Accelerated Watershed/Vegetation Restoration Plan (AWRP)

A 10-Year Strategy

Winter range prescribed burn in Rainbow Valley of the Laramie Ranger District (2002)

Medicine Bow-Routt National Forests and Thunder Basin National Grassland (MBR-TB)

March 2004

Executive Summary:

The 10-Year Strategy for implementing the MBR-TB AWRP describes the Forest's approach to address the fuels and vegetation management needs. The Medicine Bow and Routt Forests has been significantly impacted by severe concurrent bark beetle epidemics in the lodgepole and spruce types. Many of the forested landscapes are in a late seral stage and moderate-high risk condition conducive to bark beetle activity. Further, wildland-urban interface (WUI) areas have forest and shrubland conditions that pose a serious risk to developments and private lands.

The Forest has responded to these developments by making organizational changes, increasing staff, and improving project planning processes in critical programs supporting vegetation management and fuels reductions. We have strategies in place to reduce process, accelerate project proposals through the NEPA phase, increase accountability for accomplishment, streamline steps to field implementation, and ramp up timber and fuels program outputs.

A set of *Forest Health Situation* maps are included that display the *Fire Hazard and Insect and Disease Risk* for the MBR-TB.

The Situation:

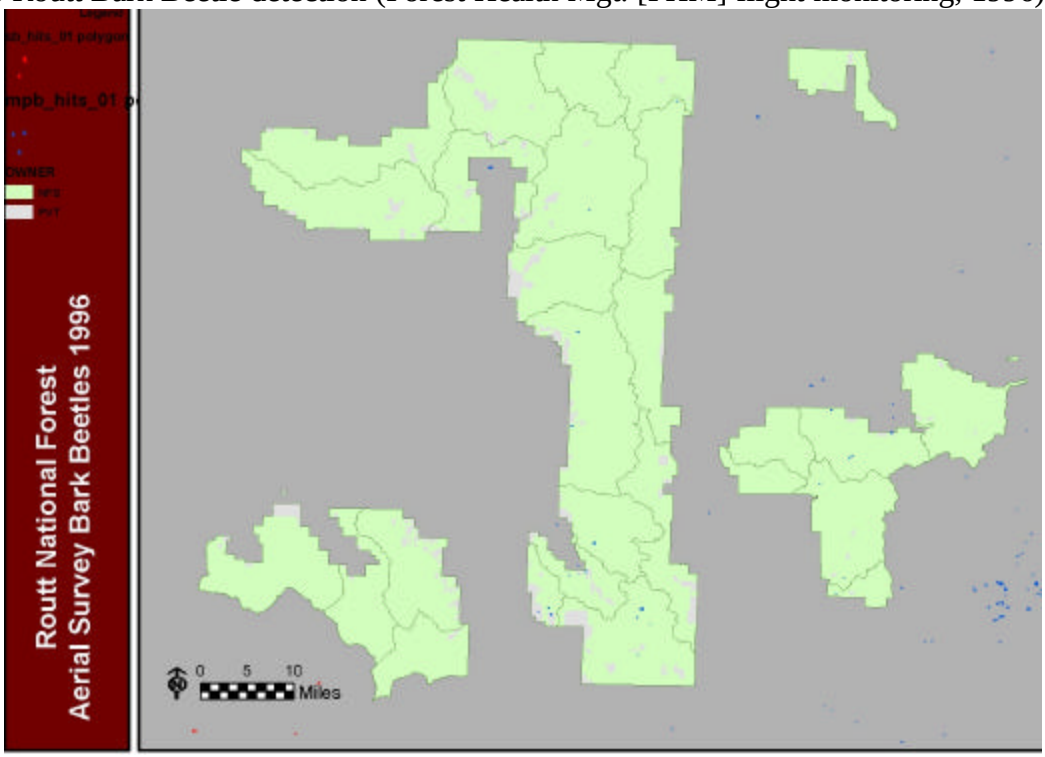
The MBR-TB is in the unique position of having three revised land management plans for our two National Forests and National Grassland. Plan direction is very current on two units with the Routt presently undergoing a 5-year monitoring review in 2004. Modifications to the Routt forest plan may be forthcoming based on this review. This situation provides much opportunity for action within a programmatic framework that is current to the best science and balance of public interests.

