated that implementation of the Best Management Practices (BMPs) and mitigation measures are helping to meet Region 2 (R2) and Forest Plan soil resource standards.

Soil resource monitoring included the following activities:

- Soil bulk density sampling
- Soil productivity monitoring
- Soil resource BMP and mitigation monitoring
- Soil Bulk Density Monitoring

Five bulk density sampling transects were performed in FY2004. The Whiskey Timber Sale was chosen for sampling due to numerous questions concerning the necessity for specific soil mitigation measures in the Green Ridge FEIS, most notably the restriction of ground based log skidders to designated skid trails. Bulk density sampling was chosen as a quantitative method to determine the compactive impacts of applied harvest methods within the completed units. The R2 Soil Management Handbook (R2 Supplement No. 2509.18-92-1) defines detrimental compaction as follows:

A 15% increase in bulk density from the average undisturbed density, or bulk density values that exceed the following Threshold Values:

- 1.25 g/cc - Silt and Clay,
- 1.30 g/cc - Silty Clay, Silty Clay Loam and Silt Loam,
- 1.40 g/cc - Loam and Clay Loam,
- 1.50 g/cc - Sandy Loam, Sandy Clay Loam and Sandy Clay,
- 1.60 g/cc - Sand and Loamy Sand.

Additionally, the R2 Soil Management Handbook requires "no more than 15 percent of an activity area will be left in a detrimentally compacted, displaced, puddled, severely burned, and/or eroded condition. "

Four transects were located in recently completed harvests units within the sale area. The fifth transect was located in an undisturbed area within the Timber Sale boundary and was used to determine undisturbed, or natural, bulk density. Transects were randomly located within the completed units and bulk density samples were collected at 10 meter intervals along 100 meter transects. Samples were oven dried, sieved, and weighed. Sample volumes and oven dry weights were used to calculate bulk density values.

**Results/Evaluation**

Of the four transects, three had average bulk density increases less than 15 percent (9.4%, 11.2%, 1.3% increases respectively). One exceeded the allowable increase value with a 16.4% average increase. Six of the 40 sampled values exceeded the Handbook threshold values for detrimental compaction based on bulk density values and soil texture. Individually, this translates into increases of 30% in Unit 136, 10% in Unit 137, and 20% in Unit 138. Although these sampling efforts lacked the intensity to ensure statistical validity, the results provide some indication that the soil resource mitigation measures included in the FEIS and/or their implementation were only somewhat effective in preventing detrimental soil compaction in the completed units. These preliminary values suggest the need for a further monitoring of the Whiskey and other Green Ridge FEIS associated Timber Sale units as they are completed.

Soil Productivity Monitoring

The draft R2 soil health monitoring and assessment protocol was utilized for soil productivity monitoring in FY05. This protocol creates rapid field assessments of soil productivity and provides results relevant to long-term soil health and productivity monitoring. Parameters assessed include soil structure, compaction, infiltration rate, hydrophobicity, erosion (sheet and rill), soil surface cover, pH range, coarse woody debris, litter, and overall soil health trend. Continued use of this protocol will aid in refinement of the methods for eventual adoption as a standard method for assessing

soil health region-wide. In FY04, the draft protocol was utilized in the assessment of four units of the Whiskey Timber Sale.

Overall soil health ratings derived from the use of the protocols show all four units within the Whiskey Timber Sale to be properly functioning. The composite nature of this system reduced the overall effects of the minimal soil compaction results of the soil bulk density monitoring described above. Continued utilization of the R2 soil health monitoring protocol has effectively demonstrated its usefulness as an integral tool for forest soil monitoring. The assessment provides a systematic approach to soil health monitoring that is adaptable to a wide variety of management activities, soil conditions, and resource constraints.

Monitoring completed during FY04 indicated that the long-term health and productivity of the soil resource is being maintained. Site-specific monitoring data is on file with the Forest Soil Scientist.

**Recommendations**

Continue to monitor the effects of the Whiskey Timber Sale and other sales in the Green Ridge area. Monitor a variety of projects to determine the effects of management activities and the implementation and effectiveness of BMPs and soil-specific mitigation measures.

## Water Quality

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

This monitoring items asks the question:

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

**Monitoring Protocol/Data Collected**

Water quality data is collected both by the states of Colorado and Wyoming and, to a lesser extent by forest personnel. Riparian and stream channel survey data is also used to assess water quality and stream conditions.

**Results/Evaluation**

Routt National Forest

None of the streams on the Routt National Forest are listed as impaired on the 2003 State 303(d) list. Although no streams are listed as impaired, there are 23 segments on lands administered by the Routt National Forest on the Colorado State Monitoring and Evaluation List (M&E list) for the effects of excess sediment. All streams on the M&E list have been surveyed at least once during 1998-2003. Monitoring includes 1) evaluating physical stream characteristics through pebble counts, longitudinal profiles, and cross-sections, 2) riparian condition through Proper Functioning Condition surveys (BLM, 1993), and greenline and vegetative cross-sections (Winward, 2000), 3) soil health through soil compaction samples, percent ground cover, and infiltration rates,

4) on some reaches evaluation of biological health through macroinvertebrate sampling and shocking to determine biomass, and 5) some basic water quality measurements for water temperature, pH, and dissolved oxygen. Initial evaluation of the data indicates that the water quality parameters meet state water quality standards; data analysis is not complete for the other factors. From 1999-2002 14 reference reaches were surveyed to determine reference conditions for the physical, riparian, soil, and biological factors, and for which to compare the reaches in question.

The Forest has worked closely with the Colorado Water Quality Control Division in developing a strategy to evaluate the condition of the streams in question. The 'Provisional Implementation Guidance for Determining Sediment Deposition Impacts to Aquatic Life in Streams and Rivers, June 1998' provides the primary direction for the monitoring of these M&E list streams. The Forest met with the Colorado Water Quality Control Division in October 2004 to develop a strategy to formally evaluate and make a determination of impairment/no impairment for each of the stream segments on the Monitoring and Evaluation list.

The Forest initiated monitoring of bacterial concentrations on a few selected streams in response to scoping questions on grazing allotments. A total of seven reaches were sampled during 2003-2004. Data from this sampling effort was sent to the Colorado Water Quality Control Division in March 2005. After reviewing the data, the State indicated that two stream reaches may be placed on the 2006 State Monitoring and Evaluation list, and two reaches may be proposed for listing on the 2006 Colorado 303(d) list. The Forest will continue to work closely with the State on this issue. Bacterial concentrations are highly variable in water bodies, and it is difficult to characterize the extent and persistence of water quality excedences.

Medicine Bow National Forest

The State of Wyoming Department of Environmental Quality (WYDEQ) regulates water quality and has established numeric and narrative criteria for water quality standards to ensure designated uses of water are met. The Forest Service designs, implements and monitors Best Management Practices (BMPs) as the primary means to protect water quality from non-point sources of pollution. Water quality monitoring is necessary to determine the effectiveness of BMPs and determine compliance with State water quality standards.

Most surface waters on the Forest are believed to be meeting all designated water quality uses, but due to the sampling requirements only a small subset of the waters have recent comprehensive data to support this conclusion. Table 1 shows the water bodies on the Forest that have the water quality data (physical, chemical and biological) necessary to determine if most designated uses are supported. Most water quality monitoring has been conducted on streams where designated uses are known or suspected to be impaired and limited monitoring has occurred on streams likely to meet all designated uses.

Smith North Creek, a tributary to Douglas Creek in the North Platte River basin, was evaluated by WYDEQ in 2002 and 2004 and found to fully support the following designated uses: cold-water fisheries, non-game fisheries, aquatic life other than fish,

drinking water, wildlife, industrial, aesthetic value, agricultural, contact recreation, and fish consumption.

Haggerty Creek and West Fork of Battle Creek are not fully supporting designated uses due to historic metals contamination from the Ferris-Haggarty mine and possibly from background levels of metals in this highly mineralized area. On-going WYDEQ monitoring is focused on determining the extent of the impairment and the levels of natural metals in the area. An abandoned mine lands project is also being pursued to address the leachate from the mine and the preliminary results indicate a reduction in metals input to Haggerty Creek.

Table 1. WYDEQ Water Quality Assessments on Medicine Bow National Forest

| Water Body Name | Fully Supporting Designated Uses? | Water Quality Limited (year first on 303(d) list) | Designated Use Impaired | Cause of Impairment |
|---|---|---|---|---|
| Smith North Creek | Yes | | | |
| West Fork Battle Creek | No | 2000 | Coldwater fisheries; Aquatic life | Metals |
| Haggerty Creek | No | <1988 | Coldwater fisheries; Aquatic life | Metals |
| Middle Crow Creek | No | 2004 | Contact Recreation | Fecal Coliform |
| N. Branch N Fk Crow Creek | No | 2004 | Contact Recreation | Fecal Coliform |

Middle Crow and North Branch North Fork Crow Creeks were added to Wyoming's 2004 303(d) List of Waters Requiring TMDLs due to elevated levels of fecal coliform sampled during 2002 and 2003. The Laramie County Conservation District worked cooperatively with the Laramie Rivers Conservation District and Forest Service in 2004 to collect 99 water quality samples at 11 monitoring stations on Middle Crow and North Branch North Fork Crow Creeks. The majority of these samples were well below the primary recreation use numeric criteria established by the State of Wyoming for fecal coliform, suggesting fecal pollution is not widespread or persistent on the Forest. North Branch North Fork Crow Creek met numeric criteria for water quality during two sample periods, but did exceed the numeric criteria during the heavy recreation/grazing sampling period. Numeric water quality criteria for fecal coliform was met during all three-sample periods on Middle Crow Creek in 2004.

