

GREEN RIVER REGION

HABITAT PROJECTS

Willow Tree Springs - Sage Creek Watershed

The aquatic and terrestrial habitat biologists both served as ignition crew members to the Rock Springs BLM Field Office to implement the Willow Tree Springs prescribed burn project on April 8th and 9th. The Willow Tree Springs project is located approximately 32 miles south of Rock Springs in the headwaters of Sage Creek on the southwest face of Miller Mountain. The burn included several seep and spring sources that feed upper Sage Creek. The goal was to treat and enhance aspen, mountain shrub and sagebrush community health, and improve wildlife habitat and watershed function. Approximately 700 acres of vegetation were treated with prescribed fire in a mosaic pattern throughout the project area (Figures 1 and 2). Young aspen and mountain shrub regeneration was observed at some of the treated sites by July.



Figure 1. Prescribed fire treatment being applied in a mosaic pattern at Willow Tree Springs during April.



Figure 2. Prescribed fire being used to stimulate regeneration in decadent aspen stands on the southwest face of Miller Mountain.

An aspen regeneration monitoring site was established in the Willow Tree Springs prescribed burn at UTM zone 12, E654337, N4559140 NAD-83. An eight foot square sided, six foot high cattle panel enclosure was erected on July 7th shortly after young aspen suckers sprouted at the site. Mean aspen sucker height, sucker densities, and incidence of sucker browsing were measured inside and outside of the enclosure during October (Table 1).

Table 1. Aspen regeneration baseline data collected from trend monitoring site at the Willow Tree Springs prescribed burn area in 2006.

Aspen Information	Inside Enclosure	Outside Enclosure
Mean height of aspen regeneration (ft)	1.2	0.3
% Aspen suckers browsed	37	84
Estimated density of aspen suckers per acre	31,309	8,333

- 700 Acres treated with Rx fire in the upper Sage Creek watershed.
- Heavy browsing of aspen regeneration by wildlife in south Rock Springs area remains a concern.
- WHAM level I survey completed for West Fork Hams Fork River watershed.
- Intermittent nature of flows in the West Fork Hams Fork River limits fisheries potential.
- Grazing management changes produce riparian habitat improvement at some locations along the lower Big Sandy River.
- Completed the first year of a 2-year forage reserve pilot program for the Grizzly WHMA.

Baseline data indicated severe browsing of aspen suckers at the site during 2006. A limited amount of rodent browsing was observed inside the exclosure, which did not appear to significantly affect sucker heights or stem densities. However the combination of heavy rodent and big game (elk, deer, antelope) use of aspen suckers outside the exclosure greatly reduced mean sucker heights and stem densities (Figure 3). Livestock grazing did not occur in the burn area during 2006, so all the browsing use was attributed to wildlife. This extreme level of browsing by wildlife raises concerns that aspen regeneration may be suppressed or eliminated, preventing perpetuation of healthy aspen habitat in the area.



Figure 3. Aspen regeneration contrasted inside and outside a grazing exclosure at the Willow Tree Springs monitoring site during October.

Aspen Community Monitoring in Red Creek Watershed

Prescribed burn treatments were conducted by the BLM on the southeast face of Little Mountain during the spring of 2005. The project targeted aspen, mountain shrub and sagebrush communities in the headwaters of Daniels Creek, Snow Creek, Costello Creek, and Ely Creek, all located within the Red Creek Watershed. Efforts were initiated during May to select sites to evaluate the response of aspen regeneration to the fire treatment. Several thoroughly burned stands were inspected for regeneration, however, very few aspen suckers were observed. Even though many of the adjacent mountain shrub species produced excellent regeneration, habitat biologists assumed that there might have been a delayed response in stimulation of aspen sucker growth, and opted to return in July to reevaluate the aspen sites.

