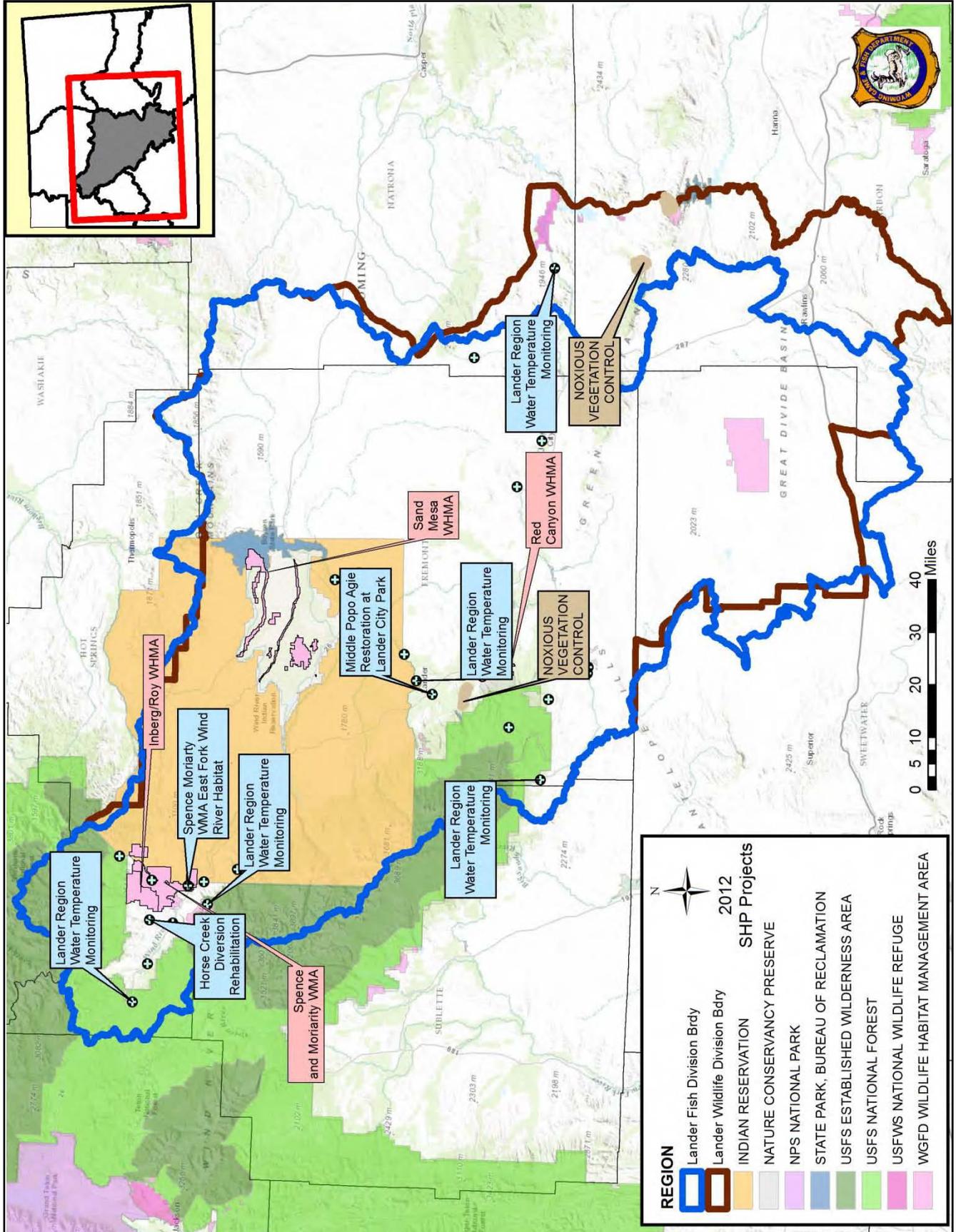


LANDER REGION



LANDER REGION HIGHLIGHTS

- 170 cubic yards of rock were used to build two cross vanes on Horse Creek to improve fish passage at an irrigation diversion.
- 2,700 feet of stream have designs ready for construction on the Middle Popo Agie River in Lander.
- Over 20 miles of stream were assessed for streambank stability on the Spence/Moriarity WMA.
- 1,136 acres of cheatgrass were treated with Plateau® herbicide in the fall of 2012 on private lands north of Lander.
- The WGFD provided 24 gallons of Plateau® at a cost of \$3,500 to the Rawlins BLM for post wildfire treatment of cheatgrass on winter ranges north of Rawlins.
- Vegetation monitoring was re-initiated on the Red Rim-Dailey WHMA west of Rawlins. The primary use of this unit is pronghorn winter range, however, residual grass cover is critical to keeping elk from using lichen found in the understory.
- Nineteen permanent transects were monitored to assess annual vegetation production and winter utilization by elk and bighorn sheep in 2012. As expected annual forage productivity was down considerably due to drought.

