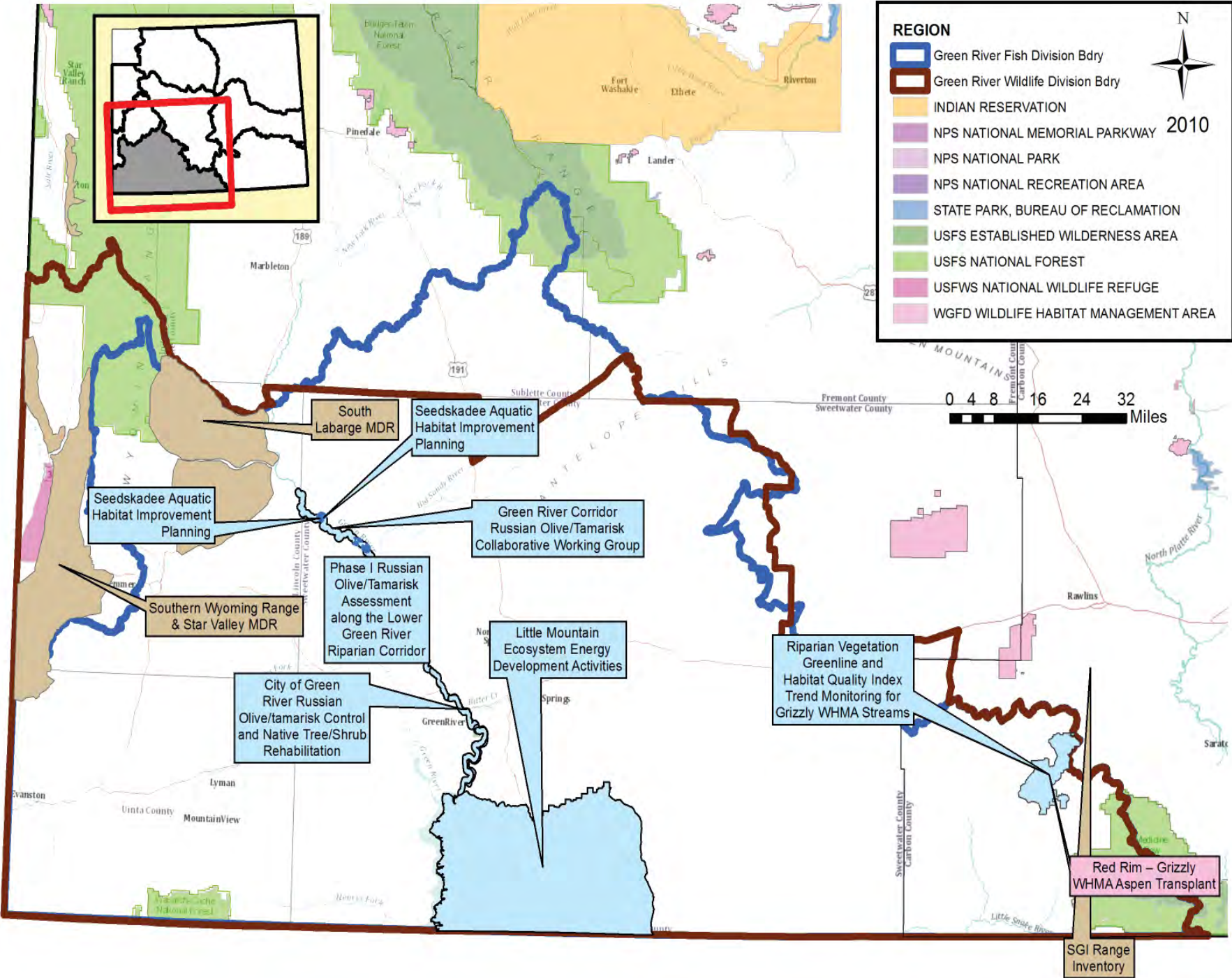


GREEN RIVER REGION



GREEN RIVER REGION HIGHLIGHTS

- Little Mountain area habitat issues related to energy development identified for BLM land use planning process
- 44 stream miles and 28,556 acres of riparian habitat within the lower Green River corridor inventoried for invasive Russian olive and tamarisk
- Collaborative efforts begin to control Russian olive and tamarisk along the lower Green River riparian corridor
- Beaver habitat supplemented along upper Muddy Creek on the Grizzly WHMA

Little Mountain Ecosystem Energy Development Activities (Goal 1) - Kevin Spence

The Little Mountain Ecosystem (LME) is recognized by department personnel as the area south of Rock Springs, east of Flaming Gorge Reservoir, west of Highway 430, and north of the Utah state line. The LME is rich in wildlife and habitat diversity, supports wildlife species assemblages unique in this area of Wyoming, maintains high demand for difficult to draw elk and mule deer licenses, is a very popular public recreational area, and has been the focus of aquatic/terrestrial habitat enhancement and ecosystem restoration efforts during the past 21 years. The LME is a relatively intact landscape with little human development, which has promoted sound ecosystem function and integrity. In recent years, there has been a significant interest in gas and wind energy development within the LME, creating a challenge to develop the landscape while protecting habitat function and ecosystem values.

Time was spent again during 2010 negotiating with BLM about how energy development activities would occur within the LME while still maintaining the wildlife habitat values and ecological integrity of this landscape. A January meeting with the Rock Springs BLM Field Office centered on energy development guidelines and assurances for compliance of the habitat oriented management objectives identified for the LME in the existing BLM land resource management plan. Several issues and ideas were discussed, however it is unclear what deliverable BLM actions resulted from this meeting.

During the fall months, a series of meetings were facilitated by the Governor's staff. These meetings were attended by BLM, private landowner, conservation group, energy development companies, county government, and department representatives. The purpose was to encourage affected interest groups to identify and discuss their issues related to energy development in the LME, which the Governor's Office intended to compile and present to the BLM for consideration as scoping issues for revision of the Green River RMP in early 2011. As a result of these meetings, several other multiple use issues beyond the scope of energy development were identified for BLM consideration during the resource management plan revision. Also, due to private landowner concerns, the group's focus area for identifying issues was reduced in size as the majority of private land/BLM checkerboard landownership area in the northern portion of the original LME boundary was omitted from the group discussions.

