

PINEDALE REGION HIGHLIGHTS

- Over 19,000 acres protected through conservation easements with several more to be completed in 2011
- Wyoming Front Aspen Restoration Project (WFARP) continues to enhance aspen communities along the Wyoming Range Front on BLM lands
- Long-term vegetation monitoring results are analyzed to understand changes in sagebrush habitats fifteen years post-treatment along the Piney Front
- Blair Creek Forage Reserve is used on Pinedale Ranger District, BTNF to rest a treated area
- Monument Ridge Prescribed Burn treats 1025 acres in Bondurant, Big Piney Ranger District, BTNF
- Approximately 1,100 willow cuttings and 100 cottonwood cuttings planted on Muddy Creek
- Approximately 300 willow cuttings planted on Coal Creek
- Approximately 400 willow cuttings planted on Hobble Creek and dozens of small conifers anchored to unstable banks
- Trash rack fish screen installed on upper South Twin Creek and approximately 250 fingerling BCT released
- Conceptual plans developed for Coal Creek Sediment Reduction and Stabilization

BLM Smithsfork Allotment Management Plan Coordination and Monitoring (Goal 1) - Floyd Roadifer
WGFD aquatic habitat personnel continued to coordinate closely with the BLM to analyze and interpret riparian greenline trend data and establish new riparian vegetation objectives for 2013 and 2021 as per the 2008 Settlement Agreement between the BLM, permittees, and other parties. Remarkable recovery of riparian habitat since 1996 was documented at two Raymond Creek greenline locations. Lower Coal Creek is the only other monitoring site where riparian recovery has clearly progressed towards stable, diverse communities that optimize habitat for Bonneville cutthroat trout (BCT) and other wildlife. Slight upward trends were apparent at several other sites, but 2008 data indicate that short term (5-year) objectives that were cooperatively established by the Technical Review Team in 1997 had not been reached in 2008 at these sites.

Although greenline trend monitoring documented a clear upward trend in riparian conditions in the Raymond Creek watershed, much greater long-term improvement will be necessary to achieve BLM's minimum standard of Proper Functioning Condition (PFC) throughout the drainage (Figure 1 and 2). Regional aquatic habitat personnel participated with the BLM regional riparian team to conduct a PFC assessment on Raymond Creek. The group concluded that the only reach of the stream that has achieved PFC is the lower end within the canyon, downstream of the confluence of the North and South Forks. Here, beaver recently constructed several small willow dams which will likely fill quickly with sediments. Long-term successful reestablishment of stable beaver dam complexes in this watershed is desirable, but is likely not sustainable until overall watershed function has improved. All remaining reaches of Raymond Creek were rated as "Functioning-at-Risk" or "Non-functional". Recovery to PFC is expected to require many more years with very limited or no livestock use. Complete recovery to Potential Natural Communities (PNC), which is the most desirable condition for BCT and other wildlife species, will require even more time.



Figure 1. Improved management in the Raymond watershed is allowing riparian habitat conditions to gradually improve.



Figure 2. South Fork Raymond Creek will require many years to fully recover with upstream reaches in the "Functioning at Risk" category.

Regional aquatic habitat personnel assisted Kemmerer BLM staff with seasonal utilization, distribution, and compliance monitoring on the Smithsfork Allotment. Preliminary summaries of utilization monitoring at 12 greenline locations in 2010 indicated that one of these sites, Lower Huff Creek, met both willow use and stubble height criteria. Stubble height criteria were met at several sites, but the 40% willow use criteria was exceeded at seven of the eight sites that support willows. This indicates that browsing by cattle is the primary limitation on willow restoration in this allotment. Utilization measurements taken outside of exclosures prior to scheduled cattle grazing at 19 locations, and then again immediately following planned grazing further supports this conclusion.

Other on-going cooperative efforts included assisting BLM and permittees with maintenance work on the Raymond watershed fence and riparian exclosures.

JIO/PAPO Conservation Easements and Conservation Planning (Goal 1) - Dan Stroud and Jill Randall
The JIO and PAPO Mitigation offices were involved in securing 2 conservation easements in 2010: Sommers and Grindstone easements totaling over 19,000 acres of private land. Public walk-in fishing access was made available on an additional 4 miles of the Green River as part of this easement. These funds were made available to mitigate for loss of wildlife habitat associated with energy development in Sublette County. An annual report with details is available at <http://www.wy.blm.gov/jio-papo/>

BLM Landscape Planning (Goal 1) - Jill Randall
BLM Pinedale Field Office has recently decided to undergo landscape planning efforts in the Boulder, North LaBarge and Ryegrass areas. This effort involves grazing management, permit renewal, travel management, vegetation management and wildlife concerns into one NEPA planning document. WGFD has been involved with many components of this planning effort including setting vegetation objectives, designing vegetation treatments, commenting on travel management and coordinating grazing management with permittees. The anticipated outcome is a better coordinated effort towards multiple uses on these BLM lands. The first NEPA process will be in the Boulder area and is expected to have a decision by 2012.

Kemmerer Ranger District – 16 Allotments Permit EIS, Tall Forb Assessment and Monitoring (Goal 1) - Floyd Roadifer

WGFD personnel continued to coordinate with USFS Kemmerer Ranger District personnel on a variety of issues and concerns in this large area (175,728 acres) that affects the upper portions of the Smiths Fork, Hams Fork, and Thomas Fork watersheds. A workshop and tour was conducted with Dr. Alma Winward, retired FS plant ecologist. Several sites in these allotments were evaluated and monitoring issues and concerns were reviewed and discussed with USFS personnel who participated in the tour. A tour summary will soon be available from Dr. Winward and will be posted on the WGFD internet site.

Three locations proposed by the USFS for construction of monitoring exclosures were visited with the USFS, NRCS, UW, and WGFD. Soils data were collected at eleven sites and cooperative long-term efforts to better define specific tall forb ecological sites are under way. USFS had previously collected nested frequency data or other vegetation data at these proposed exclosure sites and shared that information with regional habitat personnel.

Huff Creek Headcut Stabilization and Exclosures (Goal 2) - Floyd Roadifer
Two additional rock sills were constructed at the headcut located on private land on upper Huff Creek. Minor maintenance work was conducted on the exclosure fences and sills constructed in the fall of 2009. Over winter survival of willow cuttings planted in 2009 appeared very high so no additional willows were planted in 2010. Huff Creek provides some of the most critical spawning habitat for Bonneville cutthroat trout in the Thomas Fork drainage.