Many of the forested landscapes are in a late seral or mature stage and moderate-high risk condition conducive to increased bark beetle activity. Further, WUI areas have forest and shrubland conditions that pose a serious risk to developments and private lands. The interface areas around Steamboat Springs are an example of shrub communities that are in a Condition Class 3.

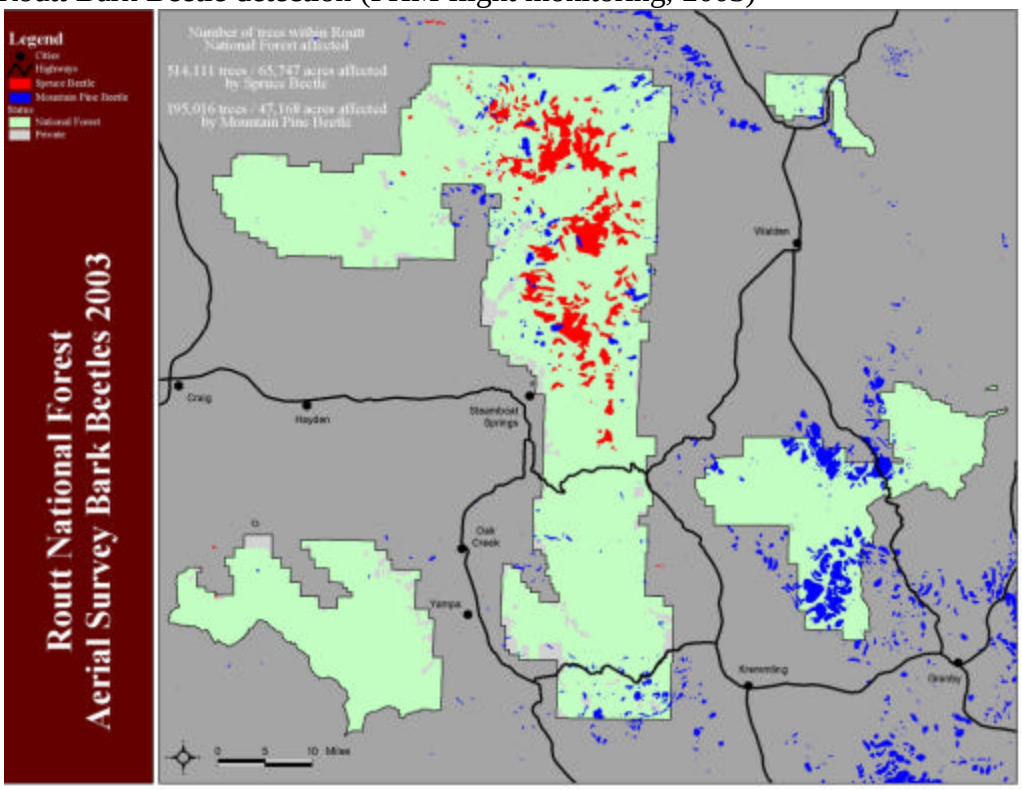
The Routt Forest has been significantly impacted by severe concurrent bark beetle epidemics in the lodgepole and spruce types. The Medicine Bow is dominated by lodgepole pine in its forested landscapes but is in a similar late seral to mature condition. Evidence of increased bark beetle activity is being observed.

The following graphics display the upsurge of spruce (red) and mountain pine bark beetle (blue) populations on the Routt and Medicine Bow from 1996 through 2003.

