

SHERIDAN REGION

HABITAT PROJECTS

Kendrick and Interstate Dams Fish Passage

Kendrick Dam is a barrier to fish passage on lower Clear Creek. It blocks eight fish species endemic to lower Clear Creek and the Powder River from accessing the middle segment of Clear Creek (Figure 1). These species, which include sauger, channel catfish, shovelnose sturgeon, goldeye, river carpsucker, sturgeon chub, and plains and western silvery minnow, generally inhabit cool to warm water in mid to large-size, turbid streams. Establishing fish passage past the dam would restore access to at least 36 miles of Clear Creek suitable for the cool/warm-water aquatic species assemblage endemic to the Powder River.

A written agreement was reached with the PeeGee Ranch to develop, maintain, and operate a fish bypass channel around Kendrick Dam. Cost-share funding to implement the bypass channel project was pursued in anticipation the ranch will consent to implement the final plans. WWC Engineering was contracted to complete final design engineering of the bypass channel. Final designs are expected by summer 2009. The ranch must approve the final design plans upon the completion of design engineering.

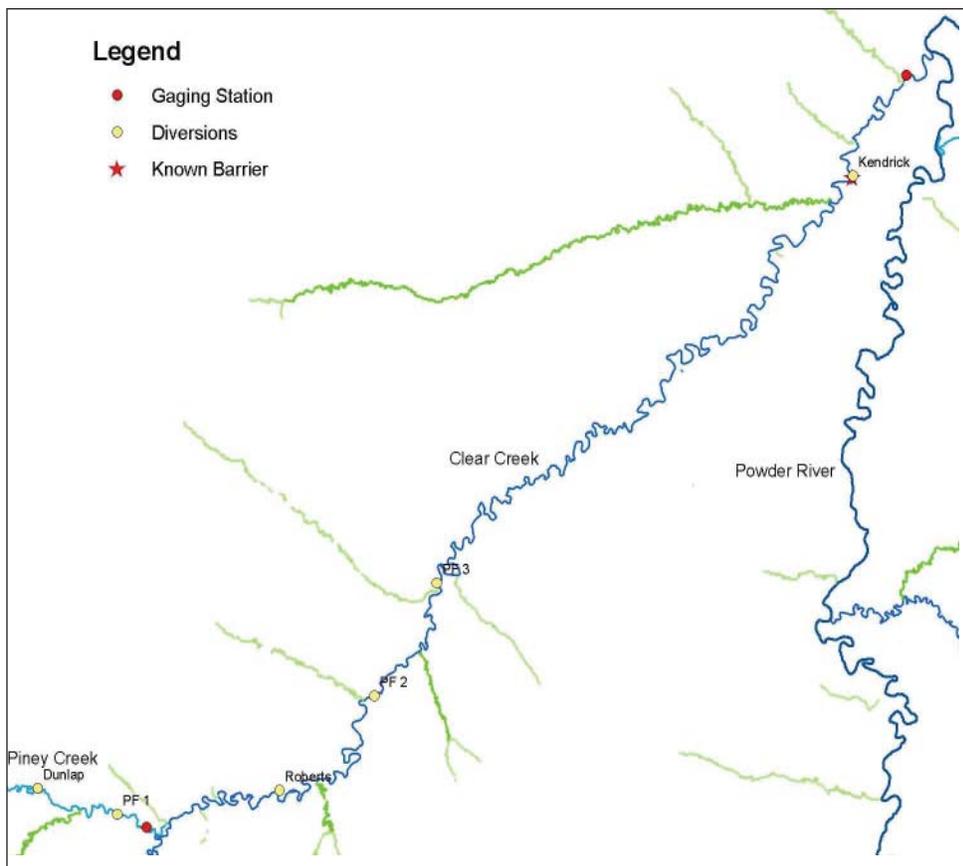


Figure 1. At least 36 miles of Clear Creek, to the Platt and Ferris #3 Diversion could be made available to eight native fish species currently confined below Kendrick Dam.

The Interstate Diversion at the Welch Ranch property limits or completely blocks migratory sauger and channel catfish from reaching up to 26 miles of the Tongue River and 12 miles of Goose Creek. Establishing dependable fish passage at the dam would make suitable habitats available for these species in segments of both streams.

- Enrolled 94,989 acres to enhance sagebrush communities for sage-grouse.
- Aerated 3,770 acres to restore rangelands and enhance sage-grouse brood-rearing habitats.
- Rejuvenated 150 acres of wooded draws.
- Treated a 767 acre sagebrush community by burning patches within the community equaling approximately 100 acres.
- Prepared a resource management plan for the 3,960 acre Wyoming Army National Guard Sheridan Local Training Area.
- Ten beaver were transplanted to the Beaver Dam Creek on the Black Hills National Forest.
- Inventories or monitoring assessments completed on 36 miles of stream.