Diamond H Conservation Easement (Goal 1) - Ron Lockwood

On December 31, 2009 a conservation easement was finalized on the Diamond H Ranch consisting of 3,100 acres. These lands are classified as crucial winter range and yearlong range for elk, mule deer, moose, sage grouse and pronghorn. This easement secured long-term protection of these habitats from sub-division and will ensure a viable livestock operation and wildlife habitat in the future. Wildlife and habitat stewardship planning continues with the private landowner and with BLM on the landowners BLM grazing allotments.

Organizations involved with this easement include: The Jonah Interagency Reclamation and Mitigation Office, Doris Duke Charitable Foundation, The Conservation Fund, WVNRT, WLCI, WGF, WGBGLC and RMEF. A portion of the money for the conservation easement was used to modify fences on the ranch from woven wire to 3 and four wire fences allowing for better movement of big game and a decrease in fence related mortalities.

Due in part to the success of this project numerous landowners in the region have expressed an interest in conservation easements. A number of these have been reviewed by the Green River regional team and are being evaluated by the Lands Administration Branch.

Other Conservation Easement Plans (Goal 1) - Ron Lockwood

WGFD and WWNRT funding approval has been obtained for a conservation easement on approximately 3,000 acres. It is within core sage grouse habitat and supports crucial winter range for elk, antelope, moose and mule deer. Additionally, documented movement of pronghorn to northern summer ranges across this land have been identified as important features of this property. Cutthroat trout and numerous non-game birds and mammals, including Species Of Greatest Conservation Need (SGCN) identified in the WGFD's "State Wildlife Action Plan" will benefit by protecting these habitats. In addition to the conservation easement additional access to adjacent public lands is being pursued to benefit anglers and hunters.

Initial discussions and negotiations for another conservation easement are being pursued on about 2,100 acres of private land in the western part of the Region. It is scheduled for presentation to the WGFD in executive session to actively support and pursue the easement. The area supports crucial winter range for mule deer, antelope, moose and elk and is within designated core sage grouse habitat.

Upper Muddy Creek Beaver Habitat Improvement (Goal 2) - Kevin Spence

This was a cooperative effort between the Little Snake River Conservation District (LSRCD) and the department in an ongoing effort to restore sound riparian habitat function to Upper Muddy Creek by encouraging active beaver colonies and sustainable habitat. During September, the LSRCD hired a semi truck to haul several loads of fresh cut aspen trees to Muddy Creek (Figure 1) from a District mechanical aspen treatment at another location. A department crew then cut and hauled the smaller trunks/limbs from the tree tops to active beaver ponds on upper Muddy Creek located within a mile upstream of the Canary Grove confluence. Beaver utilized the aspen material that were either stacked at the pond's edge near the beaver dams or set adrift in the pond as construction materials to reinforce and elevate their dams (Figure 2). Much of the existing willow habitat along Muddy Creek is in short supply and has small diameter stems, so the 2-10 inch diameter aspen provided beaver solid building material to enhance dam stability and longevity. Stable beaver dams that do not breach readily during run-off flows often promote consistently elevated water-tables that provide an optimal environment for recruitment and rapid growth of willows and other woody riparian species, which is the primary goal of temporarily supplementing these beaver with aspen trees.



Figure 1. Freshly cut aspen trees delivered to active beaver ponds on upper Muddy Creek.



Figure 2. Supplemental aspen material placed for beaver to use in reinforcing and elevating the dam.

Little Mountain Ecosystem Aspen Community Monitoring (Goal 2) - Kevin Spence

Six aspen monitoring sites were surveyed within the Little Mountain Ecosystem during 2010 to further evaluate elk browsing effects on aspen regeneration. The locations of the monitoring sites include Aspen Mountain, Miller Mountain, the northwest face of Pine Mountain, south side of Pine Mountain, Dipping Springs on Little Mountain, and the upper West Fork of Currant Creek on Little Mountain. These aspen trend monitoring sites were selected to better represent the entire landscape encompassing the South Rock Springs Elk Herd Unit, so that browsing trend data can be used to assist with elk population management and harvest strategy decisions.

The Live-Dead (LD) Index was used for the trend surveys. The LD index measures and compares the height of initial growth point for the current year's terminal leader to the height of the tallest previous terminal leader branch that was killed as a result of browsing. A positive LD value indicates uninterrupted young tree growth and/or recovery from browsing, and suggests regeneration maintains the potential to grow to maturity and replace older aspen trees when they die. An LD value near zero indicates that browsing is suppressing growth of young aspen, and a negative LD value is an indicator of significant aspen decline and possible death of young trees. Results from the 2010 survey revealed negative LD index values at 4 of the 6 sites sampled indicating continued decline in aspen regeneration vigor and growth resulting from browsing. Please refer to the 2010 Fish Division Progress Report and the 2010 Wildlife Division Big Game Herd Unit Report for detailed survey results and discussions.

Seedskaadee National Wildlife Refuge Cottonwood Regeneration Monitoring (Goal 2) - Kevin Spence

Three LD Index survey transects were re-read at Seedskaadee National Wildlife Refuge (NWR) to evaluate big game browsing effects on young cottonwood regeneration. The LD Index surveys were conducted cooperatively between USFWS personnel from Seedskaadee NWR and Green River region biologists. Data will assist with deer and moose population management and identification of harvest strategies that encourage unimpeded vertical growth of cottonwood regeneration along the lower Green River riparian corridor. Monitoring sites were located in cottonwood stands at lower Dodge Bottoms, Deer Island, and the Johnson Unit on refuge lands. LD index values improved slightly at the Johnson Unit and Deer Island monitoring sites, but declined significantly at the Dodge Bottoms site compared to values measured in 2009. However, during the 2010 survey, two of the monitoring sites exhibited negative LD values, and the other site supported only a slightly positive LD value. This suggests big game browsing continued to limit vertical growth and health of cottonwood regeneration at surveyed sites at Seedskaadee NWR in 2010. Please refer to the 2010 Fish Division Progress Report and the 2010 Wildlife Division Big Game Herd Unit Report for detailed survey results and discussions.

