

# GREEN RIVER REGION

## HABITAT PROJECTS

### Elk Mountain/Red Canyon Burn

This was a 20,000 acre prescribed burn block completed in September of 2007 by the BLM Kemmerer Area Field Office. The burn targeted 10,000 black acres and included aspen, sagebrush/grass, and mixed mountain shrub vegetation types (Figure 1a, b, and c). In the absence of fire, many of these plant communities were in a decadent and dying state with little vigor or age class diversity. This was originally two separate burn units adjacent to each other, but was implemented as one project to save time and money. This burn was planned adjacent to a Wildland Urban Interface (WUI) area (Twin Creek Subdivision, oil and gas infrastructure, and Lewis Ranches). The objectives were: 1) to reduce hazardous fuel accumulations in the WUI; and 2) create a mosaic of burned and unburned areas to improve vegetative community health, vigor, composition, and age class diversity.



Figure 1a.



Figure 1b.



Figure 1c.

Figures 1a, 1b, 1c. Prescribed Burn - Elk Mountain Red Canyon Area.

- Rx burn treatment of 20,000 in Elk Mountain/ Red Canyon.
- Rx burn treatment of 9,127 acres in upper Sage Creek watershed.
- Beaver transplanted to improve riparian habitat on Corral Creek.
- Live/Dead index used to monitor effects of elk browsing to aspen on Little Mt.
- Beaver dam trend survey implemented to monitor watershed health.
- Grizzly WHMA forage reserve used to improve forage on 19,600 acres of mule deer winter range.
- Grizzly WHMA forage reserve used to improve riparian habitat for sensitive native fish species.

With proper post-burn management it should improve watershed health; crucial big game winter and transitional range for mule deer, elk, moose, and antelope; brood rearing habitat for sage grouse; and habitat for several other sagebrush obligate species. These improvements will assist in achieving the objectives of the Kemmerer Resource Management Plan (RMP) and the Cumberland and Twin Creek allotment management plans. The project also supports the WGFD's big game herd unit objectives for the area.

Multiple agencies, organizations and individuals supported and/or provided funding for this prescribed burn. They included the BLM, WGFD, Southwest Wyoming Sage Grouse Working Group, Wyoming State Forestry, thirty- nine livestock permittees, four private landowners, RMEF, WWNRT, Jonah Interagency Mitigation and Reclamation (JIO), Wyoming Landscape Conservation Initiative (WLCI), and the WGBGLC. Collectively \$337,000 was received from these groups to implement this large landscape treatment. As a result of obtaining this much contributed money, the Kemmerer Field Office was able to give another BLM field office in the zone their additional dollars to implement another project. Although objectives differed between agencies and individuals, the group was able to negotiate and work together to successfully complete the project. This cooperative effort took place throughout the entire process from pre-burn vegetation data collection, interagency field trips to set the objectives of the project, writing the burn plan, implementation involving all agency personnel, and post treatment monitoring. The vegetation treatments in this area are being done in conjunction with an elk collaring study jointly supported by the U.S. Geological Survey (USGS), BLM, NPS and WGFD. Elk were collared in an effort to determine the effects of treatments (prescribed burns, herbicide treatments, un-grazed NPS lands/grazed BLM lands); what areas the elk use at different times of the year; and the effect of grazing on these treatments.

### **S**alt Wells Basin Prescribed Burn

The aquatic habitat biologist assisted the Rock Springs BLM wildland fire crew in completing the Salt Wells Basin prescribed burn during late March and April. The Salt Wells Basin project was located approximately 32 miles south of Rock Springs in the headwaters of the Sage Creek watershed, which includes several seep and spring sources that feed upper Sage Creek. The goal of the project was to enhance aspen, mountain shrub and sagebrush community health, and improve wildlife habitat and watershed function. Approximately 9,127 acres of vegetation were treated with prescribed fire in a mosaic pattern throughout the project area. Much of the burn project area included sagebrush grassland habitats, which supports active sage grouse leks. Fire crews implemented the burn to meet the immediate habitat needs for sage grouse, and successfully produced a fine-scaled mosaic burn pattern across the landscape with the appropriate amounts and juxtaposition of burned and unburned sagebrush habitat (Figure 2). Sage grouse and several other wildlife species are expected to benefit from the diversity and edge created by interspersed small patches of forb/grass within larger intact sagebrush stands. Moreover, the project should improve precipitation infiltration and yield greater water in Sage Creek for the benefit of native fish and other wildlife.