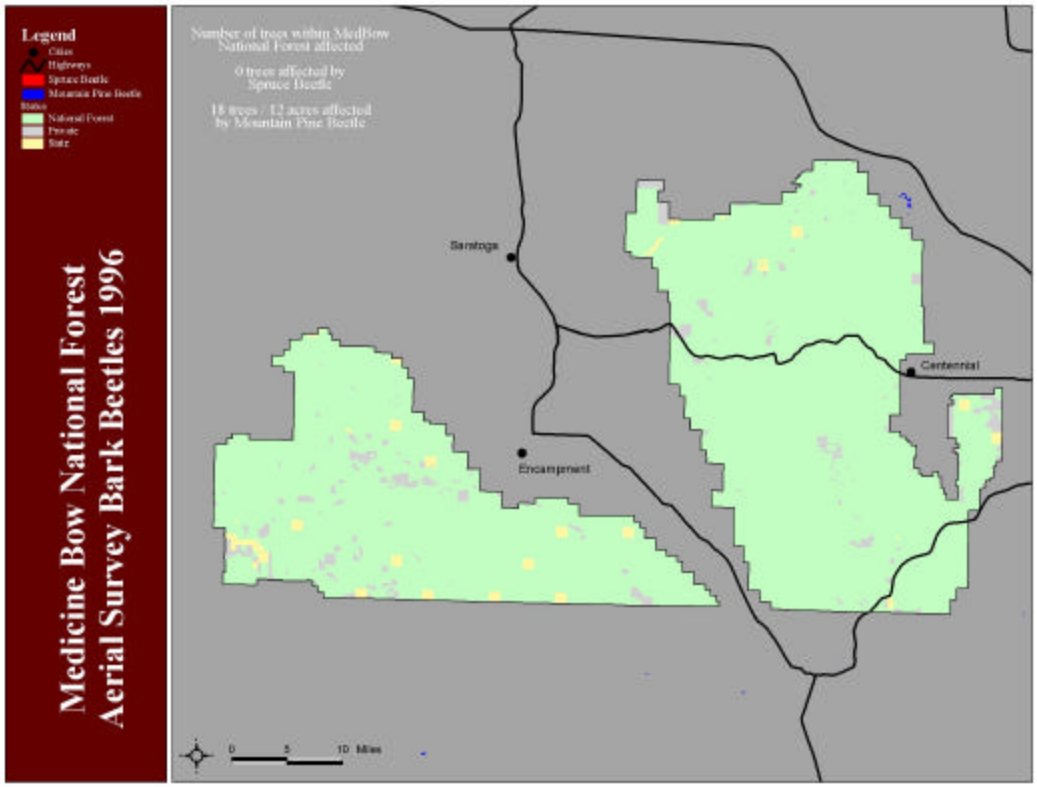
1996 Routt Bark Beetle detection (Forest Health Mgt. [FHM] flight monitoring, 1996)



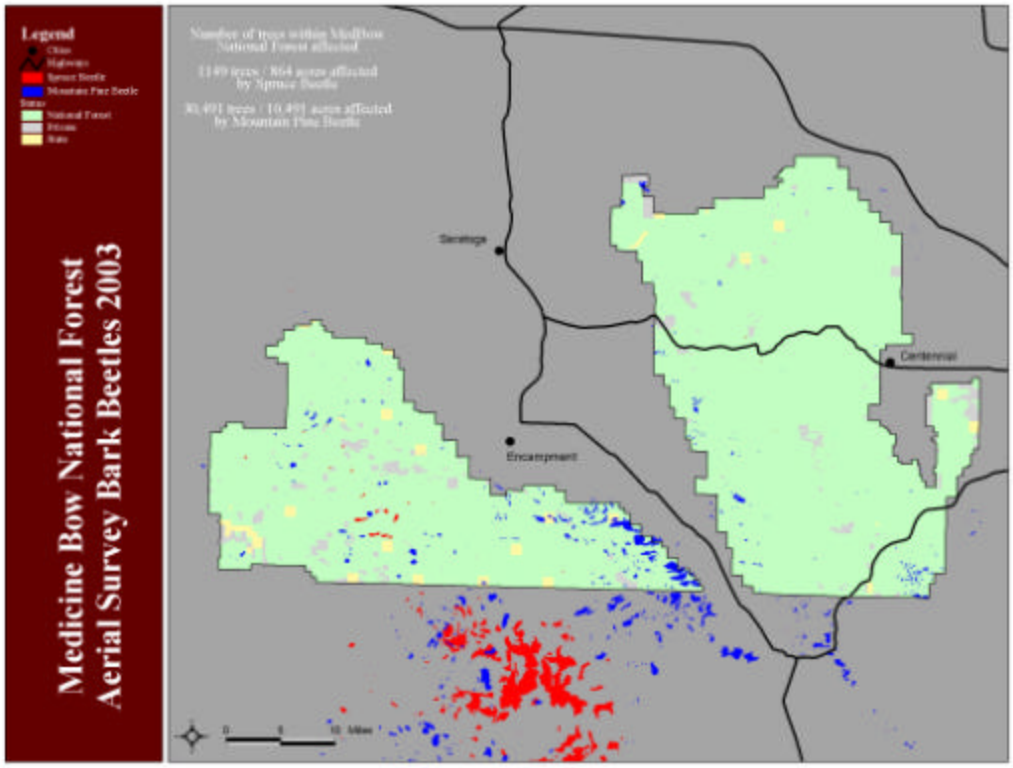
2003 Routt Bark Beetle detection (FHM flight monitoring, 2003)