Less intensive water quality the Forest Service also conducted monitoring in 2004. Hourly water temperatures were collected on South Brush Creek (tributary to Brush Creek and the North Platte River) during 2004. Temperatures were around 0°C from December through March, but gradually warm through July, peaking around 20°C and then gradually decline from August through November. The Forest received an authorization from WYDEQ for a temporary turbidity increase on Libby Creek and conducted turbidity monitoring as part of a culvert replacement project on the National Forest System Road that crosses Libby Creek (tributary to North Fork Little Laramie River). Thirty turbidity samples were taken from September 24 to October 6, 2004 during and after project implementation. Background (undisturbed) turbidity

levels were generally less than 10 NTUs. Turbidity increases ranged from 50 to 175 NTUs during ground disturbing instream activities, but returned to background levels in less than 24 hours. Best Management Practices developed for this project (documented in a Storm Water Pollution Prevention Plan) was implemented, adjusted on-site as necessary and appear to have been effective at reducing the magnitude and duration of turbidity.

The quality of most surface waters on the Forest appears to be sufficient to meet all designated water quality uses. The addition of Middle Crow and North Branch North Fork Crow Creeks to Wyoming's 2004 303(d) list means the Forest has moved away from the goal of "achieving an 80% reduction in the miles of State of Wyoming designated streams not fully supporting designated beneficial uses (Forest Plan Goal 1, Objective 2, page 1-2)". In addition to the monitoring conducted in 2004, the Forest conducted a variety of actions to address water quality in Upper Crow Creek through management of grazing and closure of a dispersed recreation site along Middle Crow Creek. Actual grazing use in affected allotments was significantly less than permitted levels in 2004. Overall compliance with riparian grazing utilization standards improved significantly over 2002 and 2003. In 2004, key areas in the vicinity of the water quality sample points with elevated levels of fecal coliform met utilization standards as measured by riparian stubble height at both North Branch North Fork Crow Creek and Middle Crow Creek. Utilization as measured with exclosure cages was met at key areas on North Branch North Fork Crow Creek (water quality criteria exceeded) but exceeded at key areas on Middle Crow Creek (water quality criteria met standards). Monitoring results do not clearly indicate whether implementation of existing grazing BMPs is adequate to meet state water quality criteria.

**Recommendations**

- Continue bacteria and range utilization monitoring in upper Crow Creek,
- Continue adjusting management of grazing and recreational activities to improve water quality in upper Crow Creek,
- Forest staff should continue to analyze each proposed project and suggest Best Management Practices to protect water quality,
- A sample of the soil and water mitigation measures should be monitored during and after implementation to determine the effectiveness for protecting water quality,
- A limited number of water quality samples will be taken to determine if BMPs are adequate to protect state water quality standards (effectiveness monitoring).

## Invasive Species

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

This monitoring items 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 Chief's four threats.

**Monitoring Protocol/Data Collected**

Acres treated chemically, mechanical and manual treatments, and insect releases. GPS records are being put to use. It is an annual upward-reporting item from pesticide use records, and targets are reported in Work Plan.

**Results/Evaluation**

This is one of the Chief's 4 threats. It is definitely on Congress's mind, and they annually provide for small budget increases. Tracking targets in successive years provides for a trend of acres treated (although tied strongly to budgets received). A total of 2475 acres of noxious weeds were treated during 2004, 1,565 acres on the Routt and 910 acres on the Medicine Bow. Combined, this exceeds the combined Forest Plans projected levels of 1,585 acres.

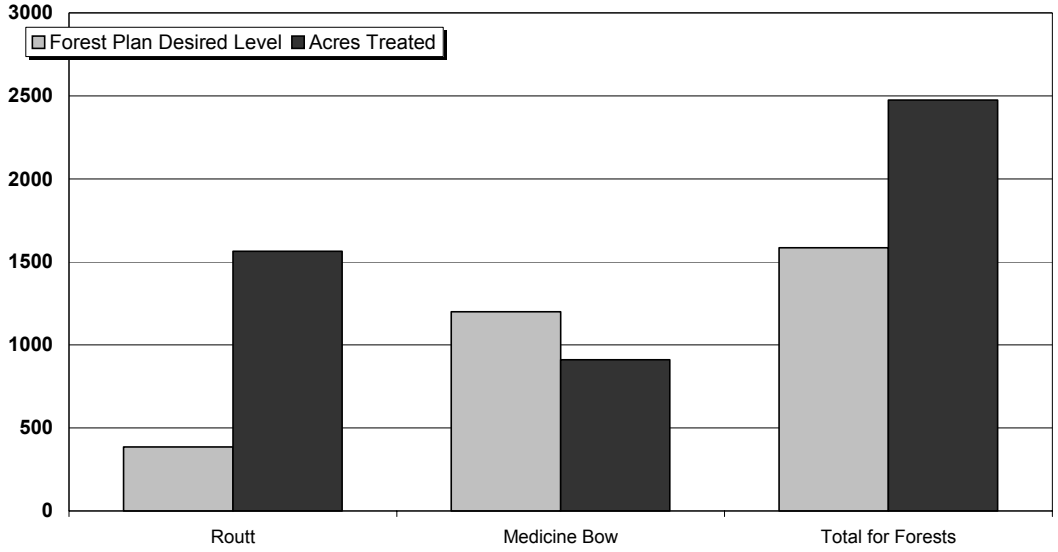


**Figure 1. Invasive weed treatment in 2004**

The greater amount of treated acres on the Routt NF compared to the projected invasive weed treatment from the 1997 Routt Forest Plan indicates that the invasive weed problem is greater than anticipated a few years ago.

Yellow toadflax was treated in the Sarvis Creek Wilderness Area and leafy spurge in the Platte River Wilderness area, but acres were not separately recorded this year; they will be in 2005.

**Recommendations**

As the invasive weeds appear to be expanding in some areas, acres surveyed and infested should be tracked in addition to acres treated. Invasive weed populations and treatment should be reported for all three units – Medicine Bow, Routt and Thunder Basin.

## Insects and Disease

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

This monitoring items asks the question:

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

**Monitoring Protocol/Data Collected**

Aerial surveys were conducted over the Routt National Forest in 2003 to provide a broad indication of tree mortality resulting from forest pests. The results of the 2003 survey are presented in Table 1.

**Results/Evaluation**

Aerial surveys conducted during the summer of 2003 indicated increased losses from spruce beetle, Dendroctonus rufipennis, mountain pine beetle, Dendroctonus ponderosae, and subalpine fir decline.

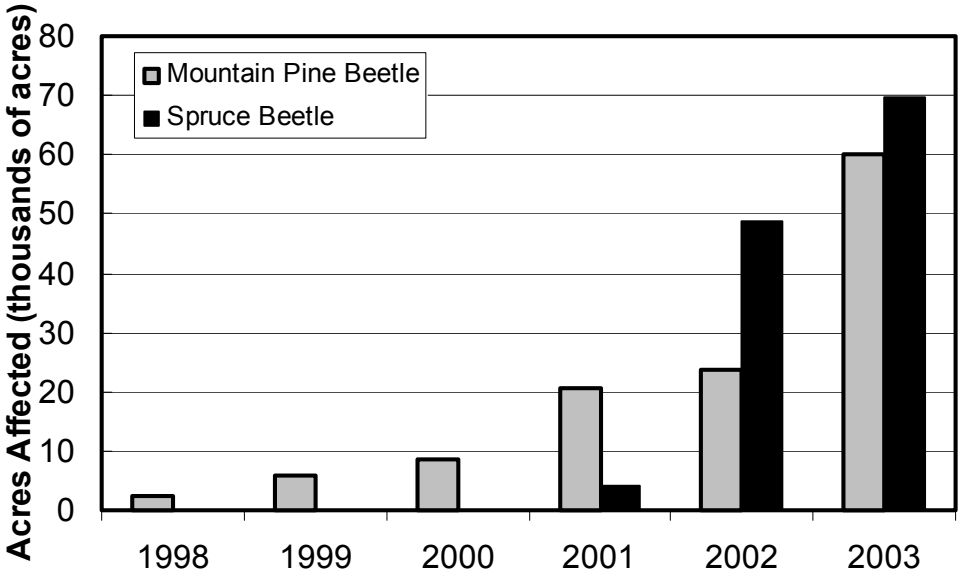


**Figure 2. Acres affected by Mountain Pine Beetle and Spruce Beetle activity on the Routt National Forest.**

Spruce Beetle:

Losses from spruce beetle increased significantly in 2003. Aerial survey data indicate that most losses to spruce beetle occurred in and adjacent to the Mount Zirkel Wilderness. Evidence of increased spruce beetle-killed trees was noted in the Elkhead Mountains.

Mountain Pine Beetle:
Losses from mountain pine beetle increased significantly across the Routt National Forest in 2003. Acres affected by mountain pine beetle increased three-fold and trees killed increased five-fold in 2003.

Areas of increased losses in Jackson County include the Green Ridge area of the Parks Ranger District and along the lower eastern slopes of the Sierra Madre Mountains. In Grand County, mountain pine beetle losses continue at very high levels in the Troublesome area. In Routt County, mountain pine beetle losses were widely scattered across the forest.

Subalpine fir:
Subalpine fir decline continued to be a conspicuous cause of tree losses on the Routt National Forest in 2003. This pest problem is related to three different organisms, the western balsam bark beetle, Dryocoetes confusus, a pathogenic fungus of subalpine fir, Ceratocystis dryocoetidis, which is vectored by the beetle, and the root decay pathogen, Armillaria ostoyae. All three organisms contribute to subalpine fir decline, a complex problem that has increased on the Routt National Forest over the past seven years.

In 2003, subalpine fir decline was estimated to have killed 472,505 trees and affected 201,893 acres, or approximately 2.3 trees per affected acre (Table 1). In contrast, subalpine fir mortality per affected acre was approximately 3.3 trees in 2002 (Table 2).

Pest Management Accomplishments on the Routt National Forest in 2003
The Hahns Peak/Bears Ears Ranger District staff felled and mechanically removed the bark from 287 spruce beetle-infested trees and 85 mountain pine beetle-infested trees on the Steamboat Ski Area in 2003. A total of 942 spruce trees in the ski area were felled and treated with insecticide, a method known as lethal trap tree treatment. In addition, the staff felled and sprayed 247 spruce trees as lethal trap trees in an area directly east of the Steamboat Ski Area. The lethal trap tree method will be evaluated with the assistance from staff with the Rocky Mountain Research Station and Forest Health Management.