Walker Ranch Water Development and Spike Treatment (Goal 2) – Ron Lockwood

This is a cooperative venture with the private landowner and BLM to utilize an existing water well, install a solar operated pump, pipelines and stock tanks with adjacent overflow areas to enhance livestock grazing management and promote additional green areas from the overflow to benefit sage grouse brood rearing habitat. Additionally approximately 500 acres of habitat will be evaluated for sagebrush thinning using a Spike treatment along with potential forb/grass seeding enhancement. The WGFD has provided \$7,500 to the Kemmerer BLM office to help conduct an assessment to meet NEPA approval on the federal lands. Additionally WVNRT awarded \$15,000 for purchase of the pump and pipeline.

Riparian Vegetation Greenline and Habitat Quality Index Trend Monitoring for Grizzly WHMA Streams (Goal 2) - Kevin Spence

Six riparian vegetation greenline trend transects and five trout Habitat Quality Index trend transects were surveyed during 2010 at stations along Littlefield, Little Muddy, and Muddy creeks on the Grizzly WHMA. Data from these surveys are used to evaluate the existing riparian plant community species composition compared to the ecological potential for each site, and the condition trends of key stream habitat components for adult trout. Moreover, these trend data are also used to evaluate the effectiveness of livestock grazing management strategies applied in riparian areas on the Grizzly WHMA, and to ensure quality aquatic habitat conditions are achieved and maintained.

Greenline trend data between 2004 and 2010 showed positive improvement in both the ecological status and streambank stability rating based on riparian vegetation species composition at two survey sites in the lower Muddy Creek riparian pasture, the survey site in upper Littlefield riparian pasture, and the site in the lower Littlefield riparian pasture. The ecological status for the Little Muddy Creek site in the Dennison pasture remained unchanged between 2005 and 2010; however the streambank stability rating improved. The ecological status for the upper Littlefield headwaters spring site remained consistent between 2004 and 2010, but the streambank stability rating decreased during that same period. This decrease in streambank stability can likely be attributed

to a downed enclosure fence during 2009 allowing cattle to congregate at the Littlefield Creek headwaters spring for an extended period of time. Overall, the riparian vegetation greenline data suggests that grazing rest and limited early season grazing use of riparian pastures on the Grizzly WHMA between 2004 and 2010 improved riparian habitat conditions. Please refer to the 2010 Fish Division Progress Report for detailed survey results and discussions.

Muddy Creek Spike Treatment (Goal 2) - Ron Lockwood and Jill Randall

This is a cooperative project with BLM, the livestock grazing permittee, Sublette County Conservation District, WGFD, and NRCS and is located in the South LaBarge Common BLM allotment. It is designed to improve habitat conditions for wildlife, primarily mule deer and sage grouse, and livestock through increased vigor of mountain shrub and sagebrush communities, increasing herbaceous production, and improving the overall health of rangelands and watershed functions. Herbicide (Spike) will be aerially applied to several hundred acres to thin Wyoming big sagebrush canopy cover by 30 to 50%. It was developed as a result of the 2008 Wyoming Range Mule Deer Habitat Assessment recommendations. In 2010, six shrub transects and one macro-plot (line point and shrub belt) were established and data provided to the BLM to refine treatment locations on 400 to 500 acres (Figure 3). Plans include further refining polygons and post-treatment management plans before the planned fall 2011 treatment. Funding is being provided by WWNRT and WGBGLC. Pending success and monitoring information we plan on additional treatments in future years.



Figure 3. Photo of a shrub transect installed to help design the Spike treatment in Muddy Creek.

Powder Mountain Spike Treatment (Goal 2) - Ron Lockwood

This is a cooperative effort between the Rawlins BLM, livestock grazing permittee and WGFD located west of Baggs within the Powder Mountain area covering approximately 8,550 acres. The goal is to thin dense, over mature sagebrush by 30 to 50% in a mosaic pattern to improve mixed mountain shrub and sagebrush steppe communities as well as grass and forb understory. Treatments are scheduled for fall of 2011. This is classified as crucial winter range, transitional, and year-long range for the mule deer, elk, and antelope and includes sage grouse brood rearing habitat. Healthy, mountain shrub communities with an improved grassland and forb understory are important parturition and fawn rearing areas for big game.

Pole Creek Watershed Aspen Restoration and Fence Rebuild (Goal 2) - Ron Lockwood

Approximately 8,500 acres were prescribed burned within the 35,000 acre Pole Creek watershed (Figure 4). Ignition began in late September with fire crews from the USFS and BLM. Portions of this watershed are classified as crucial winter range for Lincoln moose and summer and transitional range for West Green River elk and Wyoming Range mule deer herds. Part of the watershed is also classified as early and late brood rearing habitat for sage grouse. Funding was obtained from WWNRT, BLM, USFS and WGFD. In addition to the prescribed burn, future replacement of about five miles of woven wire fence with four-wire fence will allow for better wildlife movement.



Figure 4. Prescribed burn on Pole Creek Watershed.

Buck Horn Flowing Well (Goal 2) - Ron Lockwood

This well is located on private lands owned by Truman Julian. Drill stem was donated by Devon Energy and the Lander sage grouse working group to fence off this spring and associated wetland. Drill stem was chosen to prevent wild horse use of the area. The drill stem was delivered by a donation of trucks from Knight Energy Company. It is located in core sage grouse habitat but will also benefit mule deer, pronghorn and a variety of wetland associated non-game species. Fence construction will be completed in 2011.

Profit, McGinnis and Zimple Ranch Legume Seedings (Goal 3) - Ron Lockwood

These ranches are classified as crucial winter/yearlong range for Wyoming Range mule deer. All the seeding areas are within sage grouse core areas. They were designed to improve transitional/fawning habitat for mule deer and late brood rearing habitat for sage grouse. \$8,000 was provided by WGFD to assist landowners with purchase of seed. Landowners provided the equipment and labor to plant the seed. Approximately 420 acres have been planted with a mixture of sanfoin, vetch, and dry land alfalfa. The landowners also provided native grass seeds to the mix. Seeding took place in the fall of 2010 and with the moisture conditions in the area results are expected to be good.