1996 Medicine Bow Bark Beetle detection (FHM flight monitoring, 1996)



2003 Medicine Bow Bark Beetle detection (FHM flight monitoring, 2003)



The accompanying AWRP *Forest Health Situation* maps displays the **fire *hazard*** and **insect and disease *risk***[1] conditions on the MBR-TB. The break out by approximate percentage of Forest acres[2] by hazard and risk condition shows the following:

- 43% of 2.3 million MBR Forest acres in a **Low** (green) Hazard and Risk condition
- 48% of acres in **Moderate** (yellow) condition
- 9% of acres in a **High** (red) condition

The Thunder Basin NG lands are 86% High Hazard and Risk condition because of the departure from historic range of variability (HRV) within short fire return interval prairie systems, cheatgrass occurrence, and other development. The fragmented ownership pattern limits opportunities for fuels or vegetation management.

Threatened, Endangered, or Sensitive species (TES) habitat

TES habitat was one of the weighted variables used in the modeling process to create the *Forest Health Situation* maps. Most TES habitat on the NFs is *not* at risk to catastrophic fire loss. Terrestrial species habitat, such as that for lynx, pine marten, or goshawk, is well distributed and the species are mobile. These species are adapted to the fire regimes that predominate on the Medicine Bow and Routt.

Some exceptions that could be threatened by extreme fire activity are Prebles meadow jumping mouse and native cutthroat trout because of their limited ranges and mobility.

The Strategy

The strategy for action that has been underway for over almost two years now includes the following:

Vision

- Reduce the risk of catastrophic disturbances, including extreme stand replacing fire occurrence and insect and disease epidemics, in high value areas.
- Maintain or restore values at risk.
- Provide for ecological processes consistent with ecosystem management and multiple use objectives.
- Implement the National Fire Plan (NFP), its Regional derivatives, the Regional Timber Management Strategy and AWRP.

Focus

[1] For purposes of this AWRP Strategy, *Hazard* refers to those conditions prone to extreme fire severity and *Risk* pertains to the likelihood of an insect or disease epidemic. The *Forest Health Situation* is a modeled aggregate of hazard and risk conditions on the landscape displayed in the maps.
[2] The percentages are for Medicine Bow-Routt NF acres only—2.3 million acres total.

The following actions are being taken to emphasize decisive action and prompt response:

- Identify and prioritize areas for integrated treatment strategies. Criteria for settings priorities are described more fully in the "Criteria for Treatment Priorities" section.
- The Forest has been evaluating, reallocating, and modifying organization and increasing staffing to match the need for action.
- A timber sale pipeline restoration strategy for timber sales has been implemented (Letter to RF, August 2003)-- this strategy yielded a 400% Gate 2 accomplishment in FY03;
    - Larger analysis areas for projects and multiple projects per NEPA analysis.
    - Coordination with Regional staff to ensure project NEPA decisions and quality are consistent with current policy and processes to avoid "fatal flaws" in NEPA decisions.
- Expand mechanical treatments for hazardous fuels reduction to reduce the dependence of the fuels program on fleeting and inconsistent burning windows.
- Use the recent changes in process requirements to reduce "process predicament" and expedite results on the ground:
    - Healthy Forest Restoration Act (HFRA), new categorical exclusions (CEs), stewardship contracting authorities, increased Ranger signing authority and improved appeal review processes;
- Use new tools and become more efficient with existing tools: stewardship contracting, "indefinite delivery, indefinite quantity" (IDIQ) contracts, enterprise teams, etc.
- Foster greater integration of vegetation-related program areas in timber, fuels, wildlife, watershed and range through program manager leadership; and by establishing integrated assessments prior to initiating NEPA proposed actions.
- Ensure support, buy-in, and accountability at all levels of the organization, especially line officers, through an annual "Non-Negotiables" list of priorities.
- Establish a "rapid assessment" process to provide an integrated review of existing and desired conditions prior to initiating proposed actions.
- Complete the Fire Management Plan for the Medicine Bow under the recently revised Forest Plan.
- Continue and expand collaboration with communities, agencies, organizations, and other partners.