Wildlife Habitat Management Areas (WHMA) (Goal 2) - Miles Anderson, Derek Lemon, Silas Deselms, Skye Shaw, and Brian Parker

Inberg/Roy WHMA

Phase 1 of the Dennison Meadows pipeline and restoration was completed during the fall of 2010. Approximately 4,500 feet of transport ditch was converted to buried pipeline. Phase 2 began in the spring of 2011, two of the four meadows were re-farmed with palatable, drought-tolerant herbaceous species and field spreader ditches were replaced with gated pipe. An analogous treatment for the remaining two meadows began in late summer/fall of 2012. The project will be finalized spring 2013. Pipeline installation will greatly increase water use efficiency, which will benefit Yellowstone cutthroat trout, while meeting needs of supplemental forage production for wintering elk.

Spence and Moriarity WMA Management

Restoration of the Duncan Bench pivot fields began during the fall of 2011. Approximately 200 acres of the Duncan Bench has been planted with drought-tolerant grass species since project inception (Figure 1). A contract was awarded in the fall of 2012 for reclamation services. The contractor will provide seedbed preparation, seed drilling, and mulch crimping services on approximately 76 acres. Mulch amendment will provide increased organic matter, moisture retention, and combat wind erosion. An adjacent 100 acres will be seed drilled for comparative purposes in addition to the area targeted by the reclamation services during spring 2013.



Figure 1. Duncan Bench area of Spence and Moriarity WMA.

Big Horn Coop sprayed approximately 300 acres of field pennycress on the Duncan Bench in May 2012. Suppression of field pennycress resulted in increased water and nutrient availability. Grass production has increased on the Duncan Bench site.

Hedges Weed Spraying applied herbicide on approximately 180 acres of noxious weeds, largely white-top, on the Spence and Moriarity WMA irrigated meadows in early June. Additionally, Fremont County Weed and Pest sprayed a variety of noxious weed species on irrigated meadows starting in July and continuing through fall 2012. Approximately 26 miles of road corridor within Spence and Moriarity WMA was sprayed with Plateau® to combat a cheatgrass infestation (Figure 2).

Sand Mesa WHMA

Alfalfa and grains were planted at Sand Mesa in the three pivot fields and two additional fields. This provided cover and forage for stocked pheasants and migrating waterfowl.

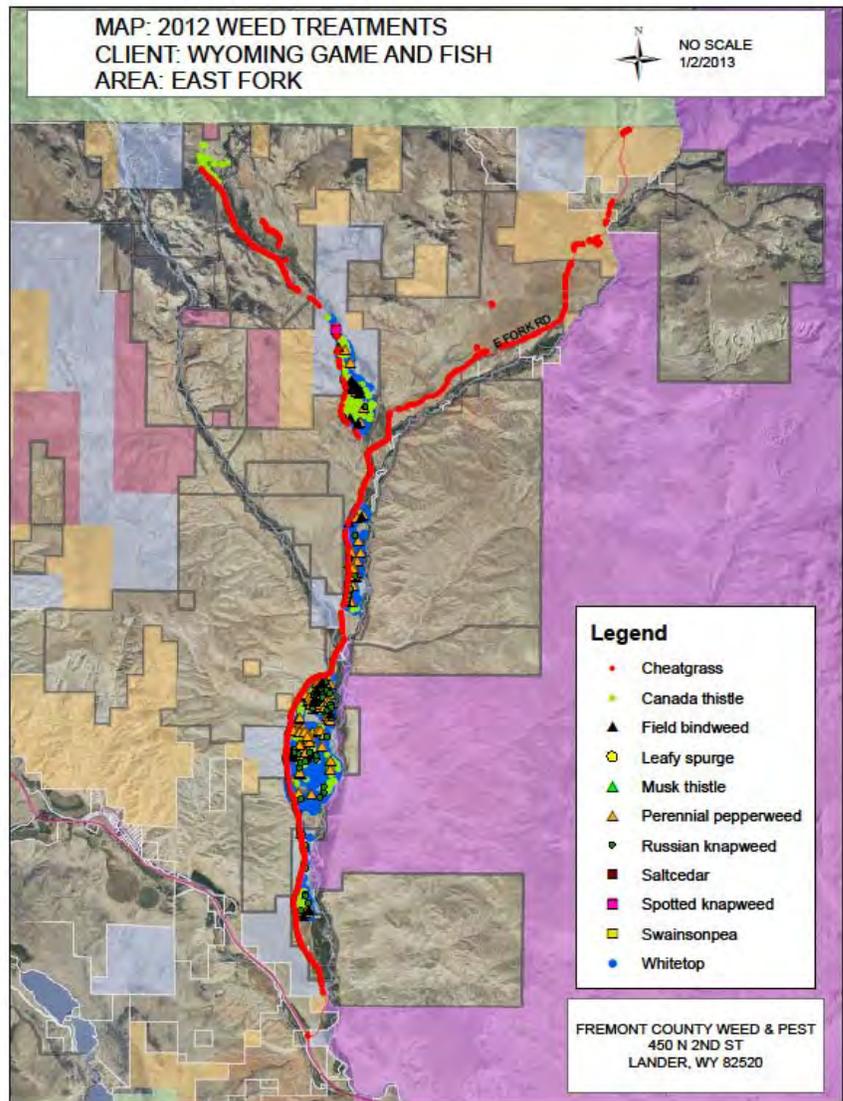


Figure 2. Spence and Moriarity weed spraying.

