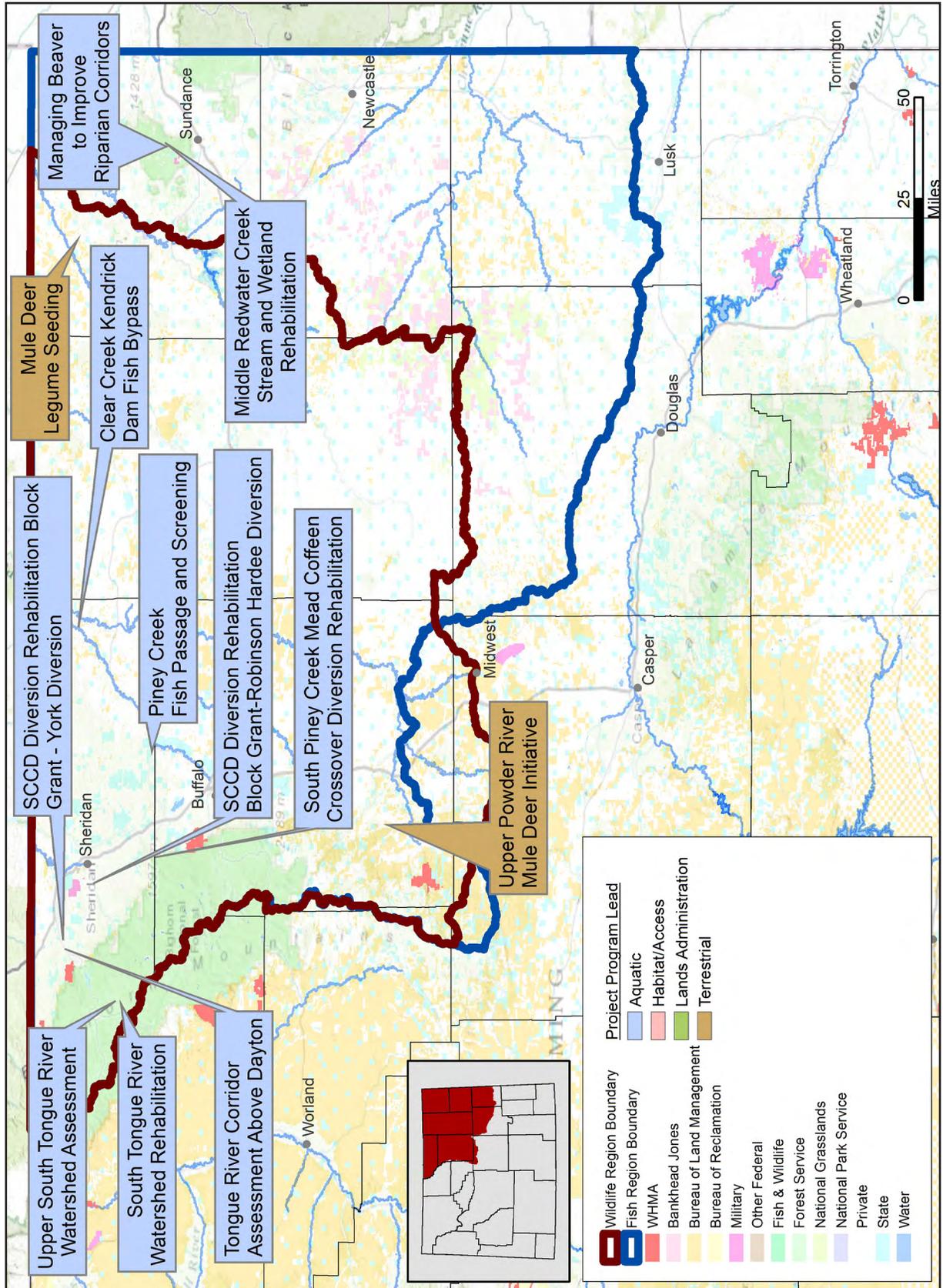


Sheridan Region



Sheridan Region

Most aquatic and terrestrial wildlife habitat enhancements in northeast Wyoming focus on streams and their associated riparian areas; however, Game and Fish in the Sheridan Region also put attention towards managing rangelands to meet the feed and cover needs of mule deer and sage grouse.

