

PINEDALE REGION

HABITAT PROJECTS

Smithsfork Allotment

The Pinedale aquatic habitat biologist continued coordinating with the Kemmerer BLM and permittees regarding habitat restoration and grazing management in the Smithsfork Allotment. Annual use and trend monitoring plans for the 2007 and 2008 seasons and the pending Smithsfork Allotment evaluation, scheduled for the winter of 2008-2009, were reviewed with the BLM. Greenline monitoring has been scheduled for summer 2008. The need for increased riparian exclosure maintenance efforts was emphasized.

The BLM completed Proper Functioning Condition (PFC) assessments in this allotment during the summer of 2007. In July the PE-AHAB participated in portions of these assessments in the Thomas Fork and Coal Creek drainages. Observations during those assessments led to numerous questions regarding the conclusions presented in the BLM's "2007 Monitoring Report Summary for the Smithsfork Allotment". For example, the report indicates an upward trend in the overall condition of the Smithsfork Allotment since PFC was originally assessed in 1994 and 1995. This conclusion is reached by combining PFC assessment results on an allotment-wide basis. However, a closer review of site-specific management changes indicates that improvements in the Raymond watershed and the riparian exclosures account for a majority if not all of the observed improvement. Because the entire Raymond watershed has been partially rested since 1996 and completely rested for the past two seasons, upward trends were expected and documented in the 7.5 miles assessed. Furthermore, the three riparian exclosures, reconstructed in the interim, account for approximately 7 – 8 additional miles where upward trends were expected and documented. When these locations are averaged across the entire allotment the appearance of an overall upward trend across the allotment resulting from actual livestock management changes is inflated. However, in the remainder of the allotment only a few specific reaches may have experienced a slight upward trend as a result of other management changes, while others appear to be experiencing a downward trend.

Willow cuttings were again planted in the Coal and Klein Creek exclosures in the spring of 2007 with assistance from Pinedale Fish Management Section. Also, the Klein Creek exclosure was repaired in June prior to the start of the grazing season.

Rock Creek Riparian Improvement and Twin Creek Watershed Fish Passage Projects

A property owner on Rock Creek (Don Failoni) signed a WHIP contract with NRCS to construct 3960' of new and replacement fencing to create 3 riparian management pastures totaling 46 acres. Progressive grazing management strategies in these riparian pastures will improve riparian and stream habitat conditions along approximately 0.3 miles of Rock Creek. Future projects will include planting riparian woody vegetation (e.g. willows, cottonwoods, etc.) and may include in-stream structures to enhance stream function, riparian vegetation, and aquatic habitat. A cooperative riparian management agreement between the NRCS, the landowner and WGFD regarding management goals, objectives and strategies is being developed.

The landowner is also interested in replacing four irrigation diversion structures and indicated that fish loss onto hay meadows is fairly common. This led to discussions with Trout Unlimited and efforts to reconstruct these diversion structures and include fish screens to prevent fish loss onto irrigated fields. A cooperative agreement among NRCS, TU, and the landowner is being developed.

- Maki, Cottonwood II and WYFARP projects enhance over 3000 acres of aspen communities along the Wyoming Range Front.
- Private landowner projects utilizing Lawson Aerator to improve sagebrush communities.
- Nearly 1000 acres of Rx burns completed on BTNF lands.
- Wyoming Range Mule Deer Initiative kicked off in the Green River, Pinedale and Jackson regions
- Elk VIT research provides valuable data on parturition site selection.

TU has hired a consultant to design new irrigation diversion structures and fish screens at these sites and a cooperative agreement has been developed to use \$15,000 of Department funds to assist with engineering and design. TU has committed \$5,000 to develop designs and an additional \$15,000 for project implementation. TU will apply for additional WWNRT funds for implementation (Figure 1).



Figure 1. One of four Rock Creek irrigation diversion structures that will be replaced and fish screens added to prevent BRC entrainment.

