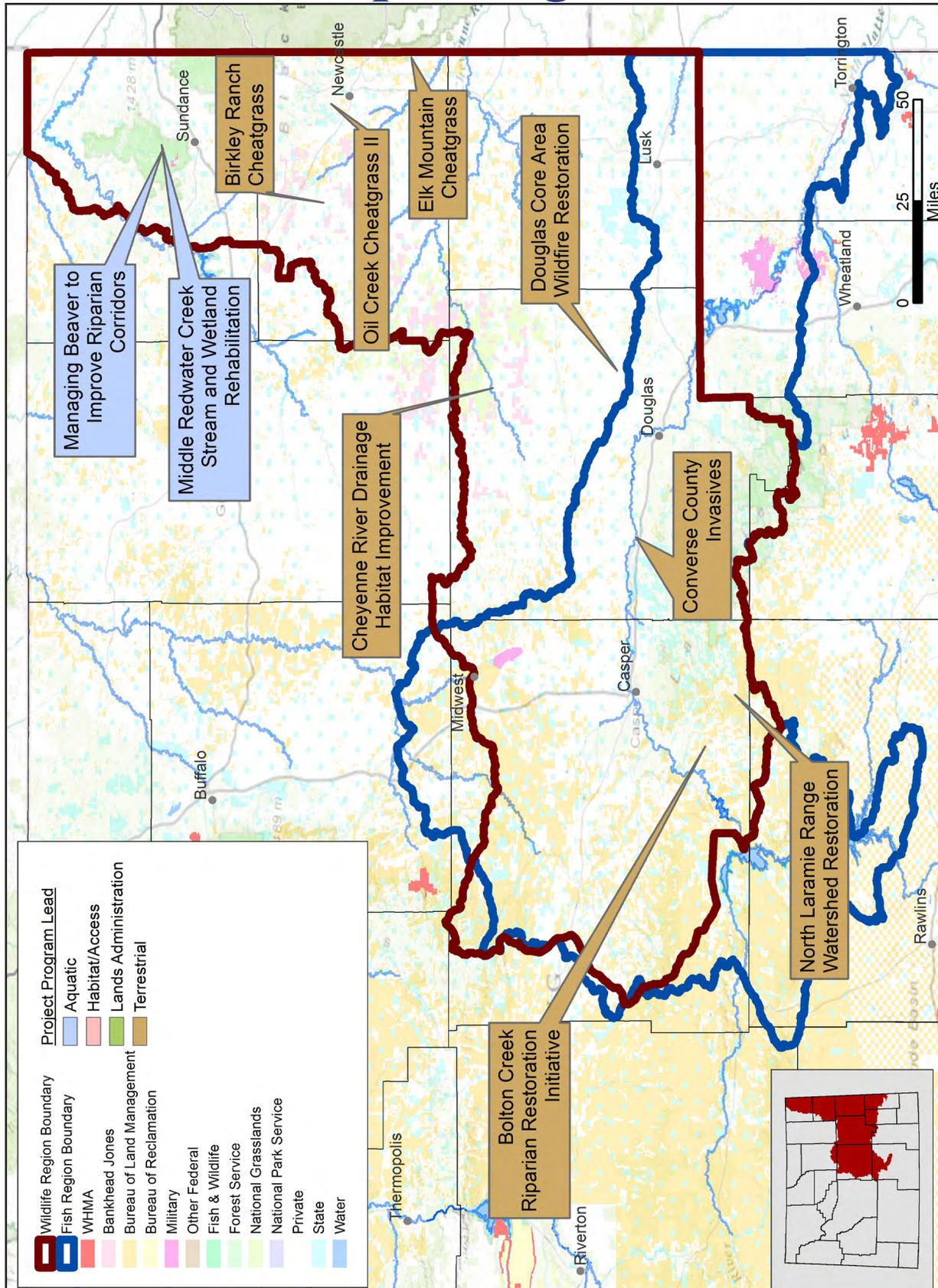


Casper Region



Casper Region

The focus of 2014 in the Casper Region can be summed up in one word: invasives. Whether it is soil invading the river, cheatgrass intruding on native habitats or invasive Russian olive trees along riparian areas, the Casper Region has tackled invasives in 2014.