Riparian areas are extremely important wildlife habitats as 80% of all wildlife in Wyoming use riparian areas during some stage of their life. The scarceness of these areas in northeast Wyoming elevates their importance, so maintaining their quality is critical. In 2014 personnel here engaged in several projects related to riparian areas. When practical, restoring beaver populations in suitable habitats where beaver are absent continues to be one of our preferred tools to increase water retention in riparian corridors and buffer the effects of dry years and lower stream flows on fish and wildlife.

Today, as opportunities become available, efforts in the Sheridan Region are made to restructure irrigation diversions so landowners can get the water they have a right to divert while allowing fish passage through the diversions. Providing access past barriers expands habitat available for fish to meet their seasonal needs such as spawning and thermal refuges during low flow conditions.

Other habitat projects focused on maintaining rangelands to provide a diversity of native grasses and forbs. This is essential for numerous wildlife species.

Middle Redwater Creek Stream and Wetland Rehabilitation (Goal 2) - Travis Cundy

Cost share assistance was secured through the habitat trust fund and Wyoming Wildlife and Natural Resource Trust to stabilize channel degradation below a 3-acre shallow wetland complex along Middle Redwater Creek. The wetland complex is a relict beaver pond that supports finescale dace.

Geomorphic surveys and a preliminary design for the grade control were completed with assistance from Black Hills National Forest personnel. Pending permitting and contracting, the rehabilitation will be implemented in 2015.

Sheridan Public Access Areas (Goal 1) - Seth Roseberry

Annual maintenance and improvements continue on the 14 Sheridan Region Public Access Areas. The Sand Creek PAA received annual noxious weed control through chemical treatment and livestock grazing. 130 AUMs livestock grazing was utilized for cheatgrass and Canada thistle control in exchange for 2 miles of fishing access on Sand Creek through a Barter Contract with Ox Yoke Ranch.

The recently acquired Ellis and Beartrap/Pheasant PAAs were posted and signed for public use. Annual facility maintenance contracts were completed on Tongue Canyon, Monument Point and Sand Creek PAAs in a continued effort to provide quality public recreation opportunities.

South Tongue River Watershed Rehabilitation (Goal 2) - Travis Cundy

During fall 2013, 1,200 willows were planted inside the West Fork South Tongue River enclosure. The intent was to improve streambank stability and increase riparian shrub canopies near the stream (e.g., shade, insect and biomass inputs). Planting survival through summer 2014 was difficult to estimate due to erosion of outside banks during spring runoff, but appeared to be over 90 percent.

Managing Beaver to Improve Riparian Corridors (Goal 2) - Travis Cundy



Figure 142. *Live-trapped beaver and release watershed on Middle Redwater Creek.*

One beaver was trapped along Big Goose Creek in Sheridan County to address landowners concerns. The individual was released during fall in upper Middle Redwater Creek on the Black Hills National Forest (Figure 142), where additional colony establishment and dam-building is desired to raise stream-side water tables and inhibit the channel down-cutting occurring in segments of the watershed.

Periodic monitoring has occurred to determine if beaver colonies established and persisted as a result of past transplants. Three dam complexes occurred in the Blacktail Creek watershed that were being maintained by beaver (Figure 143).