Seedskadee Aquatic Habitat Improvement Planning (Goal 3) - Kevin Spence

Department and Seedskadee National Wildlife Refuge personnel worked together to plan, coordinate, and permit a series of aquatic habitat improvement projects for the Green River reach through refuge lands. These projects are scheduled for 2011 implementation and include: placing additional rock onto existing instream sill structures at McCullen Bluff and the refuge headquarters areas to improve the hydrologic function of each structure and lift water to increase flows into river side channels adjacent to each structure; placing woody debris in each of those side channels to improve structural juvenile fish habitat; constructing up to 12 rock barb jetty structures on an outside meander bend to benefit juvenile fish habitat at the Hawley Unit, and constructing a large trench pool/point bar channel constriction at the Pal Unit to provide slower velocity pool habitat for adult trout. The Statewide Habitat Access and Maintenance Crew, including the department track-hoe equipment and operator have been requested to assist with these projects in 2011 and beyond.

Wyoming Range Mule Deer Habitat Assessment (Goal 5) - Ron Lockwood

This is the third and final year of the contracted work with the Teton Science School (TSS) for the Wyoming Range mule deer habitat assessment to assess habitat conditions and make recommendations for management actions as a part of the Wyoming Mule Deer Initiative. The first two years focused on 500,000 acres on the eastern slope of the Wyoming Range in the Pinedale area. This year assessments were conducted on about 400,000 acres in the southern and eastern portion, including Star Valley area of the Wyoming Range (Figure 5). Previous reports have been and are being posted on the WGFD internet site and are discussed by Jill Randall in the Pinedale Region report.

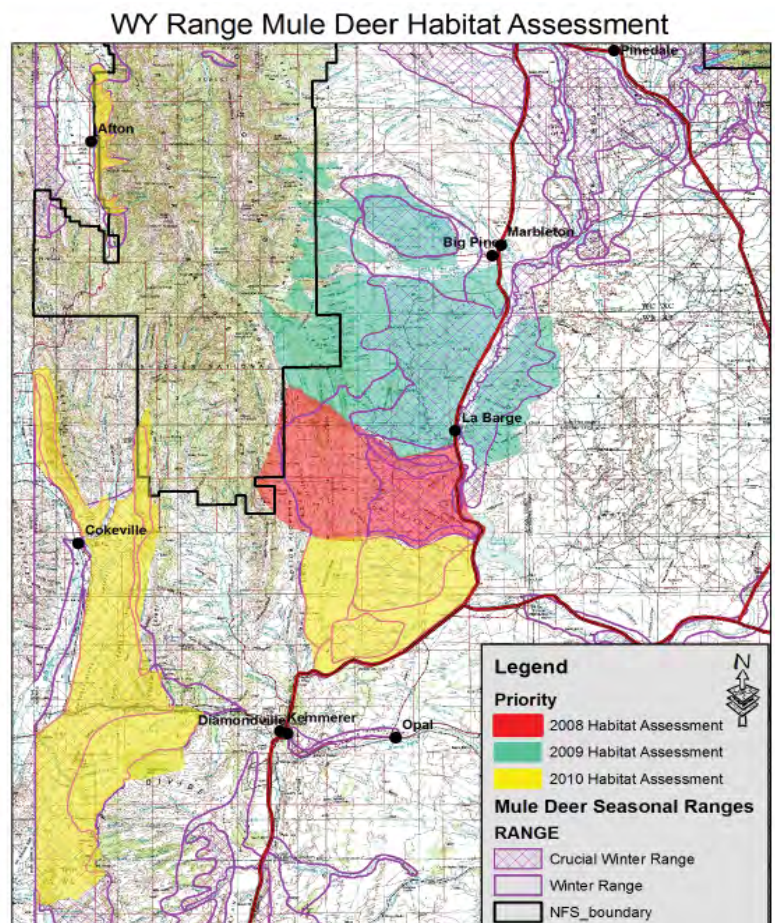


Figure 5. Acres focused on within the Wyoming Range Mule Deer Habitat Assessment.

The 2010 assessment conducted by TSS and the draft report has been reviewed by WGFD personnel. TSS is finalizing the report and it will be posted on the WGFD web site in the spring of 2011. The report includes assessment data and recommendations and is coupled with an extensive excel and GIS based dataset which is linked to field data collected, transects, photo points and patch recommendations.

West Green River Elk Habitat Use (Goal 5) - Ron Lockwood

This study was continued with significant monetary support from the USGS, BLM, NPS, and USFS. The WGFD continues to provide in-kind support. Over the past 5 years a total of 63 elk have been fitted with radio collars to determine location and seasonal habitat use and selection. During this time over 250,000 elk locations have been documented. Results have been used to support the need for improved management of the Rock Creek grazing allotment, and is one of the major reasons that the USFWS is considering a grass bank on CMNWR. The AUMs provided by a grass bank could help with management of the Rock Creek allotment. This study has also helped to support oil and gas lease restrictions and recommendations in Dempsey Basin. Elk locations have documented use of past habitat treatments on the Lost Creek Unit, on the Fossil Butte NPS and the Thoman private land lease in Nugget Canyon. It will help to determine the effectiveness of highway underpasses on Highway 30.

Green River Corridor Russian Olive/Tamarisk Collaborative Working Group (Goal 5) - Kevin Spence

In late 2009 and into 2010, the WLCI Coordinator and habitat biologist encouraged the formation of a local collaborative working group consisting of local landowner and agency representatives to begin addressing control of invasive Russian olive and tamarisk along the lower Green River riparian corridor between Fontenelle Dam and the inflow area of Flaming Gorge reservoir. The level of Russian olive and tamarisk invasion along this reach of river is a concern, but the densities of these invasive species have not yet reached the level where control efforts would be futile (Figure 6). The working group met twice during the past year, and began discussions toward a coordinated effort to strategically inventory, prioritize, plan, implement, rehabilitate, and monitor multiple phased control projects.



Figure 6. A Russian olive tree invading the native sumac understory of a mature cottonwood stand along the lower Green River riparian corridor.

The overall approach will successfully control Russian olive and tamarisk while promoting sustainable native riparian tree and shrub communities along this river corridor reach. Participation in the group during 2010 consisted of individual private landowners, Sweetwater County Weed and Pest, Bureau of Reclamation, Seedskadee National Wildlife Refuge, WLCI Coordination Team, Rock Spring Grazing Association, BLM, City of Green River Parks and Recreation, Green River Greenbelt Task Force, USFWS, Ashley National Forest, and the department.