The district continued the use of the anti-aggregating pheromone, MCH (methylcyclohexenone), at Summit Lake Campground and Picnic Area and Granite Campground in an effort to prevent beetle attack on spruce trees in these two developed areas in 2003. Insecticides could not be used in the Granite Campground because it is a water source for the town of Steamboat (see Jorgensen 2003). Several spruce beetle infested trees were detected in the MCH treatment area at the Summit Lake Campground in 2003.

Protective insecticide treatments were not applied to high-value trees in campgrounds and other administrative sites in 2003, due to limits in available funds for pest management activities. However, campgrounds were surveyed for beetle-infested trees. Infested trees were felled and peeled at five campgrounds and portions of two other campgrounds.
The Parks Ranger District treated a total of 301 trees severely infested with dwarf mistletoe, mountain pine beetle, or severe root disease at the Teal Lake Campground

in 2003. Mountain pine beetle continues to cause trees losses in lodgepole pine stands in and adjacent to this campground.

The Yampa Ranger District treated 250 acres of lodgepole pine infested with dwarf mistletoe in 2003. District staff also conducted follow-up monitoring survey of 200 acres of dwarf mistletoe to confirm successful treatment. The Gore Pass dwarf mistletoe project is an ongoing pest management effort on the district.

**Recommendations**

Insects and disease activity should be reported for both the Routt and Medicine Bow National Forests.

Protective insecticide spray should be applied to trees in campgrounds threatened with bark beetle attack. These campgrounds included Dumont, Walton Creek, Meadows, Seedhouse Groupsite, Hinman, Hahns Peak Lake, Sawmill, Summit Lake and Dry Lake on the Hahns Peak/Bears Ears Ranger District and Teal Lake Campground on the Parks Ranger District.

Because protective insecticide spray was not applied last year, it may be necessary to apply anti-aggregating pheromones on campground trees to limit attack by bark beetles during flights this spring and summer, if the trees have not been treated for the last two years.

## Old Growth

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

This monitoring item asks the question:

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

**Monitoring Protocol/Data Collected**

The Planning, Wildlife and Timber will lead the process to define and map, using GIS, potential old growth on the Medicine Bow National Forest. In addition, in 2005, stratified random points will be generated across the Forest in order to begin ground-verification on a portion of the potential old growth identified in the GIS process. Field data will be used to correct the identified old growth produced by the GIS effort. Then a Forest-level team will map the old growth to be managed for retention of old forests by adhering to the Forest Plan Guideline to address appropriate percentages on each mountain range, geographic area, and to create a well-distributed assemblage of old forest that provides large patches, riparian stringers, and connective corridors.

**Results/Evaluation**

In 2004, budget was planned for future years to accomplish the above tasks.

**Recommendations**

- Continue the process of defining and mapping old growth with a target goal of completion by December 2006.
- Continue to maintain annual ground-verification to gradually expand our confidence in a primarily GIS-based mapping effort and to identify and correct incorrectly identified polygons in GIS.

**Action Item**

Develop a Forest-level process by which old growth is managed for retention as old forest, including a systematic process for correcting errors and assuring no-net-loss of required old forest.

## Threatened, Endangered and Sensitive Species Habitat Improvement

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

These monitoring items ask the questions:

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

**Plants**

**Monitoring Protocol/Data Collected**

This monitoring item is evaluated through an annual analysis of the Biological Assessments/Biological Evaluations (BA/BEs) for Threatened and Endangered and R2 Sensitive Status (SS) plant species, which were completed for projects on the Routt National Forest. Document the number of habitat improvement projects identified and/or implemented during the past year.

**Results/Evaluation**

Because there are not any Threatened or Endangered plant species documented on the Routt NF, the following information is portrayed only for Sensitive Status (SS) plant species.

**Table 2. Biological Assessments and Biological Evaluations Completed for Sensitive Plants in 2004**

| Unit | #BEs completed in FY04 | % No Effect | % Beneficial Effect | % MAII Neutral Effect | %LAII Adverse Effect |
|---|---|---|---|---|---|
| **Routt NF** | 32 | 75 | 0 | 25 | 0 |

**Key:** MAII = Neutral Effect (NE), May Adversely Impact Individuals, LAII = Likely to Adversely Impact Individuals

No LAII (likely to adversely impact individuals) determinations were made for Sensitive plant species in BEs completed for Projects on the Routt National Forest in FY04. This suggests that habitats for Sensitive plant species are generally being maintained across the planning unit. This can be attributed to having botanists involved in project design and mitigation, in addition to having sensitive plant surveys for project areas.

MAII( may adversely impact individuals) determinations were made for select species in 1/4$^{th}$ of the biological evaluations completed for projects on the Routt National Forest in FY04. This determination was made when any of the following three circumstances: 1) Projects did not require surveys because the proposed action posed a low risk to Sensitive plant species, 2) project design and mitigation minimized adverse effects and 3) projects with likely habitat for *Botrychium lineare* (a R2 sensitive status plant species which presence or absence can generally not be determined through project level surveys).

Habitat Improvement

Biological Evaluations were completed for 32 projects on the Routt National Forest. No beneficial determinations were made for Sensitive plant species for projects on the Routt National Forest in FY04 as there were not any projects designed specifically to benefit Sensitive plant species. However, during rapid assessments in FY 04, opportunities were identified on the Routt NF, which could benefit habitat for select Sensitive plant species in the future. The Blackball McCauley Timber Sale Decision included boulder placement near Big Creek Park to protect Populations of *Machaeranthera coloradoensis (*Colorado Tansyaster) from off road vehicle use. Additional opportunities to benefit SS plant species and their habitats across the MBRTB planning unit have also been identified in the Botany 5 year plan.

**Recommendations**

Continue to monitor this item yearly over the life of the plan. There are no changes to the LRMP identified as part of monitoring this question for the Routt NF or Medicine Bow for FY04.

**Terrestrial Wildlife**

**Monitoring Protocol/Data Collected**

Acres of habitat improved and number of wildlife structures added or enhanced.

**Results/Evaluation**

In 2004, 65 acres of terrestrial wildlife habitat were enhanced on the Medicine Bow National Forest; 50 of which were aspen regeneration acres completed on Brush Creek-Hayden District and 15 of which were waterfowl and non-game species habitat enhancement through the repair of a fence excluding cattle from a riparian area on Douglas District.

In addition, 7 standard campsite garbage cans were replaced with bear-resistant cans in order to continue to reduce bear-human conflicts on Brush Creek-Hayden District.

Habitat improvement needs have been identified for big horn sheep, Preble's meadow jumping mouse, and aspen stand improvement. However, more funds are necessary to accomplish these enhancements. In 2004, funding was so limited for the Terrestrial Wildlife Program that numerous biologists had to take extended details on other

Districts, Forests, or agencies in order to cover their salaries. As such, there was little funding left to improve habitat or install wildlife structures.

**Recommendations**

Increase funding available for habitat improvement projects and continue to partner with interested groups to complete such projects. Possibly reduce the number of projected acres of terrestrial habitat enhanced each year, as that may be an over-estimate of what can reasonably be accomplished.

**Aquatic Species**

**Monitoring Protocol/Data Collected**

Sensitive fish species were surveyed on the forest using the Colorado Division of Wildlife electrofishing protocol. Amphibians were surveyed using the protocol outlined in the Boreal Toad Conservation Plan and Agreement (Leoffler 2001). On the Medicine Bow Forest, two site-monitoring visits to structural improvements were conducted in FY03: Haggarty Creek fish barrier; and Roaring Fork, Little Snake River gabion fish barrier.

Aquatic Threatened and Endangered Species

There are no threatened or endangered aquatic or riparian-dependent species or habitats documented on the Routt National Forest (Foster, 2005) However, stream flows from the Forest ultimately contribute to conditions in the Colorado River and Platte River mainstems, where several endangered species live. These species depend on natural flow regimes that include flood flows and substantial sediment transport. Vegetation management (timber harvest) can result increased water yield, however it is likely that any increases in water would be used by water right holders prior to reaching the mainstems of these rivers, and so are not expected to reach downstream critical habitat.

The Fish and Wildlife Service (FWS) has determined that projects that change timing or amounts of flow through cumulative water depletions adversely affect habitat and populations of these species in the Colorado River and Platte River mainstem ecosystems. Therefore, we consulted on 6 projects on the Hahns Peak/Bears Ears Ranger District resulting in 46.7 acre-feet/year annual water depletion to the Colorado River in FY2004. We also consulted on 2 projects on the Yampa Ranger District resulting in 2.2 acre-feet/year annual depletion to the Colorado River. We did not consult on any projects in the Platte River system in FY2004.

Aquatic Sensitive Species

Table 3 lists the sensitive aquatic species that are located or that may be affected by management actions on the Routt National Forest. All listed species except the dragonfly Hudsonian emerald are also State Species of Concern. The current Regional Forester's list for sensitive species in the Region was effective December 1, 2003.

**Amphibians**

Boreal Toads

The Routt National Forest has four identified active boreal toad breeding sites. The South Zone Aquatics Team monitored two of the four sites, and the Colorado Division

of Wildlife (CDOW) monitors two sites, one of which is the subject of a study by CDOW.

**Table 3. Region 2 sensitive aquatic species located on the Routt National Forest**

| Species | Scientific Name |
|---|---|
| **Amphibians** | |
| Boreal Toad | *Bufo boreas boreas* |
| Northern Leopard Frog | *Rana pipiens* |
| Wood Frog | *Rana sylvatica* |
| **Fishes** | |
| Colorado River Cutthroat Trout | *Oncorhynchus clarki pleuriticus* |
| Mountain Sucker | *Castostomus platyrhynchus* |
| **Insects** | |
| Hudsonian Emerald | *Somatochlora hudsonica* |
| **Mollusk** | |
| Rocky Mountain Capshell Snail | *Acroloxus coloradensis* |

Reasons for the decline of the boreal toad have not been defined with any degree of certainty although habitat quality and availability in Colorado are not thought to be limiting, Agricultural chemicals, UV radiation, soil and water contaminants and acid rain may all be effecting boreal toads. Latest findings indicate that the recently described fungus Batrachochytrium dendrobatidis (Bd) is the primary pathogen causing significant die-offs of amphibian's world wide, including boreal toads. The most recent available data demonstrate that the Southern Rocky Mountain population of the boreal toads has declined dramatically in the past 20 to 25 years most likely from Bd. The Bd fungus has been positively identified at several locations on the Routt National Forest including a known boreal toad breeding site.