Figure 2. A representative portion of the Salt Wells Basin prescribed burn mosaic. (BLM photo courtesy of Thor Stephenson)

## Wyoming Range Conservation Easement

During 2007 a landowner having crucial big game winter range and riparian habitat expressed an interest in developing a permanent conservation easement with the WGFD on 3,100 acres of the ranch near the Green River (Figure 3.) These lands are classified as crucial winter range and yearlong range for elk, deer, moose, sage grouse and pronghorn. Additionally, this will provide an open space easement to secure an important migration corridor for pronghorn traveling from winter to summer ranges. Numerous species of non-game birds and mammals including Species Of Greatest Conservation Need identified in the WGFD's "Comprehensive Wildlife Conservation Strategy For Wyoming 2005" will benefit from protecting these habitats. LaBarge Creek and Fontenelle Creek also have populations of Colorado River Cutthroat trout and are excellent fisheries. Currently lands directly adjacent to these properties are being sub-divided so the potential for sub-division of these lands is high. This easement will secure long-term protection of these habitats from sub-division and will ensure a viable livestock operation and wildlife habitat in the future.



Figure 3. Potential Conservation Easement along Wyoming Range Front



Figure 4. One of the beaver live trapped from the City of Green River and transplanted to upper Corral Creek during September.

## Corral Creek Beaver Transplant

At the request of a private landowner desiring beaver for his property, a pair of nuisance beaver were live trapped and transplanted to suitable habitat on upper Corral Creek in the Ham's Fork River drainage. A beaver colony residing along the Green River in Scott's Bottom Park had been cutting down a large number of mature cottonwood trees in the park, creating a damage management issue for the City of Green River. Two yearling beaver were live trapped and removed from the colony (Figure 4) during early September, and released to the upper Corral Creek location. Upper Corral Creek has several relict beaver ponds that are no longer active, but also supports healthy willow and aspen riparian communities sufficient for sustaining a beaver colony. The landowner recognizes the benefits of active beaver ponds in maintaining riparian habitat health and stability and reintroduced beaver to improve fisheries and wildlife habitat on his lands.

## Little Mountain Aspen Community Monitoring

Concerns heightened during 2007 regarding the future health of aspen communities in the Little Mountain ecosystem. Heavy browsing of aspen regeneration primarily by elk remains a widespread problem with several aspen stands in the area, and elk barking of mature aspen tree trunks is more prevalent in these stands as well. During recent years, browsing of the terminal leader of aspen regeneration less than 7 ft in height appears to be suppressing vertical growth and may prevent younger trees from replacing old trees as they die out. Moreover, drought combined with chronic browsing of aspen suckers and barking of mature trees reduces vigor and weakens trees, leaving them vulnerable to disease and possible death (Figure 5). If the chronic browsing of aspen regeneration is not addressed, aspen could gradually disappear from this landscape.

A Little Mountain aspen stand (Figure 6) located between the Middle Fork and East Fork of Currant Creek was treated with prescribed fire in 1992. The larger image was taken in July 2002 and shows vigorous aspen regeneration response to fire treatment. The smaller inset photo is a close up of the same site taken in October 2007, and shows the effects of chronic elk browsing. These aspen suckers are suppressed in height, deteriorated in health, and several are dying or dead. Moreover, the low vigor aspen regeneration is unable to compete with other vegetation, and as the aspen canopy thins, understory soils are becoming warmer and dryer. These conditions are allowing sagebrush the competitive advantage to invade and replace the aspen on this site.