City of Green River Russian Olive/tamarisk Control and Native Tree/Shrub Rehabilitation (Goal 5) - Kevin Spence

The City of Green River parks and recreation department is an active participant in the collaborative river corridor working group, and the urban riparian greenbelt area adjacent to and through the city of Green River is experiencing the highest observed densities of Russian olive invasion of any location within the river corridor between Fontenelle Dam and Flaming Gorge reservoir (Figure 7). This urban riparian greenbelt area is suspected of being a primary source for Russian olive seed dispersal (bird ingested seeds as the likely upstream vector) both up and downstream within the focus river corridor area, and seed dispersal from this area now threatens important native riparian habitats currently experiencing little or no Russian olive establishment such as lands within Seedskadee National Wildlife Refuge.

Assistance was provided to the Green River Parks and Recreation Department in identifying the locations of Russian olive and tamarisk plants growing on city administered property along the greenbelt corridor. Substantial time and assistance was also provide to the city in planning, coordinating, obtaining cost estimates from potential contractors, and preparing grant proposals for a mechanical treatment to control Russian olive/tamarisk and native tree/shrub planting project in 2011.



Figure 7. A young thicket of Russian olive that established during the past 6-8 years along a lateral river channel in the Scott's Bottom area of Green River's urban greenbelt.

An essential component of the City of Green River's Russian olive/tamarisk control project will be rehabilitating the treated sites with larger sized native riparian tree and shrub plantings. Speedy reestablishment of large stature native riparian tree and shrubs not only will provide the horizontal and vertical structure needed for wildlife habitat and the appropriate species composition for maintaining sound ecological processes, but will serve an important initial demonstration role for encouraging other private landowners along the entire focus reach of the Green River corridor to participate in the Russian olive/tamarisk control effort.

Phase I Russian Olive/Tamarisk Assessment along the Lower Green River Riparian Corridor (Goal 5) - Kevin Spence

TSS was contracted by the department to inventory and determine the existing distribution of invading Russian olive and tamarisk plants within the lower Green River riparian corridor between Fontenelle Dam and the downstream property boundary of Seedskafee National Wildlife Refuge. Funding for the inventory was approved by the Director's Office for high priority habitat improvement projects requiring pre-planning and design to facilitate on the ground implementation.

The inventory focused on a half mile wide belt of riparian floodplain adjacent to, and along, a 44-mile reach of river totaling 28,556 acres of the riparian habitat corridor (Figure 8). Locations of Russian olive and tamarisk plants were documented. Additional associated data collected included photos, age class, height class, stand size, stem density, general stand descriptions, associated native vegetation, locations of young cottonwood regeneration, and descriptions and locations of any other non-native vegetation encountered. Moreover, each Russian olive and tamarisk site encountered was identified as high, medium, or low priority for treatment, and access routes or limitations were described. A written report was completed, and all the inventory data were compiled into a GIS geo-database and made available to interested landowners and agency partners in the project area. TSS presented the assessment results to some members of the Green River corridor working group in December and negotiations with individual landowners to plan specific Russian olive/tamarisk control projects is expected to begin in early 2011.

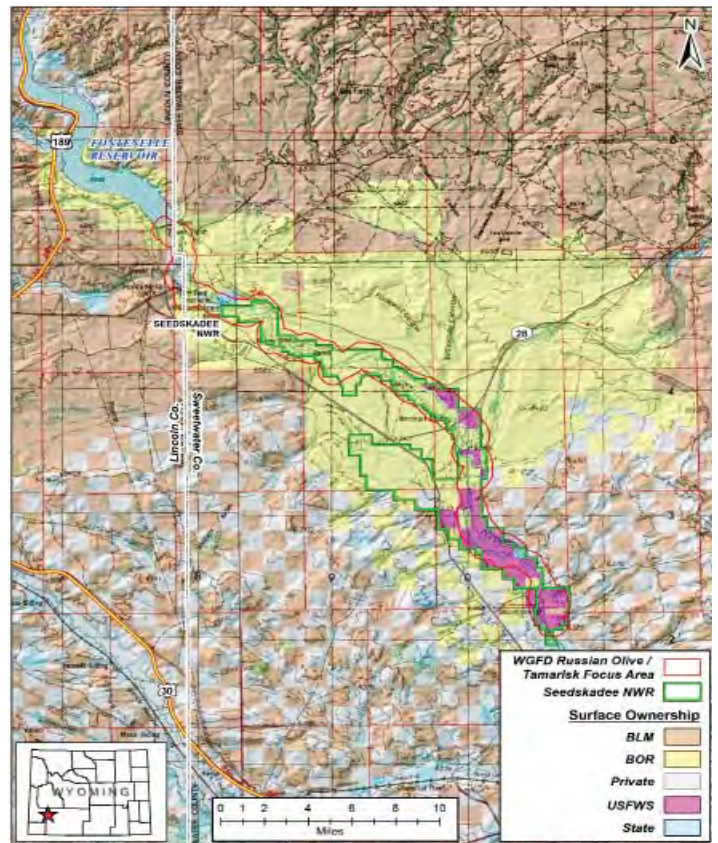


Figure 8. The Russian olive/tamarisk inventory focus area along the lower Green River riparian corridor (Map courtesy of TSS).

Lincoln Moose Herd Unit Habitat Assessment (Goal 5) - Ron Lockwood

TSS was contracted to conduct an assessment of habitat conditions within important seasonal ranges of the Sublette and Lincoln moose Herd Units (Figure 9). Poor habitat conditions are generally believed to have contributed to poor herd productivity within these herd units in recent years. The goal was to develop management recommendations for enhancing and conserving important moose winter/yearlong habitats associated with the two herd units. During 2010, the TSS assessed and mapped approximately 46,705 and 60,235 acres within the Sublette and Lincoln Herd Units, respectively. The Sublette portion is reported in the Jackson Region by Steve Kilpatrick. Patch habitat mapping of willow and aspen communities, line transects, and extensive photo-documentation were used. The report is being finalized by TSS. It includes assessment data and recommendations and is coupled with an extensive excel and GIS based dataset which is linked to field data collected, transects, photo points and patch recommendations. The final report will include discussion of the current habitat conditions and recommended management alternatives and enhancement ideas to improve moose habitat for portions of the Lincoln moose herds. In general, the assessment found overall willow habitats to be in a relatively healthy state. However, some specific areas exhibited inadequate willow regeneration and/or regeneration that is unable to escape the browsing zone due to elevated herbivory levels by wild and domestic ungulates. Aspen communities within the study area were composed of stands in all categories of risk to loss. Advanced successional stages, lack of natural fire, and excessive herbivory by wild and domestic ungulates are the major factors contributing to some aspen communities being at high risk levels. Patch level management recommendations included evaluation of livestock grazing, prescribed fire, mechanical thinning, willow plantings, and conservation easements.