Resource Management Planning (Goal 5) – Ron Lockwood

WGFD Lander regional personnel continue to participate as state cooperators in the Lander BLM Resource Management Plan and the Shoshone National Forest Management Plan revisions. The WGFD provided comments on a wide array of topics and alternatives for wildlife, vegetation, weed control and fire management. Of specific note, the WGFD worked with the state cooperators on the forest plan with regard to final revisions of the travel management plan and a proposal for NSO (no surface occupancy) on portions of the forest providing crucial winter range that are adjacent to BLM lands with similar NSO stipulation or private lands protecting winter range with CEs.

Horse Creek Diversion Rehabilitation (Goal 2) – Nick Scribner

Horse Creek begins on the Shoshone National Forest and joins the Wind River in the town of Dubois. Approximately 4 miles north of Dubois on State Land a diversion provides water for 330 acres of cropland. Prior to this project, a push up dam was annually constructed which inhibited

upstream movement of fish and likely contributed to fish entrainment in the ditch (Figure 3). In addition, the headgate structure was severely deteriorated and did not function properly. In 2011, project partners secured funding to survey and develop designs to improve the diversion and associated infrastructure. Construction began in April 2012 when two cross vane structures were placed in the stream (Figure 4). These allow fish passage year round, require little maintenance, and provide ample flows for irrigation. The old headgate and concrete wall were removed and replaced with a new structure that includes a bypass pipe to assist with sediment removal in front of the headgate. Minor work is expected in 2013 to adjust the upper cross vane and install screw gates on the headgate.



Figure 3. The previous Horse Creek annual push up dam was often 3-4 feet high and impeded fish movements.



Figure 4. The new upper cross vane is fish friendly while directing diversion water during the 2012 irrigation season. The structure was built 60 feet upstream of the previous push up dam.

Winter Range Vegetation Transects (Goal 2) – Ron Lockwood

Permanent transect sites to monitor annual vegetation production and winter utilization by elk and bighorn sheep were evaluated in 2012. As expected, annual forage productivity was down considerably with production on the Inberg-Roy WHMA at 62% of the 10 year average, Spence and Moriarity WMA at 72% of the 10 year average, and on the Whiskey Basin WHMA at 32% of the 10 year average.

Utilization levels measured during spring 2012 for the 2011/2012 winter averaged 32% on the Inberg/Roy WHMA and Spence and Moriarity WMA and 41% on the Whiskey Basin WHMA. These utilization levels are below the recommended 60% indicating grazing was not excessive. Additionally, residual cover should have provided an increase in nesting and brood rearing habitat for a variety of nongame bird and mammal species. Fortunately, winter conditions, so far in 2012 - 2013 have been mild. Nevertheless, we anticipate higher use given productivity was much lower than normal.

Ferris/Seminole Mountain Bighorn Sheep Enhancement (Goal 1) - Ron Lockwood

Three successful bighorn sheep translocations costing approximately \$115,000 were conducted from 2009-2010 to augment the waning Ferris/Seminole Mountain bighorn sheep herd. GPS collars were placed on some of the bighorn sheep to collect movement and habitat use data. Many habitat issues have been identified within the Seminole Mountain area, including shrub over-maturity and/or decadence, lack of structural and age stratification, reduction in the amount, vigor, and nutritional quality of grasses and forbs, and conifer encroachment limiting travel corridors to

available habitats. These issues are thought to be caused by a lack of disturbance including fire and grazing. An example of this is the Morgan Creek WHMA which has been excluded from livestock grazing for the past 48 years.

This area was burned by wildfires during the summers of 2011 and 2012 (Figure 5). During the summer 2011 and 2012 wildfires were ignited by lightning strikes on the Ferris Mountains. The 2011 fire was started in the proposed project area and in close consultation with the WGFD the BLM allowed the fire to burn naturally. The 2012 fire was fought aggressively but still burned a considerable area including a significant portion of crucial mule deer winter range. Due to the time of year and lack of soil moisture the wildfires burned extremely hot and allowed cheatgrass to establish. The WGFD donated 24 gallons of Plateau® at a cost of \$3,500 to the BLM to help control cheatgrass. During 2012 approximately 2,000 acres were treated on Seminoe and Ferris mountains and the Morgan Creek WHMA. The herbicide was applied at 6 ounces per acre and costs for the helicopter application ranged from \$9.68/acre to \$18.88/acre depending on ferry time. Vegetation response monitoring will begin in the summer of 2013 and any remaining patches of cheatgrass will be treated.



Figure 5. Ferris Mountain wildfire summer, 2011 pre- and 2012 post-burn.

Overland Trail Ranch Fence Modification (Goal 5) – Ron Lockwood

This project is a cooperative effort between Overland Trail Ranch and BLM to convert approximately six miles of woven wire fence to a four-wire wildlife-friendly fence south of Rawlins. The private landowner will provide labor and the WGFD will provide materials. The area is classified as crucial winter range for elk, deer, and pronghorn and is part of a core sage grouse core area. The project is scheduled for completion during the spring of 2013.