Representatives from the Interstate Ditch Company, which operates the Interstate Diversion, and PeeGee Ranch, which operates the Kendrick Diversion on Clear Creek, participated in a tour of the newly completed upstream fish bypass channel at the T & Y Diversion Dam on the Tongue River near Miles City, Montana (Figure 2). The tour provided an opportunity to view a real world example of a bypass channel of the same design being considered for implementation at the Interstate Diversion and Kendrick dams.



Figure 2. The T&Y Diversion bypass channel on the Tongue River south of Miles City, MT is the same design as proposed for the Tongue River and Clear Creek (MTFWP photo).

Lake Desmet Conservation District’s Sagebrush/Grassland Habitat Restoration Program (Phase IV)- Progress Report

This program just completed it’s forth year of enrolling ranches to enhance sagebrush and grassland communities. Its foundation is to emulate the Deseret Land & Livestock management model to achieve enhanced benefits for livestock and wildlife. The paper “Sage Grouse Ecology and Management in Northern Utah Sagebrush-Steppe, a Deseret Land and Livestock Wildlife Research Report, 2002” by R. E. Danvir provides documentation of benefits to sage-grouse from their ranch management operations. Deseret experienced a six-fold increase in male lek attendance by implementing timed livestock grazing, forb plantings and mechanical treatments. Their ranch management operations also benefited mule deer, pronghorn antelope and other wildlife. Due to Deseret’s success at increasing wildlife populations while supporting a working ranch, the Lake DeSmet Conservation District (LDCD) in partnership with private landowners and NRCS initiated this program to replicate and test this “win-win” management model on private and public lands in northern Johnson County.

Since then, the LDCD has partnered with numerous agencies, non-governmental organizations, foundations and industry to restore the productivity of sagebrush/grassland communities in northern Johnson County. This community-based program has had tremendous success. So far, over \$3.3 million have been granted to restore 353,722 acres. Phase IV of the program enrolled an additional 94,989 acres in 2008 (Figure 3).

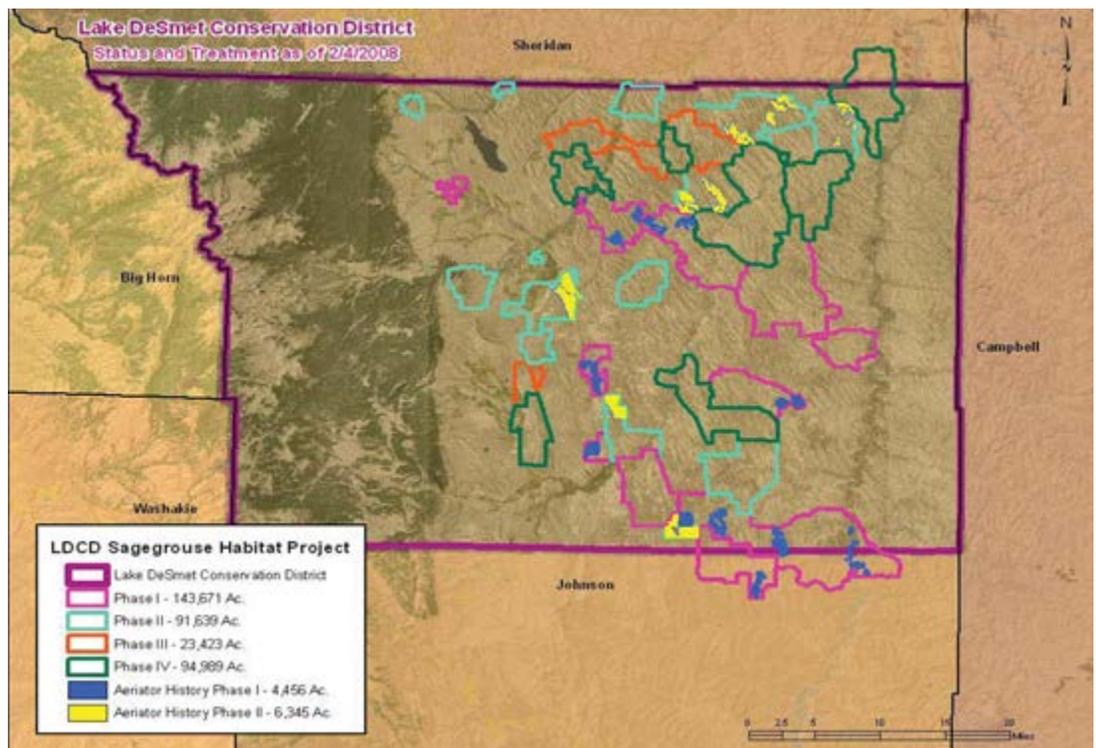


Figure 3. The LDCD (northern Johnson County) has enrolled 24 livestock producers, consisting of 353,722 acres, to restore and enhance sagebrush/grassland communities. This program has grown to a scale where it could potentially benefit wildlife populations on a landscape level. In addition, 10,801 acres have been treated with an aerator and planted with an assortment of forbs and shrubs.