Wyoming Front Aspen Restoration Project (Goal 2) - Eric Maichak and Jill Randall

In 2010, on-the-ground and logistical progress continued on the Wyoming Front Aspen Restoration Project (WFARP). About 606 acres of conifer, mostly subalpine fir, were slashed by Northwest Management Inc (NMI, (Figure 3) hand crews on the Upper Billies allotment in preparation for future prescribed burns, and about 650 acres of slashed material within aspen stands of the Red Canyon allotment were burned by an interagency crew in June. To date, 2,500 acres of conifer have been slashed over four allotments, and 1,000 acres have been burned within two of these allotments. In 2011, NMI is expected to slash 602 acres of conifer and aspen on the Miller Creek allotment, with 791 acres of prescribed burns (spring season) expected on the Camp Creek allotment.

Pre-treatment aspen data collected in mid-August on Upper Billies allotment show an average of 477 stems/acre, similar to pre-treatment findings at Maki (735 stems/acre), Red Canyon (526 stems/acre), and Camp Creek (457 stems/acre) allotments. We also found that 4.2% of current-year terminal leaders in Upper Billies were browsed, compared to 6.7% (Maki), 12.5% (Red Canyon), and 20% (Camp Creek). Additionally, we monitored aspen in late June on the Maki allotment (1-year post-treatment). Although only 1% of current-year terminal leaders were browsed, no individual suckers had attained a height greater than three feet, and we noted that nearly 100% of previous-year terminal leaders had been browsed. Similar results were found on adjacent Maki USFS aspen monitoring sites in late June, suggesting that elk and other wildlife are impacting local aspen recruitment and succession during transitional periods (autumn and/or early spring). To assess species composition, % cover, and herbaceous production within the stand, we installed a macroplot and read this during mid-August (spp. comp., % cover) and late October (production). We found 14 species of forbs (dominated by meadowrue, 4.2% cover), 4 species of grasses (dominated by sedges, 3.2% cover), and that subalpine fir (12.4%) rather than aspen (0.6%) dominated all aerial line-point-intercept cover estimates. Production was limited to 8.48 lb/acre and 4.20 lb/acre of forbs and grasses, respectively.

Furthermore, a temporary electric fence was installed in late June around the 2009 burn perimeter of the Maki allotment to permit livestock use of the remaining allotment. Although we were unable to sample aspen following the end of the grazing period due to logistical constraints, regeneration appeared to be good, browsing of terminal leaders appeared to be much less than in 2009, and ultimately the fence prevented livestock use of the burn. Monitoring was not conducted on the recently burned Red Canyon allotment, however, visual inspection of the site showed that aspen and tall forb regeneration within the burn is good (Figure 3). Continued financial support has been secured through 2011 from the BLM, RMEF, WVNRT, WLCI, and WGFD. Lastly, for their exemplary efforts thus far on WFARP and other western-Wyoming aspen restoration projects, NMI received the coveted 2010 WY Hunting and Fishing Heritage Expo Industry Reclamation and Wildlife Stewardship Award.



Figure 3. Aspen and herbaceous regeneration two months post-burn on the Red Canyon Allotment, western Wyoming.

Hobble Creek Structure Maintenance and Riparian Enhancement (Goal 2) - Floyd Roadifer

Regional aquatic habitat personnel assisted the USFS with maintenance work along Hobble Creek where rock / tree jam structures installed in 2003 needed maintenance work. Approximately 450 willow cuttings were planted using a waterjet stinger and dozens of small conifer trees were anchored to existing structures to reduce stream energy along unstable banks.

Coal Creek Riparian Restoration on Private Land (Goal 2) - Floyd Roadifer

Two landowners on Lower Coal Creek are interested in improving riparian resources on their properties. Both properties comprise a total of ~ ½ mile of stream. However, this relatively short reach of stream provides critical habitat and a potential future reference reach and seed source for willows within the larger watershed that is otherwise heavily impacted. Dennis Austin fenced ~ ¼ mile of stream about 7 years ago and began planting a variety of woody species. We assisted by planting approximately 250 willows with a waterjet stinger in fall 2009 and spring 2010. Growth and survival due to lack of browsing in 2010 was phenomenal. The Austin family is interested in planting additional mature trees and shrubs (cottonwood, black hawthorn, chokecherry, red osier dogwood, golden currant) throughout the property. Trout Unlimited has indicated an interest in assisting and a local Boy Scout group may also become involved. Jed Jacobson, the downstream landowner plans to work on his property boundary fence in the spring of 2011. Recovery of woody riparian vegetation will likely occur rapidly once the area is protected. WGFD personnel offered to assist with fence maintenance and willow plantings in the spring (2011), if the landowner continues to demonstrate a commitment to restoring the riparian habitat.

Coal Creek Sediment Reduction and Stabilization (Goal 2) - Floyd Roadifer

A consultant (AVI) was contracted to prepare a conceptual plan to address sediment loading to Coal Creek primarily from the main road that parallels this important BRC stream. This involved coordinating with BLM, State Lands, and the private landowner to initiate project development and define objectives. Funding for this planning stage was secured from department sources while implementation will require other partner contributions. The plan includes at least 2 options for each of the 11 sites identified and a prioritization of the sites (Figure 4 and 5). These conceptual plans were used to develop Phase I funding proposals for additional WGFD trust fund money and WWNRT and WLCI funds to implement projects on private and state lands for implementation in the fall of 2011.



Figure 4. The abandoned bridge across Stoner Creek will be replaced with a bottomless arch-plate structure, similar to the one completed on Twin Creek (see Figure 11).



Figure 5. A variety of techniques will be employed to address large sources of sediment contribution into Coal Creek.