Lander Front Mule Deer Habitat Improvement (Goal 2) – Ron Lockwood

The goal of the project is to re-establish native perennial grasses and forbs and slow the infestation of cheatgrass into additional productive sites. This will also improve shrub production by decreasing direct competition for water and soil nutrients. Additionally, minimizing or eliminating cheatgrass will maintain natural fire intervals. Natural fire intervals in this precipitation zone are usually between 50 and 100 years, however, in areas dominated by cheatgrass, wildfires tend to be far more frequent. Shorter fire intervals eliminate native shrubs such as Wyoming big sagebrush.



Figure 6. Plateau application using Wyoming Helicopters south of Lander on southwest side of Table Mountain – September 2012.

A total of 1,136 acres of cheatgrass was treated with Plateau® during the fall of 2012 on private lands owned by five different landowners (Figure 6). The application rate was 6 oz/acre as recommended on the label (Figure 7). We will monitor the treatment effect and presence/absence of cheatgrass starting in spring 2013.

Plans have been finalized to conduct additional cheatgrass herbicide treatments and sagebrush thinning treatments in 2013 on BLM and private lands in the area.



Figure 7. Wyoming Helicopter's ship reloading chemical.

Red Canyon WHMA (Goal 5)

RWGFD is an active member of the Red Canyon CRM. CRM cattle grazed the Upper and East meadows in late May 2012 in order to remove decadent vegetation and promote vigor and palatability of meadow vegetation for wintering elk. Grazing of the meadows occurs every other year. Temporary electric fence was deployed to mitigate riparian impacts. The Upper and East meadows were irrigated throughout the summer following grazing to provide supplemental forage for wintering elk (Figure 8).



Figure 8. Cattle grazing on Red Canyon WHMA.

Red Rim-Daley WHMA (Goal 5)

Red Rim-Daley is comprised of State, BLM and WGFC owned property. Two operators annually graze the Red Rim - Daley WHMA, collectively consuming approximately 1,650 AUMs.

Middle Popo Agie Restoration at Lander City Park (Goal 2) – Nick Scribner

MIn 2010, WGFD partnered with Popo Agie Conservation District to hire a consultant to conduct survey work on 2.5 miles of the Middle Popo Agie River through Lander (Figure 9). The goal of the survey was to help develop solutions that improve low flow instream habitat and stream function. In 2012, designs were completed for approximately 2,700 feet at Lander City Park. Designs include instream rock structures (i.e., cross vanes and j-hook vanes) to maintain grade control, relieve stream bank stress, and provide deep pools for fish. A low-flow channel will also be constructed to concentrate late summer flows that will increase water depths and available oxygen while reducing water temperatures. A result of these structures will be better sediment movement through City Park that can reduce future flood potential. Several meetings were held with the city and affected landowners with great enthusiasm and support for the project. Fundraising efforts and permitting are underway in 2013 with hopes of completing construction in 2014.

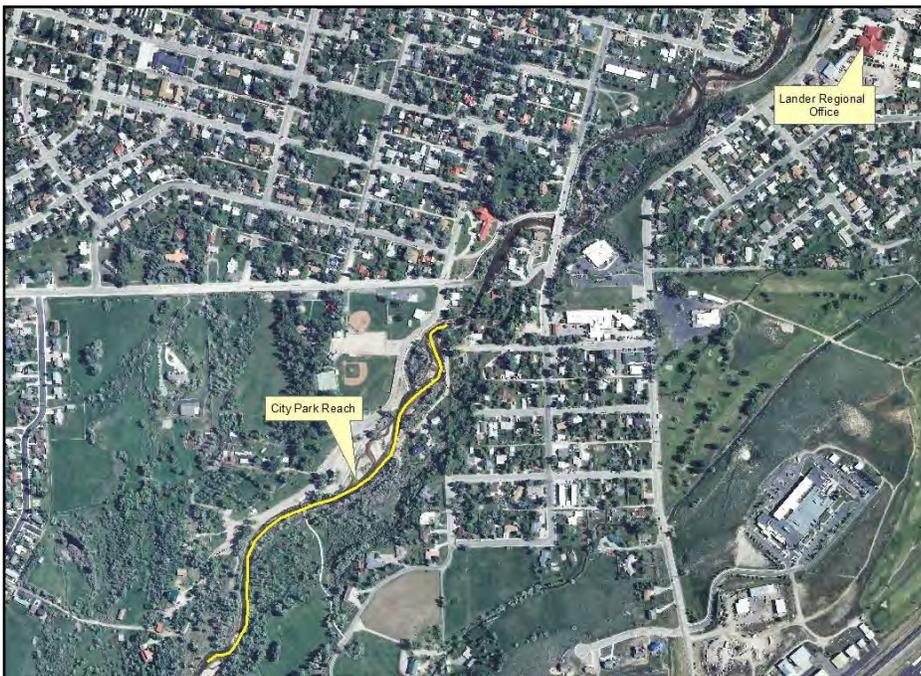


Figure 9. The Lander City Park reach of the Middle Popo Agie River has stream restoration and enhancement designs ready for implementation.