Reconnaissance during July revealed no significant increase in aspen suckering at any site, and those few suckers present were heavily browsed by wildlife. Given the poor sucker response, it was decided to abandon the aspen trend monitoring planned for this area. We speculate that either the aspen clones in this area did not retain enough vigor to produce significant suckering, or the stands possibly produced a flush of suckers during the first growing season following treatment in 2005 and suckers were aggressively browsed out by big game.

Little Bitter Creek Riparian Restoration

Plans are being developed to treat perennial pepperweed (whitetop) and tamarisk in the Little Bitter Creek watershed south of Rock Springs in the summer of 2007 (Figure 4 and 5). Cooperators in the project are Anadarko Petroleum Corporation, BLM, Kappes Ranch, Sweetwater County Weed and Pest, WGFD, and the WWNRT. Terrestrial and aquatic wildlife should benefit from the project which could serve as a demonstration area in the future.



Figure 4. An area along Little Bitter Creek infested with perennial pepperweed and tamarisk.



Figure 5. An area along Little Bitter Creek not infested with perennial pepperweed, which represents a potential target condition.

Wildlife Biologist and Game Warden Vegetation Monitoring

Wildlife biologists and game wardens completed a second season of monitoring fall shrub production. Plants selected for monitoring are considered important browse species. Dry conditions resulted in reduced browse production throughout the Region (Figure 6).

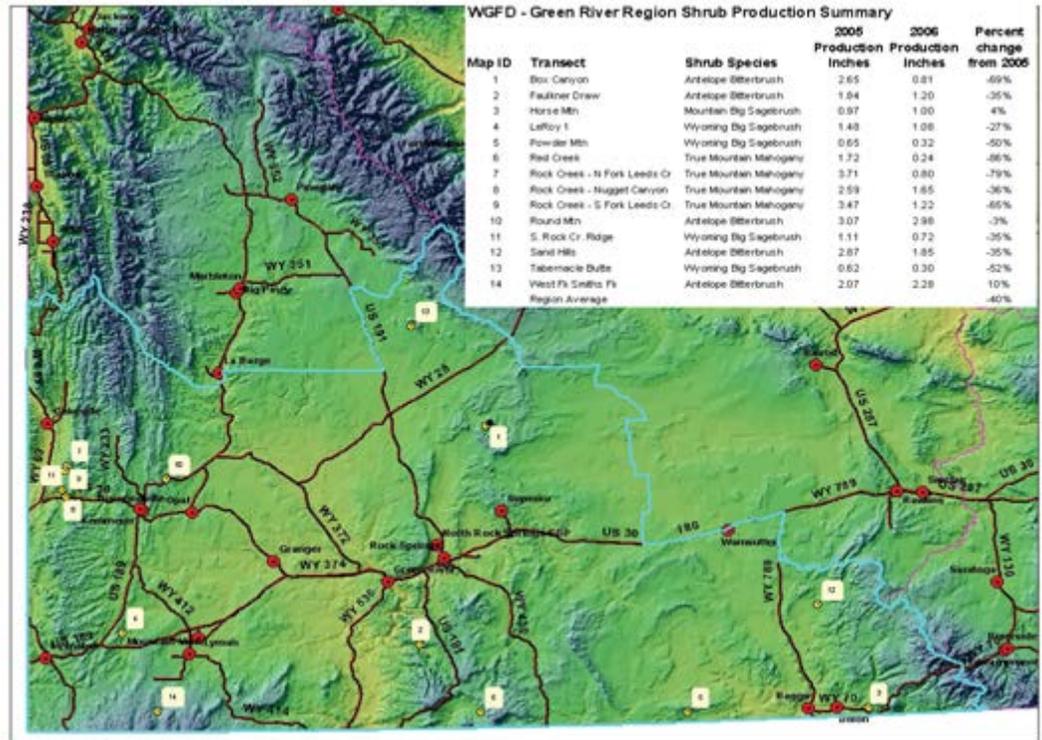


Figure 6. Shrub monitoring sites in the Green River Region and 2005-2006 shrub production monitoring results.