The Forest intends to use the products of the AWRP process, such as the *Forest Health Situation* maps to improve priority setting for actions to reduce hazard and risk in ecosystems.

Guiding Principles

Principles driving the AWRP Strategy include providing for firefighter and public safety (the highest priority), fostering greater integration of vegetation-related resource programs, and emphasizing high levels of outputs and desired outcomes.

The following sources, and others not listed here, provide the framework for action:

- ?? *National Fire Plan* (NFP) (2000),
- ?? NFP *Cohesive Strategy* (2000),
- ?? *10-Year Comprehensive Strategy: Implementation Plan* (May 2002),
- ?? Chief's Four Threats from *Managing the National Forest System: Great Issues and Great Diversions* (2003) (addresses Threat 1 – Fuels),
- ?? Region 2 Timber Management Strategy, *The Role of Timber Sales in Managing Forest Vegetation: A Strategy for Achieving Resource Objectives* (June 2003),
- ?? Region 2 *National Fire Plan Strategy* (October 2002),
- ?? Conservation strategies for various species of concern, such as lynx, Colorado River cutthroat trout, northern goshawk and others; R2 consultation streamlining.

Social values such as the desire to see large trees retained and old forest conserved are built into the AWRP Strategy. Without integrated management intervention, the prediction is that virtually all mature spruce and most of the mature lodgepole within active epidemics will be killed by bark beetles. Efforts to actively intervene in the current bark beetle epidemics by removing infested trees and thinning stands at risk adopt the idea of "cut one tree to save two" and focus on retaining some component of mature forest or trees in high value areas. On suitable timber lands, salvage of infested and dead trees to capture value and regenerate harvested areas will be accomplished consistent with Forest Plan direction.

Goals by National Fire Plan "Key Point"

MBR-TB Goals for Key Points (KP) 1, 2, 4, 5 and 6 (research where applicable) align with those identified in the R2 *National Fire Plan Strategy* (October 2002). KP #3 Fuels Management goals remain equally relevant to this Forest strategy. However, we supplement this set of KP#3 goals to reflect the desired condition of maintaining public land values and resources that are at risk to extreme stand-replacing fire in ecosystems that have long fire return intervals, and therefore, are *not* in an uncharacteristic condition with respect to HRV.

The above framework documents and subsequent recent legislation (e.g., HFRA) and rule-making appropriately emphasize aggressive restoration treatments of fire-adapted systems that are in *uncharacteristic* conditions, primarily from fire exclusion and suppression-- for example, Colorado Front Range ponderosa pine types. The MBR-TB includes ponderosa pine on Laramie Peak and shrub types at lower elevations that fit this *uncharacteristic* condition.

In contrast, extreme stand replacing fire events in lodgepole pine (Fire Regime IV) and spruce-fir (Fire Regime V) systems are part of the *characteristic* successional cycle. Yet, stand replacing disturbances, regardless of the HRV and the "normal" predicted successional pathway, can dramatically and catastrophically impact critical infrastructure, private developments, watershed function, water quality, TES species habitat, human health and safety, and other resource and socio-economic values--as much as that of fire-adapted systems that are *outside* their HRV (see graphic).

For example, the Routt had been called the "asbestos forest" because large and extreme fire events have been relatively rare. The spruce-fir and lodgepole pine ecosystems that dominate the forest landscape have progressed along a successional pathway with limited and isolated disturbance events. The ecological development of these systems over the last century has progressed to a stage where late seral and mature forest vegetation dominates the Forest. Within recent memory, fire occurrence has not played a significant role in shaping the landscape, nor has the historically aggressive fire suppression policy contributed significantly to the present conditions in spruce-fir and lodgepole.

Since a large-scale blowdown event in 1997 leveled approximately 13,000 acres of mature Engelmann spruce, disturbance has dramatically altered the Routt spruce-fir landscape. The spruce blowdown provided significant brood habitat for spruce bark beetle and a beetle epidemic continues to expand. The blowdown, bark beetle, and continued drought events promoted subsequent increased fire size and intensity, including an historic 2002 fire season in which nearly 35,000 acres burned on the Routt.