The NRCS and contractors have, and are, preparing ranch management plans for 24 livestock producers. These plans include rangeland resource inventories, conservation strategies, infrastructure needs, livestock grazing practices and monitoring techniques for measuring management changes. The WGFD prepares reports showing sage-grouse seasonal distribution maps and suggested livestock grazing best management practices per pasture. This year, only one of these reports was prepared. Six more are needed by early 2009, however. Dr. Roy Roath, a rangeland and livestock grazing specialist from Colorado State University and others are contracted to educate livestock producers and assist them with developing progressive plans that will benefit both livestock and wildlife. All resource information is managed in a geographic information system database to supply a rapid decision-making tool for land managers.

Funding partners, in order of contributions, include the Wyoming NRCS, private landowners enrolled in the program, National NRCS, WWNRT, Wyoming Governor's Sage-Grouse Fund/NE Wyo. Sage-Grouse Local Working Group, WGFD, oil and gas industry (Anadarko Petroleum, Lance Oil and Gas, Kennedy Oil), BLM, LDCD, USFWS, DEQ SEP, Sheridan/Johnson County Chapter of Pheasants Forever, WGBGLC, Eyas Foundation, Wyoming Private Lands Grazing Team, Bighorn Environmental Consultants, WFW Foundation and Bow Hunters of Wyoming.

Approximately 10,801 acres (3,770 acres in 2008) have been treated with aeration equipment to restore rangelands and enhance sage-grouse brood-rearing habitats (Figure 4). By improving herbaceous production and maintaining conservative livestock stocking rates, we expect to reserve more forage and cover for wildlife. The aerator is also used to enhance overflow and riparian sites for sage-grouse brood rearing. Seed is also planted during most aeration operations. Species selected depend on soil conditions and include prairie coneflower, American vetch, white prairie clover, Spreador alfalfa, winterfat, fourwing saltbush and yarrow.



Figure 4. An aerator implement with mounted seed boxes was used to improve the productivity of go-back (previously farmed) lands. By increasing forage production in pastures where sagebrush is not a significant component, the livestock producer has the flexibility of developing a livestock-grazing system for the entire ranch that's more sage-grouse friendly.

Other accomplishments included:

- Preparing a packet of instructions and maps so participating landowners could help monitor their sage-grouse leks. Seven GPS units were purchased by the LDCD for enrolled landowners to document grouse locations.
- Working with researchers to develop habitat requirement guidelines for sage-grouse in NE Wyoming, where they tend to tolerate less sagebrush.
- Collaborating with the NRCS and LDCD to initiate research to test NRCS transition models, soil types and Ecological Site Descriptions as predictors of sage-grouse nesting habitat. A grant proposal was prepared and ultimately funded by the Northeast Wyoming Sage-Grouse Local Working Group using the Governor's sage-grouse funds. The research will begin in 2009. Dr. Kevin Doherty, Senior ecologist for Audubon-Wyoming will perform the analysis.
- Renovating the WGFD's Lawson Pasture Aerator. Over the last three years it has treated approximately 7,000 acres, thus requiring a major overhaul, including replacement of the third set of teeth, new tires, hydraulic ram rebuilds and numerous welds and structural improvements. Approximately 10,000 more acres are contracted for aeration.
- Working with the LDCD, NRCS and select ranchers to provide tours and project reviews for WGFD staff and the WWNRT board.

Lake DeSmet Conservation District Diversion Rehabilitation

The Russell Diversion on Rock Creek (Figure 5) and the Big Bonanza Diversion on Clear Creek (Figure 6) were rehabilitated during 2008 through the on-going irrigation diversion rehabilitation and fish passage program administered by the Lake DeSmet Conservation District. The Department served as a funding partner and provided design guidance to the program. The purpose of the projects was to improve channel stability and function at the diversions, and establish or improve upstream fish passage past the diversion structures. Several game and numerous nongame fish benefit from the projects.

Figure 5. Rehabilitating the Russell diversion on Rock Creek reconnected 3.2 miles of stream below the diversion with 1.1 miles of stream above the diversion. The work included developing stepped cross vane structures, and a bankfull bench along the left bank above the diversion.