Figure 143. *Beaver pond on a tributary stream.*

Upper Powder River Mule Deer Initiative (Goal 4) - Dan Thiele, Grant Gerharter, Todd Caltrider

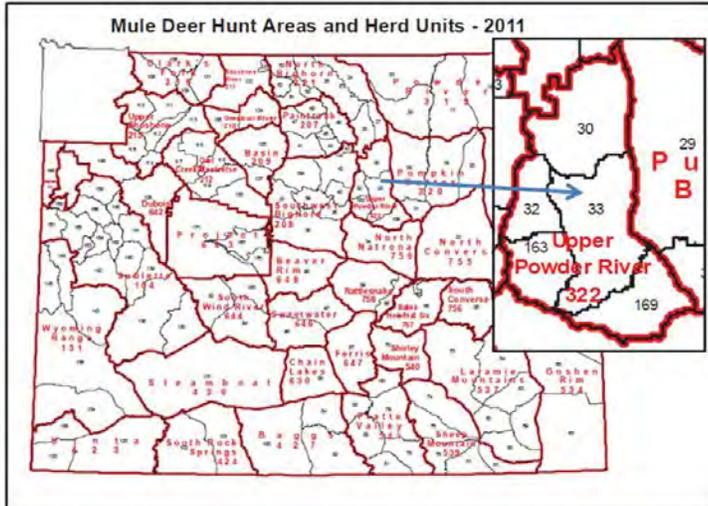


Figure 144. *The Upper Powder River Mule Deer Herd Unit.*

(Figure 145). In addition to public meetings, WGFD sent out surveys to sportsmen and private landowners to solicit information regarding perceptions of hunting seasons and perceived issues affecting local mule deer numbers in the Upper Powder River herd. Four hundred and twenty-one hunter surveys were mailed and to-date 69 have replied. Seventy-six private landowner surveys were mailed and to-date 20 have been returned. Some of the major issues affecting mule deer populations identified from the meetings and surveys included; predation, overharvest, vehicle collisions, drought, and lack of quantity and quality forage for mule deer. Following these comments, WGFD is working with WYDOT on vehicle collision avoidance measures, making changes to hunting seasons, and meeting with private landowners and BLM to pursue habitat projects focused on mule deer nutritional needs.

The Upper Powder River mule deer herd (HU 322) (Figure 144) was chosen as the Sheridan Region's focus area as part of the statewide Mule Deer Initiative program. The Upper Powder River mule deer herd is located in the upper Powder River drainage west of Kaycee, Wyoming, Mule deer populations in this herd unit have been approximately 50% under objective for many years. The WGFD held two public meetings in Kaycee to present information regarding mule deer population and habitat management in Wyoming and to solicit feedback from private landowners, local business-owners, and sportsmen on issues concerning mule deer. One meeting was held November 14, 2014 and had 20 in attendance



Figure 145. *MDI meeting in Kaycee, Wyoming*

Sheridan Wildlife Habitat Management Areas (Goal 2) - Seth Roseberry

Annual maintenance and improvements continue on the 4 Sheridan Region Wildlife Habitat Management Areas. Kerns WHMA received 11.5 miles of fence maintenance, including 10 miles of crucial winter range elk fence and 1.5 miles of stock fence. Major repairs on 7.5 miles of elk fence and 1 elk jump install was performed as part of the East Slope Big Horns Elk Fence Project (Figure 146). Annual noxious weed treatment was performed along with increased weed surveillance and mapping. The Amsden WHMA farming lease of 50 acres of hay meadow was irrigated and harvested through an AIPA with Amsden Creek Ranch; second growth forage was irrigated and left for wildlife utilization. Annual maintenance of 10.5 miles of crucial winter range boundary fence was performed, including 8 miles of elk fence and 2.5 miles of stock fence.



Figure 146. East Slope Elk Fence at Kerns WHMA north of Parkman, WY.



Figure 147. Permanent cover irrigation on Bud Love WHMA west of Buffalo, WY.

The Bud Love WHMA received 13.6 miles of crucial winter range fence maintenance; 8 miles of elk fence, 4.6 miles stock fence and 1 mile of electric drift fence was installed for trespass livestock control. Approximately 100 acres of noxious weed control was performed. Irrigation for standing wildlife forage was performed on 11 acres (Figure 147).



Figure 148. Solar well and water tank to be upgraded and expanded in 2015.