Concurrently, the interaction of extreme drought and a preponderance of mature age classes and high stand density in lodgepole pine have promoted an intensifying bark beetle epidemic throughout many areas on the Routt.

These trigger events and the corresponding large-scale, extreme intensity disturbances that ensue are considered to be characteristic of these systems. Yet, once the trigger events occur, the large scale disturbance and the subsequent extreme wildland fire occurrence can lead to undesirable, even catastrophic, outcomes for resource values and multiple use management.

The Medicine Bow is mostly comprised of long fire return interval systems typical of high elevation subalpine forests. It possesses many similar conditions as the Routt although lodgepole cover types dominate the forested landscapes more so than Engelmann spruce, largely because of drier sites and more recent disturbance history. The MB has also been highly influenced over that previous 150 years by timber harvest and fire. While the mean fire interval is difficult to predict within a modified forest landscape, especially given nearly a century of fire suppression, it is believed that the likelihood of large stand replacing fire events is comparable to that of an unmanaged lodgepole pine dominated system, such as Yellowstone National Park[3].

Bark beetle activity is increasing significantly, exacerbated by drought and mature stands conditions (see bark beetle maps). In contrast to the Routt, where spruce beetles are dramatically conspicuous, the bark beetle epidemic in lodgepole pine is the dominant disturbance event on the Medicine Bow, commensurate with the preponderance of the lodgepole cover type. A significant increase in spruce beetle is occurring, too, with important local effects, such as loss of desirable mature spruce in popular recreation areas and campgrounds.

[3] Dillon G., Knight D., and Meyer C., *Historic Variability for Upland Vegetation in the Medicine Bow Noational Forest.* February 10, 2003)

Debris flow from a “characteristic” fire event in Spruce-fir-LP (Mt. Zirkel complex, 2002). A *$1.2 Million* BAER project ensued to stabilize watersheds damaged by extreme burn severity.

On the Medicine Bow and Routt, these disturbance events are characteristic of high elevation forests but have significant consequences for other resource objectives, social values, and public uses. Therefore, **in addition to the KP #3 Goals stated in the Regional NFP strategy, we add the following goal:**

?? Reduce the potential for *characteristically* severe wildland fires in long fire return interval ecosystems that pose a threat to municipal and critical watersheds, TES habitat, and other significant resources values, while restoring fire and other disturbance agents as an ecological process where consistent with overall desired conditions.

Integrated program delivery

Increased coordination among Forest Resource Team Leaders, called RTLs, has been emphasized to focus on opportunities for integrated management strategies at the project level. Examples include coordination between Range and Wildlife RTLs to resolve livestock grazing and big game conflicts, and collaboration with State game agencies on elk numbers and habitat/rangeland condition concerns; timber, fuels, watershed, and wildlife RTLs to develop vegetation management strategies for vegetation projects that respond to habitat needs.

In April 2002, in response to observed increases in bark beetle activity, a forest-wide integrated rapid assessment of insect hazard and risk and bark beetle occurrence on suitable timber acres was conducted. The findings from this were used to recast the timber program to prioritize those areas where risk was mod-high and bark beetle activity was occurring and/or building. This led to development of a dramatically increased timber sale program and re-ordering of the 5-year timber and fuels programs. The Forest continues to adapt this process with continued monitoring of bark beetle activity and annual refocus of the timber and fuels programs to a rapidly developing hazard and risk situation.

This winter, the Forest began a NFMA rapid assessment of a 70,000 Rock Creek watershed to be completed this January. A subsequent NEPA proposed action will then be initiated with an FEIS to be completed in a year by spring of 2005. Last year, Rock Creek witnessed an exponential increase in detected bark beetle mortality over 2002 levels. This interdisciplinary rapid assessment evaluates the array of resource interests at the Rock Creek watershed scale, identifies existing and desired conditions, then opportunities for management actions that can be developed into proposed actions for NEPA analysis and decision. This assessment process will be used as a template for future vegetation management proposals and is expected to improve delivery of integrated project proposals and cumulative landscape scale outcomes progressing toward desired conditions.