Figure 6. Rehabilitating the Big Bonanza Diversion on Clear Creek reconnected 16.4 miles of stream below the diversion to 3.1 miles of stream above the diversion. Work included vane structures and a rock ramp.

Rehabilitation at the Watt Diversion on Clear Creek (Figure 7) was initiated in 2008, though additional pipeline work will be necessary in 2009. Screening to exclude fish from the diversion ditch was an additional objective at the Watt Diversion rehabilitation project. A Coanda screen, including a water collection vault and outlet pipeline, was built at the crest of a cross vane in-stream structure. The innovative design is unproven, however. Therefore, monitoring will be necessary to assess the function and maintenance needs of the screen.

Figure 7. A Coanda Screen, which is shown being placed, will occur at the crest of a cross vane structure (not shown) at the Watt Diversion. Work at the diversion reconnected 3.1 miles of Clear Creek between the Big Bonanza and Watt diversions to 3.7 miles of stream above the Watt Diversion.



The Lake DeSmet Conservation District was granted additional cost-share assistance to maintain instream structures at the Clear Creek Land and Ditch (Rule) irrigation diversion. The structures were constructed during the first phase of the diversion rehabilitation and fish passage program. Some rocks in the structures shifted during flooding conditions and altered the function of the diversion. In fall, fish – predominately trout – were salvaged from the diversion ditch and returned to Clear Creek. Options to screen the diversion ditch are being explored by NRCS.

Wooded Draw Restoration in Sheridan County-Progress Report

W TNC, WGFD, RMEF and WGBGLC are collaborating on a program that is designed to help landowners restore impoverished wooded draw habitats. Funds are still available for landowners along the east slope of the Big Horn Mountains.

Wooded draws provide key habitat for nearly all wildlife species living in the Northern Great Plains. For white-tailed and mule deer, these draws provide fawning habitat, escape cover and browse. Studies indicate that deer spend over half their time in this habitat type. Wooded draws are also important to wild turkey, sharp-tailed grouse, pheasants and numerous other birds and mammals. These plant communities consist of native plum, chokecherry, serviceberry, aspen, hawthorn, Woods' rose and others. Most communities appear to be nearing the end of their life span and need fire to rejuvenate them (Figure 8).



Figure 8. Previous wooded draw burns have responded well to treatments. This burn was conducted in 2004 and shows an abundance of new sprouts.

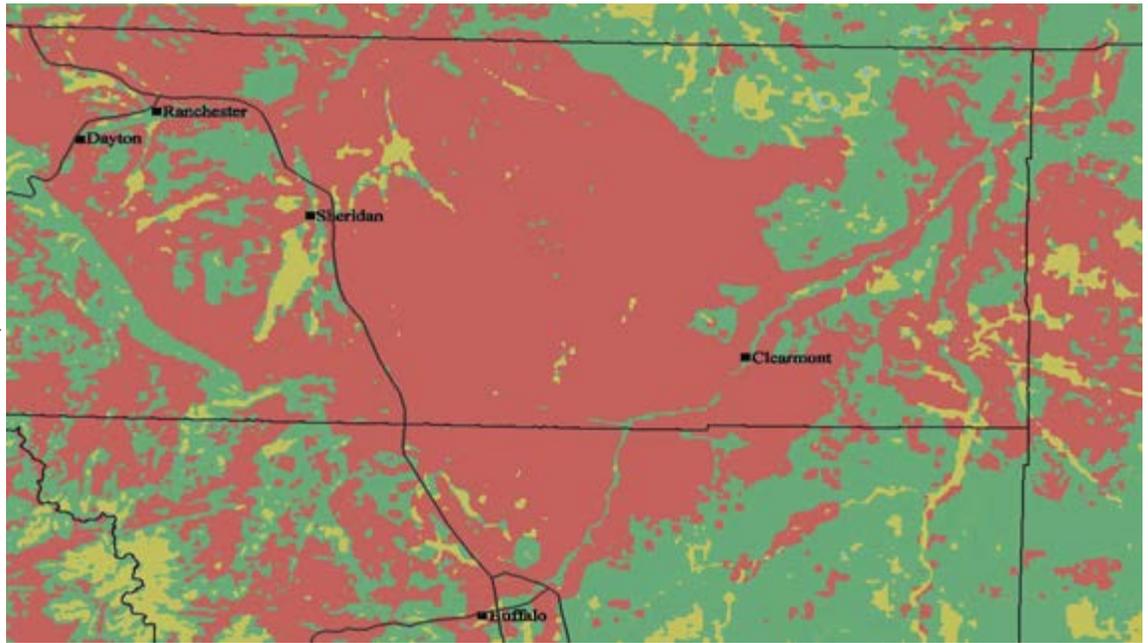
Approximately 150 acres of wooded draws were burned this year on one ranch. Another ranch is signing up and scheduled for a burn this spring (2009). For qualifying ranches, the WGFD, RMEF and WGBGLC will fund 100 percent of the costs associated with the burn. In return, the rancher must defer grazing and control weeds and white-tailed deer populations. We ultimately hope to revert succession on approximately 2,000 acres of wooded draws and associated uplands.