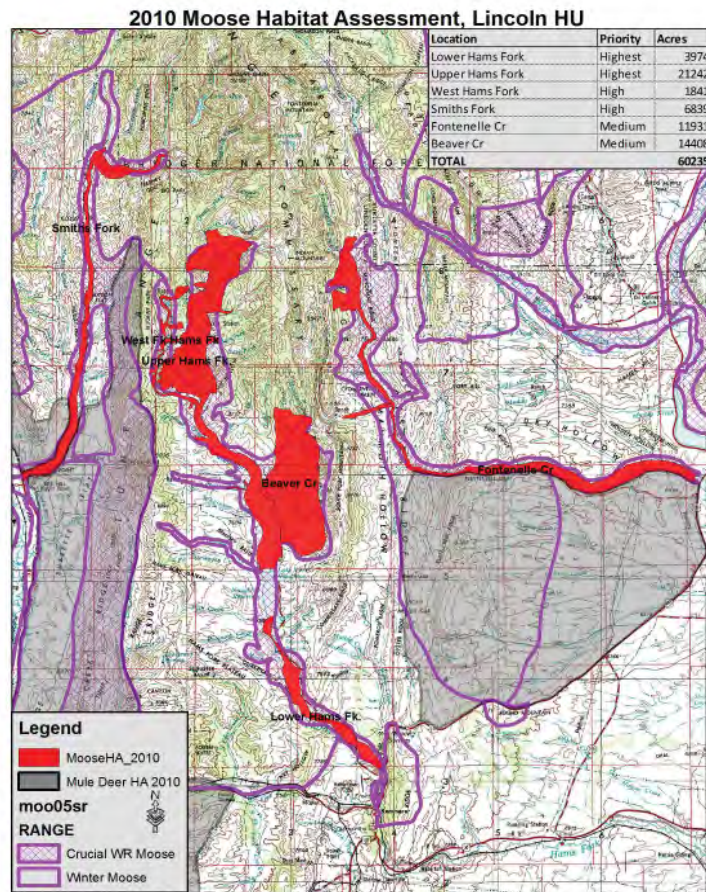


Figure 9. Habitat assessment locations for the Lincoln moose Herd Units, 2010.

Little Snake Fringe Aspen (Goal 2) - WLCI

This treatment consists of removing the conifers and old aspen clones from existing stands through mechanical treatments and prescribed burns. Previous treatments associated with this long-term effort have resulted in the restoration of 400 acres of aspen habitat and 61 acres of other vegetation treatments. In FY10 276 acres were treated (Figure 10). This project improved aspen habitat in an area south of Rawlins. Treatments involved state, private, and BLM lands. Partners included permittees, Little Snake River Conservation District, WGFD and RMEF.



Figure 10. Conifer removal on the East Fork treatment site.

Pole Creek (Goal 2) - WLCI

The objective of this prescribed burn is to promote a more natural vegetative community characterized by a diversity of age classes of upland woody shrub species. The goal is to target approximately 6,650 acres of BLM, private, and State Land for treatment in a mosaic pattern of burned and unburned areas over the landscape.

The prescribed burn will improve wildlife habitat as well as increase livestock forage in this area. It exceeded the projected 6,650 acres of restoration, 7,269 acres were treated (Figures 11 and 12). Partners include WGFD, Forest Service, WWNRT, and WFHF.



Figure 11. Pole Creek prescribed fire.



Figure 12. Mosaic pattern of burned and unburned areas within Pole Creek watershed.

Baggs Deer Crossing (Goal 2) - WLCI

A total of 10 miles of deer proof fence (5 miles on either side of the road) and a tunnel underpass were constructed. There were an estimated 5,423 deer crossings during the fall of 2009, winter of 2009 to 2010 and spring of 2010 through the newly constructed deer underpass and associated 5 miles of deer “proof” fence. Deer vehicle collisions were reduced to less than 50 occurrences from hundreds prior to implementation of the deer proof fencing and underpass. In 2010 the WGFD hired a temporary employee to herd the deer toward the underpass. Partners include WyDOT, WGFD, and Little Snake River Conservation District (LSRCD).

Rawlins Fence Conversion (Goal 2) - WLCI

Conversion of old livestock fences to a wildlife friendly standard and reducing wildlife stress, injury and mortality in travel corridors is the goal of this project. The Rawlins fence conversions are a continuing project and the WY Youth Conservation Crew fencing crew does much of the work. In 2010, a total of 21 conversions were completed: 17 rangeland, two wildlife, and two riparian. Partners include WGFD, permittees, LSRC, Industry, and WWNRT.

Seedskadee Boundary Fence (Goal 2) - WLCI

Seedskadee National Wildlife Refuge established a boundary fence in 1997 to exclude range cattle from Refuge habitat (Figure 14). The 100-mile fence was designed with a smooth bottom wire no less than 16 inches above the ground to facilitate pronghorn antelope movement. A study conducted in 2003 found several sections of fence were too low to the ground and some pronghorn mortalities have resulted and pronghorn were not crossing the fence. Approximately 29 miles of fence required adjustments to improve pronghorn migration. This was completed in 2010 and partners included USFWS and WGFD.



Figure 13. USFWS Youth Crew working on boundary fence.