Red Rim-Daley WHMA Monitoring (Goal 2) – Ron Lockwood

Vegetation production and utilization monitoring began again this year on the Red Rim-Daley



Figure 10. WGFD personnel monitoring grass production on the Red Rim-Daley WHMA during September 2012.

WHMA west of Rawlins (Figure 10). A report will be distributed after spring clipping has occurred. The primary use of this WHMA is pronghorn winter range, however residual grass cover is critical to keeping elk from using lichen found in the understory. During the winter of 2003 - 2004 a total of 327 dead elk were found during late winter. Also, in the late winter of 2007 - 2008 a total of 89 dead elk were found. Toxicology tests indicated that elk had consumed lichen (*Xanthoparmelia chlorochroa*). Biologists indicate that elk utilize more lichen as forage utilization increases and availability decreases.

At the time of writing this report winter conditions had remained mild and very few elk had been observed using this area. Continued liberal elk harvest and habitat treatments will be needed to accomplish the goal of decreasing elk use of lichen. Additionally, domestic livestock use will continue to be monitored to insure adequate forage remains for pronghorn, elk, and other game and non-game species.

Lander Region Water Temperature Monitoring (Goal 1) – Nick Scribner

Long term data is extremely vital for determining and assessing trends over time, especially when we consider climate. The availability of low cost and convenient temperature loggers and the fact that they can be deployed with relatively little effort, combined with a desire to better understand possible effects of climate change, has led to increased stream temperature data collection. Stream temperature monitoring has occurred since 2001 in the Lander Region at 12 sites in the Wind River and Sweetwater River drainages. In 2012, this effort was expanded to an additional 14 sites and includes the Popo Agie drainage and Wind River Indian Reservation as well. These data will be used in climate modeling by the USGS and USFS Rocky Mountain Research Station to improve our conservation efforts of fish and aquatic habitat. Examples of how temperature data has already been used include documenting changes in spawning times, changes in fish populations, and shifts in species distributions. The data may also assist with questions we have locally regarding burbot and sauger, which have experienced declines over the past decade in the Lander Region (Figure 11).

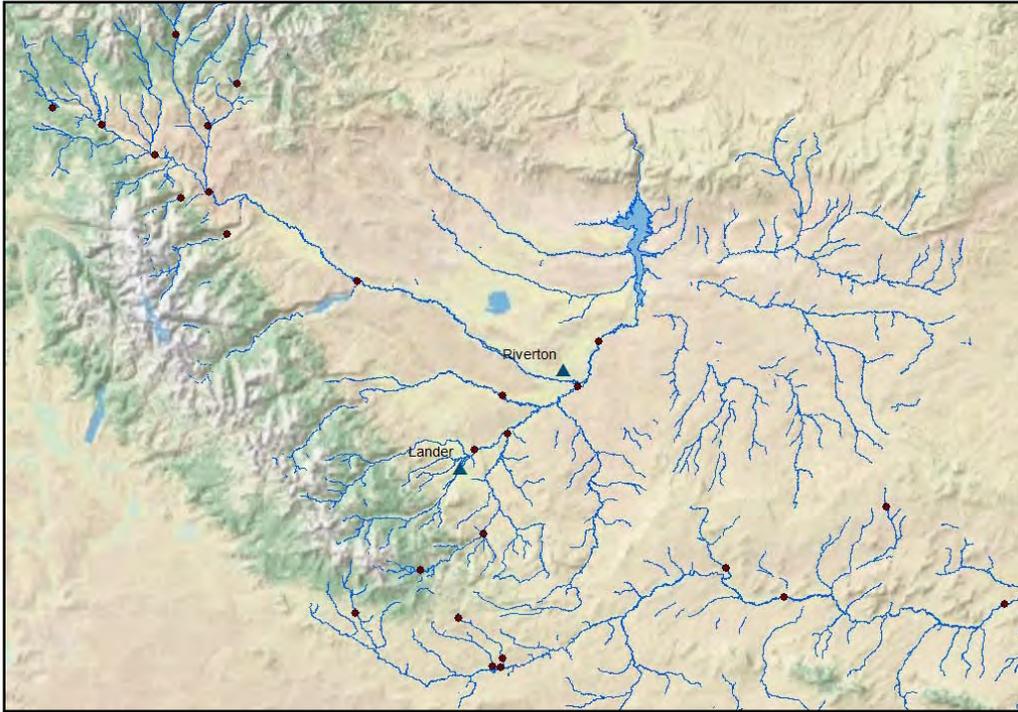


Figure 11. Distribution of temperature loggers in the Lander Region.