Mule Deer and White-Tailed deer habitat suitability index model development

Mule deer and white-tailed deer habitat suitability models (HSI) were developed, which are based on research publications and expert opinion within the WGFD Sheridan Region. The mule deer model (Figure 9) has three variables: 1) terrain texture diversity, 2) landcover/habitat diversity and 3) proximity to green herbaceous vegetation (hay fields, seeps, riparian habitats, etc.). The white-tailed deer model also has three variables that predict the quality of habitats. Other than terrain, we measured the proximity to deciduous woody cover and green herbaceous vegetation.

Regional biologists and game wardens reviewed the resulting HSI maps and made recommendations for improvements. Alterations will be made in 2009. The resulting electronic maps will allow biologists to quantify habitats and assess anthropogenic effects on deer populations, such as coal-bed natural gas development and housing developments. We will also use the data to focus limited resources on the very best mule deer habitats in the region.

Figure 9. This picture shows the results of the habitat suitability model for mule deer in portions of Sheridan, Johnson and Campbell Counties. Red areas are predicted to be excellent mule deer habitat. Green, yellow and blue areas are predicted to be good, fair and poor, respectively.



Falxa Ranch Management Planning and Prescribe Burns

The Falxa Ranch, WGFD, NRCS and RMEF cooperatively developed plans and secured funding for fences and habitat enhancement projects on the 2,139 acre mountain pasture. New cross fences have enabled a three-pasture rotation of livestock during the summer months. An agreement with the owner requires that the livestock operator achieve a positive Grazing Response Index (GRI) values. The GRI was developed by the CSU Range Extension Program to achieve the recovery of plants after grazing.



Figure 10. This picture shows the pre-burn conditions found on the Falxa Ranch. Mountain big sagebrush stands are dense and continuous. Approximately 100 acres were spot-burned within the 767 acre pasture to create a mosaic of herbaceous and shrub-dominated patches.

Previous summer-long grazing practices allowed mountain big sagebrush to dominate the site (crown closures of approximately 30-40%), thus restricting grass and forb abundance and diversity (Figure 10). Rather than broad-scale spraying, cooperators agreed to prescribe burn one of the three pastures every 5-7 years. The Falxa mountain pasture is within 1/3 mile of crucial elk winter ranges and provides yearlong habitat for mule deer. The site also provides important brood-rearing habitat for sage-grouse. Consequently, treatment prescriptions were designed and tailored to these species. The objective was to open small patches within the sagebrush-dominated landscape by creating a mosaic of early-seral conditions.

The first pasture was burned in 2001. This year, the second pasture was treated with fire. Approximately 100 acres of the 767 acre pasture were blackened. The RMEF and WGBGLC funded the burn. Wildlife use, especially elk and mule deer, have increased due to management changes and burning. The Falxa family also requires that the outfitter allow free access for cow elk hunting.

Army National Guard Sheridan Local Training Area- Progress Report

The 3,960 acre Wyoming Army National Guard's (WyARNG) Sheridan Local Training Area (LTA) is the location of one of the WGFD's HMA. This area has become very popular with local hunters and wildlife enthusiasts. Improved habitat conditions this year produced and held more wildlife, resulting in better hunter success and satisfaction (Figure 11). Wildlife related recreation opportunities in northeast Wyoming are very limited for residents and they value any opportunity to pursue their sport and activities. The WyARNG administers the HMA program in an efficient and friendly manner and provides an important service to local residents.

Natural resources on the LTA, however, need attention and a guiding plan that guarantees the restoration of the area. For the first time in years, livestock grazing was not permitted, allowing damaged rangelands and riparian habitats to partially recover from years of inappropriate livestock grazing.

WGFD personnel gathered resource information this year and developed a plan that could be presented to the WyARNG. We hope to offer our assistance with resource management. The WGFD Sheridan office has a team of habitat and wildlife biologists, access specialists, habitat/access maintenance experts and law enforcement personnel who can provide local oversight and management. They have managed WGFD properties for many years and have training in rangeland and riparian habitat enhancement/restoration, resource monitoring, livestock grazing strategies, noxious weed control, access compliance and infrastructure maintenance.



