

LANDER REGION

HABITAT PROJECTS

Lander Front Habitat Improvement Project

Work continued in 2008 on the first phase of the Lander Front Mule Deer Habitat Improvement Project. Four hundred ninety-nine acres of juniper were treated this year, bringing the total to 1,165 acres treated thus far. The contractor will return in 2009 to continue treating juniper until funds are exhausted. BLM lands that will be treated next year have already been cleared so work will be able to begin as soon as the winter range stipulations end. Transects that were established in 2007 prior to treatment were re-read with positive results. Bare ground decreased, while litter, forbs and grasses increased (Figures 1a and 1b). Spike was aerielly applied to 2,567 acres of sagebrush on 7 private landowners and BLM lands in October 2008. Monitoring transects were established in each area and will be re-read next year to observe the effects of the herbicide. The monitoring transect in the sagebrush mowing conducted in 2007 was re-read with positive results. Shrub density and bare ground decreased, while grass and forb density increased. Two wells were upgraded to solar arrays in 2008, however the required fencing has yet to be completed. Fencing should be completed this winter.



Figures 1a and 1b. Before and after photos of a 2007 juniper treatment.

Planning for the next phase of the project began in 2008. Reconnaissance was completed on Beaver Creek to determine the extent and location of saltcedar and Russian olive. Juniper stands were selected for thinning and sagebrush stands were examined to determine the best locations for treatments, which will include mowing and herbicide. All landowners on Beaver Creek were contacted about the project and have agreed to allow access to contractors and rest treatments from grazing for at least 1 growing season. Funding was acquired from the WVNRT in the amount of \$174,388. Additional funds will be applied for in 2009.

- Red Butte conservation easements were completed.
- 114 acres of sagebrush were mowed on Red Rim WHMA.
- 850 acres of Rx burns were completed.
- 2,567 acres of sagebrush and 499 acres of juniper were treated for the Lander Front Mule Deer project.
- 41 Yellowstone cutthroat trout were radio tagged and will be tracked for one year in the East Fork drainage of the Wind River.
- 4 fish entrainment investigations were conducted on Bear Creek.
- 30 yards of rock were used to maintain 4 Gabion structures and improve 1 mile of stream in Cottonwood drain on Sand Mesa WHMA.
- 2 Sheet-piling structures were repaired in Red Canyon creek on Red Canyon WHMA.
- Approximately 20 trees and 9 large stumps were sunk in Boysen Reservoir to increase aquatic habitat.

Yellowstone Cutthroat Trout Telemetry Study

Trout Unlimited (TU), WGFD, and the Shoshone National Forest (USFS) have identified fish movement as a key factor to better understanding the status of native Yellowstone cutthroat trout in the East Fork Drainage of the Wind River near Dubois. Systematically studying fish movement patterns should lead to a better understanding of life history needs for native trout, and help identify, design, fund, and implement potential conservation alternatives in the future. This cooperative project was designed to address the following objectives:

1. Identify Yellowstone cutthroat trout winter habitat and movements in the East Fork Wind River drainage;
2. Identify spawning habitat and time of migration to these areas;
3. Determine cutthroat trout movement patterns associated with storm events, spring runoff, and the summer season; and
4. Assess cutthroat trout entrainment in irrigation systems as they move throughout the watershed.

Members of WGFD, TU, and Gregory Aquatics captured and radio tagged (Figure 2) 41 Yellowstone cutthroat trout in the East Fork drainage on September 30th and October 1st, 2008. Another 20 fish will be captured and tagged in early 2009. Fish have been located monthly since October and tracking will continue through the fall of 2009.



Figure 2. Yellowstone Cutthroat undergoing surgery to implant the radio tag.

Preliminary tracking data from October thru December has shown most fish inhabiting pools associated with large woody debris and/or boulders. The longest movement recorded so far was roughly 2.5 miles, while most fish have scattered within a ½ mile from the release site where they were radio tagged (Figure 3). One fish has never been found since tagging, two are presumed dead, while three have not been located in November or December.

Shrub Production/Utilization Monitoring

Regional wildlife personnel collected utilization and production data at 5 established shrub transects and added an additional 4 transects this fall. Utilization over the 2007-2008 winter was relatively low at all transects, ranging from 5-30%. Most transects were below 20% utilization, probably because deep snow protected the majority of the plants from being overused. Fall production increased at all sagebrush transects with an average of 24 mm at existing transects, up from 16 mm in 2007. Bitterbrush production, however, decreased from 86 mm to 63 mm. This decrease may have been caused by dry summer conditions.

