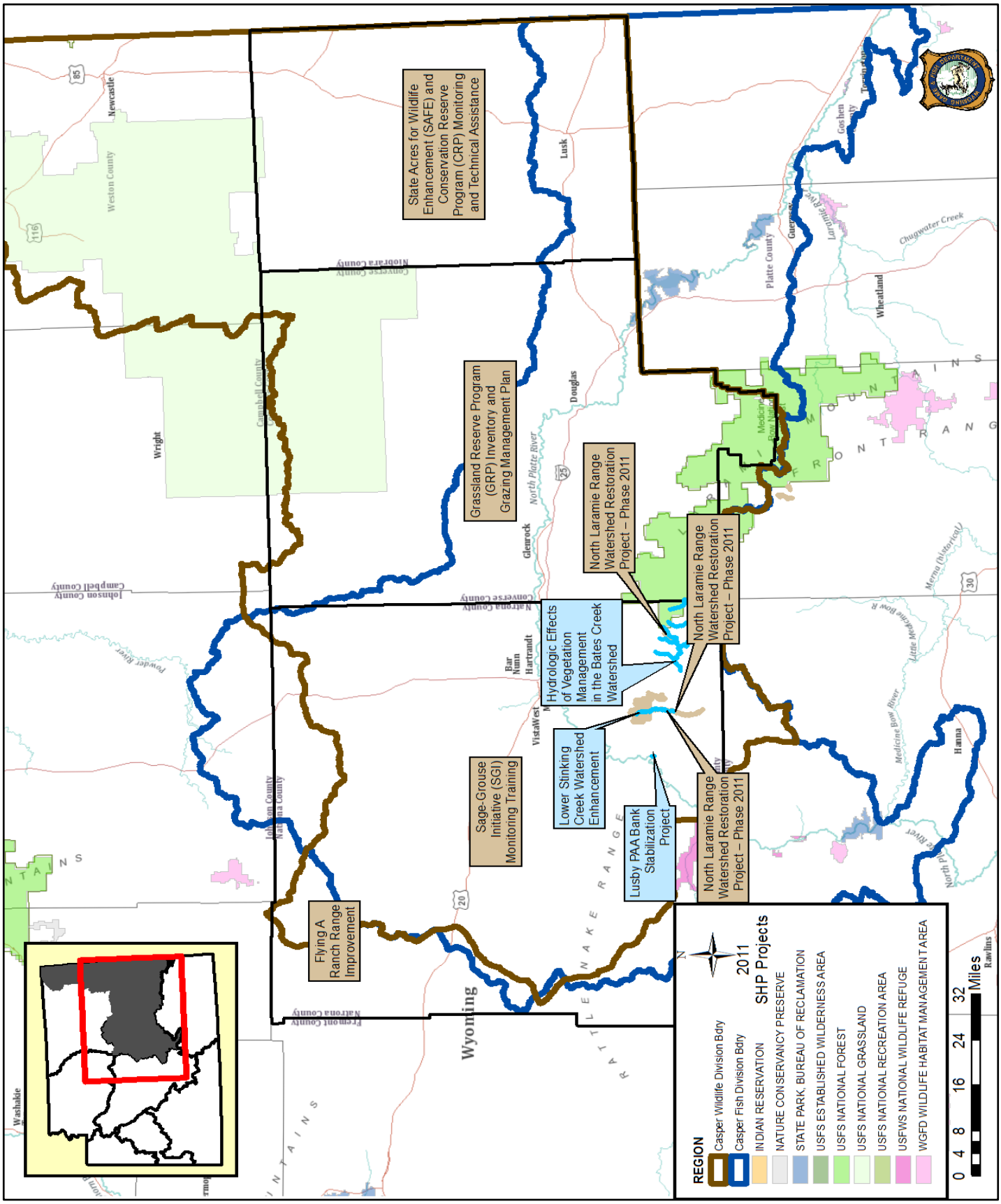
CASPER REGION



CASPER REGION HIGHLIGHTS

- 170,200 lbs. of aspen airlifted to the Bolton Creek drainage for beaver dam building material
- Training provided for monitoring 73,000 acres of rangeland enrolled in the NRCS Sage-Grouse Initiative Program
- 7,024 acres of cheatgrass herbicide control in big Bates Hole sagebrush communities
- 3,300 acres of rangeland inventoried for enrollment in the NRCS Grassland Reserve Program
- 499 acres of dense, overmature mountain big sagebrush prescribed burned in the Bates Creek drainage
- 14 grade controls along 7 miles of Stinking Creek were planned
- 150 feet of stream banks armored at the Lusby Public Access Area

Grassland Reserve Program (GRP) Inventory and Grazing Management Plan (Goal 1) - Willow Hibbs

Assistance was provided to NRCS Rangeland Conservationist, George Gamblin, with rangeland inventories and development of grazing management plans on two GRPs totaling approximately 3,300 acres in Converse County. The purpose of GRP is to protect grasslands from development and conserve biodiversity while maintaining a grazing operation. These GRPs provide important habitat for mule deer, antelope and a variety of birds.

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

In the fall of 2011, we aerially deposited 296 bundles of aspen that ranged in weight from 250 to 900 pounds each (Figure 1). Using an average weight of 575 pounds per bundle, we airlifted 170,200 pounds of aspen trees into existing beaver dam complexes on Bolton Creek, which is more than double the 82,000 pounds airlifted in 2010. This was accomplished using 29 hours of helicopter flight time over a two week period. Field observations on November 9, 2011 showed beaver continue to use the aspen for dam building activities, which accounts for 12 new dams with other dam building activity occurring along the creek. In addition to airlifting aspen, we live trapped and relocated four beaver into the area where we have focused the aspen drops (Figure 2). Nearly 100 hours of time was spent planning and coordinating with the private landowner, the helicopter pilot and WGFD personnel on this project this year.

Figure 1. Aspen bundle dropped into Bolton Creek.