Maki Creek Prescribed Burn Monitoring (Goal 2) - Eric Maichak and Jill Randall

Maki Creek is an aspen and sagebrush enhancement treatment located on the Big Piney Ranger District, BTNF, in the foothills of the Wyoming Range. Aspen treatments were targeted for heavily conifer-encroached aspen stands throughout the burn unit. These stands were mechanically slashed and subsequently burned. Some adjacent sagebrush was also included in the burn. A portion of the burn was implemented in the late fall of 2008, while the remaining acres were burned in the summer of 2009. In 2010, aspen monitoring was completed in three aspen stands using nonpermanent circular density plots (two treated and one control). Aspen sucker density in the two burn areas is encouraging (Figure 6). Despite the sparse presence of aspen in the stands prior to slashing and burning, the average regeneration has been strong (Figure 7). The objective is to have 1000 aspen stems/acre over 10 feet tall by 12 years post-treatment. Aspen height measurements for the two burned stands show that no

stems are reaching the 3-6 foot height class, one and two years post burn. This is not unexpected, because the burn severity was high, and sucker heights are sometimes stunted the first year when the roots in the upper soil layers are heated by hot fire. Browsing by elk continues to be a concern that is monitored closely. More data and further summary information is available in the annual BTNF Fire Effects Monitoring Report.

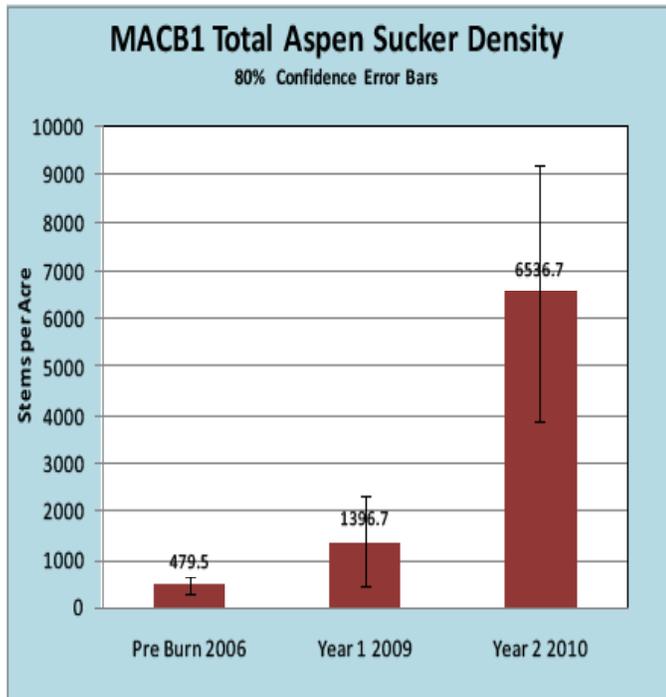


Figure 6. Aspen sucker density two years after the Maki Creek prescribed fire, Wyoming Range, BTNF.



Figure 7. Aspen regeneration two years after the Maki Creek prescribed fire, Wyoming Range, BTNF.

Cottonwood II Aspen Treatment (Goal 2) - Jill Randall and Eric Maichak

Cottonwood II is a mechanical thinning and prescribed burn enhancement. The goals are to increase aspen sucker density and create a mosaic of age classes in areas of aspen encroached by conifers on the Big Piney District of BTNF in and around the Cottonwood Creek drainages. Mechanical treatment was completed in 2010 on approximately 400 acres of stands remaining to be treated after the 2009 season (Figure 8). Prescribed burn implementation is expected to start in 2011 and will be monitored cooperatively by the Interagency Fire Effects Crew and WGF D post-treatment to ensure vegetation objectives are being met. More data and further summary information is available in the annual BTNF Fire Effects Monitoring Report.



Figure 8. Aspen unit with conifer slashing work completed in Sjhoberg Creek of the Cottonwood II project.

Aquatic Habitat Assistance to Private Landowners (Goal 2) - Floyd Roadifer

A Giraffe Creek landowner was advised on riparian and stream conditions and enhancement and restoration opportunities. Numerous comments on plans provided by his consultant were offered in a formal letter of concurrence. Improvements in riparian condition, resulting from fencing and herding implemented in 2007 by the previous owner, are evident on this property. Four irrigation diversion structures on the Dunham Ranch on lower Cottonwood Creek were reviewed. Opportunities to improve water management and fish passage on this property

were discussed. We also met with the landowner / irrigator who holds water rights for the McNinch Reservoirs in the North Piney Creek watershed. These reservoirs were constructed in the 1950's primarily for irrigation water storage, but also support a viable brook trout fishery. They are in need of maintenance or reconstruction. Opportunities to improve water management and fisheries habitat as part of reservoir reconstruction were discussed.

A group consisting of an Eagle Scout troop and their leaders, other WGFD Pinedale Regional Office personnel, BLM, NRCS, and Conservation District personnel was organized to plant ~1,100 willow cuttings, and ~100 cottonwood cuttings along approximately ½ mile of Muddy Creek, a tributary of the East Fork River on the M-J Ranch (Figure 9). An additional 12 willow clumps, freshly removed from an upstream irrigation ditch were also planted at several critical eroding sites. This work was conducted inside of an approximately 1 mile long enclosure constructed as part of the Conservation Management Plan on land recently protected by a conservation easement.



Figure 9. Numerous cooperators assisted with planting approximately 1,100 willow cuttings and 100 cottonwood cuttings in the recently constructed riparian enclosure along Muddy Creek on the MJ Ranch.

Twin Creek Watershed - Fish Passage and Habitat Improvement (Goal 2) - Floyd Roadifer

The Twin Creek / Rock Creek watershed provides crucial habitats for a wide variety of aquatic and terrestrial wildlife. Aquatic habitat personnel worked cooperatively with the TU, DEQ, Abandoned Mine Land Division and their consultant (AVI) to address fish passage barriers at two major culvert crossings associated with past mining activities near Leefe on Twin Creek. In late October three culverts under the abandoned rail spur were removed and a bottomless arch-plate structure was installed underneath the road crossing (Figure 10 and 11). Site stability and future maintenance needs should be closely monitored at both sites over the long-term. Also, woody vegetation should be planted at both sites in the spring of 2011 to increase stability and enhance long-term habitat quality. This project will improve connectivity of fish populations between Twin Creek and the Bear River.



Figure 10. Culverts across Twin Creek were removed.



Figure 11. A bottomless arch-plate structure replaced the old culverts that were impeding fish movement on Twin Creek.

TU scheduled installation of a screen and new diversion structure at the BQ Diversion near Sage Junction in the fall of 2010 but delayed project implementation for archaeological clearance. This is the next barrier upstream from Leefe in Twin Creek and will be reconstructed in the spring of 2011.