Project objectives include increasing Bonneville cutthroat trout (BRC) spawning success by eliminating adult fish loss, increasing BRC recruitment in Rock Creek, Twin Creek, and eventually the Bear River by eliminating loss of all fish age classes, reestablishing migratory populations of large spawning fish, increasing angling opportunities, reducing the potential for listing BRC under the Endangered Species Act (ESA), and ensuring protections for native non game species.

Wyoming Range Front Aspen Restoration Project (WYFARP)

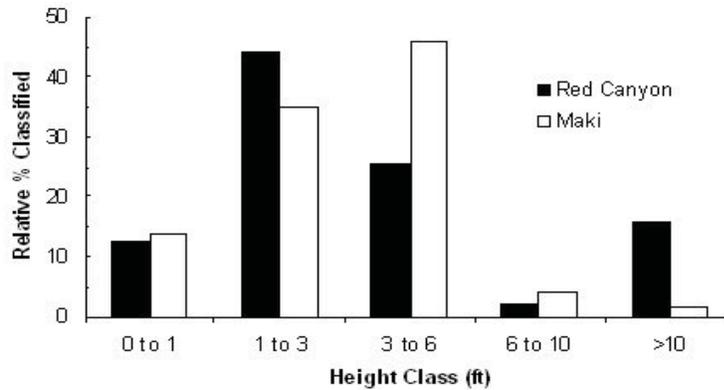
In summer 2007, a multi-year, 9,000-acre aspen enhancement project was initiated within two BLM grazing allotments along the east slope of the central Wyoming Range. Cooperators for this project are WGFD, BLM and affected permittees, RMEF, and RY Timber, with financial assistance from WGFD, BLM, RMEF, and WWNRT, as well as a portion of the profits generated from salvaged merchantable timber (RMEF/RY Timber coordinated land stewardship). Mechanical slashing and harvest of merchantable timber were completed on about 700 total acres of conifer encroached aspen stands between the two allotments in preparation for follow-up treatment with prescribed fire in 2009. An additional 700 acres of conifer encroached aspen stands on another allotment are scheduled for mechanical treatment/harvest in summer 2008, with planning, treatment, and harvest on the remaining 10 allotments included in the project to occur throughout the next eight years (Figure 2).



Figure 2. Mechanical work in the Maki BLM allotment.

Prior to mechanical treatment, WGFD and BLM personnel collected pre-treatment data, focusing on total stems per acre, browse use of terminal leaders, and height classes of aspen $\leq 5''$ diameter. Initial results suggest an overall density of 500 to 700 stems/ac with browsing of terminal leaders at six to 14%. The majority of aspen suckers were in the 1' to 3' and 3' to 6' height class categories. These results mimic those from other aspen stands throughout the central Wyoming Range, suggesting that aspen regeneration is low but browsing is not excessive despite close proximity to elk feedgrounds, migration routes, and seasonal ranges (e.g., spring/summer/fall, parturition) with potentially long durations of habitation.

Table 1. Relative percents of aspen suckers in various height classes from the Red Canyon Common and Maki Ck Individual BLM allotments, western Wyoming.



Maki Creek Aspen Regeneration

This is a cooperative venture between the USFS and WGFD to achieve the primary goals of 1) rejuvenating decadent aspen stands and adjacent vegetation communities on a 2200-acre project area; and 2) reducing the dependency of elk on the adjacent Jewett feedground. Similar to the Cottonwood II project, treatments include mechanical felling of conifers (initiated summer 2005, completed autumn 2007) followed by prescribed burning (scheduled spring 2008) within about 1,000 acres of aspen stands (Figure 3). Unlike Cottonwood II, this project will also treat about 750 acres of mountain big sagebrush communities with prescribed fire.

In July 2007, the fire effects crew assisted WGFD personnel with pre-burn monitoring of the sagebrush component of this project. One macroplot was established on each treatment and control site. To address specific monitoring objectives, line-point and shrub belt methodologies were used to gather data on ground cover and sagebrush densities, respectively. Ground cover was greater than 95% on each site. Densities of sagebrush were 25,440 plants/ha and 24,240 plants/ha on the treatment and control sites, respectively. Similar to visual estimates throughout the central Wyoming Range, size/age classes of sagebrush plants were dominated by those classified as mature.