Criteria for treatment priorities

The following factors will be evaluated in developing project proposals and annual programs of work:

- WUI[4], critical watersheds[5], TES habitat (per Cohesive Strategy and NFP)
- Insect and disease occurrence above endemic or at epidemic levels; particularly where such occurrence is incompatible with land management objectives, such as interface areas, developed sites, high use recreation areas, suitable timber lands, habitat of species of concern;
- Areas where hazard and risk conditions are high-moderate but the trigger or disturbance agent is not present or active above endemic levels;
- Opportunities to maintain a favorable Condition Class or limit the "values at risk" condition;
- Available and willing partners and collaborators.

While these are somewhat in order of relative priority, this is not a "cookbook" hierarchy. The specific interaction of these factors, and others, within a project proposal will determine feasibility, timing and scope of any project. Funds and staffing considerations will always be a significant consideration in project planning.

The current national policy emphasizes fire-adapted systems characterized by short fire return intervals that are outside their HRV. The preponderance on the MBR of long fire return interval of upper montane or subalpine systems presents some disadvantage for treatment and funding priority or emphasis. However, the MBR has unique and distinguishing values some of which are increasingly at risk to extreme fire severity. The Forest will emphasize conserving *values at risk*--where larger scale, high severity, stand-replacing fires are incompatible with land management objectives. We will use the available process tools, where applicable, to respond to vegetation management needs to conserve resource values and opportunities for public use and enjoyment.

Barriers to Implementation

The three Forest and Grassland Plans have been revised. We are in the ramp-up phase to understand, interpret, and implement these plans. Monitoring will be a challenge for the 3 plans with NFIM funding commensurate to one land management plan, not three plans. Limited Plan monitoring will make adaptive management difficult. We have assigned a team the task of integrating the 3 Forest plan monitoring plans into one that can be monitored within the anticipated tight NFIM constraints.

Funding availability and stability—see previous graphs of WFHF funding. The MBR-TB is not Front Range and not strictly Condition Class (CC) 2 or 3 or Fire Regime (FR) 1,2, or 3. Most of the elevated hazard and risk conditions are in systems that are not outside

[4] WUI generally includes the area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation fuels. This can vary by project, depending on site-specific conditions, such as risk, potential for fire severity, fuels class, and other relevant factors.

[5] Critical watersheds include those with significant aquatic values and may include municipal watersheds, native trout fisheries, outstanding non-native fisheries, or Wild and Scenic Rivers.

HRV. This may create a problem competing for funds to address forest health needs. We will continue to emphasize values at risk and responding to forest health hazard and risk conditions that pose a threat to land management objectives or desired conditions.

There is limited expertise in and availability of Contracting Officer's Representative (COR) skills among fuels program staff. This makes fuels management through increased contracting challenging.

There is a need to expand fuels expertise and training to develop a qualified burning cadre, particularly if burn windows open across a large area. More cross-discipline collaboration between timber and fuels staff in vegetation management: for example, timber contracting and silviculture expertise with fuels modeling and treatment strategies expertise.

There are continuing appeals in timber and mechanical fuels projects. Issues are often related to wildlife and MIS. We will continue to emphasize quality, but timely, NEPA analysis and documentation, and use the new process tools

The wood products industry is in considerable flux. The Louisiana-Pacific (L-P) mill in Saratoga, WY closed, and was subsequently bought by Intermountain Forest Resources (IFR) but it is uncertain whether IFR will reopen the mill or scrap it. IFR has a large supply of accessible, available wood from Colorado fire and salvage sales near their Montrose mill, which may affect their interest in bidding on MBR sales. The capability of a new small material mill in Encampment is uncertain. Big Horn Lumber, the local mill in Laramie, has been acquiring wood from sources in CO with bark beetle epidemics on private lands. Because of this alternative private wood source, Big Horn has expressed little interest in upcoming MBR timber sales. Mechanical fuels treatments through commercial timber harvests, conventional timber sales, salvage sales, POL--which feature lower value small material--face an uncertain market.

We are seeing upward trends in cheatgrass occurrence on the Forests, probably drought related. Some areas with proposed Rx burns are affected. The Forest is planning to conduct a Forest-wide EIS to do aerial spraying to control cheatgrass in 2005. This could affect ability to burn and/or increase costs for cheatgrass control where burning is done. Related to this is the need for an economical source of native plant materials and seed for revegetation, restoration and rehab needs.