Aquatic habitat and management personnel worked with a landowner (Jullian) to restore a population of BCT on his South Twin Creek property (“Angelo Place”). A trash rack screen was installed and maintained and approximately 250 fingerling BCT were released into the short (approx. ~1/4 mile long), spring-fed reach in mid July. Because flows are naturally limited and are further depleted at the screened ditch this population is very isolated. Furthermore, impoundments in the channel farther downstream eliminate opportunities for movement of fish to and from this isolated location. A visual survey in September indicated that numbers declined below levels immediately following stocking, but the remaining fish appeared healthy. Ongoing efforts will include developing opportunities to implement passive riparian restoration, supplement the BCT population if necessary, and maintain a working relationship with the landowner.

Regional aquatic habitat personnel continued working with landowners to improve riparian habitats and watershed conditions throughout the Rock Creek drainage. Meetings and discussions were coordinated with BLM, State Land Board and Rock Creek State land lessees to pursue constructing drift fences in the canyons draining from Dempsey Ridge into Rock Creek. The draft EA provided to the BLM in 2009 was reviewed and edited to address BLM concerns. The aquatic habitat project biologist assisted BLM with PFC assessments on Rock Creek. The AMP for the Rock Creek Allotment is scheduled for review in 2012. Coordination with the permittees, BLM, and State Lands to improve this important watershed will continue in 2011.

Monument Ridge II Prescribed Burn (Goal 2) - Jill Randall

Monument Ridge II is the second unit to be prescribed burned in the three units south and west of Bondurant (Figure 12). Approximately 50% of the 1,025 acres of sagebrush was burned (Figure 13). Objectives include reintroducing disturbance to this mature monotypic sagebrush stand that serves as important transitional range for mule deer and pronghorn. Additionally, fuels objectives will be met by breaking up continuous fuel loads adjacent to private land in Bondurant. Immediate post-treatment photo points were retaken by the Interagency Fire Effects Crew and will be monitored cooperatively in 2011. More data and further summary information is available in the annual BTNF Fire Effects Monitoring Report.



Figure 12. Monument Ridge prescribed fire implementation, Bondurant Wyoming.

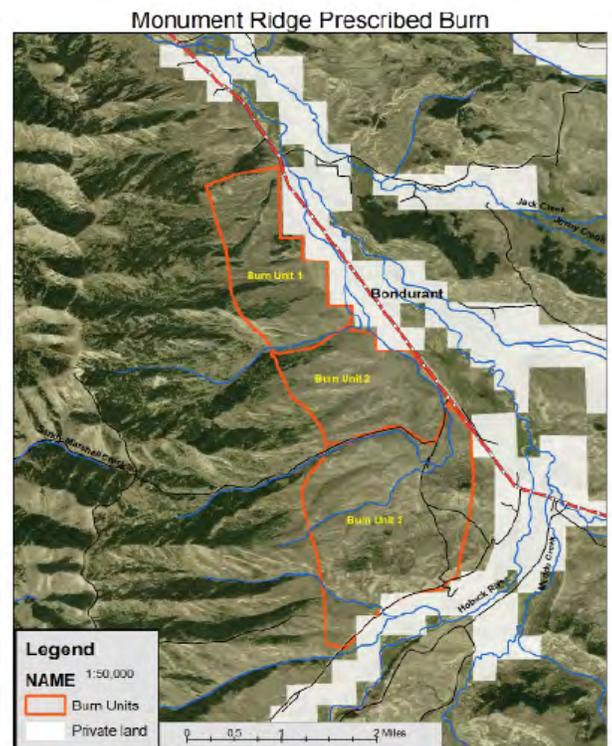


Figure 13. Map of Monument Ridge prescribed burn near Bondurant Wyoming.

Anselmi Lawson Aerator (Goal 2) - Jill Randall and Statewide Habitat Access

In 2010, 75 acres of mountain big sagebrush were mechanically treated with the WGFD Lawson aerator to create a mosaic of age classes in sagebrush as well as increase understory herbaceous production to benefit sage grouse brood rearing habitat and improve mule deer and pronghorn transitional range (Figure 14). The pre-treatment conditions included canopy cover in excess of 30% which was decreasing the quality of habitat for wildlife. In order to adhere to sage grouse core area stipulations, WGFD Habitat and Access personnel intentionally treated in a pattern that never exceeded a distance of 60 meters to undisturbed sagebrush canopy cover of 15% or greater. This allows for foraging habitat to be closely adjacent to hiding cover at all times. This project was jointly designed and monitored by Sublette County Conservation District, NRCS and WGFD and utilized Farm Bill funding for implementation.



Figure 14. WGFD Habitat Access-operated Lawson Aerator on the Anselmi project near Cora, Wyoming.

Boulder Cheatgrass (Goal 2) - Jill Randall and WLCI

The first year of herbicide control of cheatgrass using Imazopic (4 oz/acre) in the Boulder Lake area began in 2010 (Figure 15). This will be a multi-year, multi-land ownership project with portions of the first 547 acres sprayed on BLM this first year. Phase 2 will include land on the Fall Creek WHMA and additional BLM lands north of the road into Boulder Lake.

Additionally, Sublette County Weed and Pest, BLM, WLCI and WGFD are cooperatively working with USGS and DuPont on several test plots for a new chemical, Matrix, which is designed to treat cheatgrass with a reduced impact on native grasses compared to chemicals currently approved for use on BLM lands. The intent is to determine if results on vegetation are favorable, and if so, potentially providing required documentation and justification for getting Matrix approved for use on BLM lands.



Figure 15. Cheatgrass on the rangelands near Boulder Lake that will be chemically treated for cheatgrass control in 2011.

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

Located in the South LaBarge Common BLM allotment this proposal has objectives to improve habitat conditions for wildlife and livestock through increased vigor of mountain shrub and sagebrush communities, increasing herbaceous production, and improving health of rangelands. Herbicide (Spike) will be aerially applied to several hundred acres attempting to thin Wyoming big sagebrush canopy cover. This treatment 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 monitored and data provided to the BLM. Plans include further refining polygons and post-treatment management plans before a fall 2011 implementation.