Bitter Creek Tamarisk (Goal 2) - WLCI

This involves both biological and herbicide treatments for tamarix on Bitter Creek and Red Creek. Some areas of Bitter Creek are difficult to treat. The use of biological control is the preferred method in these areas. The BLM is waiting until the issue with the use of biological control agents is resolved to release the biological controls in the more difficult treatment areas. The chemical treatments on the Red Creek drainage were successful. This will increase water supply, support fisheries, and support a more productive riparian zone. A total of 150 acres were treated for invasives and one riparian project was completed. Partners include Rock Springs Grazing Association, Anadarko, Sweetwater County Weed and Pest, and Kanda Lateral Mitigation Fund.

Blacks Fork/Muddy Creek Tamarisk (Goal 2) - WLCI

This effort began in 2008 and involves the removal of tamarix (salt cedar) along Muddy Creek and the Blacks Fork River in Uinta County to improve and restore wetland and stream riparian areas. This will increase water supply, support fisheries, and support a more productive riparian zone. In addition, it will reduce the fragmentation of riparian habitat and improve the riparian corridor for numerous wildlife species. A total of 124.5 acres were treated for tamarix and 10 acres of riparian area were re-vegetated with native tree and shrub species (Figure 14). Partners include Uinta County Conservation District and the Uinta County Weed and Pest District.



Figure 14. Native riparian vegetation planted along the Black's Fork.

Hay Reservoir (Goal 2) - WLCI

The Hay Reservoir entails treating approximately 1200 acres of Russian knapweed, whitetop, and swainson pea invasion. This area has failed Standards for Healthy Rangelands due to the invasive plant infestation. Treatment consists of ground application of herbicide to control these weeds across the whole area, including private lands. A total of 600 acres were treated with half of the acreage completed in July and the remainder in September. An additional 250 acres were monitored for re-invasion and 150 acres were inventoried. The inventory revealed a new location of a sensitive species (*Rorippa calycina*). Ocular monitoring of last years' treatments showed 70 to 80 percent kill rate. This benefits Red Creek and Hay Reservoir proper, native vegetation and the wildlife that use the water in these drainages. It will also free up water into the Great Divide Basin. Partner (industry, grazing permittees, landowners, and Sweetwater County Weed and Pest) contributions helped achieve this goal.

Lincoln County Weed Control (Goal 2) - WLCI

This involves spraying and biological control of all invasive/noxious weeds within the BLM Kemmerer Field Office (KFO) area within Lincoln and Uinta Counties. Mule deer and the greater sage-grouse in sagebrush-steppe habitat and bald eagles and moose in riparian areas are the major species to benefit from this work. BLM CCI dollars will be provided to the Lincoln and Uinta County Weed & Pest Districts through assistance agreements to support additional seasonal work crews, equipment use and the cost of chemicals; they, in turn, match contributed dollars with in-kind services to double the number of acres covered. Their contributions helped achieve a goal of 500 acres treated and 400 acres of monitoring. Partners include Lincoln and Uinta County Weed and Pest.

Bitter Creek Restoration (Goal 2) - WLCI

This involves replacing an in-stream structure that will benefit sensitive fish species, control of invasive species in the riparian corridor and reestablishment of native vegetation in the Bitter Creek watershed. One riparian project was accomplished in 2010. Native vegetation was planted on Bitter Creek between Green River and Rock Springs with the help of approximately 80 youth volunteers as part of BLM's National Public Lands Day (Figure 15 and 16). Partners include Sweetwater County Conservation District, Sweetwater County School District #1, and BLM.



Figure 15. Bare-root stock purchased from SCCD and potted by BLM personnel.



Figure 16. Students from Sweetwater County School District planting native vegetation on the banks of Bitter Creek.

Muddy Creek Enhancements (Goal 1) - WLCI

This involves removing fencing that blocks wildlife migration and causes animal fatalities and replacing this fencing with wildlife friendly fencing. Other components included sediment and erosion control using road improvements. This will enhance the public's wildlife and fisheries habitats by increasing the abundance, diversity, and age class distribution of woody riparian and mountain shrubs in the watershed. Partners include WGFD and LSRC.

Sand Creek Salt Cedar (Goal 2) - WLCI

The Sand Creek Salt cedar control entails treating approximately 30 miles of stream bottom in the Colorado River watershed for salt cedar invasion. Treatment consists of aerial and ground application of herbicides to remove salt cedar. A total of 500 acres were treated, 50 acres were monitored and 150 acres were inventoried. The BLM Rawlins Field Office anticipates continuing this project and incorporating the river inventory and follow up maintenance as needed. This benefits two stream systems, native vegetation and the wildlife that use it. It will also free up water into the Colorado River system and help achieve Standards for Healthy Rangeland. Accomplishments were achieved with the help of Sweetwater County Weed and Pest.

Raymond Mountain Invasives (Goal 2) - WLCI

This effort involves removing two aggressive invasive species to improve the forage base for wildlife species in the Raymond Mountain area. It was designed to be implemented and funded over a 5 year period and is located within the Highland Cooperative Weed Management Area. The primary goal is to control/eradicate Dalmatian toadflax and Dyer's Woad on Raymond Mountain within the Sublette Mountain Range. The primary approach is to use helicopters equipped to spray herbicides in the rugged canyons on Raymond Mountain. Partner (Lincoln County Weed and Pest) contributions helped achieve a goal of 500 acres treated and 250 acres monitored in 2010.

Sweetwater County Weeds (Goal 2) - WLCI

This project increases the level of control to minimize the economic and ecological impacts caused by invasive species. 450 acres of weeds were controlled, and 200 acres of formally controlled areas were evaluated. Treatment areas of priority include riparian areas, BLM roads and their horse corrals. Treatment for cheatgrass where invasion is of particular concern. Partners include Sweetwater County and private landowners.

Seedskadee Cottonwood Restoration (Goal 2) - WLCI

Seedskadee NWR in conjunction with several partners is working to improve habitat conditions along the Green River corridor by restoring the cottonwood gallery that provides food and shelter for wildlife and migratory birds. The project is proposed to extend from Fontenelle Dam to the City of Green River. Restoration and rehabilitation of declining and decadent cottonwood galleries will improve biotic community stability, river fisheries, wildlife use, and aesthetics. Additionally, associated with restoration would be proportionate increase in hunting and recreation opportunities. Seedskadee personnel worked with the BLM Kemmerer Field Office to plant 45 trees at the Weeping Rocks camp ground just north of the refuge. The Boy Scouts and a youth group from Kemmerer helped plant the trees in the campgrounds.