Figure 3. Mechanical felling completed in Maki Creek project area.

Maki Watershed WHAM Assessments

Maki Creek watershed maps were developed to evaluate aspen treatments and to propose additional specific sites delineated during 2006 WHAM. During 2006 and 2007 a total of 8.3 miles of WHAM Level I surveys were completed on Maki, South Fork Maki, Little Maki, and North Maki Creeks, tributaries to North Cottonwood Creek (Figure 4).

Generally, most riparian habitats were in fairly healthy condition and are dominated by willows, sedges, riparian grasses, and forbs. However, in the upper segments spruce and fir became the dominant riparian community type. Furthermore, heavy cattle use has resulted in bank erosion in segment 1 and segment 3 of Maki Creek. Heavy browsing on aspen suckers by elk was observed in segment 2 of Little Maki Creek (Figure 5).

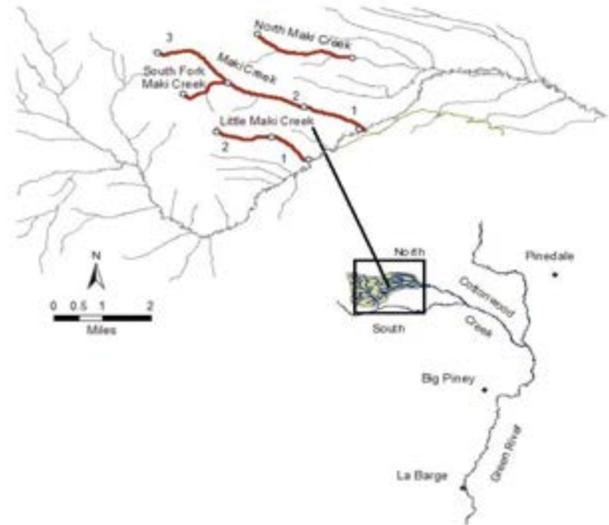


Figure 4. WHAM Level I survey localities (highlighted red) and segment numbers within the North Cottonwood Creek sub-watershed.



Figure 5. Segment 2 of Maki Creek has a relatively healthy, willow-dominated, riparian community, and conifer dominated uplands on the more mesic north-facing slope with a mixture of sagebrush and aspen communities on the xeric, south-facing slopes. Conifer encroachment is evident on both aspects and in the riparian community.

Numerous opportunities exist in these watersheds to improve beaver habitat and watershed health through aspen regeneration providing ungulate use can be adequately controlled.

Although adequate food supply and building materials (mainly willows) were available, beaver activity and abundance was low in all creeks surveyed. However, evidence of historic beaver activity was common in most segments. The lack of aspen available near the riparian area likely contributed to lower beaver populations. Fire suppression, conifer encroachment, and browsing have limited aspen regeneration throughout these watersheds (Figure 6).



Figure 6. Headwaters (segment 2) of Little Maki Creek is representative of conifer encroached aspen stands in these watersheds and gully erosion on the opposite slope resulting from heavy use in the past.

Cottonwood II Vegetation Treatments

Cottonwood II is a mechanical thinning and prescribed burn project on the Big Piney Ranger District, immediately following up the Maki Creek aspen regeneration project (Figure 7). The pre-burn aspen sucker data collected in these stands range from 1,955-3,637 stems per acre (Figure 8). These stands have the majority of aspen suckers between the 1-6 feet tall categories. Only a small number of suckers per acre are over 10 feet in height. Browse utilization of total aspen suckers ranged from 13-17%. This area is important transitional range for mule deer, elk and moose among other species. It is also close to Jewett feedground. These treatments should encourage elk in spring and fall to use native range instead of supplemental feed.



Figure 7. A stand in the Cottonwood II project area targeted for treatment.