Rock Creek Winter Range Browse Monitoring

True Mountain mahogany is an important browse species for mule deer wintering in the Rock Creek winter range between Cokeville and Kemmerer. Production and utilization measurements have been collected since 1993 at three sites. Production correlates strongly with spring precipitation measurements recorded in Kemmerer (Figure 7). Shrub leader production dropped dramatically from 2005.

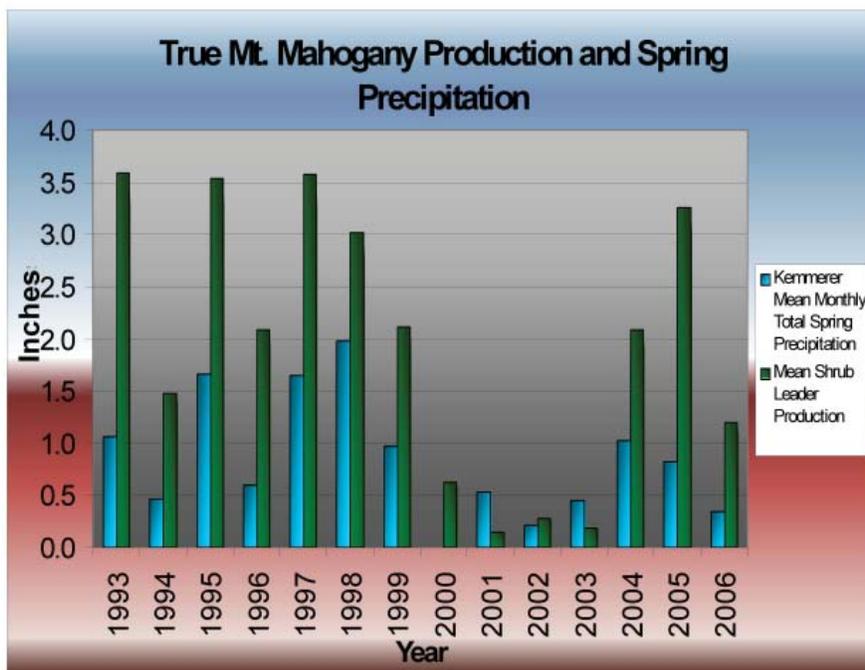


Figure 7. Mean shrub leader production and the mean monthly totals of spring precipitation. Total precipitation during the months of April, May, and June were used. One month of data was missing during the years 1997, 1999, 2002, and 2003.

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. It was decided that the Pole Creek area north of Kemmerer would provide a good starting area to begin developing projects. It is anticipated that project inventory, planning, and funding requests will be completed in 2007 and activities may begin as early as spring 2008.

Southwest Wyoming Remote Sensing Projects

Beta snow mapping products were released, reviewed, and comments provided for improving the product. It is anticipated that final product deliveries for snow cover mapping and land cover change analysis will be completed in 2007. Test site locations (Figure 8) were collected between 2005 and 2006 to assess land cover mapping products in southwest Wyoming. A report was prepared for BLM land cover products in southwest Wyoming. BLM training and test sites were incorporated where they were of adequate quality and available. Many BLM sites were excluded because they were too heterogeneous or small to register with LANDSAT imagery or incorrectly labeled. Classification accuracy was extremely low for both field offices land cover products. It is recommended that land cover be remapped in the Kemmerer and Rock Springs BLM Field Office areas and that existing products not be used for land management or wildlife research.