Spence and Moriarity WMA Management Plan, 2012 Progress

The following is a list of activities WGFD personnel completed as part of the Spence and Moriarity WMA Management Plan during 2012:

- Assumed irrigation responsibilities and irrigated over 1,200 acres on Dubois area WHMAs.
- Constructed and installed approximately 30 water control boxes.
- Reconstructed Andy's Meadow diversion box as a concrete structure.
- Installed approximately 4,900 feet of gated pipe to improve water efficiency and water distribution on 21 Meadow, Pease Meadow, Bain Meadow, and Andy's Meadow.
- Drilled/seeded approximately 100 acres of meadow with seed on Long Meadow, 21 Meadow, Pease Meadow, and Bain Meadow.
- Installed rip-rap to protect the East Fork ditch (which is shared by Mr. Spence's Thunderhead Ranch and the WGFD).
- Installed rip-rap to protect the Thunderhead Ditch.
- Installed a turbulent fountain to increase water and time efficiency on Pea Patch pipeline.
- Installed grade control structures on numerous ditches.
- Replaced Pease Meadow flush valve.
- Disked and seeded existing ditches on Pease Meadow to facilitate more efficient irrigation.
- Installed three headgate structures to more efficiently control available irrigation water.
- Began use of fish screen structure on Bear Creek diversion.
- Drilled approximately 200 acres of the Duncan Bench with upland grass species.
- Secured over \$83,000 for reclamation efforts on the Duncan Bench.
- Sprayed over 300 acres of field penny-cress on Duncan Bench to stimulate grass production.
- Sprayed approximately 180 acres to control white-top and Canada thistle on areas south of the Wiggins Fork in early June using supplemental weed contract.
- Fremont County Weed and Pest sprayed white-top, Canada thistle and Russian knapweed throughout the East Fork and Bear Creek valleys during late July 2012.

- Fremont County Weed and Pest sprayed Plateau® on approximately 26 miles of road right-of-way to control cheatgrass.
- Contracted supplemental meadow weed spraying. Headwaters Weed Spraying will commence in spring 2013 and continue established efforts.
- Awarded contract to Leseberg Ditching to replace Wiggins Ditch flume structures, which will increase water use efficiency and system life.
- Awarded contract to Shimic Seeding for Duncan Bench reclamation efforts beginning spring 2013.
- Awarded contracts for irrigation system improvements and efficiencies including gated pipe additions and turbulent fountains.
- Power easement has been approved by the WGFC that will allow electrical power to be connected to the warden's cabin. Following electrical establishment water and septic will be connected and the interior finished. All related work will be completed winter 2012/2013. Completion will allow for irrigator habitation during 2013 irrigation season onward.
- Contractor hayed over 500 acres of meadows in August 2012.
- Renewed haying contract for an additional five year lease period.
- Added meadows north of Thunderhead Ranch to hay contract in effort to promote meadow health; these meadows have historically been irrigated and left standing.
- Reconstructed areas of the east boundary fence to mitigate reservation cattle trespass in the South-East corner area.
- Continued weekly cattle sweeps and fence maintenance to remove trespass cattle.
- Nick Scribner coordinated a fence pull to mitigate wildlife entanglement, with Dubois High School student volunteers.

Whiskey Basin WHMA (Goal 2)

W120 acres on two different meadows were irrigated on Whiskey Basin WHMA. Approximately 47 acres of the Basin Meadow was hayed in July 2012 to promote herbaceous vigor and palatability, as well as help suppress noxious weeds. Fremont County Weed and Pest sprayed 4.6 acres of noxious weeds on Whiskey Basin WHMA. Approximately 30 horses (37.5 animal unit months (AUM)) from the CM Ranch grazed the Basin Meadow from November through December 2012 in lieu of grazing their BLM allotments. This agreement results in increased forage availability within core bighorn sheep winter range to be used by wintering bighorn sheep rather than CM Ranch horses. 2012 was the third year of the latest five-year agreement.

Spence and Moriarty WMA East Fork Wind River Habitat (Goal 2) – Nick Scribner

Approximately, 700 feet of streambank were improved in 2012 on the East Fork Wind River near Dubois. This drainage is crucial for Yellowstone cutthroat trout habitat. The primary concern addressed was a severely eroding bank that was impacting downstream habitat. Prior to 2010 and 2011, this bank was stable and supported willows, cottonwoods, and other vegetation. However, two high runoff seasons caused significant erosion leaving a 30 foot high bank bare and exposed that could potentially lose 300 tons of soil annually without intervention. The solution included moving the river channel away from the bank and building a bankfull bench with 'toe-wood'. Essentially, trees were buried under bed material with their root wads exposed to the river channel. Sod mats with willows were then placed on top to jump start vegetation recovery (Figure 12). Over 150 trees, 100 boulders, and nearly 2,000 cubic yards of material were used to complete the project. The root wads will help protect the bank as vegetation gets reestablished and provide excellent fish habitat at the same time.



Figure 12. Bankfull bench with 'toe-wood' being completed.