Half Moon/Fayette Prescribed Burn Post-Treatment Monitoring (Goal 2) - Jill Randall and Jared Rogerson

The Half Moon prescribed burn was implemented in 1985. The area burned again in the fall of 1996 as part of the Fayette Fire, an escaped prescribed burn. Monitoring objectives reflect the goal of improving native elk habitats to reduce their dependence on artificial feed and lure them from the Fall Creek feedground earlier in the spring to reduce the intra- and inter-specific brucellosis transmission risks (Figure 16). Although this area was described pre-treatment to be dominated by mountain big sagebrush, bitterbrush and bluebunch wheatgrass, it has not shown good recovery of shrubs to date and is dominated by native grasses, specifically bluebunch wheatgrass. Monitoring efforts in 2010 indicate cheatgrass presence on the transect location which was not previously encountered. This is not surprising given the dominance of cheatgrass on nearby Half Moon mountain. More data and further summary information is available in the annual BTNF Fire Effects Monitoring Report.

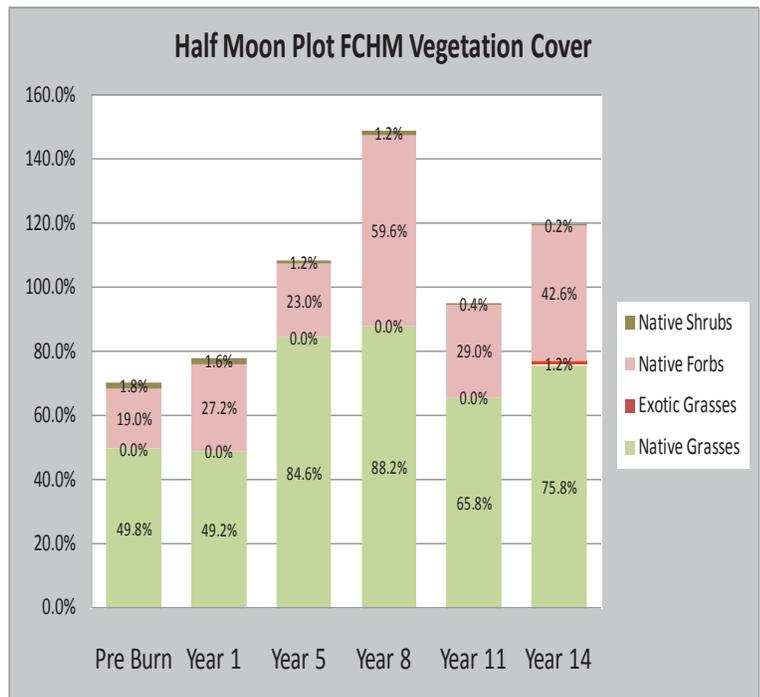


Figure 16. Monitoring data for the Half Moon prescribed fire vegetation response.

Mesa Fertilization (Goal 2) - Dan Stroud and Jill Randall

The BLM and the WGFD implemented a rangeland fertilization project on 600 acres of Wyoming big sagebrush habitat to offset natural gas development impacts to the wintering mule deer and year-round greater sage-grouse populations present on the Mesa area, on the west flank of the Anticline Gas Field (Figure 17). Natural gas development on the Mesa has led to direct (habitat conversions) and indirect (human presence, noise) habitat losses on and adjacent to development sites (well pads, road/pipeline corridors, ancillary facilities). The potential for increasing shrub productivity on winter ranges through fertilization has been documented in other studies, in particular one that was performed by Len Carpenter in 1975.



Figure 17. Mesa fertilization.

The project will be closely monitored during the next several years to determine success and longevity of the treatment. In particular, both sagebrush leaders and herbaceous production will be monitored on an annual basis. Future projects or phases are being considered and identified pending the success of the project based on the monitoring results. An annual report with details of this project is available at <http://www.wy.blm.gov/jio-papo/>

Fremont II Prescribed Burn (Goal 2) - Jill Randall and Jared Rogerson

The Fremont II prescribed burn was completed in 2005 on 1,200 acres of sagebrush and aspen communities northeast of Soda Lake on both Soda Lake WHMA and BTNF lands. The objectives were to enhance aspen sucker density through introducing disturbance, creating a mosaic of age class diversity in sagebrush, and increasing

bitterbrush vigor and health. In 2010 monitoring was completed to represent five year-post treatment monitoring. The most notable observation is that bitterbrush is returning in the burned plots. This species has not always had a positive response to fire in the Pinedale area but is very valuable as wildlife forage. The Interagency Fire Effects Crew and WGFD will monitor this project again in five years, to determine if vegetation objectives are being met. More data and further summary information is available in the annual BTNF Fire Effects Monitoring Report.

Willow Rim Prescribed Burn (Goal 2) - Jill Randall and Jared Rogerson

Willow Rim prescribed burn is a portion of the Little Flattop prescribed burn, located south east of New Fork Lakes on the Pinedale Ranger District, BTNF. This aspen unit is located on an east facing slope above Willow Creek guard station and was burned in 2006. The treatment objectives were to increase aspen suckers to 1000 stems per acre over 10 feet tall by 12 years post-treatment. In 2005 (five years post-treatment), over 8000 aspen stems per acre were measured, mostly in the 0-3 and 3-6 foot height categories. The Interagency Fire Effects Crew and WGFD will monitor again in five years, to determine if vegetation objectives are being met (Figure 18). More data and further summary information is available in the annual BTNF Fire Effects Monitoring Report.



PRE, 2006



IMMPOST, 2006



YR02, 2007



YR05, 2010

Figure 18. Photo point sequence demonstrating increased aspen regeneration over time on the Willow Rim prescribed burn project area.

Wyoming Range Mule Deer Initiative (Goal 4) - Jill Randall and many department employees

Pinedale, Green River and Jackson Regional WGFD personnel have been heavily involved in the Wyoming Range Mule Deer Initiative since 2008. This process has included three rounds of public meeting, many internal meeting and increased efforts on winter range habitat data collection, discussions with partner agencies and private individuals as well as increased emphasis on habitat enhancements in the Wyoming Range Mule Deer Herd Unit. More information on this process is available on the WGFD website,

<http://gf.state.wy.us/wildlife/WyRangePublicInput/index.asp>

Aquatic Habitat Information and Technical Assistance Requests (Goal 5) - Floyd Roadifer

The aquatic habitat and wildlife biologists worked cooperatively with the USFWS Partners for Fish and Wildlife, NRCS, TNC, and Intermountain Joint Venture on numerous potential opportunities to protect crucial wetland habitats through temporary or permanent agreements under the voluntary Wetland Reserve Program (WRP). One WRP agreement was approved on a large ranch (Teichert's) south of Cokeville on the Bear River. Formal comments were provided supporting this project. Cooperative implementation of the Bear River Conservation Action Plan (CAP), led by TNC entailed several interagency meetings. TNC is currently focused primarily on implementation of the CAP for the lower Bear River watershed (in Utah), but plans to focus on the upper watershed soon.