Bottlenecks are increasing in Heritage Resources (HR) and Wildlife support as area analysis size increases. The MBR-TB is adopting a Forest-wide IDIQ contract for HR support to improve timeliness. We will continue to use the R2 streamlining consultation process, and counterpart regulations for HFRA-qualified projects, to move projects through to implementation more quickly with no loss of quality or no material increased risk to listed species.

Collaboration and partnerships

Collaboration with State, Tribal, local agency, non-government organizations (NGOs), landowners, and other partners is an ongoing part of fuels and vegetation management program planning and implementation. This will continue as a core activity.

Some of the many examples of ongoing collaboration include:

- Southeast Wyoming Wildlife Habitat Partnership: an interagency vegetation assessment involving Wyoming Game and Fish, BLM, University of Wyoming, and NRCS focusing on lower elevation shrub habitat (MBR-TB S.O., Brush Creek-Hayden and Laramie Ranger Districts).
- Pennock prescribed burn with RMEF, Wyoming Game and Fish, and BLM (Brush Creek-Hayden).
- Camp Creek with RMEF (Parks)
- Gore Lakes with BLM and private landowners (Yampa).
- Rock Creek rapid assessment with BLM (Yampa)
- Fuels treatments near Steamboat Lake on the Hahn's Peak RD with Colorado State Parks and private landowners (Hahns Peak-Bears Ears).
- Ryan Park Stewardship project with local landowners and county officials (Brush Creek-Hayden).
- Upton-Osage fuels project with State of Wyoming and local landowners (Douglas).
- Awarded Albany County (WY) $30,000 for a countywide fire hazard assessment, which includes 42 sub-divisions and several WUI communities.
- Awarded Jackson County (CO) $30,000 for a countywide fire hazard assessment.

Wildlife program partners on habitat management projects include Colorado Division of Wildlife, Wyoming Game and Fish, Rocky Mountain Elk Foundation, Mule Deer Foundation, Quails Unlimited, BLM, NRCS, and others.

Monitoring and Adaptive Management

Monitoring of this Strategy occurs through the following process:

- Development of the annual program of work—factoring in Congressional, national, and regional budget advice and priorities;
- Annual reevaluation of "Non-Negotiables"—the process that identifies the highest Forest priorities and assigns them to staff to accomplish;
- Annual performance accountability through Performance Plans; supervisors throughout the MBR-TB establish performance expectations and projected fiscal year accomplishments;
- Forest Leadership Team (FLT) review and concurrence on BFES[6] program priorities and out year funding submissions—including consistency with the priorities established in this Strategy;

[6] Budget Formulation and Execution System—the Forest Service budget planning system.

- Reviews of project implementation, treatment strategies, achievement of desired results, progress toward desired conditions in the landscape context;
- Periodic review and monitoring of organization and staffing on the MBR-TB —to determine appropriate staffing, quality, availability and distribution of expertise.
- Forest Plan and project monitoring will provide feedback to FLT with confirmation of progress toward desired conditions or recommendations for change.

Adaptive management is a process in which periodic monitoring is conducted and feedback is provided on whether objectives are being achieved or if change is needed to management direction, strategies, or practices. Adaptive management is instituted on the MBR-TB through the following:

- Ask the question—are we getting the desired results in efficiency, timeliness, and delivery of our programs while maintaining or improving quality?
- Review Forest plan and project monitoring findings for successful attainment of or departure from expected outcomes;
- Results of project reviews are used to identify a need for change; keep Forest Plans dynamic;
- Continued employee development--to ensure our expertise is maintained and current with science, technical understanding, policy requirements, and processes:
  - ?? Encourage employee participation in continuing education, professional societies, Regional program meetings, on-Forest "technology transfer";
- Monitor and be responsive to changes in funding, policy (e.g. Roadless), and priorities (HFRA, AWRP);
- Modify programmatic direction and management practices based on above.

Conclusion

The MBR-TB has been aggressively ramping up its response to the dynamic changes in vegetation condition and the emergence of a series large-scale disturbance events in recent years. This AWRP Strategy will be useful in building on momentum already achieved.

Details and "how-tos" are be more specifically developed in the *AWRP Five Year Plan* to be submitted in the near future. The MBR-TB looks forward to a working partnership with the Region as we move forward.