Casper Region habitat biologists worked hard to address nonnative species and poor habitat from the central waterways of the North Platte River to the Black Hills. New, innovative techniques have been developed to increase the success of sagebrush transplants, keep the North Platte River clean and allow for native grasses and forbs to regrow, all for the benefit of wildlife.

Elk Mountain Cheatgrass Project (Goal 2) - Todd Caltrider



Figure 11. *Bighorn sheep herd on Elk Mountain.*

Elk Mountain is a large isolated mountain at the southern end of the Black Hills and contains the only bighorn sheep herd in northeast Wyoming. The Kouba Canyon bighorn sheep herd contains approximately 80 bighorn sheep (Figure 11). In the past five years, Elk Mountain has been subject to numerous wildfires. While the wildfires have improved bighorn sheep habitat on Elk Mountain by reducing conifer cover, fires have also perpetuated cheatgrass establishment on the mountain. In September 2014, 710 acres of cheatgrass were treated with imazipic herbicide on crucial bighorn sheep winter range on the LAK ranch (Figure 12). Funding for this project was provided by the WGFH Habitat Trust, Wyoming Governor's Big Game License Coalition (WBGGLC), the Wyoming Wild Sheep Foundation (WyWSF), the participating landowner, and the Weston County Weed and Pest.



Figure 12. *Helicopter spraying imazipic herbicide on Elk Mountain.*

Blue Downey Park Reservoir (Goal 2) - Colin Tierney



Figure 13. *Blue Downey Park Reservoir*

Blue Downey Park Reservoir (Figure 13) is a one-acre impoundment on North Fork LaBonte Creek. Historically, the reservoir's depth permitted brook trout populations to persist for decades. Many in Douglas use this and the neighboring ponds and streams for fishing with their families. An incision dropping about six feet threatens to drain the reservoir and completely blocks upstream fish movement (Figure 14). Unchecked, this incision could drain the reservoir and wetland. Initially, a rock chute and various channel treatments were proposed to stabilize the headcut but this approach proved expensive. In 2014, additional data were collected to more fully assess alternatives. Longitudinal profiles and bankfull estimates were measured in the channel downstream to evaluate how the proposed channel would respond to peak flows. Bathymetric reservoir mapping done in 2014 illustrated that volume had decreased 50-66% over the 60-year lifespan of the reservoir. Maximum depth now is only about 9 feet and Sago pondweed is abundant in the reservoir, with large quantities occurring in water between 2 and 6 feet deep.

Given the shallow nature of the pond and likely limited remaining life span of the reservoir, it will likely be prone to winter kill in the future. As a result, there is not a great deal of urgency in stabilizing the overflow channel unless significant dredging were to occur. These options begin to reach a cost level that an alternative approach - constructing a new reservoir downstream - begins to appear more economically viable. A new reservoir would provide a new long-term fishery, stabilize the previous reservoir dam, maintain the existing wetland, and control the headcut migration. This reservoir would allow erosive energy from the current reservoir spillway flows to be dissipated in the pool of the new downstream reservoir, while the new dam would meet current engineering specifications by using modern spillway designs and on-site materials.



Figure 14. *The headcut threatening the reservoir.*

Oil Creek Cheatgrass II (Goal 2) - Todd Caltrider

This project is a continuation of 2,896 acres of cheatgrass herbicide treatment that occurred fall 2013 to curb the spread of cheatgrass in the Oil Creek drainage following a 62,000 acre wildfire that occurred summer 2012. In September 2014, an additional 2,021 acres was treated on a private ranch



Figure 15. Helicopter spraying imazipic herbicide on a cheatgrass infested pasture in Oil Creek.

adjacent to the 2013 treatments (Figure 15). Funding for this project came from the participating private landowner, Weston County Weed and Pest (WCWP), Rocky Mountain Elk Foundation (RMEF), WWNRT, WGBGLC, and the WGFD Habitat Trust. Results from 2013 herbicide treatment were spotty, with some areas seeing 100% control of cheatgrass while others showed an increase in cheatgrass density. Although cheatgrass density in some plots was higher than pre-treatment levels, cheatgrass was small and stunted in nature, which provides evidence of exposure to herbicide. High autumn precipitation in fall 2013 and increased litter accumulations likely favored cheatgrass germination despite herbicide treatment in some of the treated areas. Monitoring will continue to assess control of cheatgrass within the Oil Creek treatments.