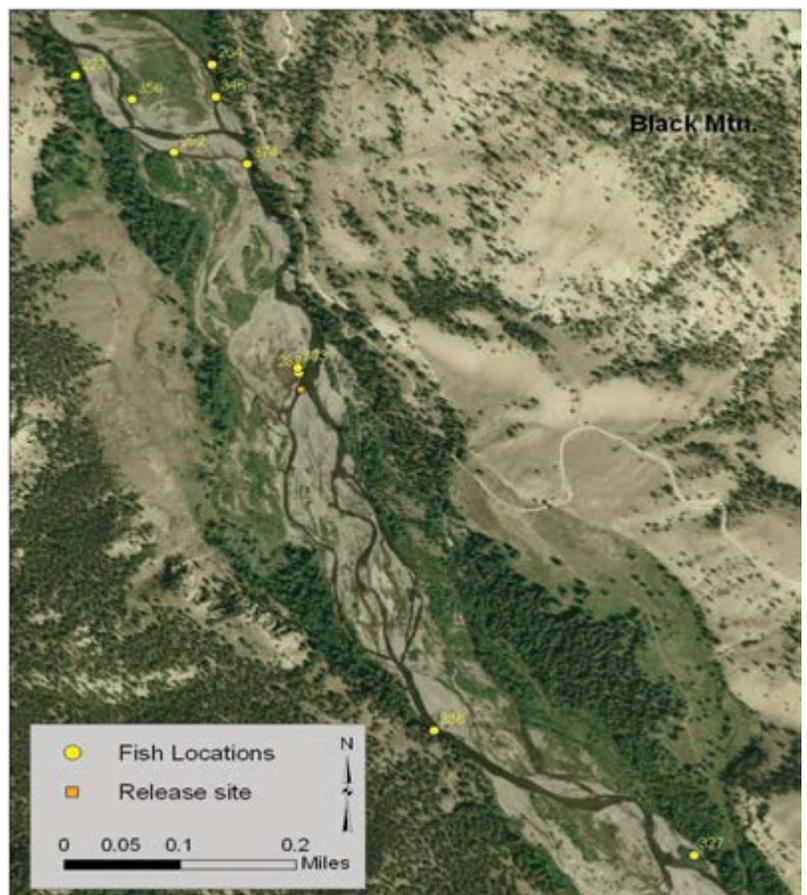


Figure 3. December GPS locations of 10 Yellowstone cutthroat trout in the Wiggins Fork of the East Fork drainage. The orange square represents the release site for all 10 fish in September 2008 after surgery.

Bear Creek Fish Entrainment Investigations

Fish entrainment was intensively studied during 2007 and 2008 on 4 diversions (Figure 4) off of Bear Creek to assess fish loss in irrigation diversions within the Inberg/Roy WHMA and Spence/Moriarity WMA. A total of 266 fish were captured over the 2 years of sampling; 60 Yellowstone cutthroat trout, 176 suckers, and 30 dace. Most fish became entrained during late June through early July. Approximately 66% fewer fish were caught in 2008 compared to 2007, which was peculiar since sampling effort was much greater in 2008. Two of the diversions are being assessed for replacement by more efficient diversions to improve irrigation efficiency and reduce fish loss.



Figure 4. One of the fish traps used to sample fish entrained in the irrigation diversions.

Boysen Reservoir Habitat Enhancement

Lander fish management and habitat and access personnel spent a week in early June at Boysen Reservoir enhancing fish habitat. Several large trees were cut down from the shores while large stumps were hauled from Lander and transported by boat (Figure 5) to a bay on the eastern shore. Concrete anchors were made on site and attached to cable that was tied to the trees and stumps to sink them. Roughly 20 trees and 9 very large stumps were sunk in 20-30 feet of water. These trees and stumps will provide cover, spawning, and foraging habitat for numerous aquatic species, especially black crappie and yellow perch.



Figure 5. Fisheries biologist Joe Deromedi and technician Seth Stockbridge drag a tree into a bay of Boysen Reservoir.