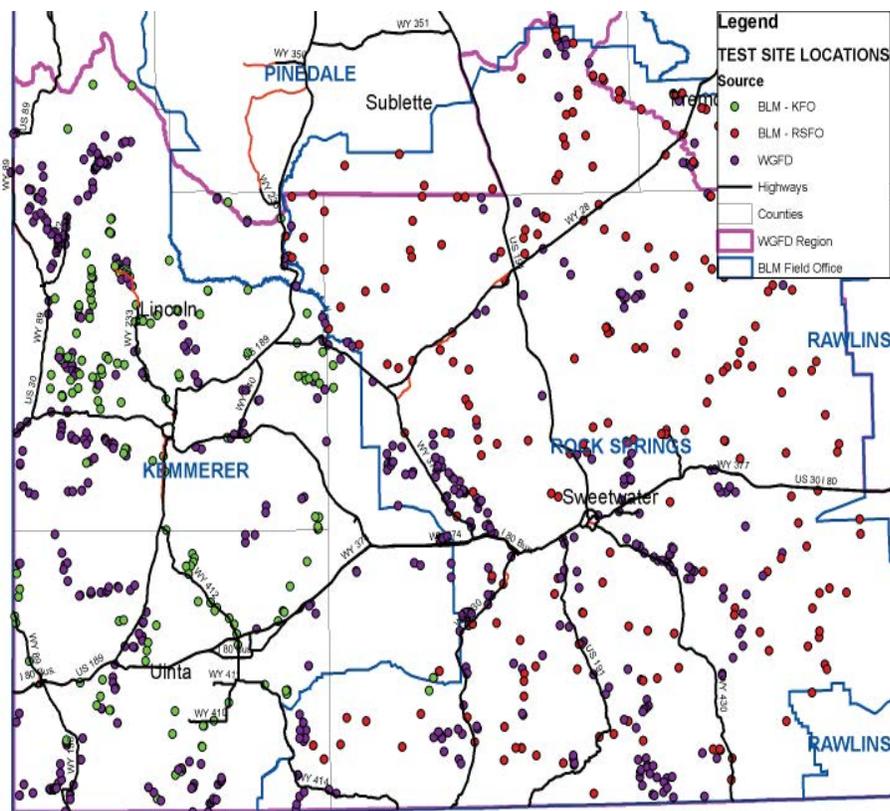


Figure 8. Remote sensing sites from BLM Kemmerer and Rock Springs Field Offices and WGFD collected between 2003 and 2006. The BLM sites displayed are those that were of adequate quality to utilize for additional analyses.

Lower Big Sandy River Willow Trend Monitoring

Willow photo point stations were repeated by the habitat biologist and a Sweetwater County Conservation District board member on October 13th at all five monitoring sites along the Lower Big Sandy River. Photo comparisons between 2005 and 2006 showed little to no change at monitoring sites 3, 4, and 5. Some deterioration in willow vigor and health was also observed in the photo comparisons at sites 3-5 likely due to continued loss of water tables, drought stress, rodent browsing, and livestock grazing use. A riparian pasture fence was erected in 2005 along the upper reach of river containing monitoring sites 1 and 2. This riparian pasture was grazed early in the summer and then rested from livestock use the remainder of the growing season, with the exception of incidental small groups of cattle for short periods that accessed the pasture through gates left open. The 2005 and 2006 photo comparisons showed an increase in herbaceous vegetative production at both sites 1 and 2. Figure 9 shows an obvious improvement in willow growth along the immediate streambank at monitoring site 1 between 2002 and 2006, and willow growth continued to excel inside the fenced enclosures at both monitoring sites 1 and 2. Willows inside the enclosure at site 1 had experienced extreme browsing by rodents during the 2005-2006 winter months, however summer regrowth allowed these willows to rebound and reach heights similar to those observed in 2005.



Figure 9. Improved grazing management resulting in recovery of willows and other riparian vegetation to stabilize the streambank at site #1 along the lower big Sandy River between 2002 and 2006.