The Platte River Revival (Goal 2) - Colin Tierney



Figure 16. Volunteers load Russian olive limbs and trash picked up at Morad Park for the 2014 Platte River Revival Volunteer Clean-up event in September.

The Platte River Revival was initiated in 2006 to foster a healthy and sustainable river system that is a catalyst for economic development and improved quality of life in the Casper area. Citizens participate in an annual volunteer day removing trash and beautifying the river corridor (Figure 16). Each year, the Platte River Revival Volunteer Clean-up draws hundreds of volunteers, with the largest to date in 2014 with over 630 participants. The city holds this event in conjunction with National Public Lands Day and has the largest participant base in the country. During its eight-years, volunteers have removed three mature Russian olive stands, planted 300 trees and removed over 1 million pounds of debris including cars, trucks, tires, concrete, and dog waste. Strong partnerships and community support are crucial. To date, over 2,600 citizens

have volunteered, and businesses, government agencies, and foundations have contributed funding and in-kind services totaling well over \$500,000. The Volunteer Day/National Public Lands Day Event has strengthened the public-private partnership and attracted private and in-kind contributions making completion of the North Platte River Environmental Restoration Master Plan possible.

Douglas Core Area Wildfire Restoration (Goal 2) - Willow Hibbs



Figure 17. Sagebrush seedlings grown from native seed collected in the Douglas Sage-grouse Core Area.

This project is located in the Douglas Sage-Grouse Core Area and assists in promoting the long-term sustainability of sage-grouse as designated by the Governor's Sage-Grouse Core Area Protection Executive Order. Project components include planting 12,000 sagebrush seedlings, treating 1,250 acres of cheatgrass, and establishing a vegetative firebreak within a 10,000-acre wildfire area (5,000 acre project area) north of Douglas, WY. The objective of the project is to increase habitat value and maintain proper functioning of the system to benefit pronghorn, mule deer and sage-grouse. Local sagebrush seed was collected and grown in 10ci containers (Figure 17) and planted in an island approach in November 2014 (Figure 18). The goal of this planting is to provide a seed source for natural re-establishment of sagebrush. The objective of the cheatgrass treatment, which was completed in 2013, and vegetative fire break are to reduce recurrence of fire within the project area. Additionally, treating cheatgrass will reduce competition with native species that wildlife depend on for forage and cover.



Figure 18. Sagebrush seedlings planted in exclosures in the Douglas Sage-Grouse Core Area.

Little Medicine Bow Upland/Riparian Grazing Management (Goal 2) - WLCI, Jim Wasseen

This project addresses approximately eight miles of riparian fence roughly 5 miles northwest of Medicine Bow on the Little Medicine Bow River. A mile of new fencing was installed during October 2014 to protect riparian vegetation and facilitate cattle and wildlife access to water and to implement a river crossing. The objectives of the project are to return this reach of the Medicine Bow to proper functioning condition by encouraging growth of riparian vegetation and reducing erosion and stream sedimentation.

Cheyenne River Drainage Habitat Improvement (Goal 2) - Willow Hibbs

Similar to many riparian areas throughout eastern Wyoming, native woody abundance has significantly decreased in drainages of the Cheyenne River. In partnership with a private landowner, the WGFD planted approximately 300 native trees and shrubs along the Dry Fork of the Cheyenne River and other draws and tributaries near the river. The local FFA chapter provided volunteer labor for planting (Figure 19). Plantings will continue in 2015. Habitat quality and riparian conditions can be significantly improved by successful re-establishment of native plants. Additionally, plantings can provide a seed source for future establishment of desirable plants.

Figure 19. *Local FFA students plant trees and shrubs along the Dry Fork of the Cheyenne River.*



Birkley Ranch Cheatgrass Treatment (Goal 2) - Todd Caltrider



Figure 20. *Scenic view of the Birkley Ranch (left) and monitoring cheatgrass density on the Birkley Ranch (right).*

The Birkley Ranch is located south of Upton, WY and contains important habitat for a variety of wildlife species, including sage-grouse, pronghorn, and mule deer (Figure 20). Due to growing concerns from the landowner on the increasing cheatgrass density and the importance of this area to sage grouse, the WGFD worked with the landowner to locate suitable pastures for treatment and to facilitate cheatgrass herbicide application. This area provides some of the better sage grouse habitat in the Newcastle Core Area. In September 2014, 475 acres of cheatgrass were treated on the Birkley Ranch. Funding was provided by the WGFD Habitat Trust, WGBGLC, WWNRT, the participating landowner, and the Weston County Weed and Pest.