The Ed O. Taylor WHMA received 20 miles of boundary fence maintenance. Noxious weed control was completed on 25 acres, primarily in the Middle Fork of the Powder River Canyon. Conifer removal continued in the area to reduce encroachment on Curleaf Mountain Mahogany stands. Two wildlife watering facilities were maintained, a natural spring and solar well and funding was received from RMEF, WWNRT, WFW, WGFD Trust Fund and Mule Deer Foundation to improve and expand wildlife watering in 2015 on the WHMA (Figure 148).

Mule Deer Legume Seeding (Goal 2) - Todd Caltrider

A total of 593 acres of alfalfa were planted spring of 2014 in Crook County. The plantings will provide high quality forage for mule deer and include 301 acres of alfalfa on the McDonald Ranch (Figure 149) and 292 acres of alfalfa on the Jolley Ranch (Figure 150). These projects were funded out the statewide WGFD Grass and Legume Seeding Program.

Figure 149. *McDonald Mule Deer Legume Seeding 2014.*

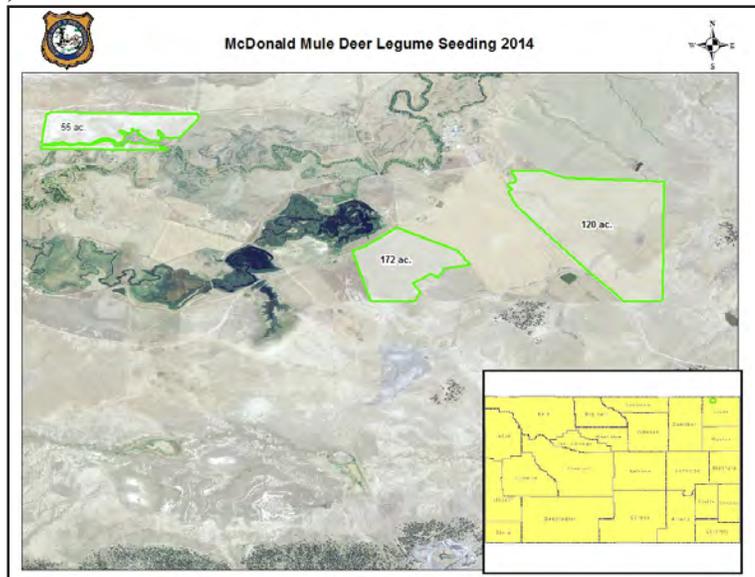
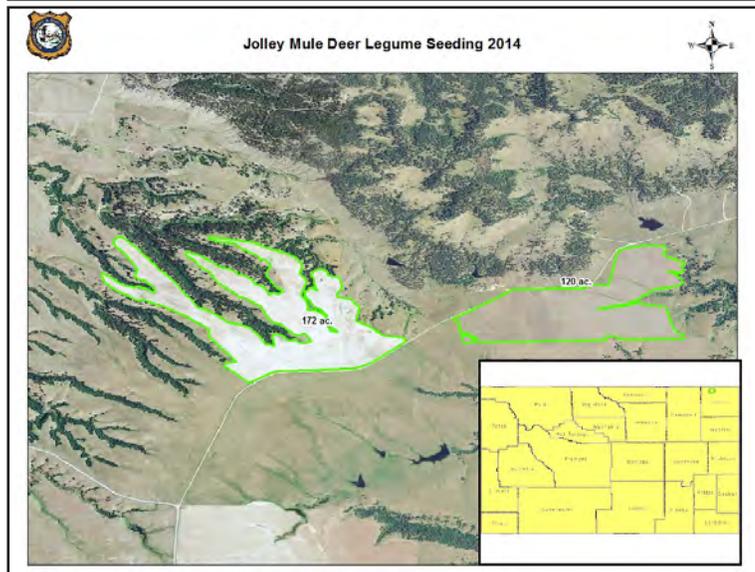


Figure 150. *Jolley Mule Deer Legume Seeding 2014.*



Upper South Tongue River Watershed Assessment (Goal 2) - Travis Cundy

Long-term declines in willow communities have been apparent in the South Tongue River watershed. Additional monitoring has occurred since 2012 to quantify willow growth and use trends, and identify factors influencing community declines. The ultimate goal is to achieve healthy communities with a diversity of age classes to provide cover and bank stability along streams throughout the watershed.