Highlights for the boreal toad breeding sites for FY2004 include:

- Egg masses were not observed at either site because we didn't make it to the sites early enough to observe egg masses before hatching.
- Tadpoles and metamorphosis were observed at only one of the sites monitored by the South Zone.
- Although 12 adult toads were observed at the other site, no reproduction was reported at the other site for unknown reasons.

As mentioned in the Routt 5 Year Monitoring Report, a boreal toad distribution study was conducted in cooperation with the Rocky Mountain Research Station beginning in FY2004. Results from that study include:

- A total of 21 Hoop Nets were set in 8 different streams on the Forest with a total of 8 toads captured: in four streams.
- 42 samples were analyzed for the Bd fungus: which the fungus being found in four creeks.

An additional 400 acres of amphibian habitat was surveyed: around Big Creek Lakes, Rock Creek, Muddy Pass and Rabbit Ears Pass. We found 16 one-year-old boreal toads on the Forest. One of the sightings tested as a very strong positive for the Bd fungus from a swab and toe clip. These sightings are in areas that have had previous boreal toad sightings.

Northern Leopard Frog
Two new individual sightings of northern leopard frogs were observed on the Forest in an area not previously known to have leopard frogs.

Wood Frog
The wood frog in Colorado is only known to occur east of the Continental Divide in North Park along the slopes of the Park, Rabbit Ears and Medicine Bow ranges in Jackson County.. Disjunct populations also occur in the upper Laramie River drainage in Larimer County and along the eastern slope of the Never-Summer Range in Grand County. An additional population occurs in Fox Park, Albany County, Wyoming . The current wood frog population status across its range in Colorado appears to be maintaining a dynamic status quo with some populations disappearing as others develop in adjacent areas, with an overall increasing trend.

***Conclusion***
In our survey of 400 acres across the Forest all the sensitive amphibian species were sighted along with many sightings of chorus frogs and tiger salamanders. The numerous sightings indicate that amphibian habitats are being maintained on the Forest.

**Fishes**
Colorado River Cutthroat Trout: Elkhead Creek Brook Trout Removal: In FY 2004, the South Zone Aquatics Team in cooperation with the Colorado Division of Wildlife removed brook trout in an ongoing effort started in 1997 in the Elkhead Creek watershed. We removed brook trout in about 3 miles of stream in Circle Creek in FY2004, which had the last remaining brook trout in the Elkhead Creek drainage. Circle Creek still has fairly large numbers of brook because ponds in the headwaters of this creek have been stocked with brook trout as recently as 1993. Elkhead Creek has been identified as a priority watershed for the Medicine Bow – Routt National Forests

Much of cutthroat trout habitat in the Elkhead Creek watershed would be considered functional at risk due to past management and current grazing by domestic and wild ungulates. Further analysis will be conducted in FY2006 for the California Park Allotment Management Plan EA. Therefore, without further analysis it is very difficult to determine but based on professional judgment, habitat for the sensitive Colorado River cutthroat trout is not being maintained in the Elkhead Creek watershed.

Fire Monitoring: Previous monitoring of the Mt. Zirkel Fire Complex, which burned in 2002, indicated that macroinvertebrates, brook trout and Colorado River cutthroat trout were gone from upper Lost Dog Creek after the fire. Sampling in 2004 has shown recovery of the macroinvertebrate and brook trout populations in this creek, which indicates that habitat is recovering. Cutthroat trout populations were low previous to the fire, due to interactions with non-native brook trout. One Cutthroat trout was found in the 2004 sampling of this creek. Certainly one cutthroat trout does not make for a viable population, therefore the recovery of the Colorado River cutthroat trout

in Lost Dog Creek would need human intervention. The South Zone Aquatics Team will work cooperatively with the Division of Wildlife to determine the appropriate course of action for this watershed in terms of restoring Colorado River cutthroat trout.

Vaughan Lake: In FY2004 the South Zone Aquatics Team and the Colorado Division of Wildlife monitored the safety mitigations around the Vaughan Lake Aerator and the objectives of having the aerator. The aerator was installed in Vaughan Lake in October 1998. Due to mechanical problems and lack of safety mitigations the aerator wasn't totally functional until spring 2002. The safety mitigations consist of Thin Ice signs, orange cross poles (similar to what ski areas use to mark hazards) and closure order signs. Safety mitigations are needed to provide for the safety of the snowmobilers using FH 16 from the Pyramid Guard Station area to the Ripple Creek Pass area and beyond. The mitigation measures are monitored on monthly basis during the winter to ensure that they are properly functioning. Vaughan Lake was visited a total of six times during the winter in FY2004 and all mitigation measures and aerator were properly functioning.

The primary objective of installing aeration equipment in Vaughn Lake is to prevent oxygen depletion and a potential fish kill situation, particularly during winter months. Aeration equipment will be used to promote the establishment and survival of a Colorado River cutthroat trout population. A brood source fishery is planned for Vaughan Lake as part of the Colorado River Native Recovery Project. Cutthroat trout have been stocked in the lake in 2001-2003. An outlet spawning channel was constructed in June 2004 by CDOW.

Crosho Lake: A fish barrier was installed to prevent fish, arctic grayling and Colorado River cutthroat trout from entering a feeder canal at Crosho Lake in FY2004. This was a cooperative project between the USFS and CDOW after two years of planning. The fish would enter the canal in an attempt to spawn in the spring, however the canal does not flow water long enough for the fish to spawn and have their young to make it back to the lake. Visual inspections were used to assess the conditions of the structures at both sites.

Haggarty Creek: During the Haggarty Creek fish barrier visit, the concentration of Colorado River cutthroat trout (CRCT) in the plunge pool was monitored; during low-water conditions due to drought, CRCT often get trapped in the barrier plunge pool and must be collected and relocated in the creek to prevent mortality due to increased water temperatures. Several CRCT were relocated in Haggarty Creek in FY04.

Roaring Fork Fish Barrier: The Roaring Fork fish barrier appears to be due for either reconstruction at the existing site or for relocation downstream to a more accessible location

***Conclusion***

A recent MIS analysis for Colorado River cutthroat for the Rock Creek Integrated Pest Management Project summarized that populations of cutthroat trout are stable across the Forest but we should expect populations to decline where brook trout are present. Therefore, we could surmise that habitats for Colorado River cutthroat trout are being

maintained across the Forest and that we are enhancing habitat where we are removing brook trout and installing barriers.

Mountain Sucker

Mountain suckers are not well distributed across the Forest. They are only known to occur in Elkhead Creek, Little Snake River and Rock Creek watersheds in the Colorado River drainage. There are no mountain suckers in the North Platte River Drainage. There is an impending mountain pine epidemic in the Rock Creek watershed and it is anticipated that the mountain pine beetle epidemic would cause channel instability in Upper Rock Creek and Little Rock Creek. Proposed management actions would slightly reduce water yield increases. Thus, the potential still exists that these streams would become unstable. When channels are destabilized, fish habitat becomes greatly simplified, which may affect fish populations until the stream finds its balance again. Adverse impacts would occur with the loss of spawning, rearing and foraging habitat needed for all aspects of the sucker's life cycle. Therefore, habitats for the mountain sucker may not be maintained because of the impending beetle epidemic anticipated in the Rock Creek watershed.

**Insects**

Hudsonian Emerald

This dragonfly is known only from Boulder and Teller Counties in Colorado, and Albany and Teton Counties in Wyoming, comprising only a "handful of small sites". Populations appear to be relict and highly disjunct. Changes to habitats could presumably eliminate entire breeding populations. While little is known of population or habitat trends, habitat requirements are highly specific. They require boggy ponds that are extremely vulnerable to modification through dewatering, grazing, pollution, and siltation. The species does not recover well from disturbance. Suitable habitat exists throughout the Forest. Because of our Forest Plan standards and guidelines, Watershed Conservation Practices Handbook and project design criteria of not disturbing wetland habitats, habitats for the dragonfly are being maintained across the Forest.

**Mollusks**

Rocky Mountain Capshell Snail

The Rocky Mountain capshell snail is known in two lakes on the Parks Ranger District, east of the Continental Divide. The snail utilizes boulder and cobble substrates in shallow water of high elevation lakes in the Rocky Mountains and requires a certain set of water quality characteristics to live and reproduce; particularly high concentrations of bound carbonates, dissolved oxygen and alkaline pH. It would be difficult for management action to change these particular water quality characteristics. Therefore, habitats for the Rocky Mountain capshell snail are being maintained. It is very difficult to survey for this species since it would require diving at high elevations. The South Zone Aquatics Team is currently working with CDOW on some monitoring techniques.

**Recommendations**

The following monitoring and habitat improvement actions are recommended for FY05 and beyond.

Boreal Toads:

Continue with the hoop net study, breeding site surveys and Bd fungus sampling for FY05.

Colorado River cutthroat trout:

Continue with brook trout removal in the Elkhead Creek watershed and start brook trout removal in the Slater Creek watershed in cooperation with CDOW.

Monitor effectiveness of outlet spawning channel at Vaughan Lake in cooperation with CDOW.

Revisit both the Roaring Fork and Haggerty Creek Fish Barriers in FY05 to confirm FY05 evaluations.

Continue to salvage CRCT from the plunge pool in Haggarty Creek in FY05 if necessary.

Hudsonian Emerald:

Submit a project proposal for FY06 funding to contract out surveys across the Forest.

**Terrestrial Wildlife**

**Monitoring Protocol/Data Collected**

Acres surveyed for terrestrial TES species and acres enhanced for TES species. Surveys may range from general TES project clearances, to species-specific detection methods such as songbird point counts, goshawk call-playback, monitoring of activity of known raptor nests, baited-camera stations, or snow-track surveys. Please see individual species reports for specific protocols.