Figure 2. Beaver being relocated into Bolton Creek.

State Acres for Wildlife Enhancement (SAFE) and Conservation Reserve Program (CRP) Monitoring and Technical Assistance (Goal 2) – Willow Hibbs

Wildlife monitoring was conducted several times this year on SAFE CRP to assess the effectiveness of converting cropland to perennial grassland (Figure 3). Technical assistance on further seedings and mid-contract management plans were provided on SAFE CRP and general CRP lands. These projects aim to benefit a variety of wildlife by increasing forage and cover.

Figure 3. Waterfowl monitoring on SAFE CRP land.

Turtle Rock Ranch Mule Deer Legume Seeding (Goal 2) – Brian Jensen

Fifteen acres on Turtle Rock Ranch were seeded to legumes during the spring of 2011 to provide high quality forage for mule deer. This project was funded by the WGFD Mule Deer Legume Seeding Trust Fund.

North Laramie Range Watershed Restoration Project – Phase 2011 (Goal 2) - Keith Schoup

During 2011, we prescribed burned 499 acres of mountain big sagebrush within the Bates Creek watershed (Figure 4). Since the start of this project, we have prescribed burned 2,380 acres of big sagebrush and aspen stands. Wyoming Helicopters applied Plateau® herbicide to control 7,024 acres of cheatgrass-infested big sagebrush communities (Figure 5). This was a continuation of the 7,071

Figure 4. Mountain big sagebrush prescribed burn.

Figure 5. Wyoming Helicopters, LLC applying Plateau® herbicide.

acres treated during 2010. Since the fall of 2007, we have treated a total of 19,403 acres of cheatgrass-infested big sagebrush communities. Grants have been executed with five landowners and the funding is obligated for this project. In addition, funding from the WGFD was granted to the USFS to prepare environmental assessments to satisfy NEPA requirements on federal lands associated with the project. NEPA has been completed on more than 5,000 acres and future

expansion of projects on Forest lands will be implemented in cooperation with the Forest Service and grazing permittees. Accomplishing these tasks during 2011 required nearly 150 hours of coordination with private landowners, federal land management agency personnel and WGFD personnel.