Cooperative prescribed fire projects with the Bureau of Land Management and Forest Service

The WGFD assisted in conducting prescribed fires with federal land management agencies to improve habitat. 50 acres were burned north of Lysite to thin dense mountain big sagebrush to improve mule deer and elk habitat. This was the final phase of a larger 1,150 acre burn that began in 2005. 800 acres were burned on Freak Mountain as part of the Lander WUI project. The goal was to remove encroaching juniper, thin mountain big sagebrush and improve a decadent aspen stand. An additional 600 acres were burned later in the fall.

Government Draw Sage Grouse Habitat Improvement, Hudson, WY

Habitat and Access Development Crew personnel treated approximately 660 acres of sagebrush with the 20 foot rotary cutter (Figure 6). Some of the treatment goals were to increase vegetative species diversity and the overall nutrient quality to encourage birds to remain longer on their nesting and early brood-rearing habitats. Devon Energy and Wyoming Wildlife Federation provided fuel for the equipment.



Figure 6. Rotary cutter treatment in mosaics.

WILDLIFE HABITAT MANAGEMENT AREAS

Whiskey Basin WHMA

The 2007-2008 over winter herbaceous utilization was 67%, the highest in 4 winters. The high use was likely caused by poor production in 2007 and a hard, cold winter which held bighorn sheep and elk on the winter range longer than normal. Fall production was 366 lbs/acre, up from 291 lbs/acre in 2007. Production inside and outside range pitting completed in 2007 was also compared to determine the effects of the treatment. Herbaceous production in the treated areas was 6 - 67% higher than non-treated areas showing a neutral to positive result (Figures 7a and 7b). More clipping will be completed next year.



Figures 7a and 7b. Photos inside and outside of range pitting project.

Spence/Moriarity WMA and Inberg/Roy WHMA

Herbaceous production on the Spence/Moriarity WMA increased to 189 lbs/acre, up from 108 lbs/acre in 2007. Production on Inberg/Roy WHMA also increased from 108 lbs/acre to 233 lbs/acre. The 2007-2008 over winter utilization was extremely high on both units, 77% on Spence/Moriarity and 90% on Inberg/Roy. The high utilization was likely caused by very low production in 2007 and a long, cold winter that kept elk on the units longer than normal. Because of the lack of forage, the elk moved east onto the Wind River Reservation as expected, but we did not have many damage issues on private property.

The southern one-third of Thunderhead Meadow at Spence/Moriarity WMA was replanted and the gated pipe system was expanded. This resulted in increased forage production and utilization by winter elk from the East Fork herd. Additionally, a portion of Firehouse Meadow was aerated to reduce soil compaction and increase forage production.

Cottonwood Drain Riparian Maintenance/Improvement

With the assistance of the Habitat and Access crew, four gabion structures were repaired with rock in Cottonwood drain of Sand Mesa WHMA. The gabions were installed approximately 30 years ago to catch sediment, raise the water table, and stop some areas of severe down cutting. Maintenance activities had occurred once since then by adding new gabions on top of the original structures. The goal this year was to replace the gabions with sheet piling since they will last much longer. However, the soil was too hard for the sheet piling to be driven into the ground. As a result, loads of rocks were used to harden the creek bottom and banks of the gabion structures to reduce erosion around the structures and provide more support. Leftover rock was used to harden banks to reduce erosion and help establish vegetation.

Red Rim WHMA

Herbaceous production on the Red Rim WHMA was phenomenal in 2008, up to 960 lbs/acre from 216 lbs/acre in 2007. Most of the growth was in the meadows, however the uplands improved as well. Green line transects established in 2001 were reread in 2008. Willow distribution has greatly increased in 7 years and appears to be expanding.

The Habitat and Access Maintenance Crew completed a sagebrush-thinning project on the WHMA. They mowed 114 acres within a 280 acre polygon (Figure 9). The goal of the mowing was to break up a dense, old growth big sagebrush stand to increase herbaceous production. The area is used by sage-grouse during brood rearing and increased forbs should benefit chick survival.

Another elk die-off occurred on the WHMA this winter with at least 89 animals perishing. Regional personnel attempted to bait elk away from areas with high levels of the lichen *Xanthoparmelia chlorochroa*, the presumed cause of the die-off, to no avail. The State Vet Laboratory continued to research the phenomenon by taking samples from euthanized animals. No new theories have been developed.



Figure 8. Sagebrush mowing on the Red Rim WHMA.