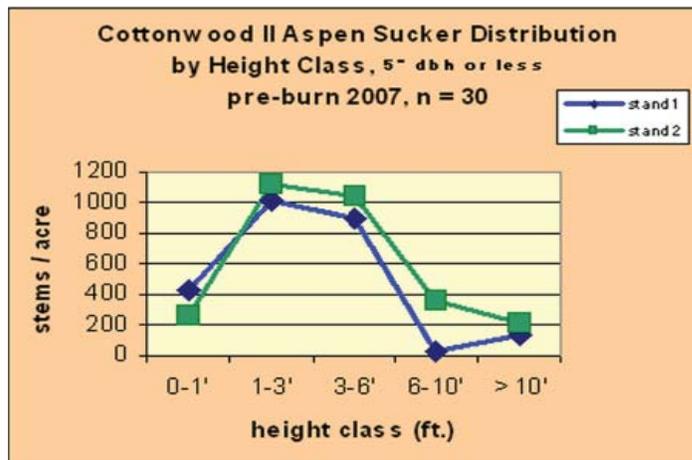


Figure 8. Cottonwood II aspen sucker distribution by height class pre-burn 2007.

Carney Property Conservation Easement and Roaring Fork Allotment

Discussions continued with the Carney families, The Conservation Fund, and other WGFD personnel regarding conservation opportunities on Carney's upper Green River properties. The current proposal would protect 2,571 deeded acres from development under a conservation easement. This property is currently owned and controlled by Carney Land Company. The aquatic habitat biologist assisted the Conservation Fund with preparation of a WWNRT funding request and information for a WGFD support letter. The proposal has been approved for \$200,000.

The Carney family is also interested in converting their 8,415-acre, Forest Service grazing permit for 680-AUM in the Roaring Fork Allotment to forage reserve status. A draft management proposal was prepared in November. This proposal was circulated and discussed with other project cooperators and the current permittee. The Conservation Fund submitted a proposal to WLCI to fund this portion of Carney's conservation plan, but the proposal was later withdrawn due to a lack of USFS support.

Triple Peak Forage Reserve Project

A grazing permittee in the Cottonwood, North Piney, and Greys River watersheds has agreed to waive his grazing permits on 5 allotments for 2,726 AUMs of domestic sheep use back to the BTNF. WGFD personnel provided information to Trout Unlimited, other NGOs, and USFS, and the grazing permittee on the importance of these watersheds for aquatic and terrestrial wildlife. Cooperative efforts with NGOs to raise funding for this project are nearly complete. Coordination with the USFS to develop a grazing management plan are on-going and expected to be in place prior to the 2008 grazing season.

In July 2007, BTNF personnel from Big Piney and Greys River Ranger Districts, WGFD regional personnel and Dr. Alma Winward evaluated potential use areas and established three new monitoring sites in the North Piney, South Cottonwood, and South Sheep Creek drainages. These nested frequency trend-monitoring plots were located in representative sites in potential use areas below 9700 feet in elevation.

This monitoring indicated ground cover to be at 54, 70 and 78 percent in the Bare Mountain, Marten Creek and South Sheep Creek Allotments, respectively. Species composition varied between sites monitored. For grazing to be permitted in areas above 9,700 feet, ground cover must reach 80 percent and cover criteria for specific key species must be met. These stipulations were agreed upon in 2006 by affected parties and formally approved by the BTNF Supervisor. Recovery of these tall forb communities to this ecological condition is expected to take many years. In 2008 additional trend monitoring sites will be established in areas above 9,700 feet in elevation.

Monument Ridge Prescribed Burn

The Monument Ridge prescribed burn comprises approximately 11,000 acres of mixed aspen-conifer and sagebrush vegetation types in late successional stages on the BTNF in the Bondurant area. The area provides important spring-summer forage and parturition habitat for mule deer, pronghorn, elk, moose, and several other wildlife species. Objectives for burning are to improve the vigor and production of these vegetative communities to maintain healthy wildlife populations.