Saltbush Observations

During field work in 2006 a saltbush species not previously recognized and likely not known to many resource professionals in southwest Wyoming, was found and identified. Currently it is taxonomically recognized as distinct species *Atriplex tridentata* Kuntze in the NRCS PLANTS database or subspecies *Atriplex gardneri* (Moq.) D. Dietr. var. *utahensis* (M.E. Jones) Dorn to many botanists in Wyoming. Commonly it is referred to as basin saltbush. It is most frequently and easily mistaken for *Atriplex gardneri* (Moq.) D. Dietr. or *Atriplex gardneri* var. *gardneri*, commonly referred to as Gardner's saltbush. It was observed along areas of the Bitter and Little Bitter Creek drainages. A literature review indicates that it is a vigorous root sprouter which could be advantageous for vegetation treatments which could benefit wildlife. Stutz et al. (1979) describe methods for identifying basin saltbush. Opportunities and feasibilities to use this plant for treatments in areas adapted for its growth are being examined.

Flaming Gorge Reservoir Habitat

Participated with the fish management crew and volunteers to construct woody debris habitat structures for non-game fish and smallmouth bass along a shoreline in the Black's Fork arm of Flaming Gorge Reservoir. Approximately 740 discarded Christmas trees collected from the local community were used to build the structures.

Beaver Management

The aquatic habitat biologist toured Currant Creek Ranch with landowner to discuss beaver management, possible cheat grass control, and ideas for instream grade control structures. In addition, he also toured the upper Corral Creek watershed located in the upper Ham's Fork River drainage with a landowner to evaluate beaver habitat and transplant potential, and then met with other ranch owning partners to discuss benefits and address their concerns with transplanting beaver to the property.

WILDLIFE HABITAT MANAGEMENT AREAS

Grizzly WHMA Grazing Management

Forage reserve styled grazing management was implemented at the Grizzly WHMA on a two-year trial basis to evaluate merits of the program and decide whether or not to pursue longer term grassbanking on the WHMA. Three neighboring ranches were asked to participate in the pilot program during 2006.

The lessee of McCarty Canyon Ranch grazed the East Rendle pasture during late May and early June with approximately 100 cow/calf pairs in exchange for reducing duration of grazing use in the North Rassmussen allotment. This exchange appeared to work out well, as photo point monitoring using a vegetative height board depicted adequate re-growth in the East Rendle pasture (Figure 10) at two sites (UTM = zone 13N E302655 N4578516 NAD-83). Baseline monitoring was established in the North Rassmussen allotment (UTM=zone 13N E300422 N4574596 NAD-83); however, the post grazing monitoring was not completed to evaluate results. Tagged willow plant transects were also established at monitoring sites in each pasture to evaluate browsing use of young plants. Incidence of browsing to tagged willow plants increased from 25% to 56% during the period when cattle grazed in the East Rendle pasture. Post grazing use willow data were not collected or evaluated in the North Rassmussen allotment.



Before Grazing



After Grazing

Figure 10. Photo point monitoring comparing wet meadow herbaceous vegetation prior to and immediately following grazing use in the East Rendle pasture.

Jack Creek Land and Cattle Company grazed the Cabin Draw pasture with 400 cow/calf pairs for about four weeks between late August and late September. This grazing use was in exchange for season long rest along the lower McKinney Creek riparian zone near the confluence with Muddy Creek in the Bridger Pass pasture of the Sulphur Springs allotment. This reach of McKinney Creek is important spawning and juvenile rearing habitat for the native fish assemblage of bluehead suckers, flannelmouth suckers, and roundtail chubs. Problems that developed with this grazing exchange included: 1) the special use agreement was delayed for approval, which postponed grazing for about one month. The Department technician overseeing grazing compliance had to return to school before the grazing use occurred, so cattle wandered unnoticed into unauthorized areas. 2) Cattle strayed through gates likely left open, and also moved through the electric fence into the Lower Muddy Riparian pasture because it was not checked routinely. 3) Small groups of cattle trickled back into the Bridger Pass Pasture sporadically throughout the summer period from the Canyon and Monument pastures because they lacked complete boundary fencing and routine herding.