**Results/Evaluation**

During fiscal year 2004, terrestrial wildlife biologists surveyed over 50,000 acres for TES species and completed several projects to enhance TES habitat. Goshawk inventories totaled 13,380 acres, of which 2,640 acres were nest activity checks of known territories. The remaining 10,740 acres were call-playback inventories of potential goshawk habitat for project clearances. Biologists also monitored for the presence/absence of boreal owls on approximately 133 acres, woodpeckers on 7,440 acres, pine martens on approximately 1,000 acres, and the snowshoe hare (prey for the listed Canada lynx) on approximately 7,360 acres. Additionally, they conducted general TES clearance surveys for approximately 25,375 acres of proposed project areas. The biologists assisted in project designs to maintain or avoid TES habitat wherever possible.

**Table 4. Acres of surveys for threatened, endangered, or sensitive species on the Routt National Forest in fiscal year 2004**

| | Goshawk | Boreal Owl | Woodpeckers | Pine Marten | Snowshoe Hare | General TES surveys | Total |
|---|---|---|---|---|---|---|---|
| **Project Clearances** | 10,740 | <1 | 7,440 | 1,000 | <1 | 25,375 | 44,555 |
| **Wildlife Surveys** | 2,640 | 133 | <1 | <1 | 7,360 | 0 | 10,133 |
| **Total** | 13,380 | 133 | 7,440 | 1,000 | 7,360 | 25,375 | 54,688 |

In addition to these surveys, several projects were completed specifically to maintain or enhance TES habitat. Biologists on Hahns Peak/Bears Ears District restored 1,587 acres of TES habitat (a mix of Columbian sharp-tail grouse, greater sandhill crane, and Colorado River cutthroat trout) through road closures and an additional 50 acres of Columbian sharp-tail grouse habitat through a planting project. In conjunction, effectiveness monitoring was continued for Columbian Sharp-tailed grouse habitat enhancement projects through a partnership with CDOW funding. Finally, Yampa District inventoried 3,017 acres of TES habitat for invasive weeds and treated about 100 acres to contain the perimeter. All of these projects strive to improve conditions for TES and other wildlife species.

***Conclusion***

Thus far, habitats for TES species appear to be maintained adequately by the provisions of the Routt National Forest Plan. Relatively high goshawk activity gives the impression that their population is stable. Though it is too early to develop trend information, boreal owls have been consistent in their level of use of nest boxes. Snowshoe hare pellet counts indicate that snowshoe hares are present in many different cover types and appear to be stable. The Routt National Forest is maintaining adequate habitat for the snowshoe hare and consequently the Canada lynx by maintaining various seral stages of habitat utilized by the snowshoe hare. Habitat enhancement projects for TES species continue to improve the overall capability of the Routt NF to support these species.

**Recommendations**

Develop an above-project level approach to inventory for terrestrial Sensitive Species. Continue to monitor sensitive terrestrial species.

**Action Items**

1. Prioritize the list of terrestrial Sensitive Species for above-project inventories.
2. Submit a project proposal for NFIM funding for FY06 to inventory a priority list of terrestrial Sensitive Species across the Routt National Forest.

## Fire Management Plans

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

This monitoring item asks the question:

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

**Monitoring Protocol/Data Collected**

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

**Results/Evaluation**

Wildland fire use plans must meet the requirements outlined in FSH 5109.19 – Fire Management Analysis and Planning Handbook, Chapter 50 – Fire Management Planning. The update of the Fire Management Plan to include the operational constraints and guidelines to allow for wildland fire use is currently ongoing.

**Recommendations**

The NFPORS (National Fire Plan Operations and Reporting System) database should be used to track the progress of these targets.

**Action items**

Track the progress of this project, and associated funding in the NFPORS (National Fire Plan Operations and Reporting System) database.

## 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**

Planning and accomplishment activities are compiled and reported in the NFPORS (National Fire Plan Operations and Reporting System) database. Annual accomplishment reports can by generated listing acres treated by WUI (Wildland Urban Interface) vs. non-WUI, and mechanical vs. prescribed fire.

**Results/Evaluation**

Implementation of mechanical treatments is many times the per acre cost of prescribed burning treatments. As a result, many times mechanical treatments are left on the shelf and replaced by prescribed burning, which yields the Forest many more acres for the dollar spent. This may have the potential to influence the number of WUI mechanical acres treated annually. Washington Office and Regional Office

direction outlines an optimum treatment ratio of 60% WUI to 40% non-WUI. For FY-04, the ratio of WUI to non_WUI was 71 percent WUI and 29 % non-WUI.

**Table 5. 2004 Fuels Treatments on the MBRTB(acres).**

| Treatment Type | WUI | Non-WUI | Total |
|---|---|---|---|
| Mechanical Treatments | 4,818 | 115 | 4,933 |
| Prescribed Fire | 1,097 | 2,310 | 3,407 |
| Total | 5,915 | 2,425 | 8,340 |

# Multiple Benefits to People

## Outdoor Recreation

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

This monitoring item asks the question:

***How many miles of trail meet agency standards?***

**Monitoring Protocol/Data Collected**

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

**Results/ Evaluation**

*Brush Creek/Hayden RD*

A total of 115 miles of trails meet agency standards on the Brush Creek Hayden Ranger District. The following trail work was accomplished on this district:

- The Brush Creek/Hayden District completed maintenance on 50% of the District trails.
- The District encountered a washout of an irrigation ditch along the Roaring Fork Trail. Due to the washout, the water ran down the trail. The District's trail, recreation staff and hydrologist went to the trail ditch crossing. The crossing was temporarily repaired with sandbags. Plans call for installing a bridge.
- The Rocky Mountain Youth Corp worked on the Continental Divide National Scenic Trail to relocate and construct the trail from Hart Creek to Divide Peak. This portion of the trail has been motorized for years and it is being reconstructed to become non-motorized. Approximately 11.7 miles of the CDNST will be re-constructed over a two-year period. The reconstruction should be complete in FY05. The Continental Divide Alliance provided volunteers to mark and/or sign this portion of the reconstruction.

- A volunteer church group of 22 from Wisconsin and the District staff completed heavy maintenance on the Rock Creek and the Crater Lake Trails.

*Douglas Ranger District (Laramie Peak)*
The trails are generally in very poor condition as no trail maintenance was accomplished in 2004 as there were no funds for a trail crew, and it was too late (once we realized the money was not there) to find grants or apply for the State Trails crew, and the few volunteer projects planned were rained out. The district fire crew was not made available for trail work.

In light of recent funding shortages, it was anticipated early that there would be no money for a trail crew; therefore, numerous grants were applied for, the state trails crew was tapped, and we're attempting further volunteer trails projects and a pooled district seasonal crew is being attempted, with part of their duties to do trails maintenance.

**Recommendations**

- Continue to work with the Continental Divide National Scenic Trail Alliance to foster partnerships to improve the CDNST. The Rocky Mountain Youth Corp has done a lot of work in the area and continues to improve the trail.
- The Brush Creek/Hayden Ranger District continues to work toward partnerships with the CDNST, the State of Wyoming and with other Volunteer groups to accomplish trail work.
- Continue to work on volunteer agreements, cooperative agreements and on individual volunteers to get the trails up to standard, as well as negotiate with the fire program to have the fire crews available during their down time to do trail work.
- Pursue funding to construct a bridge over the ditch on the Roaring Fork Trail

## Effects of Recreational Activities

Routt Monitoring Item 2-3
Frequency of Measurement: Annual
Reporting Period: Annual

This monitoring item asks the question:

> ***How are recreational activities affecting the physical and biological resources of the Forest?***

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

**Monitoring Protocol/Data Collected**

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

**Results/Evaluation**

*Brush Creek/Hayden RD*

- A dispersed site along North Spring Creek on NFSR 452 was closed in the spring of 2004 for rehabilitation. The site was physically closed with large boulders and seeded. This site will be monitored over the next several years. The site has started healing, grass is growing in areas where it was rutted , with standing puddles.
- A decision was made in 2005 under the Cottonwood Analysis Decision to close the dispersed camping along Battle Creek and to rehabilitate the sites. The recreation staff and hydrology staff have been working toward a feasible way of closing these sites in the summer of 2005. These dispersed sites are too close to the Creek and are edging closer with every season.

*Douglas RD*

- No dispersed sites have been targeted for rehabilitation nor were rehabilitated in 2004.

**Recommendations**

*Brush Creek/Hayden RD*

- Continue monitoring both areas (North Spring Creek and Battle Creek) after the closures.

*Douglas RD*

- Dispersed sites will be continually monitored for rehabilitation needs, particularly in the LaBonte Canyon area.

## Effects of Off Road Vehicles

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

This monitoring items asks the question:

***What are the effects of vehicle use off roads?***

**Monitoring Protocol/Data Collected**

This item is assessed using field observations and forest patrol responses. As with the previous items, the two districts reporting on this item are the Brush Creek/Hayden and Douglas Ranger Districts.

**Results/Evaluation**

*Brush Creek/Hayden RD*

The Roaring Fork Trail continues to have illegal ORV/ATV use on it impacting the non-motorized user's recreation experience. The trail was monitored closely during hunting season and will continue to be monitored during the summer months of 2005. The most motorized use seems to occur during big game hunting seasons for bow and rifle in September and October.

*Douglas RD*
A new "road" system was found leading from private land (off the Cottonwood Park Road) into the Ashenfelder Basin area, which is entirely within the Laramie Peak Inventoried Roadless Area. Numerous complaints were taken regarding this illegal activity, including from an outfitter/guide permittee who saw and heard hunters come in on four-wheelers, which was subsequently investigated. Other reports indicated that a motorized access trail is being used on the north end of the Ashenfelder Basin area.

The Douglas Game Warden has frequently reported the resource damage on the backside of Twin Peaks, which has since been confirmed. The motorized portion of this trail only goes to the top of Twin Peaks, but apparently the trail was constructed by the FS years ago and has since been used for OHV riding, with extensive damage occurring as any old puncheon has broken down and users are driving around the deeper mudholes and creating new ones.

Other reports and findings of new OHV routes continued to arrive throughout 2004. The worst abusers for off-road use and damage appear to be the archery hunters in September, with the rifle season hunters coming in a close second.