Lusby PAA Bank Stabilization (Goal 2) - Colin Tierney



Figure 22. *Lusby Public Access Area bank before stabilization (above) and two years afterward (below).*

closer to 50-60%. The project has been photographically

monitored for pre- and post-construction comparisons (Figure 22). A project was completed in May 2012 to stabilize 210 yards of streambank erosion threatening the access road along the North Platte River at Lusby PAA. In the spring and summer of 2011, a previous attempt (2010) to stabilize the streambank failed, taking with it another 15-20 feet of the stream bank and much of the armoring. In April 2012, a contractor placed 70 concrete “Lego-style” blocks in the North Platte River; topped with 350 yards of 36” bank riprap. Non-woven geotextile material sat below the riprap and shredded fiber landscaping fabric capped the riprap. Personnel planted this area with approximately 500-750 harvested coyote willow cuttings using a waterjet stinger. The landowner watered these almost daily using a WGFD provided drip system. The willows within the watering area saw survival upwards of 95%, while those outside the watering system saw survival levels

closer to 50-60%. The project has been photographically

Converse County Invasives (Goal 2) - Willow Hibbs

The project area is located on the Dave Johnston WGFD Walk-In Access area as well as on unenrolled adjoining PacifiCorp property along the North Platte River. The treatment area is comprised of 4.5 miles of riparian habitat along the North Platte River and consists of approximately 380 acres of Russian olive stands. Mechanical removal work commenced in winter of 2014 - 2015 via mastication and will be completed by March 2015 (Figure 21). Chemical re-treatment and maintenance will occur through 2018, with long-term maintenance occurring less frequently thereafter. Native woody species will be planted in 2016 and 2017 depending on the level of Russian olive control. This project aims to substantially reduce Russian olive abundance and seed dispersal along the North Platte River, thus increasing native species diversity, water availability, and habitat quality for wildlife.



Figure 21. *Russian olive mastication at the Dave Johnston Walk-In Area.*

North Platte River Environmental Restoration Master Plan (Goal 2) - Colin Tierney



Figure 23. Pulling Russian olives with a skid-steer mounted brush grapple along the North Platte River.

Several decades of property owners' efforts to stabilize North Platte River banks along with regulated flows have created a channelized river with little bed diversity and localized areas of increased erosion and sedimentation. Russian olive trees dominate much of the terrestrial habitat. The North Platte River Environmental Restoration Master Plan is based on an assessment of the 13.5-mile stretch of the river within the city limits. Completed in 2012, it includes habitat and hydrologic assessments of the riparian corridor.

Seven sites will receive in-river habitat treatments, while twelve sites will receive vegetative habitat restoration (Figure 23). These sites were selected based on ecological and political parameters. The restoration of the North Platte River will improve physical, chemical and biological components of the river and downstream waters as well as produce economic and social benefits. Construction of the first two sites is planned for 2015. Russian olive removal began on the Morad Park site in September 2014, preceding river restoration construction in 2015 (Figure 24).



Figure 24. Morad Park prior to (above) and following (below) Russian olive removal in September 2014.

North Laramie Range Watershed Restoration – 2014 (Goal 2) - Keith Schoup

In July 2014, a landowner and WGF D personnel proposed and began implementation efforts to thin big sagebrush stands located within snow accumulation areas. These areas are small topographic features at the headwaters of small streams and drainages where snow accumulates. In these areas we have documented greater than 25% big sagebrush canopy cover, and in some instances, greater than 30%



Figure 25. *Snow accumulation area with big sagebrush thinning.*



Figure 26. *Snow accumulation area with big sagebrush thinning.*

big sagebrush canopy cover. Therefore, we proposed to mechanically treat these areas with a rubber-tracked skid steer and brush hog mower (Figure 25 and Figure 26). The treatment is designed in such a way that it is not considered a disturbance within the sage grouse core area executive order, and the benefits to sage grouse and other wildlife will be increased grass production, increased forb production, improved hydrologic function and increased plant community diversity. As of December 2014, three acres were mowed out of the 140 acres proposed. The small acreage figure is the result of the skid steer being too small (underpowered) and the brush hog mower not being capable of dispensing mowed material in an efficient manner. As a result, the largest skid steer built was rented and will be used with a Fecon mulching attachment to implement the treatment moving forward.