Spence and Moriarty WMA East Fork Wind River BEHI Survey (Goal 1) – Nick Scribner

Bank Erosion Hazard Index (BEHI) surveys were conducted on roughly 20 miles of stream along Bear Creek and the East Fork Wind River. The surveys were conducted for identification and prioritization of future stream work in the watershed to improve habitat conditions for fish, primarily Yellowstone cutthroat trout. The survey uses several attributes to classify streambanks on their stability such as root depth, substrate, bank angle, and stress from streamflow. From these measurements erosion rates are calculated for bankfull flows that aid in prioritizing stream reaches for habitat improvements. The BEHI survey was used at a smaller scale in 2010 and 2011 to evaluate a 1,200 foot reach of the East Fork that is currently in the planning phase for habitat improvements. Predictions from 2010 estimated 157 tons of soil loss per year from



Figure 13. Streambank in 2010 prior to losing 6 feet during 2011 high flows.

this reach, but high flows in 2011 likely increased that amount substantially for one season. The least stable bank in that reach (Figure 13) lost 6 feet of bank over approximately 75 feet, which equates to about 132 tons of soil. The BEHI provides an objective and repeatable approach for evaluating erosion and streambank stability.

South Pass Aspen/Willow Habitat Improvement (Goal 2) – Ron Lockwood

The WGFD is cooperating with BLM and USFS to improve aspen communities by removing encroaching conifers. This will release aspen shoots and encourage suckering. Historically aspen

were reliant on wildfire for regeneration. However, if done properly, commercial harvest can mimic this natural process. This project will improve wildlife habitat for big game as well as a host of small game, non-game species, and cavity nesting birds. This project will also improve watershed function and riparian health. Aspen communities use far less water than conifers and they also store water in the soil, slowly releasing it into the watershed. The increased presence of aspen will encourage establishment of beaver in the riparian system. Beaver dams slow and store water, thereby decreasing sedimentation and improving fish habitat.

To facilitate this project WGFD Directors' Office funds were approved for \$8,500 to perform a stage 2 archeological clearance. The WGFD allocated \$8,106 for approximately 1,180 acres to be analyzed. During this reporting period \$2,019 was spent. The survey has been completed and was approved by the Wyoming State Historic Preservation Office. The information will be used by BLM and USFS to meet NEPA requirements and prepare an Environmental Assessment (EA) to implement aspen and willow enhancement projects.

Morgan Creek WHMA (Goal 5)

The Seminole Fire burned over 3,800 acres in the Seminole Mountains including areas within Morgan Creek WHMA (Figure 14). The fire consumed over three (3) miles of boundary fence, which was rebuilt during October 2012. Rawlins BLM coordinated and funded aerial application of Plateau® to help mitigate cheatgrass spread on BLM and WGFD managed areas within the fire perimeter. The wildfire did assist in meeting prescription of previously planned prescribed burns within Morgan Creek WHMA. WGFD successfully negotiated with the BOR an extension of a twenty-five year Memorandum of Agreement. WGFD will continue to have primary management responsibility of Morgan Creek WHMA.

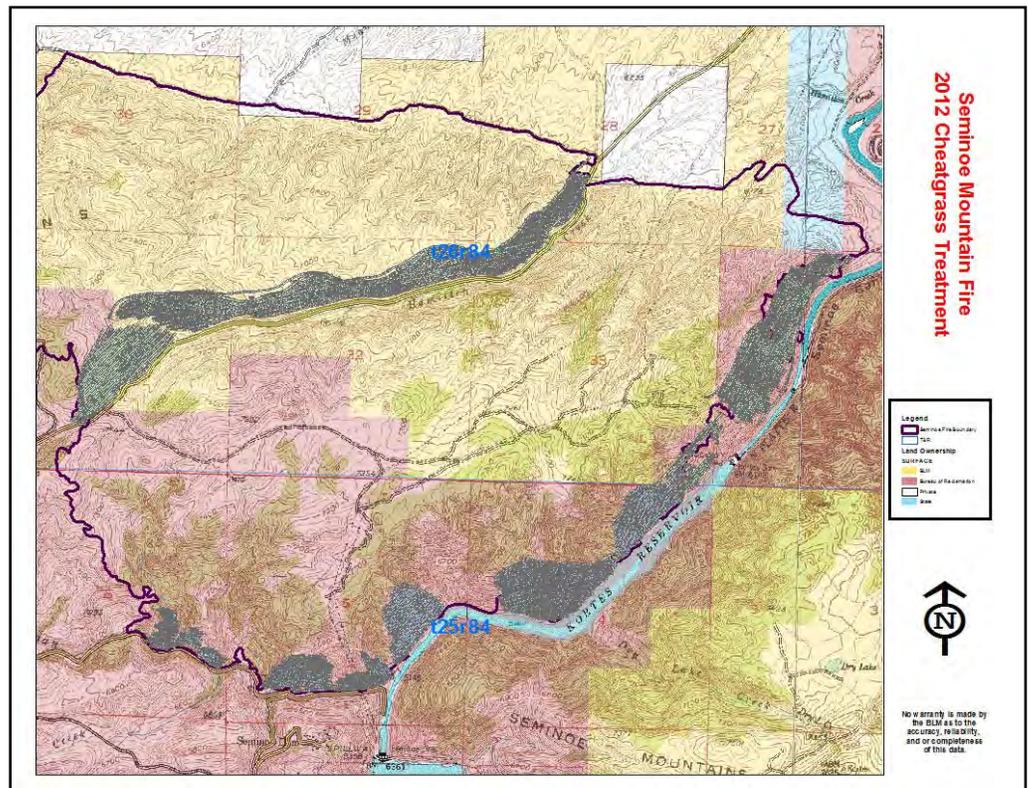


Figure 14. Seminole Mountain fire cheatgrass control area.