Lower Stinking Creek Watershed Enhancement (Goal 2) – Colin Tierney

The Bates Hole region, of which Stinking Creek watershed comprises a majority, is within the WGFD SHP's Bates Hole Crucial Terrestrial Habitat Area and the Bates Hole and North Laramie Range Terrestrial/Aquatic Habitat Enhancement Area (Figure 6). Stinking Creek's high sediment loads and flashy hydrology yield excessive sediment inputs to the North Platte River. Historic land use exacerbated sediment issues. This project is being developed to repair some of the historic damage by increasing sediment retention, vegetative complexity and native riparian plant community health. This will be accomplished by installing 14 instream vinyl sheet-piling structures to raise the water table where a series of incisions have caused significant channel widening and subsurface recession of the water table. These structures will pond the water behind them, serving as a reservoir and seed/sediment catchment. The areas will "recharge" during peak flows and will gradually "discharge" during the summer/fall as the water seeps out from behind the structures. These are expected to develop wetland vegetative communities behind them, improving stream health. Willows and cottonwoods will also be planted and incorporated into the structures as a means of bioengineering. Approximately 289 acres along the project's 7.2 stream miles will be directly affected. The project compliments work performed on Lawn Creek in 2000 by the WGFD (Figure 7).

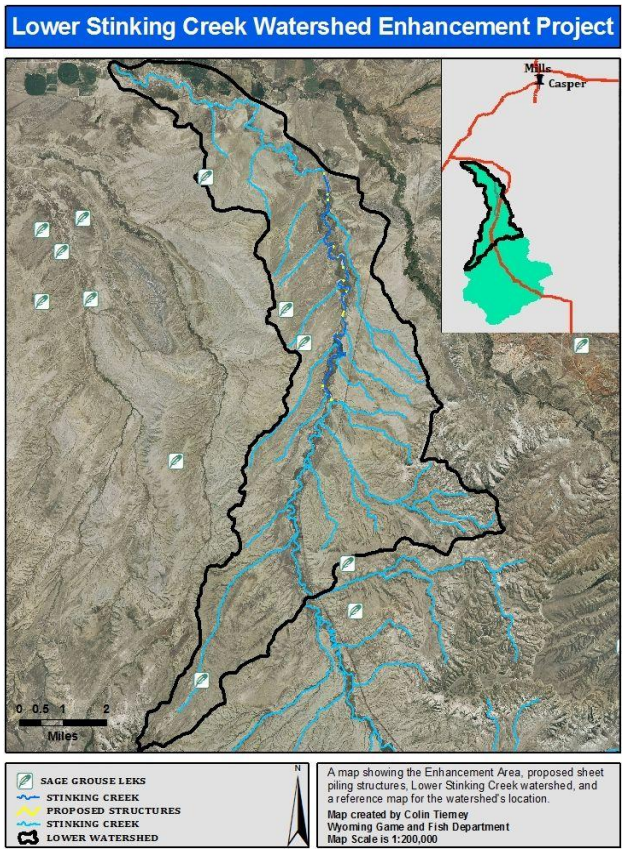


Figure 6. Lower Stinking Creek watershed and locations for sheet piling structures designed to retard sediment, retain water and enhance riparian vegetation.

Figure 7. Lawn Creek in July 1995 (five years pre-treatment) and August 2011 (eleven years post-treatment).

This nearby watershed had similar sheet piling structures installed and experienced spectacular gains in riparian vegetation and water retention. In 1995, five years before channel structures were completed, the channel bed was dry and poorly vegetated. When photo documentation was collected in 2011, a diverse and robust riparian community of sedges, rushes and willows were evident and resulted in few exposed banks and definitive water retention.