Regional aquatic habitat and management personnel continued to provide input into the ongoing development of a long-term management plan for the Cokeville Meadows Refuge (CMR). USFWS anticipates this planning process will be completed in approximately one more year and will guide CMR management for the next 15 years. Department personnel continued to support ongoing efforts to develop a forage reserve on portions of the CMR. A preliminary evaluation to assess the potential for woody species recovery along this portion of the Bear River was initiated. This work indicates a need to implement a combination of passive restoration strategies (i.e. rest from grazing) combined with active rehabilitation efforts, such as planting willow cuttings. Information from the evaluation will be provided to USFWS along with support to construct riparian fencing along the Bear River corridor as needed to restore woody riparian communities.

The Raymond Canyon Road provides the only public access point into the Raymond Mountain Wilderness Study Area. Lincoln County recently negotiated a secure easement with private landowners to maintain the historic public access at the mouth of Raymond Canyon and a new parking area was developed. Discussions about signing this parking lot are on-going with BLM and other WGFD personnel. The possibility of creating a new access road and parking area at Chalk Canyon across Wyoming State Land was recently discussed with a representative for the State Lands Office. These opportunities will be pursued in 2011.

Regional aquatic habitat personnel prepared an article for the Pinedale Angler Newsletter bestowing the many virtues of willows. This resource has been shared with various landowners and agency personnel in the Pinedale Region.

Winter Range Shrub Monitoring (Goal 5) - Jill Randall

Winter range shrubs had poor annual production in 2010, which was expected due to the cool spring and lack of snowpack conditions. Mountain big sagebrush, Wyoming big sagebrush, black sagebrush, bitterbrush and true mountain mahogany are monitored for annual leader production on established transects throughout Pinedale Region big game winter ranges. Future year's monitoring will determine if seedlings from 2008 and 2009 have survived. Spring monitoring includes incidence of browse, age classification and hedging categories on the shrubs. Spring monitoring has indicated a general condition of over browsed shrubs, severe hedging categories, and very little recruitment, especially on shrubs that are highly preferred by mule deer on winter ranges such as bitterbrush, true mountain mahogany and black sagebrush (Figure 19). Fall monitoring includes annual leader growth measurements.

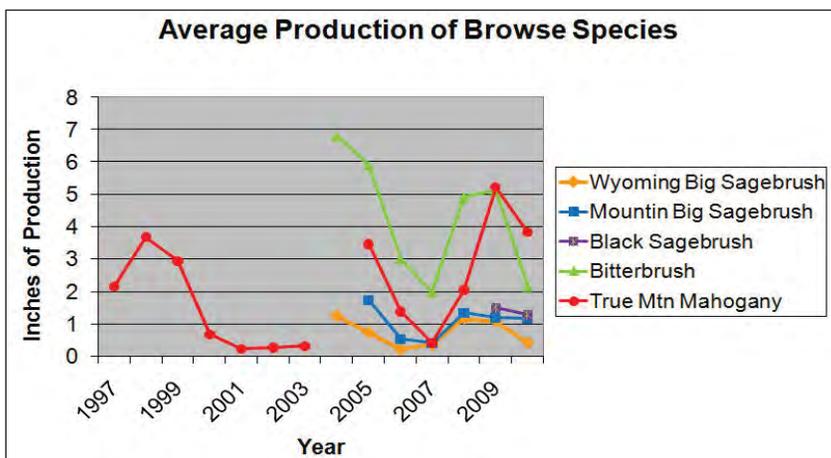


Figure 19. Average annual leader length on Pinedale Region winter range shrub transects, represented by species.

Effects of Fire, Mechanical, and Herbicide Treatments in Sagebrush Ecotypes of Western Wyoming (Goal 5) - Eric Maichak and Jill Randall

In summer and autumn 2008 through 2010, BFH and Terrestrial Habitat personnel were assisted by BLM and USGS staff in post-treatment vegetation monitoring on 10 sites throughout the east-central slope of the Wyoming Range front, western Wyoming. Treatments (prescribed fire, mechanical, ‘Spike’ herbicide) occurred from 1993 through 2008 in sagebrush (Wyoming big, low, mountain big) habitats and were paired with adjacent untreated control sites. With the use of nested frequency (1993-1997), line-point-intercept (1998-2010), shrub belts (1993-2010), and production clippings

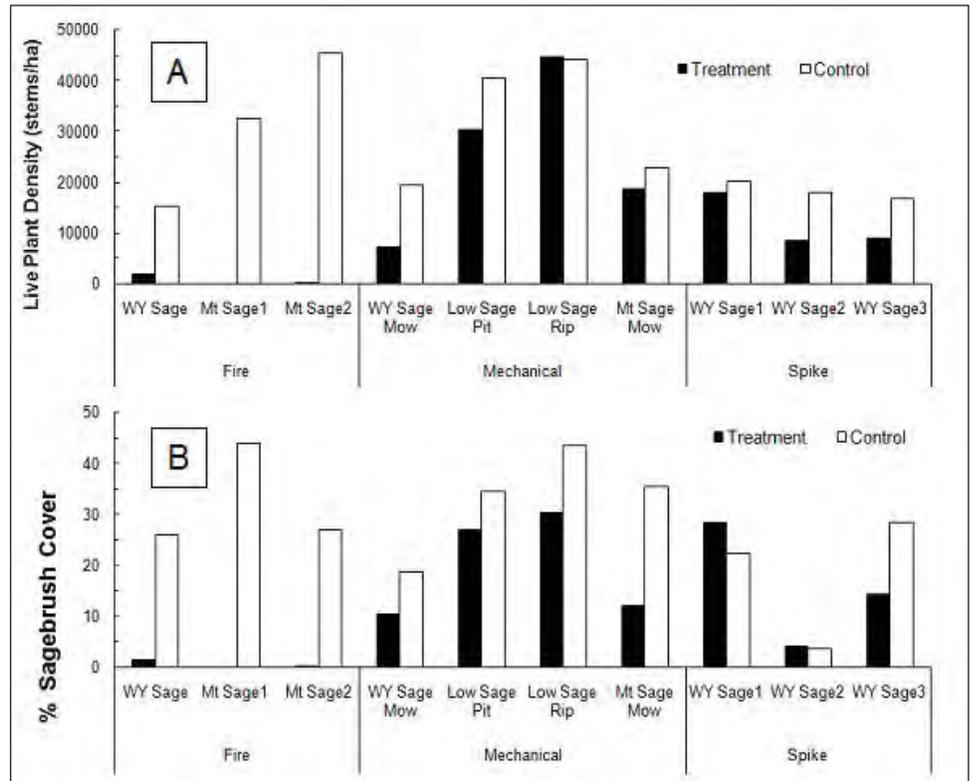


Figure 20. Mean plant density (A) and percent cover (B) of live dominant sagebrush species on treated and respective control sites, 1998-2010, western Wyoming.