During 2014, Plateau® herbicide was purchased to aerially treat 12,936 acres of cheatgrass infested big sagebrush and true mountain mahogany communities. The cheatgrass treatment was not implemented due to a short treatment window in which the helicopter needed an engine overhaul. Once the heli-

copter was back in service, the cheatgrass in the proposed treatment areas began to germinate. Plateau® herbicide is not as effective at controlling cheatgrass once it has germinated with control expected in the 40 to 60 percentile range rather than in the 80 to 90 percentile range if the cheatgrass has not germinated. Therefore, the pilot, landowners and WGFD personnel decided to postpone the 2014 treatment until August 2015.

Lower Stinking Creek Enhancement (Goal 2) - Colin Tierney



Figure 28. *Stinking Creek prior to piling installation (top), immediately following installation (middle), and one year post-installation (bottom).*



Figure 27. *Vertical bundles used to stabilize creek banks can be seen growing along the far bank less than four months after they were planted.*

encourage the development of native riparian plant communities. The benefiting riparian species will stabilize the channel, limit sediment transport, and encourage beaver activity. Additionally, several of the structures installed were intended to stabilize damaged reaches of the creek (Figure 28).

Sheet pilings were driven into the substrate, and a rock chute was used to dissipate the creek's energy. Geotextile fabric placed under the rock reduced contraction scour in these sandy soils. Vegetative and elevation data were collected at the four 2013 sites prior to installation, and photographic monitoring was used until the cameras failed. Efforts to control side channel headcutting occupied large portions of the spring field season. These efforts included transplanting willows in the form of buried waddles, silt fences, and vertical bundles (Figure 27). During the summer of 2014, longitudinal profiles were collected at three of the 2013 sites. It was necessary to rework some of the structures due to damage sustained in high flow events and a backhoe was used to realign or bolster rock chutes at several sites. This machine was also used to pull on-site Russian olives.

Bolton Creek Riparian Restoration Initiative (Goal 2) - Keith Schoup



Figure 29. *Insta-dam installation on Bolton Creek.*

In 2014 the WGFD hauled 152,720 pounds of shredded tree material and 38,180 pounds of tree branches and limbs for a total of 190,900 pounds. All of the tree branches and limbs were used to create 12 “insta-dams” in Bolton Creek. The “insta-dam” is designed to mimic a beaver dam, which will trap sediment, raise the water table, dissipate energy following precipitation runoff events, and slowly release water during low flow times of year (Figure 29 and Figure 30). In addition to the tree branches and limbs, WGFD personnel placed 73,040 pounds of shredded tree material onto the “insta-dams” to further improve their design. The remaining 79,680 pounds of shredded tree material was placed into a gully to slow the movement of an active headcut, which we estimate is approximately 20 feet deep, 15 feet wide, and 20 feet long (Figure 31). Following installation of the “insta-dams”, we live-trapped 2 beaver from Casper and relocated them into the section of Bolton Creek where the “insta-dams” are located. As of November 2014, the beaver have modified 5 of the “insta-dams” and created 3 new dams in close proximity. All of this work was conducted in-house utilizing rented equipment that consisted of a mini-excavator, skid steer, dump trailer and rubber-tracked dump truck.



Figure 30. *Insta-dam modification by beaver.*



Figure 31. *Shredded tree material placement in active headcut.*

50-Mile Flat Re-seeding (Goal 2) - Matt Pollock

The Casper Habitat and Access Crew, in cooperation with the BLM Casper Field Office, conducted a habitat improvement project on 50-Mile Flat, north of Casper, near the south fork of the Powder River.



Figure 32. *Drilling seed on 50-mile flat.*

The project involved drill seeding native grass, forb, and shrub seed mixture on 250 acres of BLM land with a no-till rangeland seeder to rehabilitate important pronghorn and sage grouse habitats. The project took a bit longer than anticipated due to frequent precipitation, but the moisture aided in successful germination of the seed. Additional acreage may be seeded depending upon additional BLM funding. The BLM provided fuel and labor for the project. WGFD provided machinery, seed and labor.