Hydrologic Effects of Vegetation Management in the Bates Creek Watershed (Goal 2) – Colin Tierney

The Bates Creek Watershed, a tributary of the North Platte in central Wyoming, is located in the southwest corner of Natrona County, in central Wyoming (Figure 8). Wyoming big sagebrush and mountain big sagebrush communities dominate the watershed, while pine and quaking aspen checker the upper region. In 2004, the WGFD began a 16-year watershed restoration program in the Upper Bates Creek Watershed. In summer 2005, mechanical thinning/mulching of whole trees and prescribed fire treatments occurred in the Kerfoot Creek sub-watershed. Further treatments occurred in the Kerfoot and neighboring Bell Draw sub-watersheds from 2007 to 2009. Encroaching conifers, such as limber pine, were selectively thinned from historic aspen stands to encourage aspen suckering and development of mixed-age aspen communities. In big sagebrush steppe and select aspen communities, prescribed burning encouraged greater plant species and community age-class diversity to increase the quality of forage for wild and domestic large herbivores. An additional important potential benefit of the work is to stimulate the retention of water higher and longer on the landscape.

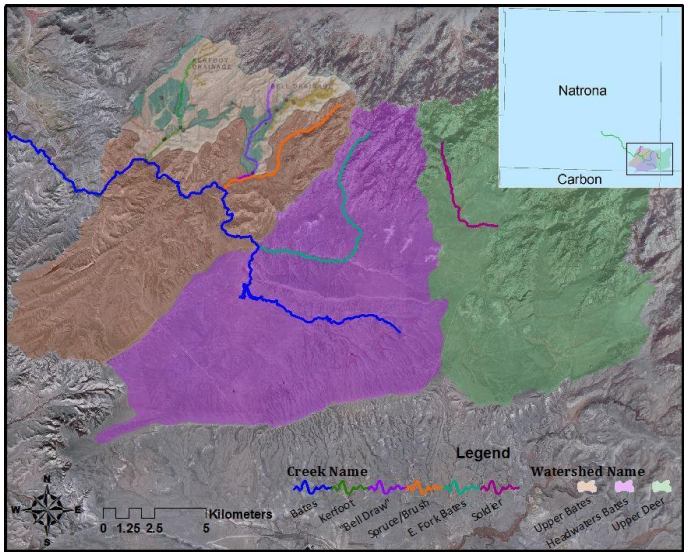


Figure 8. Upper Bates Creek, Headwaters Bates Creek, and Upper Deer Creek Watersheds. The Kerfoot and "Bell Draw" sub-watersheds (shown as an overlay in the upper left) have undergone vegetative treatments, while the Soldier, E. Fork Bates, and Spruce Creek sub-watersheds are pending.

In 2008, UW collaborated with the WGFD to implement a measurement and monitoring program quantifying hydrologic changes related to the vegetation treatments. This study encompassed two graduate projects and involved measuring stream flows and groundwater and tracking vegetation land-use management impacts on watershed response (Figure 9).

Figure 9. Stream flows were measured at several locations in the Bates Creek Watershed by UW researchers to attempt to relate changes in vegetation to water yield. The location of a pressure transducer is marked with orange ribbon and rebar.

Because the study was initiated after vegetation treatments occurred, there is limited ability to infer cause and effect. Monitoring additional watersheds slated for future treatment would strongly enhance understanding of the relationship between vegetation treatments and water yield. Alternatives for continuing hydrologic function monitoring efforts were reviewed and a summary document outlining alternatives was drafted.

Lower Stinking Creek Channel Restoration (Goal 2) – Colin Tierney

A water return structure along Stinking Creek that returns excess irrigation water back to the creek channel is at risk of failure (Figures 10 and 11). If this structure fails, it risks sending a channel incision up the irrigation channel and will contribute excessive sediment to the watershed.