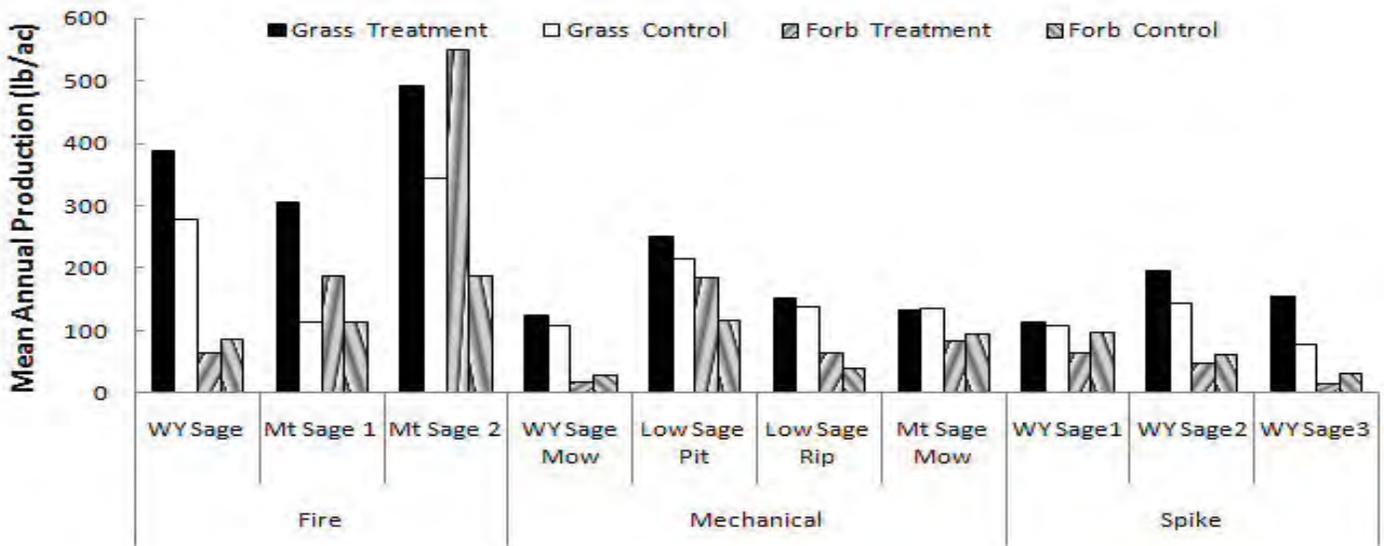


Figure 21. Mean annual herbaceous production on treated and respective control sites, 1993-2010, western Wyoming.

(1993-2010), the goals of this effort were to 1) document and compare vegetation characteristics among habitat and treatment types and 2) assess potential long-term effects of treatments. We found that relative to control sites, density and cover of sagebrush were and continue to be (15-yr post treatment) reduced substantially by fire, while most of these variables were reduced within mechanical (pitting, ripping, mowing) and Spike treatments but to a lesser extent than fire (Figure 20). Basal cover of bare ground was increased with fire and reduced with Spike, but cover of bare ground on fire sites appears to return to control site levels within eight to 15 years. We found that all treatment types increased grass production, mechanical treatments increased forb production, yet Spike treatments reduced forb production (Figure 21). Species richness of grasses and forbs was unassociated

with any treatment type. However, when we compiled line-point and respective grass production data from all sites and habitats (1998-2010), forb richness was low to modestly correlated with annual production of grasses (used as a surrogate measure of annual precipitation) suggesting that precipitation (i.e., annual or site specific) dictates recruitment of forbs. Our results support previous literature, and we suggest that mechanical and Spike rather than fire treatments can be implemented with greater control over sagebrush cover, density and age/height composition, and therefore may have fewer presumed negative effects on sagebrush obligate species (e.g., sage grouse) and fewer post-treatment livestock grazing stipulations. Furthermore, we suggest that until landscape-scale habitat treatments of varying mosaics (blob vs. patches) are implemented and assessed with respect to sage-grouse metapopulation impacts, mechanical and Spike treatments may have greater potential than fire for incorporation into recently delineated sage grouse core areas.

Tall Forb Monitoring (Goal 5) - Jill Randall

Tall forb communities are characterized by a large array of luxuriant, tall (16-48 inches) mesic forbs (Figure 22). These communities occur on all aspects and slope gradients, in large, open high-elevation (over 7,000 ft elevation) parklands or along streams in small forest openings where soils are deep and soil moisture is adequate for growth to occur throughout the frost-free growing period. These communities provide high quality summer forage for wildlife when in good condition as well as provide very important watershed functions including prevention of sedimentation at the headwaters of many drainages. However, very little is understood about these sites including species potential, recovery time frame and acceptable thresholds for ground cover.



Figure 22. Diverse tall forb community in the Wyoming Range.

In order to appropriately manage these important areas for wildlife, watershed and livestock resources further scientific understanding is needed. The BTNF, NRCS, University of Wyoming and WGFD are cooperatively increasing monitoring of these sites, including vegetation and soil parameters, in an attempt to better understand impacts of management on vegetation and soil conditions. Fourteen sites were monitored in 2010 as part of this ongoing effort. Eventually, all parties desire to develop Ecological Sites to describe tall forb communities and aid in management of these important communities.