Three additional monitoring sites were established on Little Mountain to further evaluate browsing effects on aspen regeneration in burned and unburned stands. The Live-Dead (LD) Index described by Keigley et al. (2002) was used in the surveys. The LD index measures and compares the height of initial growth point for the current year's terminal leader to the height of the tallest previous terminal leader branch that was killed as a result of browsing. A positive LD value indicates uninterrupted young tree growth and/or recovery from browsing, and suggests regeneration maintains the potential to grow to maturity and replace older aspen trees when they die. An LD value near zero indicates that browsing is suppressing young aspen growth, and a negative LD value indicates significant aspen decline and possible death of young trees. Results from the 2007 Little Mountain survey revealed an average LD index value of  $-2.4$  inches for aspen regeneration  $< 6$  ft in height, suggesting significant aspen decline. Most (72%) aspen regeneration displayed browsing of the terminal growth leader during the 2007 growing season. The net annual growth rate of young aspen trees  $< 6$  ft in height was also measured as part of the survey, which is the average growth a tree experienced during the previous three year period based on measurements between growth ring scars. The mean net annual growth rate of aspen regeneration for all three survey sites was estimated to be 3.6 inches of growth per year. At this growth rate, it would require about 27 years for a newly sprouted aspen sucker to reach

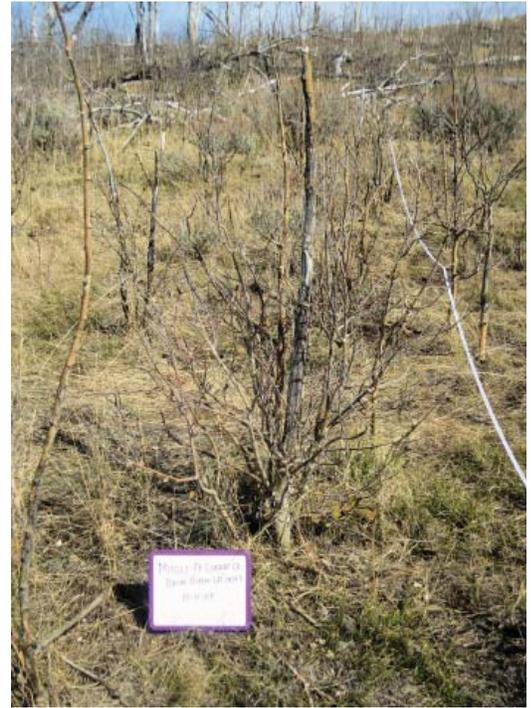


Figure 5. Severely browsed aspen sucker on Little Mountain exhibiting impeded vertical growth, dieback, and disease.



Figure 6. Aspen regeneration at a site on Little Mountain in 2002 and 2007 (inset photo). Note the deteriorated condition of aspen suckers resulting from heavy elk browsing.

a height of 8 ft (height threshold needed to safely escape big game browsing) if it was able to maintain enough vigor to survive. By comparison, new aspen suckers in the same area that had been fenced and protected from browsing required between 7 and 10 years to achieve a height of 8 ft.

### Upper Muddy Creek Watershed Beaver Dam Trend Survey

A beaver dam trend survey was completed for the upper Muddy Creek drainage during late summer 2007. The survey involved ground reconnaissance of all beaver activity in upper Littlefield Creek and Muddy Creek upstream of its confluence with Littlefield Creek, including lands on the Grizzly WHMA. Survey information collected included the GPS location of beaver dam activity, whether or not dams were intact and retaining water, if beaver were active and maintaining dams, if dams were breeched and abandoned by beaver, locations of recently constructed dams (Figure 7), and the materials used to construct dams. Surveys will be repeated every five years, and the trend information will be used to evaluate ecological response to watershed restoration and management activities.



Figure 7. A newly constructed beaver dam complex in upper Muddy Creek on the Grizzly WHMA.

There were an estimated 2.1 active beaver dams per mile on upper Muddy Creek between the headwaters spring and the Littlefield Creek confluence (Table 1). There were approximately 2.5 active beaver dams per mile within that reach of Muddy Creek flowing through the Upper Muddy Riparian Pasture on the Grizzly WHMA, and an estimated 2.8 active dams per mile within the stream reach flowing through the Lower Muddy Creek Riparian Pasture. Ultimately, upper Muddy Creek riparian restoration goals should strive to enhance willow community health and productivity to sustain 5-10 active beaver dams per stream mile. Achieving this goal will assist in promoting and maintaining sound aquatic habitat conditions for the recently completed native fish reintroduction in this segment of Muddy Creek.

Table 1. 2007 Muddy Creek Beaver dam survey data.