The first of six units (approx. 1,000 acres) was burned in late September 2006, which was primarily sagebrush with a few stringers of aspen-conifer mix throughout. The 2007 field visit indicated that 40-50% of the sagebrush was burned, which does achieve objectives. Within the blackened areas, mountain big sagebrush estimates show a 92% reduction. Silver sagebrush density increased by 51%. This can be attributed to the vigorous post-burn resprouting activity of this species. Overall, sagebrush (both species) was reduced by 64%, which is under the objective of 80%.

Ground cover was monitored one-year post burn at 63%, which is down from 86% pre-burn. Species composition monitoring indicated no increase in non-natives, but a decrease in shrub species diversity in year 1 post-burn (Figure 9).

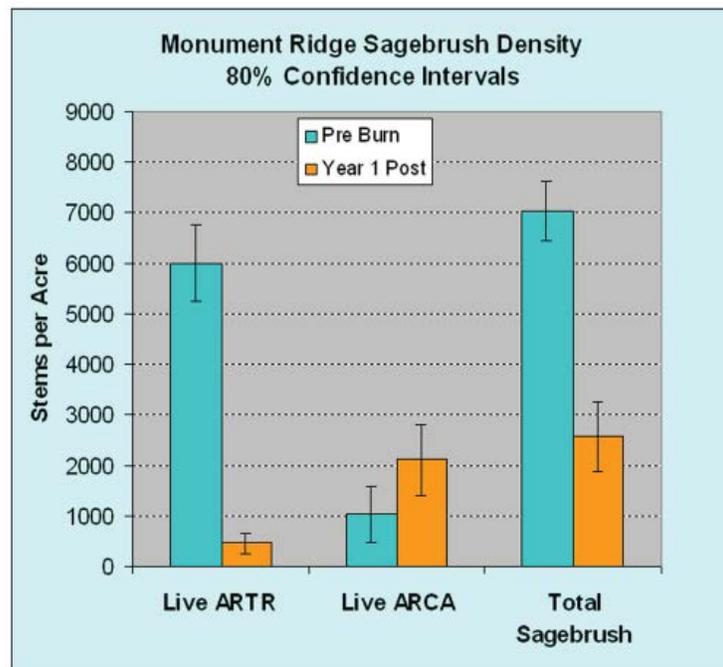


Figure 9. Monument Ridge Sagebrush Density graph.

Little Flattop Prescribed Burn

The Little Flattop prescribed burn was divided into three units that were implemented in consecutive spring burns. The Willow Creek Rim aspen unit was burned in spring 2006, the Wood Draw aspen unit was burned in spring 2007 and the Willow Creek willow unit was burned in spring 2007. These units are located on the BTNF Pinedale Ranger District, near New Fork Lakes (Figure 10).

At the Willow Creek Rim project area, aspen suckers are numerous in treated areas. Two years post-burn, a burned aspen stand was selected for monitoring with non-permanent circular plots. Density in burned areas is between 9,784-13,870 stems per acre. In 2007 most aspen suckers are less than 3 feet tall; however, the large number of suckers per acre indicate a good chance for sucker survivorship and growth to reach burn objectives within 15 years post burn. Only 1% of aspen suckers showed signs of browse utilization in 2007. This area provides parturition habitat and summer range for elk, mule deer, moose, as well as habitat for blue grouse and other bird species.



Figure 10. Willow Creek willow unit prescribed burn.