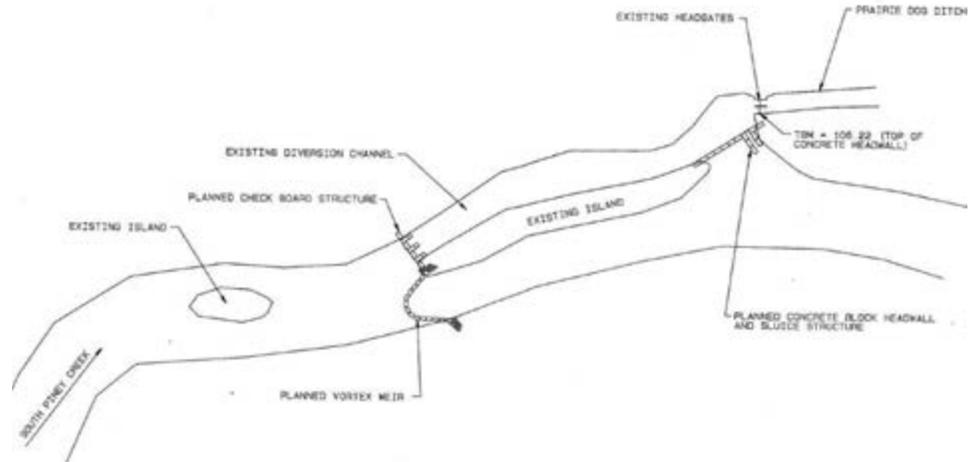
Figure 11. Above average precipitation and a long history of heavy livestock grazing resulted in vigorous stands of yellow sweetclover and annual brome grasses on the LTA this year. With no livestock grazing, range plants had the full growing season to recover.

A collaborative effort between local agencies could provide the local oversight that is needed to assure the continued recovery of LTA lands, especially when livestock grazing is reapplied as a management tool. A cooperative effort between the WyARNG, WGFD, Wyoming State Lands and Investment Office and Sheridan County could consolidate a block of public lands comprising over 8,500 acres. With support from the NRCS, Sheridan County Weed and Pest District, Sheridan County CD and local conservation groups, the LTA and adjacent public lands could be used to improve the ecological condition of all lands, while providing significant public access for the community. This could be achieved without restricting the WyARNG's ability to conduct training operations.

Sheridan County Conservation District Diversion Rehabilitation

A project on South Piney Creek (Figure 12) was completed through an irrigation diversion rehabilitation and fish passage block grant program with the Sheridan County CD. The NRCS designed the rehabilitation project. The purpose was to restore fish movements past the diversion dam, limit fish entry into the diversion, enhance the stability of the stream channel at the diversion site, and reduce operational and maintenance needs of the diversion operators. The Department served as a funding partner, which was possible through a block grant with the conservation district, and provided design guidance to the program. Additional projects on the Tongue River and Big Goose Creek are currently being designed and are anticipated in 2009.

Figure 12. The South Piney Prairie Dog Diversion rehabilitation project reconnected 3.9 miles of South Piney Creek below the diversion to 1.7 stream miles upstream. In addition, the new infrastructure provided the means to reduce, though not eliminate, fish entrainment in the ditch.



Black Hills National Forest Beaver Transplants and Monitoring

Ten beaver were transplanted to the Beaver Dam Creek watershed on the Black Hills National Forest (Figure 13). Beaver, through their dam-building activities, are expected to raise local riparian water tables. Thus, precipitation runoff from snow melt and rainfall events are slowed and retained on the land longer, and in turn, released from the water table more slowly rather than coursing through the stream system quickly. The increased bank storage resulting from the beaver's work will enhance forage quality and diversity along the riparian corridor, and increase streamside and in-stream habitat for terrestrial and aquatic wildlife. A grant from the WY Governors Big Game License Coalition covered costs associated with beaver trapping and health inspections. The Black Hills National Forest, South Dakota Game Fish and Parks, and the Spearfish Veterinary Clinic provided in-kind contributions to the efforts. Supplemental transplants in the Beaver Dam Creek watershed, or releases into a different watershed on the Forest will be pursued in 2009.



Figure 13. Remnant beaver dam complex at Planting Spring on the Black Hills National Forest. The headwaters of the Beaver Dam Creek watershed provides suitable habitat within historic range for beaver that is not currently occupied. Beaver are expected to raise streamside water tables and moderate late season stream flows.