Beaver Dam Status	Dams surveyed In 2007	Beaver Dam Construction Materials			
		Willow	Sedge/willow	Willow/Sagebrush	Sagebrush
Active	21	11	1	8	1
Inactive	8	6	0	2	0
Breeched	10	5	0	4	1
Total	39	22	1	14	2

A baseline beaver dam survey was also completed for Littlefield Creek (Table 2) between the headwaters spring downstream to the existing fish movement barrier site at UTM zone 13N E296504 N4591480 (NAD-27). The native fish assemblage of Colorado River cutthroat trout, mountain suckers, and speckled dace was restored in Littlefield Creek by 2003. Stable beaver ponds are an important habitat component in the middle section of Littlefield Creek because they provide fish with deeper pool habitat for winter and summer thermal refuge, and assist in maintaining stream stability and function. The Littlefield Creek beaver dam survey will serve to track trends, evaluate aquatic habitat conditions, assist in land management decisions, encourage continued habitat restoration and ensure the success of native fish reintroduction efforts.

Table 2. Littlefield Creek 2007 baseline beaver dam trend data.

<b>Beaver Dam Status</b>	<b>Dams Surveyed In 2007</b>
Active	15
Inactive	5
Breached	0
Sagebrush	0
Total	20

All active beaver dams were in a 0.6 mile stream reach in the mid section of the drainage, and all active dams were constructed of willows and sedges. Much of the upper and lower sections of Littlefield Creek lack adequate woody riparian vegetation for suitable beaver habitat.

### **Wildlife Biologist and Game Warden Vegetation Monitoring**

Wildlife biologists and game wardens completed a second season of monitoring fall shrub production. Species selected for monitoring are considered important browse for big game. Dry conditions resulted in reduced browse production throughout the region.

### **Hams Fork Watershed Aspen Restoration**

Meetings and field visits were held with the USFS, Kemmerer Ranger District to examine opportunities for aspen restoration in the Hams Fork watershed. The project area boundary is the forest boundary to the south, the Hams Fork on the west, the East Fork on the north and Commissary Ridge on the east. Within this 30,000 acre project area, 8,500 acres are proposed for treatment primarily using prescribed fire. Mechanical treatment will also be considered. It is anticipated that project inventory, planning, and funding requests will be completed in 2008 and activities may begin as early as spring 2009.

### **Uinta Conservation Easement**

Discussions were initiated with a landowner concerning a potential conservation easement on 320 acres of deeded land surrounded by BLM land. Other private lands in the vicinity have been sub-divided so the potential for sub-division is high. This property supports sage grouse, moose, pronghorn, elk and mule deer and is within a major migration corridor for big game traveling from winter to summer ranges in the Uinta Mountains. This project will be funded through the WGFD trust fund and additional funds have been requested from the South West Sage Grouse working group

### **Little Bitter Creek Riparian Restoration**

During this reporting period approximately 300 acres of perennial pepper weed (whitetop) and tamarisk were treated in the Little Bitter Creek watershed south of Rock Springs. Cooperators in the project were Anadarko Petroleum Corporation, BLM, Kappes Ranch, Sweetwater County Weed and Pest, WGFD, and the WWNRT. Terrestrial and aquatic wildlife should benefit from the project.

## **Green River Basin Coordinated Weed Management Area**

During this reporting period \$5,000 was awarded to treat weeds on the South Labarge grazing allotment. The money came from the Southwest Wyoming Sage Grouse Working Group. In addition to benefiting sage grouse, this area is classified as crucial winter range for elk, deer, pronghorn and moose. A total of 200 acres were treated primarily for Canadian thistle, Russian knapweed, black henbane and hoary crest.

## **Hickey Mountain Spring Restoration Project**

The vast majority of Hickey and Cedar Mountain are BLM lands; however, the majority of the water is located on private lands. This project will fence off a number of springs on private land and provide off-site water for livestock. This would help protect these springs and provide better water quality for livestock and wildlife. The WGFD is providing trust fund dollars and additional funds have been requested from the South West Sage Grouse working group.

## **Owen Peterson Fence And Spring Development Project**

The perimeter fence on this property is in need of replacement. The landowner would like to replace four miles of existing woven wire fence with wildlife friendly fence (4-wire, 42 inches total height, smooth bottom wire 16" above ground). In total 320 acres of private land will be enhanced. This property also has valuable water resources that could provide livestock and wildlife water with proper development. The landowner would like to protect three springs while providing enhanced water availability to livestock and wildlife.