Willow leader growth averaged 0.39 ft (ranged 0.28-0.59 ft) during 2014. Growth in 2012 and 2013 ranged from 0.22-0.33 ft. Leader use during the growing season averaged 16 percent (ranged 4-38%). Previous averages from 2012 to 2013 ranged from 16 to 20 percent. Estimates of total leader use after winter 2014-2015 will not be available until spring 2015. Previous total use from 2012 to 2013 ranged from 22 to 31 percent. Cytospora fungus infections appeared to be contributing to willow leader die back at two of the transect sites, but the levels of dieback did not appear to be as severe as in 2013. Detailed summaries of willow use and growth trends are presented in the 2014 Sheridan Fisheries Management Region annual progress report.

Fish Passage and Diversion Screening (Goal 2) - Travis Cundy

Piney Creek Dunlap Diversion

Assistance was provided through the WGFD's habitat trust fund to help the Apache Foundation reha-



ilitate the Dunlap dam and diversion on Piney Creek. The dam was replaced in 2013 with a bed-form structure and rock ramp to provide upstream fish passage. In 2014, 200 willow live-stakes and 100 bare-root riparian shrubs were planted alongside the structure to stabilize streambanks and increase riparian plant canopy coverage (Figure 151). Plant survival was over 90 percent in August. Grating with 0.5 inch gaps between the vertical bars was placed in front of the diversion headgate to trap debris and screen larger fish from entering the 11 to 18 cfs diversion ditch (Figure 152).

Figure 151. *WGFD and Apache Foundation personnel using a waterjet stinger to plant willow live-stakes alongside the Dunlap Diversion ramp.*



Figure 152. *Vertical grating debris and fish screen at the Dunlap Diversion. The ramped vane structure (right) and attached screen was completed in 2013.*

Piney Creek Pratt and Ferris #1 Diversion

Funding assistance was secured through the habitat trust fund to help the Apache Foundation design a fish ladder and diversion screen at the Pratt and Ferris #1 dam and diversion on Piney Creek. Wild Fish Engineering and One Fish Engineering were contracted to design the dual vertical slot fish ladder and rotating drum screen. Ninety percent designs and cost estimates were completed during 2014. Additional funding assistance is being sought through the habitat trust fund to construct the ladder and screen during 2015. The fish ladder will reconnect about 30 contiguous miles of Piney and Clear Creeks. The drum screen will limit fish entrainment in the 18 to 24 cfs diversion ditch.

Sheridan County Conservation District Diversion Rehabilitation Block Grant

With funding assistance from the habitat trust fund, the WGFD collaborated with the Sheridan County Conservation District and Natural Resource Conservation Service to renovate deficiencies at the Robinson Hardee diversion on Big Goose Creek and the York Diversion on the Tongue River. Additional funding assistance was provided by the Wyoming Wildlife and Natural Resource Trust.



Figure 153. *Renovated sluiceway completed at the Robinson Hardee diversion.*

The check board sluiceway at the Robinson Hardee step vane diversion structure was retrofitted with a smaller lift gate that will draw less flow (Figure 153). The adjustments will direct bedload substrate movement during high flows over the crest of the stepped vane structure and replenish the smaller bed materials needed to plug and maintain the step pool seals in the stepped vane.

A rock ramp was built below the existing vane structure at the York Diversion. The rock ramp eliminated the plunging flow effect that was undermining the vane structure and provides upstream fish passage past the diversion (Figure 154). The renovation reconnected 5.7 river miles below the diversion to 3.5 river miles above the diversion.