HABITAT EXTENSION SERVICES

Wild Horse Creek Riparian Exclosure

A total of 79.4 acres will be rested from grazing to improve riparian vegetation condition on a portion of Wild Horse Creek utilizing the continuous CCRP (Figure 14). The landowners have noticed a reduction in willows and cottonwoods and would like to see them regenerate. In addition to keeping cattle out of the riparian area, the landowners planted 100 cottonwood, 100 willow, 50 plum trees and 50 chokecherry in the spring of 2008 in key areas of the riparian zone.



Figure 14. Photo point within the Wild Horse Creek Riparian area.

Mule Deer Legume Seeding Program

Funding from the WGFD Trust Fund was made available to each region to reimburse interested landowners for legume seedings that would benefit mule deer, and other wildlife species (Figure 15). Various sites within Weston and Campbell County were visited to assess whether legume plantings would benefit mule deer.

Interested landowners were required to sign an 8 year contract stating that they would allow public harvest of does to assist in keeping populations at more ideal levels and allow for regrowth of critical shrubs. To date, four landowners have signed up to seed a total of 200 acres to alfalfa and will allow public harvest of does.



Figure 15. Antelope in Campbell county utilizing Sagebrush

WILDLIFE HABITAT MANAGEMENT AREAS

Sand Creek Public Fishing Area Management

The Aquatic Habitat Biologist coordinated plans with the grazing lessee for livestock turn-in on the Sand Creek Access Area. Three hundred twenty four head or pairs were grazed on the Sand Creek public access area from May 27 to June 6. Some stragglers remained until June 8. Using a direct one pair per animal unit conversion, actual use equated to about 119 animal unit months.

OTHER SIGNIFICANT ACCOMPLISHMENTS

- Assisted personnel conducting prairie stream surveys in eastern Wyoming to establish and implement riparian vegetation monitoring.
- Monitoring was completed at three sites along the stream rehabilitation project in Buffalo to assess flood effects on in-channel habitat conditions. The bed-load moving episode associated with the flood flows aggraded some of the rehabilitation work. In addition, temperature assessments were initiated to assess if deep pools provided thermal refuges for fish during low flow conditions. Additional temperature assessments are planned next year.
- WGFD and the WWNRTB provided cost-share assistance to the Bighorn National Forest to complete the rock haul phase of the South Tongue River Boy Scout Reach Stream Rehabilitation project. Implementation is anticipated in summer 2009.
- The third and final year of fieldwork was completed for a cooperative study with the Bureau of Reclamation and NRCS. The project involved capturing, tagging, and monitoring tagged fish movements above and below a stepped cross-vane diversion structure on Clear Creek. Monitoring to determine if tagged fish were passing the structure included mark and recapture techniques and automated fish detection at passive inductor tag antenna stations. The ultimate goal was to improve design guidance for rehabilitating structures to provide passage of prairie stream associated fishes. A comprehensive report on the project is in process.
- Baseline morphology assessments were completed at an upper inventory site on Crazy Woman Creek. The intent was to assess current conditions and facilitate future monitoring. Final analyses of all Powder River and Crazy Woman Creek morphology assessments are in process.
- Concept design recommendations were provided to the WYDOT to establish fish passage at the I-25 barrier on Clear Creek. WYDOT subsequently postponed further planning, because the accompanying Interstate resurfacing project was postponed.
- Inventory was initiated in the headwaters of the Little Tongue River watershed above its confluence with the South Fork of the Little Tongue. The watershed segment has about 16 miles of perennial and 18 miles of intermittent streams. The intent is to identify opportunities to improve habitat management for Yellowstone Cutthroat trout. Additional inventory will occur in 2009.