The new Forest Plan critical winter range closure was has not yet been signed as nonmotorized as the boundary for this area is not easily followed and will have to be surveyed prior to signing.

*Parks RD*
All of the trails that were used for last year's Enduro, but are not signed open, were being ridden all summer. Many of the old Enduro routes that haven't been used for years were also being ridden, even though trail crews have rehabbed and brushed them in.

There are a group of the Enduro circuit riders that come up to use our trails for practice. They ride too fast for the 2-way traffic on our trails, and the safety of the public and of our crews needs to be paramount. A network of illegal single-track trails is being cut in and ridden near the Ellis jeep trail.

Working on this will take time away from working on system trails in order to get it taken care of, and cost additional money to sign it closed and patrols periodically to enforce it. This should be easier to do now that we have a LEO on district.

*Yampa RD*
Through implementation of the new sign policy, trailhead information and public contacts, the Yampa Ranger District has aggressively tried to stop illegal OHV use. Despite these efforts, OHV violations continue to occur. Through experience, documentation and professional judgment, the following statements are made.

- Recreational OHV users generally comply with travel management policy.
- Most OHV violations occur during big game hunting seasons.
- OHVs are often used illegally in the pursuit and retrieval of game.
- Most road closures (gates, berms) are ineffective at stopping illegal OHV use. Resource and property damage occurs when these closures are circumvented.

- This use causes a negative effect on revegetation of and soil stability on non-system roads.
- There is a negative effect on elk security when closed roads are used.
- Snowmobile trespass in wilderness is low, but does occur in the Sheriffs reservoir area of the Flat Tops Wilderness and on the north end of Sarvis Creek Wilderness. This use creates a negative effect on wilderness values.

**Recommendations**

*Brush Creek/Hayden RD*

- Additional patrols in the area of the Roaring Fork Trail and Battle Creek.
- Education and enforcement of the regulations will continue in this area.
- Continue with patrols in the areas most adversely affected by the ATV/ORV use in addition to continued maintenance of signing.

*Douglas RD*

- Ashenfelder Basin has been identified as a patrolling "hot-spot" for August, September and October of 2005.

*Parks RD*

- Continue patrols and enforcement of regulations
- Write tickets next summer for careless/reckless riding and help get the word out to slow down
- October will bring another week of the RMYC, obliterating old Enduro trails that are still causing problems
- In October, if time allows obliterating some renegade trails up off the Ellis Jeep trail.

*Yampa RD*

Continue to follow up on signing all trails

## Scenery

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

This monitoring item asks the question:

***How are projects and programs affecting visual quality?***

**Monitoring Protocol/Data Collected**

The effects of management on visual resources is assessed through field evaluation of forest service activities.

**Results/Evaluation**

The Village Belle Timber Sale and Trail 1135 sites on the Parks District were visited on July 22 and 23, 2004 by MBR monitoring ID team and several District employees as part of the Routt NF annual Forest Plan Monitoring and Five-Year Monitoring and Evaluation Review. The Village Belle Timber Sale was completed in 2001 and a review of several sites after three years allows the team to look at how the project affects the visual quality.

A restored temporary road (FDR 205.1) closed with a tank trap barrier was reviewed for soil and water resources. The tank trap method used for closing roads generally doesn't blend with the surrounding landscape due to the unnatural appearance. The team reviewed it from FDR 205, a local road, and it is acceptable for this road closure method when viewed from the local road but would not be acceptable when viewed from arterial/and or collector roads and would not comply with the Forest Plan adopted visual quality objectives for MA 5.13. Adopted visual quality objectives for MA 5.13 are partial retention VQO in the foreground of arterial/collector roads and primary trails and modification VQO on all other areas. Closing restored temporary road by recontouring ground surface, placing different size of boulders and planting young trees at the beginning of restored road would appear more natural and blend in with forest landscape.

Other Village Belle Timber Sale site reviewed for visual quality was the 18 acres clearcut unit adjacent to FDR 516, a local road. Unit 6 is situated in the middle-ground zone as shown on the inventoried Visual Management System map. The team reviewed the clearcut unit from FDR 516 and it appears as maximum modification VQO in near view. However as this unit is situated in the middle-ground zone (approximately 1/2 mile to 3 - 5 miles from the viewpoint), it meets modification VQO when viewed from arterial or collector roads and primary trails located within and adjacent to the project area. This unit is consistent with the Forest Plan visual quality objectives for MA 5.13.

The monitoring ID team reviewed Trail 1135 trail and Grassy Run trailhead on the last day. The new section of trail beginning from the Grassy Run trailhead appears to have little tread work and no direction signing. A section of old trail was closed with large size slash and fallen logs and doesn't blend well with the forest landscape. Some scarification and grass seeding, less slash and relocating logs would allow better blending with the landscape. The old trailhead could also use some scarification and seeding to allow better blending with the landscape. The new Grassy Run trailhead was built to allow better access and parking for vehicles with horse trailers. Removing or covering stumps visible from parking could enhance the visual quality. Overall, this project is consistent with the Forest Plan visual quality objectives for MA 5.13, which the new section of trail and trailhead are situated.

## Livestock Use

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

This monitoring items asks the question:

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

**Monitoring Protocol/Data Collected**

AUMs Grazing Use for the Year (Medicine Bow); HMs Grazing Use for the Year (Routt). Displayed for cattle/horses and for sheep/goats.

**Results/Evaluation**

Medicine Bow NF

The amount of grazing use on the Medicine Bow Forest was about 82% of the projected Forest Plan level. The amount of use was about 15% less than permitted on the National Forest units due to 2004 being the fifth consecutive year of this drought, and following 2002 – the driest year since Wyoming became a state (in 1890). However, this year it became the Grassland's turn as the Thunder Basin had some of the worst climatic conditions to be found anywhere across the state, and non-use for resource protection there was about 25%, making the percent of grazing use much lower for the entire Unit. Many operators across all the Units went home early, a few went on late. Over half of the producers on the Forest Units also reduced their herds, taking non-use, resulting in lower outputs. State-wide, ranchers have now sold off about 40% of their base herds; the economic effects are rippling throughout the local and state economies.

Forage utilization monitoring data reveal that all 152 allotments on the Medicine Bow Forest met the Forest Plan requirements for utilization (except in occasional small areas), which continues the vegetative improvement shown during previous years – even in the midst of the drought. An analysis of the data for these allotments indicates that most of the upland areas were utilized properly, or under-utilized. All Districts required removal of livestock when proper use was reached in the riparian areas. The data suggest that improved management (better distribution, salting, water development, and seasons of use) and improved management systems are resulting in proper utilization of nearly all riparian areas. The Forest Plan Standards and Guidelines for utilization were reviewed during the Revision process to determine to what degree they were still appropriate. No changes were determined to be required.

Routt NF

Year 2004 was the fifth consecutive year of this extended drought. The Routt was in far better shape than much of Colorado, which experienced the driest year recorded in 2002. The Forest's moisture conditions improved considerably since 2002. Some operators went home early, some went on late, but most were able to run at least some of their numbers. About 35% also reduced their herds, taking partial non-use for resource protection, resulting in lower outputs; both sheep and cattle head-months were only about 70% of normal. All of these efforts are good examples of proper rangeland vegetation management techniques – reducing livestock commensurate with the level of forage production and water availability.

**Table 6. Planned and actual livestock use during 2004.**

| | Unit of Measure | Planned Level | 2004 Level | Percent of Planned Level |
|---|---|---|---|---|
| ***Routt*** | | | | |
| Sheep Grazing | Thousand Head-Months | 174.4 | 126.1 | 72% |
| Cattle Grazing | Thousand Head-Months | 39.6 | 28.1 | 71% |
| Total Grazing | Thousand Head-Months | 213.9 | 154.2 | 72% |
| ***Medicine Bow*** | | | | |
| Active Allotments | Allotments | 104 | 104 | 100% |
| Cattle Grazing | AUMs | 74,000 | 53,179 | 72% |
| Sheep Grazing | AUMs | 12,600 | 5,277 | 42% |

**Recommendations**

Combine reporting monitoring items for the Medicine Bow and Routt NFs, using both AUMs (animal unit months) and HMs (head months) for cattle and sheep grazing as they both display valuable information.

## Harvested Land Adequately Restocked (Item 1-10)

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

This CFR requires a determination of compliance with the standard that lands are adequately restocked within five years as specified in the Forest Plan. In addition, these monitoring items ask the question:

> ***Are stands adequately restocked within five years of final harvest treatment?***

**Monitoring Protocol/Data Collected**

The yearly monitoring report relies on the RMACT database to list stands and acres that had final harvests 5 years prior, and which of those stands and acres have a regeneration certification code. If a harvested stand is adequately regenerated, 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".

"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 regeneration success is scheduling and recording regeneration surveys in the RMACT database. For example, following the completion of a clearcut in 2000 the ranger district data base coordinator will schedule regeneration surveys in 2001, 2003, and 2005 in the database. If a regeneration survey indicates a lack of seedlings, the district can schedule planting in the database, followed with scheduled regeneration surveys to monitor plantation success. When regeneration surveys determine that a stand is adequately stocked, then a regeneration certification code must be entered into the database.

**Table 7. Acres not Adequately Stocked Five Years after Final Harvest.**

| Year of Final Harvest | 5th Year After Final Harvest | Acres of Final Harvest | Acres not Adequately Restocked |
|---|---|---|---|
| 1999 | 2004 | 614 | 138 |

The prolonged drought of the last few years is contributing to the higher rate of regeneration failures, particularly with natural regeneration. If late spring and summer precipitation is sparse, lack of available soil moisture during the critical summer months is increasing the rate of seedling desiccation.

The Medicine Bow - Routt National Forest needs to emphasize timely site preparation for natural regeneration. However, if a harvest unit requires site preparation for natural regeneration and the unit is logged in the fall or winter the site prep will be delayed till the following summer. In those situations, the scheduled regeneration surveys will be delayed one year. The Forest Silviculturist will consult with the districts on scheduling regeneration surveys.