Chain Lakes WHMA (Goal 5)

Domestic sheep graze on Chain Lakes WHMA, north of Wamsutter, from December through April each year. During 2012, approximately 900 AUMs were utilized. Chain Lakes WHMA presently operates as a grass bank. The domestic sheep operator is resting the Powder Mountain allotment west of Baggs in lieu of grazing on Chain Lakes WHMA.

Additionally, BP America transferred ownership of two solar water wells on Chain Lakes WHMA to WGFD. WWNRT allocated \$8,000 to WGFD for development of these two wells. Once developed, these wells will provide additional water sources for wildlife and help disperse domestic livestock that graze Chain Lakes WHMA.

Ocean Lake WHMA (Goal 2)

Approximately forty-acres of food-plots were planted in two different fields at Ocean Lake WHMA. Food plots will be planted back to a grass cover crop, as per Ocean Lake farm plan. Farming activities serve as grazing lease Area Improvement Project Agreement (AIPA) payment. As per the Ocean Lake grazing plan, 260 AUMs were consumed in January 2012 on the irrigated meadows in the east Dickinson Park area. The grazing lease is a five-year winter rotation used to maintain irrigated meadows and promote waterfowl nesting.



Figure 16. Agri-drain water control structure installation.

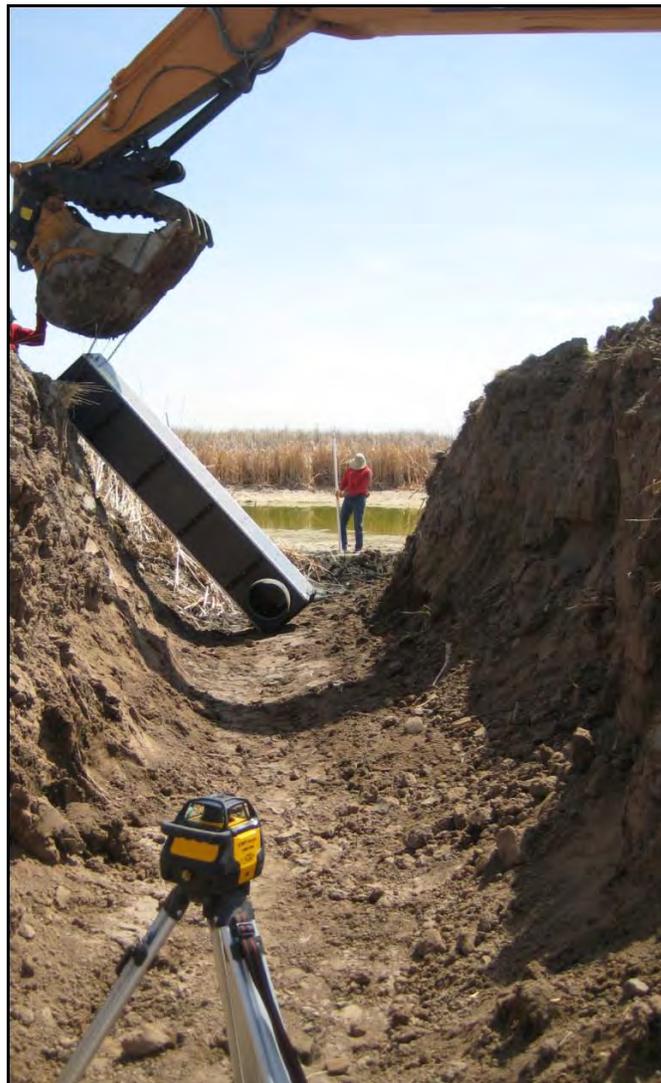


Figure 15. Agri-drain water control structure installation.

Additionally, two water control structures (Agri-Drains) were installed to replace corroded corrugated metal pipe drop structures on Ponds 1 and 2 (Figures 15 and 16). Agri-Drains will have a longer functional life and allow for more precise water level control and management benefitting migratory waterfowl. Goose nests throughout Ocean Lake were bedded, as well.

Ferris Mountain Leafy Spurge (Goal 2) – WLCI, Jim Wasseen

The Ferris Mountain Wilderness Study Area (WSA) Leafy Spurge project comprises treating this area and the adjacent hogback ridges for invasive weeds, mainly leafy spurge, with some whitetop and Russian knapweed. Treatment consists of application of herbicide to control weeds in an extremely rugged area. Monitoring in 2005 showed infestation into the WSA for the first time, along with a marked increase of infested acres along the fringes of the WSA. These weeds have also increased in the adjacent hogback ridges. In 2012, 500 acres were treated, an additional 200 acres were monitored, and 200 acres were inventoried. Work is planned to continue next year. No new patches of spurge were found in 2012, although whitetop seems to be increasing.