Red Canyon Creek Riparian Maintenance

Sheet piling structures were installed on Red Canyon Creek within the Red Canyon WHMA in 2003 to improve the riparian area by catching sediment, raising the water table, and establishing wetland vegetation. Monitoring of the structures this year revealed that 2 were in need of repair. One leak was fixed by placing sandbags within the sheet piling. The other structure had blown out on one side (Figure 9) so additional sheet piling was used to extend the structure across the stream channel. The structure was extended roughly 12 feet further until it reached a high terrace (Figure 10). Water again pooled up and migrated back to where it was designed to breach the sheet piling and rocks could dissipate the energy of the falling water.



Figure 9. The riparian structure prior to repair looking upstream; the stream channel had washed out around the right edge.



Figure 10. The structure after extending the sheet piling across the stream channel.

Sand Mesa WHMA

The Wyoming Honor Farm crew began work to clear 0.3 miles of Fivemile Creek of Russian olive as an experiment, however they did not complete the work. The goal was to remove olives and plant native species including willow, cottonwood, silver buffaloberry and golden currant to provide pheasants a native source of forage and cover. If the plantings take hold and it can be determined that pheasants are using them, then we can continue to remove olives along the entire drainage. Students from Shoshoni High School assisted in planting 900 seedlings. Many of the seedlings were washed away in the high flow or were shaded out by dense rushes,

however some did survive through the summer. The Fremont County Weed and Pest began treating saltcedar along Muddy Creek using a basal bark treatment with the herbicide Remedy Ultra. They completed Muddy Creek, but funds ran out before they could finish Fivemile Creek. Funds will be obtained and spraying on Fivemile Creek will be completed in 2009.

During the spring of 2007, the first of three pivot sprinklers was replaced at Sand Mesa WHMA. The remaining two pivots were replaced in the spring of 2008. Simultaneously, a five-year farming lease was awarded. The pivot fields were planted in barley and wheat during 2008; this effort was associated with increased fall waterfowl use.

Red Canyon WHMA

Herbaceous production on the Red Canyon WHMA increased from 394 lbs/acre in 2007 to 582 lbs/acre in 2008. The 2007-2008 over winter utilization could not be determined because of the late spring snow pack. However, it appears that utilization is light to moderate.

As a cooperating partner in the Red Canyon Ranch CRM, the Department allowed the ranch to graze the irrigated meadows this spring. Issues with the electric fence prohibited the full use of the meadows, however the cattle did remove a large portion of the old, rank grass. The meadows will be monitored in 2009 to determine the effects of the grazing.

Approximately 450 cows from the Red Canyon Ranch (The Nature Conservancy) and the Red Canyon CRM spent five and one-half days on the upper and east meadow of Red Canyon WHMA in late May. The meadows were grazed in order to eliminate much of the accumulated decadent vegetation. This will simultaneously increase forage vigor and palatability, and lead to increase use of the meadow by wintering elk of the Southern Wind River herd.

OTHER SIGNIFICANT ACCOMPLISHMENTS

- Conducted level I WHAM survey on Strawberry Creek, which is a tributary to the Sweetwater River. The watershed encompasses approximately 12 stream miles and 23,676 acres.
- Assisted with revision of the SHP with fish management and the terrestrial habitat biologist. Developed several joint crucial and enhancement habitat areas that include both aquatic and terrestrial habitat goals and concerns.
- Participated in cooperative monitoring of Split Rock Ranch with the BLM, ranch managers, and conservation partners to assess upland and riparian habitat conditions throughout the grazing season. Upland use was minimal with excellent grass and shrub production this year. Some riparian areas did not meet the residual vegetation criteria set by the BLM. Several areas of Sage Hen Creek could use rehabilitation of the riparian vegetation and function.
- Reviewed BLM documents and attended several cooperator meetings to assist with revision of the Lander RMP. Some of the resources discussed to date include biological, grazing, minerals and leases, and water resources.
- Assisted Wyoming Stock Growers Ag Land Trust with a Doris Duke grant application for a conservation easement on the Hovendick property located east of Lander along the Popo Agie River.
- Stream temperature and Ocean Lake drain monitoring was continued.
- Worked with the USFS and WGFD out of Pinedale on establishing a grassbank for the Blair Creek habitat area along the upper Sweetwater river. Toured the area by horseback and began developing a strategy to establish guidelines for its use.
- Participated in the Red Canyon Ranch and Tony Malmberg CRMs.
- Participated in the Lander BLM RMP revision.
- Assisted in the Split Rock Ranch and Green Mountain Allotment Cooperative Monitoring.
- Participated in the mule deer working group.