Silvicultural prescriptions for final harvest treatment need to carefully evaluate utilizing hand planting if scarification is needed to insure success of natural regeneration.

**Recommendations**

Harvest units not meeting standards for adequate stocking should be scheduled for additional surveys to monitor regeneration progress. If additional time cannot assure adequate stocking, planting or seeding will be implemented as soon as possible to insure adequate stocking is attained.

Thirty-one of the acres not meeting regeneration standards are part of the Banner Timber Sale on the Brush Creek/Hayden Ranger District. The area not meeting the required level of stocking is scheduled for seeding in FY 2005. The District will perform regeneration surveys to monitor stocking success and document when the areas are adequately stocked.

The other 107 acres that are not adequately stocked are part of the Double D and Cyclone Timber Sales on the Routt National Forest. Site preparation on these stands was delayed 1 year after final harvest treatment. Due to the delay in the site prep, regeneration surveys were deferred one year. Normally the certification regeneration survey is scheduled 5 years after final harvest, but in these areas the certification

survey was scheduled 6 years (2005) following final harvest. Pending the outcome of this summers regeneration surveys, subsequent follow up treatments will be determined this fall.

### Costs

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

These monitoring items ask the questions:

***Are costs of implementing programs occurring as predicted in the Supplemental Table S-3 of the FEIS?***

***Comparison of estimated and actual costs***

The Forest Service budget process is in transition, making it difficult to report on similar cost items that can be compared to previous years for the two forests. A consistent method of reporting costs for the Medicine Bow / Routt National Forests will be established for the 2005 monitoring report.

### Comparison of Estimated and Actual Outputs and Services

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

This monitoring items asks the question:

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

The Forest Service output reporting is in transition, making it difficult to report outputs that can be compared to previous years for the two forests. A consistent method of reporting outputs for the Medicine Bow / Routt National Forests will be established for the 2005 monitoring report, with previous years outputs reported as feasible.

## Scientific and Technical Assistance

### Partnerships

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

These monitoring items ask the questions:

***To what extent is public assistance and participation being utilized in implementing monitoring activities?***

***How are partnerships contributing to maintaining or enhancing recreation resource opportunities?***

**Monitoring Protocol/Data Collected**

Compilation of partnership activities on the forest through review of partnerships, memorandums and special uses on the Forest

**Results/Evaluation**

Multiple partnerships have enhanced the Forests' evaluation of the aquatic resources on the forest. Fish population surveys were completed in cooperation with Colorado Division of Wildlife (CDOW) and Wyoming Game and Fish (WGF). In addition, an ongoing boreal toad study is in it's second year and is a cooperative effort between the USFS, the Rocky Mountain Research Station (Missoula, MT) , USGS, US Fish and Wildlife Service, CDOW and WGF.

**Table 8. Special use and Partnership Funds Collected for 2004**

| Program | Dollars Collected |
|---|---|
| ***Recreation Special Uses*** | |
| Concessionaire | $0 |
| Organization Camp | $300 |
| Recreation Residences | $17,075 |
| Isolated Cabins | $0 |
| Resorts | $0 |
| Recreation Events | $0 |
| Outfitter and Guides | $74,413 |
| Winter Resorts (Ski Areas) | $1,120,683 |
| Motion Picture/Television Location | $0 |
| **Partnerships** | $140,000 |

A small study evaluating the effects of Hog Park Reservoir flow releases on Hog Park Creek is cooperatively funded by the USFS and the Cheyenne Board of Public Utilities (CBPU) , this is part of the preliminary data collection which will aid the forest and CBPU in working on the re-authorization of Hog Park Dam, which should be completed in 2011.

The Laramie District worked with the State of Wyoming to hire a consultant and fund wildlife and archeology staff to complete Phase 2 of the 2000 Travel Management Decision on the Laramie Ranger District portion of the Snowy Range. This project will result in enhanced recreational opportunities for ATV and motorcycle riders as well as improved watershed and wildlife conditions.

## Watchable Wildlife

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

This monitoring items asks the question:

***To what extent have watchable wildlife activities been developed?***

**Monitoring Protocol/Data Collected**

Annually, document the number of Watchable Wildlife sites, and any development and interpretation activities relating to plants that are identified and managed for the MBNF.

**Results/Evaluation**

**Aquatic Life**

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

**Plants**

The following are the existing sites and activities related to plants:
Six Watchable Plant Sites :

- BCH Snowy Range visitor Center;
- Vedauwoo Interpretive Area and Interpretive Handout (LRD);
- Pole Mountain Rest Area Interstate 80 (LRD);
- Centennial Visitor Center (LRD);
- Libby Flat Interpretive Area (LRD).
- Brooklyn Lake Interpretive Area (LRD);

Six Special Interest Areas with botanical emphasis identified in the 2003 Medicine Bow Revised Forest Plan:

- MBNF SIAs with botanical emphasis: Ashenfelder, Cinnabar Park, Medicine Bow Peak, Kettle Ponds; Sunken Gardens and Ribbon Forest.

One Watchable Plant Interpretive Activity:

- 04 Ecologist lead interpretive hike on the Laramie Ranger District.

The 6 botanical special interest area for the MBNF were identified in the 2003 Medicine Bow Revised Forest Plan, FY04 was the first year that these sites were noted as available for watchable plant activities. Other sites noted have existed for sometime and generally have moderate to heavy visitor use. Official documentation of these sites as "Watchable Wildlife-Plant sites" remains to be completed.

**Recommendations**

This wooden platform should be visually inspected every year to monitor its structural integrity Visually inspect the structure in FY05 and document recommended repairs. Implement maintenance repairs as required

Continue to monitor this item yearly over the life of the plan. There are no changes to the LRMP identified as part of monitoring this question for the MBNF for FY04.

# Effective Public Service

## Road System – Passenger Cars

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

This monitoring item asks the question:

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

On the Medicine Bow National Forest, 86 miles of roads suitable for passenger cars were maintained to standard.

## Roads– High Clearance Vehicles

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

This monitoring item asks the question:

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

On the Medicine Bow National Forest, 1653 miles of high clearance roads were maintained 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?***

One mile of road was decommissioned in FY04 on the Medicine Bow National Forest.

## 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?***

Reconstruction projects identified in the facility master plan were completed.

## 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??***

All scheduled deferred maintenance was completed.

# 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**

Compare the accomplished or ongoing actions to those called for in the respective recovery plans.

**Plants**

There are no documented occurrences of Threatened or Endangered Plant Species on the Medicine Bow or Routt National Forests at this time.

**Recommendations**

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

## Implementation of Standards and Guidelines

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

These monitoring items ask the questions:

***Are the standards and guidelines prescribed in the plan being incorporated in NEPA documents and implemented on the ground?***

***Have site-specific decisions successfully implemented the Forest Plan's Direction?***

**Monitoring Protocol/Data Collected**

The Forest Interdisciplinary Monitoring Team (IDT) visited several sites on the Routt NF during the 2004 monitoring field trip. This trip looked at road closures and harvest associated with the Village Belle Timber Sale and at the Trail #1135 project, both of which are on the Parks RD. The following are the conclusions and recommendations from this field trip.

**Results/Evaluation**

The team visited a stream crossing that had rock placed in the ford to reduce ice damming and sedimentation during winter hauling operations. The IDT group felt that the actions taken to respond to the changed conditions of winter operations were effective in meeting the standard. Procedurally, it was suggested that bringing out the original ID team (at least the engineering, wildlife and hydrology specialists) could lend support to the administrator in responding to such changes as well as insuring consistency with the Forest Plan. Interdisciplinary involvement does not have to end at the signing of a decision document.

When the IDT viewed a road closure, they felt that the example of road closing and restoration they viewed was very effective and was lending protection to the watershed. The discussion of "state of the art" road restoration was useful. Though the use of earthen barriers in this case might technically comply with Forest Plan direction, there are more visually pleasing ways to accomplish such closure. Future projects need to consider these alternatives. More discussion about the visual effects of this road closure can be found in the 'Scenery' monitoring item above.

The trip took the IDT to two harvest units to evaluate wildlife snags and downed woody debris. The consensus of the group at the first unit, a selective harvest unit, although larger diameter reserve trees (both live and dead), and slash, would have been ideal, the character of the native stand made it very difficult to accomplish in this case. The good regeneration was a very positive accomplishment. As was the case with the change engendered with FDR 213.2b (the first location visited), perhaps an ID team visit at the time changes were envisioned would have helped the decision-making process. This appears to be a very effective harvest effort, enhanced by changes made to the slash handling procedures based on astute sale administration. This project is consistent with overall Forest Plan direction.

The second harvest unit was a clearcut (regeneration harvest) and also appeared to meet the objectives of the environmental analysis effort that went into it. It was noted that both even-aged and partial harvest units shared the challenge of not having larger diameter material to reserve for wildlife purposes; perhaps leaving more reserve green material for eventual recruitment into the dead and dying class should be considered in the future. As was the case with the previous unit, the group felt that the overall direction of the Forest Plan has been met with this project

The final project reviewed by the IDT was Trail #1135, located in the extreme southernmost end of North Park, about 26 miles south of Walden, Colorado. Trail #1135 traverses about twelve miles of predominantly ridge-top routing with trailheads at Grassy Run and Hyannis Peak. The objective of the environmental analysis that was applied to this trail was to resolve a Forest Plan consistency conflict between the use of the trail by motorized users, and a prescription plan direction to manage it for non-motorized uses. Subsidiary issues related to the need to formally close some accessing roads, and to enhance the quality of the trail's two trailheads. To meet these objectives the Forest Service proposed to change the use of the trail to non-motorized, to formally close FDR's 711.1 and 711.1a, and to improve the trailheads at Grassy Run and Hyannis Peak.

The engineering of the Grassy Run Trailhead appeared to be effective, with abundant room created for the parking and turning-around of trailers. It was noted that some stumps visible on the outside of the fill slopes could have been buried to provide a better visual effect. The information bulletin board (specified in the decision) presented minimal information and showed some animal gnawing damage. A map, in particular, would be useful to the public.
The most significant finding of the group was that there needs to be much more signing and tread work if the public is going to be able to locate the trail itself. Locating where the trail enters the timbered area above the trailhead is very difficult. Signing and better definition of the trail tread at this particular point is badly needed. Only when the trail was walked down from above was the team assured that they had located the correct trail.