- Provided technical assistance or information on the management or restoration of aquatic or riparian habitats to 18 additional landowners, managers, consultants, or NRCS representatives serving a landowner. One of the contacts involved a request for cost-share assistance that was handled through the PLPW program, and half (9) the contacts involved projects being funded by other groups.
- Assisted water management personnel assess flow, velocity, and temperature on Big Goose Creek.
- Monitoring of channel bed elevations was established below a newly constructed low water crossing on the Powder River. The objective was to assure the hardened crossing does not become a passage barrier.
- Assisted with Don Spellman Ranch rotational grazing plan.
- Assisted NRCS with creating maps for development, primarily for EQIP projects.
- Assisted BelAyr mine with NRCS Plant materials center experimental seeding.
- Habitat personnel collected resource information on the highest priority “access” tract and identified resource issues that need addressed. A meeting was arranged with the NRCS and Sheridan County CD to discuss a collaborative effort to provide technical and financial assistance to the lessee. The goal is to provide the infrastructure and plans necessary for implementing a state-of-the-art livestock grazing system. Improving the condition of rangelands and associated wooded draws and riparian habitats is expected to benefit white-tailed and mule deer, sharp-tailed grouse, Hungarian partridge, pheasants and numerous other birds and mammals. We are presently negotiating with the lessee.
- Publications- The WGFD report titled Response of Prairie Stream Riparian Buffers to Livestock Exclusion and Short-Duration Grazing in Northeast Wyoming-A Pre- and Post- Photographic Comparison has gained national attention. In addition to the WGFD web page, it’s now posted and referenced on Wyoming and Montana Natural Resources Conservation Service and Holistic Management International sites.
- Mapping Sage-Grouse Habitats- WGFD personnel participated on a committee of sage-grouse and remote sensing experts to develop protocol for mapping habitats and modeling potential sage-grouse occurrence in the state. This assignment originated from the Governor’s Sage-Grouse Implementation Team. WGFD personnel attended University of Wyoming’s sagebrush mapping meeting for volunteers. In addition, time was spent researching and helping with the development of sage-grouse habitat mapping protocol for the Powder River Basin. Several meetings and conference calls were participated in.
- WGFD SHP Revision- Habitat plans prepared by other groups were reviewed to help revise the SHP and considerable time was spent revising the plan for the Sheridan Region. In addition, we examined Sheridan County’s strategy of protecting lands adjacent to the Bighorn National Forest. They proposed limiting development above 4,600 feet in elevation. It appears that this zone would protect most crucial elk winter ranges in the county.
- USFS Tongue Allotment Management Plan- WGFD personnel were asked to meet with and provide information to the Wyoming Wildlife Foundation (WWF), an important constituent-based conservation group for the agency. WWF was investigating developments that would delay or overturn the implementation of the Bighorn National Forest’s Tongue Allotment Management Plan decision. The Record of Decision (ROD) proposed reducing permitted livestock grazing by 48 percent.
- WGFD personnel are concerned about retaining quaking aspen and willow resources within these allotments, which contain valuable elk and mule deer habitats and a Blue Ribbon trout fishery (Figure 16). WGFD personnel attended a WWF-sponsored tour of pastures involved in the ROD. Thirty-two agency and conser-



Figure 16. Conditions shown in this picture are typical for quaking aspen communities found on the east slope of the Bighorn National Forest. Old growth aspen clones continue to produce suckers in an attempt to regenerate the stand. Regeneration rarely occurs, however, because long-term excessive browsing by wild and domestic ungulates keeps new suckers suppressed. Consequently, the more desired multi-layered stands rarely occur.

vation group representatives attended. The group viewed examples of resource issues that had been identified by the Forest Service and WGFD. They questioned why the condition of aspen and willow communities had improved where livestock had been voluntarily reduced and not in status quo pastures.

- Extension Service Work- Nineteen landowners and two consultants were assisted with wildlife habitat enhancement efforts, funding and management strategies to benefit wildlife. One project on Soldier Creek might result in a new riparian buffer contract under Farm Service Agency's CRP.
- Eagle Creek Prescribed Fire: The BLM plans to conduct broadcast burns in the fall of 2008 and spring or fall of 2009, in southwest Johnson County. The project is located about 20 miles west of Kaycee, Wyoming. This September, BLM burned the Carpenter Creek portion of the 6,000 acre Eagle Creek project area, which targeted about 400 acres of shrub and mixed conifer vegetation (Figure 17). Cooperators included the BLM, Johnson County Powder River Fire District, Hole in the Wall Ranch, RMEF; and WGFD. Other prescribed burns planned for 2009 will utilize low intensity fire to reduce surface fuel loading under stands of ponderosa pine.
- WAFWA Mule Deer Habitat Guidelines- WGFD Habitat Section personnel coauthored the Energy and Mineral Development Chapter of the Western Association of Fish and Wildlife Agency's Mule Deer Habitat Guidelines for the Great Plains Ecosystem. Final edits were made to the document after a peer review process.
- Photo Monitoring- WGFD and BLM personnel photo-monitored previous years prescribed burns (Figures 18 and 19).



Figure 17. The objective of the Eagle Creek burn was to reduce hazardous wild-land fuels resulting from disease killed limber pine and improve habitat and forage conditions for big game animals.



Figure 18. WHMA is located near Kaycee, Wyoming. This picture was taken in 1999, on the Ed O. Taylor WHMA.



Figure 19. This photo re-take occurred this summer. Wildfires in 2006 burned over a three-year-old prescribe-burn and killed new mountain big sagebrush seedlings. These seedlings were too young to produce new seed. With a depleted seed source, it appears that sagebrush reestablishment will be very slow. Herbaceous production, however, has substantially increased.