## **WILDLIFE HABITAT MANAGEMENT AREAS**

### **Grizzly WHMA Forage Reserve**

The Grizzly WHMA continued to be involved in a forage reserve livestock grazing pilot program during 2007 with the BLM and neighboring ranches. Forage reserve management involves exchanging livestock grazing use on the WHMA with local area allotments to enhance the condition of important wildlife habitats beyond the WHMA boundaries. Ranches participating in the 2007 forage reserve included Desert Cattle Company, McCarty Ranch, and Overland Trail Cattle Company.

Desert Cattle Company provided cattle grazing rest on the Cottonwood Hill and Poison Buttes Grazing Allotments located west and northwest of Baggs in exchange for cattle grazing use in five pastures on the Grizzly WHMA. The exchange allowed for 1,790 AUMs of cattle grazing use rest to benefit approximately 19,600 acres of crucial mule deer winter range forage for the Baggs Herd during 2007. The livestock grazing rest provided increased herbaceous vegetation productivity (Figure 8a and 8b), and also improved sagebrush vigor,



Figure 8a.



Figure 8b.

Figures 8a and 8b. Forage reserve benefits at a sagebrush-grassland site in the Poison Basin Allotment during 2007. The April photo shows very little residual herbaceous vegetation from the previous year, and low vigor sagebrush stand condition. In contrast, the October photo depicts increased herbaceous vegetation production with improved sagebrush health.

seed head production, and leader growth (Figure 9). This forage reserve exchange may prove very important in providing mule deer with additional winter forage during 2007-2008, given the combined effects of several drought years and severe winter conditions experienced recently in the Baggs area.

McCarty Ranch provided season long livestock grazing rest on a 860 acre riparian pasture in lower McCarty Canyon in exchange for grazing use in two Grizzly WHMA pastures. The ability to graze two of the WHMA pastures also provided management flexibility and reduced grazing duration and use in other McCarty Allotment pastures. The Overland Trail Cattle Company exchanged grazing rest in the McKinney Creek Pasture of the Pine Grove Allotment for grazing use in the Dennison Pasture on the Grizzly WHMA. The 5,600 acre McKinney Creek Pasture provides important stream habitat for a sensitive native fish assemblage of bluehead suckers, flannelmouth suckers, and roundtail chubs, where healthy riparian habitat conditions are needed to sustain these fishes.



Figure 9. Thrifty sagebrush leader and seed head production available for wintering mule deer and other wildlife resulting from the Grizzly WHMA forage reserve exchange.

## **OTHER SIGNIFICANT ACCOMPLISHMENTS**

- Participated in a discussion panel at the WLCI science workshop in Laramie during May, represented the WGFD on the WLCI field steering committee throughout the year and prepared and submitted FY08 WLCI project proposals, and provided comments for FY08 proposals submitted by other entities.
- Participated as aquatic field lead for review and comments on the Rawlins BLM RMP Draft Environmental Impact Statement (EIS).
- Completed annual willow community trend monitoring on the lower Big Sandy River with the Big Sandy Working Group.
- Participated in planning meetings for the Little Snake River Watershed Aspen Habitat Initiative.
- Provided technical assistance to the Green River Greenbelt Task Force in developing a project to enhance the Killdeer Wetlands.
- Completed annual willow community trend monitoring on the Grizzly WHMA.
- Worked with a private landowner to develop an instream grade control structure project for Currant Creek.
- Worked with USFWS Seedskaadee NWR to plan a fisheries habitat improvement project for the Green River on refuge lands.
- Collected annual stream temperature data from Savery Creek downstream of High Savery Reservoir.
- Worked with BLM to plan a prescribed burn project for the Little Red Creek watershed.
- Facilitated and prepared in interagency coordination meetings with Kemmerer, Rock Springs, and Rawlins BLM Field Offices, Bridger Teton National Forest (BTNF) Kemmerer Ranger District, Uinta National Forest, Cokeville and Seedskaadee NWR.
- Worked as a chair-person on the Cumberland allotment grazing committee.
- Coordinated and met with BLM to discuss potential spring protection projects in the Sage Creek and Cedar Mountain allotments.
- Participated on the statewide moose working group.
- Conducted a media and public tour of habitat treatment sites in the Wyoming Range.