Summary
1) Meeting Forest Plan standards and guidelines in regard to snag retention and downed woody debris is generally achieved in all our silvicultural projects, as was the case with the Village Belle Timber Sale; the challenge is to exceed these levels. In "clean" stands like this, there is a need to work on leaving more large snags and downed woody material, even if it means leaving more green timber as residual for eventual large diameter recruitment.

2) There is a need for more ID team involvement in post-decisional changes to projects. This was the case with the shift from piling and burning to dozer scarification and slash scattering that took place with the Village Belle Timber Sale. Although one cannot always get the same specialists that were on the original ID team, there can be a pay-off in better decisions and documentation when this approach is used.

3) Most significantly, it was the consensus of the ID monitoring team than they generally "saw what they had expected to see" when visiting this project. The project

has successfully met the objectives of enhancing forest health and the restoration and protection of watershed health. The Village Belle Timber Sale delivered what was promised in its environmental analysis, was congruent with the directions in the Forest Plan, and evidenced responsive and flexible sale administration.

4) The IDT found the overall construction of Trail #1135's Grassy Run Trailhead to be consistent with the EIS and ROD for this project ("implementation monitoring"). A first priority for improvement needs to be better signing and trail location between the Grassy Run Trailhead and where the new trail enters the timber. It is suggested that additional signing is indicated, as well as minor restoration work at the old trailhead and closed trail portion above it, to fully realize the objectives of this project and to be fully consistent with Forest Plan direction.

**Soil Resource BMP and Mitigation Monitoring**

The BMPs and mitigations prescribed in the Green Ridge Final Environmental Impact Statement (FEIS), Village Belle Environmental Analysis (EA), and the Powerline South EA were largely derived from Forest Plan and Region 2 soil standards. Regional standards address soil erosion, compaction, puddling, displacement, and burning. Forest Plan standards include the Regional standards and the Watershed Conservation Practices Handbook guidelines. Effectiveness of the BMP's and mitigations implemented specifically to protect the soil resource are discussed in this report.

**Results**

The BMP's and Mitigations associated with the Green Ridge FEIS have been mostly effective in protecting the soil resource during harvest of the Whiskey timber sale. Visual estimates and soil analyses suggest that most of the units are well within the limits of Region 2 soil standards, which require that detrimental soil conditions be present on no more than 15 percent of a project area. Unit 136 was the sole exception, with detrimental compaction estimated at greater than 15 percent of the activity area. Continued monitoring of this ongoing sale will be undertaken in FY05.

The BMPs and Mitigations associated with the Village Belle EA and Powerline South EA were effective in protecting the soil resource during harvest of the respective timber sales. Visual estimates and field soil characterizations suggest that the units are well within the limits of Region 2 soil standards.

**Forest Plan Water and Riparian Standards and Guidelines**

A field review of selected projects on the Parks Ranger District was conducted by the 2004 Forest Plan monitoring team. This review found that while many Forest Plan Standards and Guidelines are being implemented and met, not all of the Design Criteria from the Watershed Conservation Practices Handbook (FSH 2509.25) were properly implemented. A review of roads on the Village Belle timber sale found that not all temporary fills at road-stream crossings had been removed. Similarly, some of the roads may have been constructed to a higher standard including greater width than necessary for the level of use of the road. A review of the Trail 1135 project found that not all rehabilitation efforts had been fully implemented, and that the new section of trail was not adequately completed. These over sites suggest that better coordination between the people planning the projects and the implementers may be needed. The actual Forest Plan standards and guidelines would still be effective with proper implementation.

The fact that none of the streams on the Routt National Forest are on the 303(d) impaired list suggest that management activities have been sufficient to prevent significant water quality impacts. E.coli monitoring indicates that there may be some bacterial water quality concerns. The relationship of bacterial concentrations to management activities can be difficult to determine due to natural sources such as wildlife and water fowl, unmanaged human activities such as dispersed camping, and the highly variable nature of bacterial concentrations. In addressing this issue the relationship of Forest Plan Standards and Guidelines which are derived from the Watershed Conservation Practices Handbook (FSH 2509.25), to the Clean Water Act and nonpoint sources will be evaluated.

**Recommendations**
1) Continue to coordinate planning direction from NEPA documents with implemention procedures to ensure that all standards and guidelines are properly implemented. Current direction from the EPA and State of Colorado suggests that the Forest Service is taking appropriate actions to address nonpoint source pollution related to E.coli and state water quality standards. This includes development and incorporation of the Watershed Conservation Practices (WCP) Handbook (FSH 2509.25) into the 1997 Routt Forest Plan. Monitoring indicates that Design Criteria from the WCP (which are equivalent to BMPs) are being properly implemented relative to livestock grazing.
2) - Monitor both the implementation and effectiveness of the Watershed Conservation Practices Handbook (FSH 2509.25) and other Forest Plan Standards and Guidelines in protecting water quality and maintaining watershed health.

# Actions Taken Based on 2003 Recommendations

Aquatic TES

*Boreal Toads*
In the Routt 5 year Forest Plan Monitoring Report, monitoring of a breeding site near the Sawtooth Fire was recommended to determine if there were any effects from the large amount of people in the area and the increased potential for transporting Bd fungus to the breeding site on their boots. No direct or indirect effects from the fire itself were observed. Bd fungus sampling at this site in 2004 resulted in a strong positive result. We cannot say for certain that the Bd fungus was brought in by the large number of people around the site because there is a system trail right next to the site. However, the correlation seems pretty high given that the site was negative in 2003 and positive in 2004.

*Colorado River Cutthroat Trout*
The South Zone Aquatics Team in FY2003 implemented a habitat inventory-based modeling method specific to cutthroat trout in Deadman Gulch. This method can be used to determine probability of cutthroat trout persistence in habitats potentially affected by existing and proposed land management activities. Deadman Gulch contains Colorado River cutthroat trout and is potentially affected by livestock grazing and an impending mountain pine beetle epidemic. Key components of the model include number of pools with residual pool depth greater than or equal to 30 cm, mean bankfull pool width (m) of all pools and mean daily water temperature (°C) for all days in July. The modeling confirmed that the probability for continued low

population abundance in Deadman Gulch was at 53 percent. The probability that high population abundance could persist was 35 percent and that no population would exist was at 12 percent. No aquatic habitat concerns have been noted in Deadman Gulch based on habitat surveys in 2003 and personal communication with Forest Hydrologist, Liz Schnackenberg (November 30, 2004). Deadman Gulch has a stream health rating of robust and a bank stability rating of good. Therefore, the current habitat condition can only provide for low population numbers.

Recreation
Dispersed Sites
*Brush Creek/Hayden RD*

- The North Spring Creek sites were closed as planned in the 2003 monitoring plan and according to the Forest Plan.
- Action was taken on conclusions from the Cottonwood Analysis Decision to close the Battle Creek dispersed sites.

*Douglas RD*

- Now that Curtis Gulch Campground has reopened, LaBonte Canyon will be more continually "patrolled" and monitored by our campground compliance officer as she checks the campground.

Trails
*Brush Creek/Hayden RD*

- The Brush Creek/Hayden Ranger District decommissioned 10+ miles of roads and user-created motorized routes in the Blackhall/McAnulty area.
- The District replaced/repaired vandalized "end of route", "route" and "closed to motorized travel beyond this point" signs.
- The District continues to write incident reports to record the damage to signs and route markings.
- The new Forest Plan critical winter range closure was on the ground posted with travel restriction information.

*Parks RD*

- Two individuals were given warnings, after which they remarked they had ridden the old closed Enduro routes for years.
- Northern Colorado Trail Riders (NCTR) helped to cut out 90 plus miles of trail
- The district closed off some renegade trails in the Snyder Creek System.
- Obliterated 5 plus miles of user created trails in the Snyder Creek area

# Action Plan

The following action plan describes specific actions to be taken in FY2005. This is not the total monitoring action plan for FY2005; it describes follow up actions recommended from 2004 monitoring.

| Resource Area | Action Items |
|---|---|
| Soil Productivity | Monitor Whisky Timber Sale for implementation and effectiveness of BMPs and soil specific mitigation. |
| Water Quality | Continue monitoring at Upper Crow Creek |
| Invasive Species | In addition to acres treated, report acres surveyed and acres infested. Track wilderness acres treated separate from non-wilderness acres treated. |
| Insects and Disease | Apply insecticide and anti-aggregating pheromones to trees in campgrounds as described in recommendations. Begin reporting on Medicine Bow along with Routt in 2005. |
| Old Growth Forests | Work toward completing old growth inventory and mapping exercise. |
| Threatened, Endangered, Candidate and Sensitive Species | See recommendations |
| Recreation | Work to increase partnerships for trails.<br>*BCH RD:*<br>Close and rehabilitate the Battle Creek dispersed sites. Build buck and pole fence to stop the entry into several of the sites, and put up signing to explain why the sites are being closed.<br>*Douglas RD:*<br>Twin Peaks Trail may be closed to motorized use on an emergency basis pending a decision regarding the use on the trail and the subsequent resource damage and illegal use.<br>If possible, signing will be put into place on Cow Creek Mountain (critical winter range closure) before hunting season in 2005.<br>Continue with patrols in the areas most adversely affected by the ATV/ORV use. Also continue maintenance of signing. |

| Resource Area | Action Items |
|---|---|
| Harvested land adequately stocked | Continue monitoring for adequate stocking and include as topic in annual timber meeting. Train employees in survey, data entry and work planning as needed. |
| Costs | Establish consistent method for reporting that bridges Medicine Bow and Routt Plans. |
| Outputs | Establish consistent method for reporting that bridges Medicine Bow and Routt Plans. |
| Implementation and Effectiveness monitoring for Standards and Guidelines. | Conduct field monitoring on Brush Creek Hayden, Yampa and Hahns Peak Bears Ears Districts. |
| MIS Amendment | Complete in 2006, if funded |

# Contributors

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|---|---|
| Carol Purchase | ID Team Leader |
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