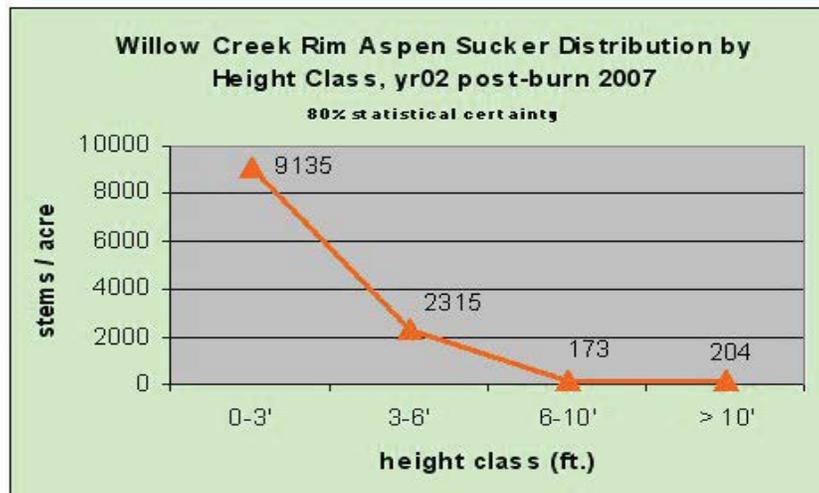


Figure 11. Willow Creek Rim aspen sucker distribution by height class, two years post-burn 2007.

Chicken Creek Prescribed Burn

This is a new prescribed burn proposed by the Pinedale Ranger District. Goals include aspen regeneration and a desired burn mosaic in sagebrush. Pre-burn data indicate that aspen sucker density (less than 5 inches dbh) is between 2,309-3,327 stems per acre. Most of those aspen suckers are currently in the 1-6 feet height range with less than 200 stems per acre falling into the greater than 10 feet tall height class. Of the total pre-burn aspen suckers, 19% show browsing on the terminal leader. Post-burn monitoring will include aspen density, browsing levels, burn mosaic and ground cover. This area includes elk winter range and transitional habitat for mule deer, elk, and moose.

Mesa Sagebrush Enhancement Project

This cooperative research/mitigation with BLM and Questar that began in 2005, continued in 2006 and 2007 with the implementation phase and additional data collection by a University of Idaho graduate student. Goals include increasing age class diversity of sagebrush, increasing cover and production of existing perennial grass and forb species, and determining which treatment type is the most effective at producing such results in Wyoming big sagebrush communities.

The Willow Creek willow unit monitoring indicated willow height averaging 6.67 feet. The percent of live versus dead willow stems was 68:32 (Figure 11).

In August and September 2006, 9 different treatments were applied to 30-acre plots. The treatments included low mowing (6 in.), high mowing (12 in.), mowing with forb seeding, Lawson Aerator, Dixie harrow, chaining, light Spike 20P (0.1 lbs/ac), heavy Spike 20P (0.2 lbs/ac), and a prescribed burn. In 2007, each plot was split in half and fenced to exclude cattle grazing. Post-treatment data will be collected by the graduate student. Monitoring will continue years 2, 3, 5, and 10 after the treatment.

Coal Creek Fish Passage Project

TU has hired a consultant to design a new irrigation diversion structure and fish screen for a site on Coal Creek. A cooperative agreement is being developed to use \$5,000 of WGFD FY09 trust fund money to assist with engineering and design costs. TU has committed \$5,000 of in kind resources to develop the design and will apply for additional WWNRT funds for implementation. Goals and benefits for this project are similar to those for Rock Creek.

LaBarge Creek Watershed Projects

The PE-AHAB coordinated extensively with the Kemmerer Forest Service Range Specialist regarding on-going habitat management concerns and monitoring issues in the LaBarge Allotment. Several key locations were evaluated in June with Range Specialists from the Kemmerer Ranger District and BT Supervisors Office. Portions of the headwaters of LaBarge Creek, Grey's River, Smith's Fork, and Poker Hollow were evaluated with Forest Service Range and Soils Specialists. Many areas show evidence of slow recovery from extremely heavy past use. Recovery will be inhibited in some areas that continue to receive heavy use such as the Poker Hollow watershed.

The USFS Range Specialist collected utilization data at 11 sites in the LaBarge Allotment. Although the stocking rate for the 2007 season was 10% below the use level permitted in the Annual Operating Plan (AOP), utilization levels ranged from a low of 50% to a high of 89%. The maximum use level set in the AOP / AMP is 65%. Discussions with the FS regarding future management are on going.