Mule Deer Habitat Assessment (Goal 5) - Jill Randall and Ron Lockwood

MWyoming range mule deer habitat assessments began in 2008, with completion of 163,000 acres between LaBarge Creek and Fontenelle Creek in the Green River Region. In 2009 this effort was expanded to include 350,000 acres from LaBarge Creek north through Deer Hills as well as a portion of the Little Colorado Desert, east of the Green River. The 2010 portion included lands in the Green River Region at the southern end of the Wyoming Range. This project was modeled after the moose habitat assessment and included similar objectives on important winter and transitional ranges for the Wyoming Range Mule Deer Herd. Habitat conditions are generally considered to be in poor condition on many of our mule deer winter ranges and have experienced significant impacts from energy development. This assessment effort produces an elevated understanding of current habitat conditions as well as recommends potential ways to improve the quality of habitat for mule deer. A GIS product is an additional component of this project which can be used by WGFD and partner agencies to enhance project development. The final reports for 2009 field work were delivered to WGFD personnel in early 2010 and are available from TSS or local WGFD personnel.

Blair Creek Forage Reserve (Goal 2) **B-** Jill Randall, WLCI and Lander Region (See Scribner)

Blair Creek forage reserve was created on the BTNF in an area set aside from livestock grazing for the betterment of wildlife. After a fence was constructed in 2009 (Figure 23), a livestock permittee utilized this forage reserve in 2010 from an adjacent allotment that had a prescribed burn completed in 2009. Without this area for cattle, the required rest would not have been possible, therefore preventing a 1500-acre treatment from occurring. This was a great example where multiple partners joined forces to provide a win-win situation for all involved parties. Vegetation monitoring was cooperatively performed between BTNF and WGFD personnel to assure there were no negative trends in species composition or undesirable levels of use on key locations within the forage reserve. (Figure 24). Partners include WLCI, WGFD and BTNF.

Moose Habitat Assessment (Goal 5) **M-** Jill Randall, Ron Lockwood and Steve Kilpatrick

The moose habitat assessment was initiated in 2007 in the Jackson Herd Unit (HU) and continued in 2008 and 2009 to the Sublette HU. 2010 included assessment at the south end of the Wyoming Range, portions in the Greys River and areas along the Snake River between Jackson and Alpine, in western Wyoming. The impetus behind conducting a moose habitat assessment were concerns that several of the moose herds in Wyoming are experiencing poor calf recruitment and recent population declines. While the specific reasons for the declines are not fully understood, habitat conditions remain a common theme and are generally an important component of the decline equation. Thus, managers at recent herd unit review meetings have recommended field personnel develop habitat enhancement proposals benefiting moose. A proposal was developed to address the above recommendations by providing a systematic and comprehensive review, including management recommendations, of important moose habitats on a HU basis.

The primary objectives of the inventory assessment are: 1. Accelerate WGFD efforts to implement SHP and wildlife habitat productivity with emphasis on moose; 2. Provide moose HU based maps and reports depicting current ecological conditions for important moose habitats; 3. Provide prioritized list of future management recommendations for important habitats within HU's; and 4. Use above prioritized list to submit and solicit funding for habitat enhancement project proposals. During 2007, the TSS completed habitat assessment for most of the Jackson Moose HU (approximately 95,000 acres) and provided a report. Habitat evaluation components included: 1) dominant understory and overstory species composition; 2) site potential evaluation; 3) digital photos hyperlinked to display in ArcMap; and 4) management recommendations by geographic area.

The final report for 2009 field work titled Sublette Moose Habitat Assessment: Upper Green River to LaBarge Creek study area were delivered to WGFD personnel in early 2010.



Figure 23. Fence allowing land on BTNF, Pinedale Ranger District to be managed as a forage reserve.



Figure 24. Cooperative monitoring conducted to measure trend in species in the area used as a forage reserve at Blair Creek, Wind River Range, BTNF.

Seed Trials (Goal 5) - Jill Randall

Critical wildlife habitat supporting mule deer, pronghorn, and sage-grouse in high elevation rangeland and sagebrush ecosystems of southwest Wyoming is being disturbed by energy development. The objective of the seed trials field studies is to evaluate the restoration of native plant species after disturbances, such as well pads. In October 2005, 72 entries of 50 native species were drill-seeded on a well-pad site, in single species plots, with four replications. Also, two seed mixtures were broadcast- and drill-seeded, and one seed mixture was hydro-seeded on disturbed areas adjacent to the plots on the same well pad. Cover and density have been monitored annually by Shell, NRCS, BLM and WGFD personnel (Figure 25). Grasses, forbs and shrubs have all been evaluated over a five year period for performance so that reclamation practices on western Wyoming's low precipitation sites can be improved.



Figure 25. Seed trial conducted cooperatively by energy companies, NRCS, BLM, WGFD and others to learn about seed mixes and specific species performance to be used in reclamation activities around Pinedale, Wyoming.

The Soda Lake WHMA seed trial was also evaluated in 2010 by NRCS and WGFD on both the formal enclosure site and the wetland dike area for species presence and performance over time.

Wildlife Friendly Fencing (Goal 2) - WLCI

This is in the second year of a 5 year initiative, which offers cost-free livestock and wildlife friendly fence improvements to interested public and private landowners within a portion of a key mule deer migration route. This corridor runs from Hoback Rim to Big Sandy in Sublette County and links important habitat for mule deer, pronghorn, and other species. Improving fencing is critical to the survival of big game, as they must be able to move freely between seasonal ranges. Non-wildlife friendly fencing contributes to the mortality rates of game as they make their seasonal migrations. Eighteen and a half miles of fence conversion were accomplished in 2010. Partners include BTNF, Industry, JIO, PAPO, RMEF, TNC, WWNRT, WGFD, WY Department of Ag, Western Governors Association, and many NGOs and private individuals.

Sublette County Weed and Pest District (Goal 2) - WLCI

The weed management activity increases the level of control to minimize the economic and ecological impacts caused by invasive species. Controlling noxious weeds is a priority for the BLM and this collaborative effort with Sublette, Lincoln and Teton Counties reinforces this commitment. Approximately 900 acres of rangeland were inventoried for the presence of invasive species, 1,120 acres were treated for invasives, and 1,900 acres were monitored. Partners include private landowners, permittees, Forest Service, and Sublette County Weed and Pest.

Swift Swan (Goal 2) - WLCI

This is a long-term effort to establish additional shallow water wetland habitat for an expanding population of resident trumpeter swans and other waterfowl in southwest Wyoming. One pond was completed for this threatened and endangered species. Partners include WGFD, Private Landowners, and WWNRT.