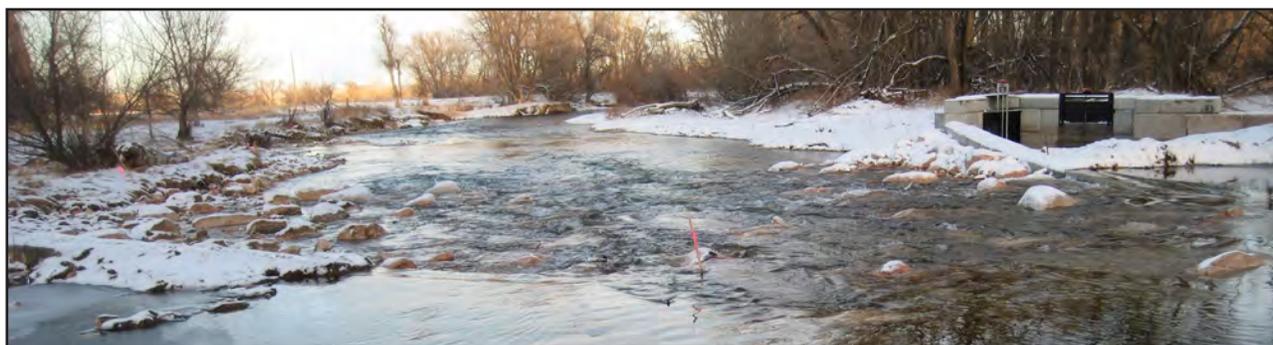


Figure 154. *Ramped vane diversion structure completed at the York Diversion on the Tongue River.*

Collaborations continued with the Natural Resources Conservation Service to develop designs to renovate the Hanover Diversion stepped vane structure on the Tongue River. The tentative designs entail altering the sluiceway, which is eliminating bedload substrate movement that is needed over the crest of the structure to keep the step pool sealed, and replacing the rock step pools with a roughened ramp to improve fish passage over a wider range of flow stages. Final designs and implementation are expected in 2015.

South Piney Creek Mead Coffeen Crossover Diversion Rehabilitation

The Mead Coffeen Crossover Diversion on South Piney Creek diverts flows to Spring Creek, which is the primary flow-through water supply for the Story Fish Hatchery. Designs were completed to rehabilitate the dam and improve upstream fish passage over the dam, but no funding has been secured to implement the rehabilitation. Monitoring continued to track the progression of the headcut along the toe of the dam (Figure 155). Most of the rock patch placed in the headcut during 2012, which used under-sized materials available near the site, washed downstream during 2014.



Figure 155. *Degradation of toe and flank of the Mead Coffeen Crossover Diversion Dam prior to patching in fall 2011(left), rock patch placed to limit degradation in spring 2012 (middle), and condition of the patch in fall 2014 (right).*

Habitat and Access personnel helped alleviate the head cutting during 2014 by reducing the center channel deposition bar developing above the dam (Figure 156). The depositional bar redirected some flow towards the degrading section of the dam.



The substrate removed was repositioned as a point bar feature that will direct flow away from the head cut.

Figure 156. *Center channel bar removal above the diversion dam.*

Clear Creek Kendrick Dam Fish Bypass Channel

The bypass channel, which allows fish from the Powder River to access 36-miles of Clear Creek above Kendrick Dam, operated from mid April to early July before irrigation demands prompted its closure. An elevation survey was completed along the length of the bypass to monitor how the sediment load of Clear Creek is affecting the channel. Additional discharge estimates were obtained during high flows to refine the stage-discharge relationship for the bypass. Summaries of these assessments are presented in the 2014 Sheridan Fisheries Management Region annual progress report.

Aquatic Habitat Assistance, Information, and Education (Goal 5) – Travis Cundy

The Aquatic Habitat Biologist consulted with landowners and other agency representatives on 66 new or ongoing requests for information or assistance during 2013. Several project partnerships involving cost share or services from the WGFD are developing from these 2014 or previous year's contacts. These include opportunities to trap and transplant beaver to unoccupied riparian habitats, evaluate fish movement and potential losses in diversions, develop fish passage or screening, rehabilitate deteriorating stream and riparian conditions, and assess factors contributing to deteriorating riparian habitat conditions.