Monitoring stations were established in riparian sites at Pole Gulch (UTM= Zone13N E296425 N4585522 NAD-83) and Cabin Draw (UTM=Zone13N E295372 N4586148 NAD-83). Baseline data collected included photo board points depicting pre-grazed herbaceous vegetative heights (Figure 11), and pace transect measurements of pre grazed median sedge and rush heights. Pre-grazed sedge/rush heights at Cabin Draw ranged from 4 to 28 inches, and the median height was 15 inches. Baseline sedge/rush heights at Pole Gulch were 5 to 29 ½ inches, and the median height was 14 ½ inches. Post grazing use data were not collected or evaluated in Cabin Draw pasture. The Department did not collect any monitoring data in the Bridger Pass pasture; however, BLM indicated they were able to collect riparian vegetation data and photos.



Figure 11. Photo point shows the pre-grazed herbaceous vegetation heights in the Cabin Draw pasture.

The Overland Trail Cattle Company was scheduled to graze the Dennison pasture for about three weeks during September and early October with 1200 cattle in exchange for season long rest in the McKinney Creek pasture of the Pine Grove-Bolten Allotment. However, drought conditions forced Overland Trail to graze the McKinney Creek pasture early in the summer, so the exchange agreement was dissolved and the Dennison pasture was not grazed during 2006. Baseline monitoring similar to those used in the Cabin Draw pasture were also established in the Dennison pasture. Riparian habitat monitoring was conducted along McKinney Creek at UTM Zone 13N E300913 N4594554 (NAD-83), and along Little Muddy Creek at UTM Zone 13N E303941 N4593719 (WGS-84). Measured pre-grazed sedge/rush heights at the McKinney Creek site were 4 ½ to 35 inches, and the median height was 19 inches (Figure 12). Sedge/rush heights at the Little Muddy Creek site were 6 to 25 inches, and the median height was 13 ½ inches.

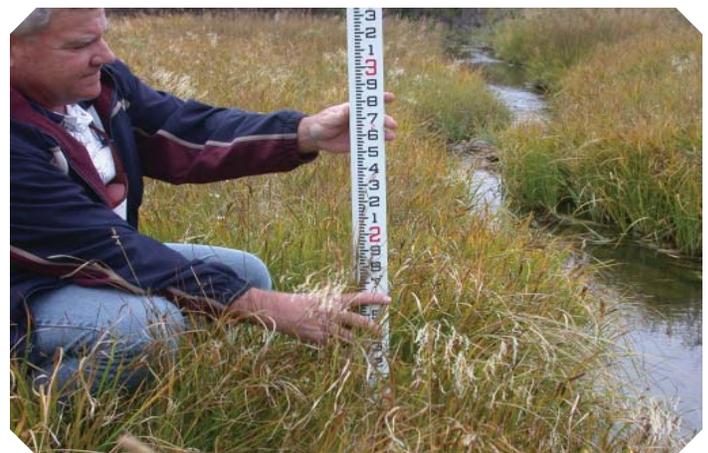


Figure 12. Measuring the pre-grazed sedge and rush heights along McKinney Creek in the Dennison pasture.

Stratton Sheep Company made their annual permitted BLM grazing use of 700 AUMs between June and July in the Shipping and West Rendle pastures. Montgomery Livestock also made use of their 90 federal AUMs during October in one pasture selected from the Shipping, West Rendle, and Wild Cow pastures, and based upon which pasture had the least amount of prior grazing use earlier in the year.

Grizzly Wildlife Habitat Management Area Expected Use Mapping

A grazing expected use analysis was completed to assist with grazing management planning. Distance to water and slope are combined to provide an estimate for the probability of use of an area. Guenther et al. (2000) describe the methods that were used and potential uses for output maps. Expected use maps can be useful for estimating grazing capacity and identifying key areas or locations for trend monitoring, salt or supplement placement, and where potential impacts to sensitive resource values may be high. Analyses were performed for early and late grazing seasons (Figure 13).