The intent of the project being developed is to work with the landowner to return the creek to its original channel, eliminate the return structure and develop a superior method of delivering irrigation water. This might include converting the landowner's irrigation method from flood to center pivot. A new irrigation diversion structure that will allow the landowner to efficiently pipe water to the irrigation fields, potentially conserving water in the creek, is being planned with the landowner and NRCS.

Figure 10. Project schematic and map indicating Stinking Creek (blue outline) and the existing return channel (red outline) to be filled in via the proposed project. The new diversion (yellow) will include structures to minimize the sediment entering the pipe (black). A grade control structure to be installed is shown in purple.

Figure 11. This irrigation return structure would be replaced and the Maytag riprap removed in a project being develpped by the Casper Aquatic Habitat Project.

Sage-Grouse Initiative (SGI) Monitoring Training (Goal 2) - Willow Hibbs

Training on program monitoring requirements was provided to two ranches in Natrona County totaling approximately 73,000 acres. Monitoring was conducted on the ranches to guide management decisions to benefit livestock, sage-grouse and other wildlife. In addition, a coordinated educational workshop addressing livestock grazing management, wildlife habitat and plant identification and indicators for NRCS personnel and landowners by Roy Roath (Figure 12) was held. Assistance in interpreting monitoring data was also provided to the Casper NRCS field office.

Figure 12. Grazing education by Roy Roath on SGI ranch.

Flying A Ranch Range Improvement Project (Goal 2) - Willow Hibbs

Two riparian areas were fenced with 2,400 feet of buck and pole fencing (Figure 13) on a 15,507 acre portion of the Flying A Ranch. This project aims to protect riparian areas from over-utilization by ungulates and prevent further hummock formation. Future work includes spring developments and fencing. The property provides yearlong elk, mule deer and antelope range and a portion of the property is designated as crucial elk and mule deer winter range. There are two sage-grouse leks within two miles of the property and several within five miles. The WGFD currently holds a conservation easement partially funded by a variety of funding sources including NRCS, WWNRT, RMEF and WGFD that includes perpetual hunter access to the area.

Figure 13. WGFD Habitat and Access Branch personnel constructing spring fence on Flying A Ranch.

Lusby PAA Bank Stabilization (Goal 3) – Colin Tierney

A bank is being eroded along the Lusby PAA easement (Figure 14). Riprap was installed in the same location 20 years ago to protect the bank, but the erosion has progressed downstream. This eroding bank is a consequence of a sharp bend in the river channel. The channel pattern and subsequent erosion may also be influenced by the input of sediment from the far (south) side of the river, forcing or pinching the channel to the north.

Figure 14. Lusby Public Fishing Access Area on the North Platte River. The area with significant erosion is indicated in orange, while the project area is outlined in red. Note the sediment bar up river from the damaged area that is pushing the river into the opposite bank. Flow direction is shown in blue.

Approximately 150 feet of bank along the North Platte River was armored in July 2010 after washing out following high water. In 2011, another 15-20 feet of the stream bank eroded, taking much of the armoring along with it (Figure 15). This emphasizes the importance of finding a permanent solution to control the bank erosion. Left unchecked, lateral migration of the river will continue.

Currently, about 200 feet of bank is eroded and needing protection. A short-term fix would involve placing additional riprap where the bank is eroding. However, this may simply move the problem downstream and the riprap may be lost again to the next high flows. Long-term solutions will require

additional design, cost estimates and funding. Currently, one idea WGFD has considered is to install a series of barbs along the bank to redirect flow back toward the center of the channel. WGFD is working with cooperators, interest groups, land managers and landowners to protect the integrity of the bank, while concurrently promoting watershed function and ecosystem integrity by enhancing the quality of aquatic habitat along the North Platte.

Figure 15. Eroding bank on the Lusby Public Access Area. Pre-runoff (left image, June 2011) bank armoring riprap was lost to high flows (right image, September 2011).