Figure 17. Cottonwood trees planted at Seedskadee NWR, Note: Contract also provided for tree protection.

A contractor planted 234 trees in a portion of the refuge that has not had trees for many years (Figure 17). This area along the river was proposed due to the complete absence of trees and existing infrastructure in place to irrigate the trees to increase survival. The trees were planted and the refuge irrigated them all summer. Partners include USFWS, WGFD, and BLM.

Muddy Creek Fish Barrier Removal (Goal 1) - WLCI

Muddy Creek is the only system in Wyoming where viable populations of BLM sensitive Colorado River cutthroat trout, bluehead sucker, flannelmouth sucker, and roundtail chub coexist. Bluehead sucker, flannelmouth sucker, and roundtail chub populations have declined by about 50% range-wide. There are numerous threats to the populations in Muddy Creek including hybridization/competition with non-native species, habitat fragmentation from in-stream structures, and loss of habitat. The removal of fish barriers is key to the recovery and conservation of the species. This was the first step in removing numerous fish barriers in the Muddy Creek watershed. An upstream fish barrier (a perched culvert on the main-stem of Muddy Creek) was removed and 0.70 miles of new stream channel was constructed to allow for BLM sensitive fish passage (Figure 18 and 19). This was a cooperative effort between the BLM, WGFD, NRCS, LSRCDC, and TU.

FWS Private Landowner Lincoln County (1) (Goal 2) - WLCI

Phase 3 will focus on establishing /enhancing hydrology to 12 acres of wetland/ flood irrigated native hay-lands through the repair of 400 ft. of low level dikes and installation of three water control structures. The shallow water wetlands established/enhanced through this project will benefit several migratory waterfowl and water birds. Historic water management will favor migrants with early season shallow inundation until July 15th when water levels are then drawn down for the haying season. The surrounding 65 acres of upland will remain idled during the primary nesting season (April-July). Partners include a private landowner and WWNRT.

Savory Creek Restoration (Goal 2) - WLCI

Under Phase II, an additional 5,600 ft. of Savory Creek will be restored to benefit native fish species, including Colorado cutthroat trout. Natural channel design concepts will ensure long term stream functions. Goals include reducing bank erosion, increasing the number of pools and pool depths, improving riffle width/depth ratio, increasing bed stability, and reducing overall water temperatures by increasing riffle velocity, decreasing cross-sectional area and adding over hanging vegetation (willow/cottonwood canopy). Partners include LSRCDC, private landowners, and WWNRT.



Figure 18. Map of the Muddy Creek stream restoration project.



Figure 19. Restored stream reach Note: Bridge in background replaced perched culvert, and wetland is approximately where the culvert was located.

Sagebrush Habitat Treatment (JO Ranch) **(Goal 2) - WLCI**

This will increase forb and invertebrate diversity in riparian and transitional riparian/upland areas through mowing and seeding of native forb species. The focus is improving habitat for a diversity of species, particularly sage-grouse and other BLM sensitive avian species such as the Brewer's sparrow and sage thrasher, which rely on riparian habitats for critical brood rearing requirements in the Sand Hills ACEC south of Rawlins (Figure 20). Ten acres of vegetative treatments were applied and will continue in 2011. Partners include local ranchers, WGFD, NRCS, and BLM.



Figure 20. Small patch of cheatgrass found on the JO Ranch.

BQ Dike Rehabilitation (Goal 2) - WLCI

The BQ Dike along the Bear River was repaired to protect wet meadow habitats and associated wildlife. Rehabilitation of the BQ Canal will permit stable, dependable water conveyance and expand migratory waterfowl and shorebird nesting habitat and wetland management options both within and outside Cokeville Meadows NWR (Figure 21). This has improved the functioning of the dike and prevented the inadvertent draining of approximately 5,000 acres of wetland meadows located on the east side of the Bear River. Approximately 1 mile of dike and water delivery system south of the refuge boundary was repaired to prevent water washing out areas and returning back to the river. Additionally, about 120 acres of invasive species were treated, 0.25 mile of irrigation ditch was cleaned, and 0.5 mile of interior fencing removed to allow passage of antelope. The Dike will be monitored in the spring to watch for erosion issues.



Figure 21. Example of the repairs made to the BQ Dike to prevent water in the dike returning to the Bear River.

Forgen Slough (Goal 2) - WLCI

Bordering Cokeville NWR, Phase II will focus on establishing /enhancing hydrology to 388.8 acres of wetland through the construction and/or repair of 16 low level dikes and installation of 17 water control structures. Partners include NRCS, Union Pacific RR, WWNRT, and Rocky Mountain Power.

Whites Water Canal (Goal 2) - WLCI

Through collaborative efforts, a fish screen will be installed at the Whites Water Canal irrigation diversion on the mainstem Smiths Fork to prevent entrainment and mortality of native fishes. Designs will also include a series of in-stream structures to adequately elevate water levels at the diversion point to provide irrigation water while facilitating upstream passage of various native species of concern, including fluvial Bear River Bonneville cutthroat trout (*Oncorhynchus clarki utah*), bluehead sucker (*Catostomus discobolus*) and leatherside chub (*Gila copei*). Several other important native fish species are found in the Bear River system, including mountain whitefish, mottled and Paiute sculpin, longnose and speckled dace, reidside shiners, Utah suckers, and mountain suckers. Partners include private landowner, WWNRT, TU, and NRCS.

Killdeer Wetlands Restoration (Goal 2) - WLCI

This effort includes adapting to reduced water flow from Fontenelle Dam by constructing a sill to restore water flow to an original oxbow and braids. As water continues to flow through this area natural vegetation can be restored and vital riparian and wetland habitat will return (Figure 22). It will restore plant diversity to the Green River corridor, provide habitat for birds and aquatic species, enhance the Greenbelt walkway by providing a destination for trail hikers and recreational whitewater enthusiasts. Partners include WWNRT, Ducks Unlimited, USFWS, WGFD, City of Green River, Green River Greenbelt Task Force, BOR, and U.S. Department of the Interior – Central Utah Project.



Figure 22. Installation of sill in the Green River. The sill will aid in watering the Killdeer Wetlands.