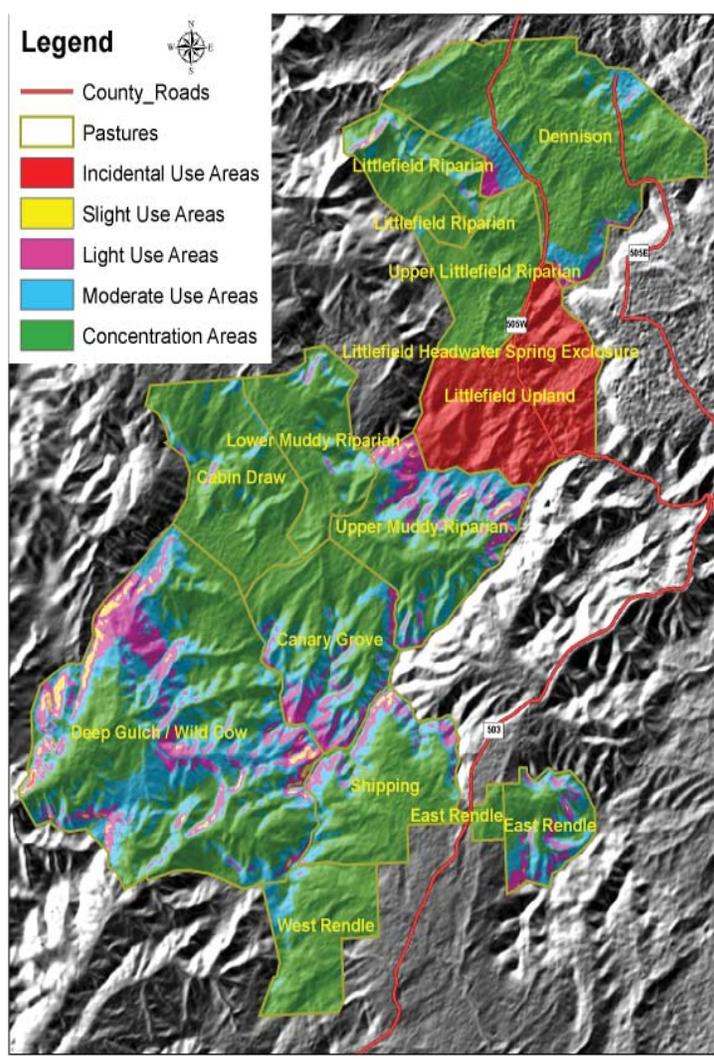


Figure 13. Late season expected use map for the Grizzly Wildlife Habitat Management Area overlaid on a shaded relief. Littlefield upland pasture is displayed as an incidental use area because water is typically not available in this pasture during the late season.

West Fork Hams Fork River Watershed Habitat Assessment Method (WHAM) Level I survey

Level I WHAM surveys were completed for the West Fork Hams Fork River Watershed during a two-week period in August. This drainage is shown in Figure 14, and is located in the southern end of the Wyoming Range between Kemmerer and Cokeville. Tributary drainages surveyed during 2006 included: Little Park Creek, Grindstone Creek, Bird Creek, Kelley Creek, Rock Creek, Allen Creek, and Spring Creek.



Figure 14. An overview of the West Fork Hams Fork Hams Fork River Watershed downstream of Big Springs.

Much of the West Fork Hams Fork and its tributaries support only intermittent flow (Figure 15), which is likely due to the geology of the area. Flowing stream reaches of support viable fish populations (Figure 16). All level I WHAM information will be entered into the new Fish Division WHAM database, where survey findings can be generated from database summary reports for the upper Hams Fork River Watershed.



Figure 15. A dry reach of the West Fork Hams Fork River observed during the 2006 WHAM survey near Nugent Park.



Figure 16. A brook trout surveyed from a flowing reach of the West Fork Hams Fork River near Big Springs.