Annual maintenance was completed on the Nameless Creek riparian enclosure in June. In addition, a report of monitoring efforts in the LaBarge watershed is nearing completion. The report will include an assessment of current conditions and management recommendations.

Ryegrass Mowing Project

In a partnership with the BLM and the livestock permittee, approximately 1,100 acres of the Ryegrass Individual and James Ryegrass allotment complex (3,200 ac) are to be mowed from 2005-2009. This should increase sagebrush age diversity and herbaceous production by mowing in a mosaic pattern to provide a variety of habitats for various needs of wildlife such as sage grouse, mule deer, pronghorn, elk, and other species. A total of 300 acres of sagebrush was mowed in 2005 and 200 acres was mowed in 2007 by the BLM. The remaining 200 acres scheduled for 2007 will be completed in 2008 as well as an additional 400 acres in 2009. Each treatment will receive 2 years of rest post-treatment from cattle grazing. Data will be collected year 1, 2, and 5 post-treatment on both a control and treated plot to determine if objectives are being met.

Double J Ranch Lawson Aerator

In the summer of 2007 planning began with this landowner to implement a 355-acre Lawson Aerator treatment. This mechanical enhancement will be done in July or August of 2008 using Farm Bill EQIP dollars. The intent is to reduce the density of decadent mountain big sagebrush cover and provide a diversity of age classes across his property. This landowner is the BLM permittee on the Ryegrass mowing project located to the south of his base property. The Double J ranch is in important transitional range for mule deer and pronghorn and is seasonally used by sage-grouse. Increasing age class diversity should assist in maintaining productive habitats for these species into the future.

O Bar Y Aerator Project

Planning began with this private landowner and NRCS in fall of 2006 to implement a 300-acre treatment with the Lawson Aerator (Figure 12). Project implementation was completed in fall of 2007. In addition to the mechanical treatment, seeding was completed at the same time with birdsfoot trefoil, basin wildrye, cicer milkvetch and falcate alfalfa. The landowner's goals are to reduce the density of decadent sagebrush cover and increase the production of forbs to attract wildlife such as mule deer and sage grouse. The ranch is in the Upper Green River Valley, which is a critical migration corridor for pronghorn, moose, and other wildlife species.



Figure 12. Lawson Aerator work on O Bar Y Ranch.

Elk VIT Research

In January of 2007, the second year of a 2-yr cooperative research project was completed among the WGFD, UW, Iowa State University (ISU), and USFS with financial assistance from the WGFD, ISU, Wildlife/Livestock Disease Partnership, the Morris Animal Foundation, and the American Museum of Natural History. The goals of this project were to determine 1) abortion, birth, and seroprevalence rates, and 2) abortion and parturition locations and associated habitat conditions in elk from a spectrum of winter foraging opportunities.

From January to March of 2006 and 2007, 248 adult female elk were captured on Scab Creek feedground (long duration, no adjacent habitat improvements), Soda Lake and Bench Corral feedgrounds (short duration, adjacent habitat improvements) and the Buffalo Valley area NNE of Jackson, WY (winter free-ranging, adjacent habitat improvements). One hundred ninety-eight of 248 adult females (80%) were determined to be pregnant and subsequently fitted with vaginal radio transmitters (VIT). VITs were used to facilitate location of parturition sites for these animals, and of all animals implanted, 169 VIT locations were used for analysis of parturition habitat (Figure 13). At each parturition site and - two randomly located sites within 200m of the parturition site, we quantified physical and vegetation micro-habitat attributes for comparison and assessment of selectivity of parturition sites. Macro-habitat variables were derived at parturition sites and random sites within the parturition range from GIS coverages and included vegetation cover type, distance to edge, and elevation, slope, and aspect. Micro-habitat variables included canopy cover; concealment cover; shrub species and density; tree species, age, and distance to VIT; and nutritional content of various browse species. Traditional and conditional logistic regression modeling with AIC based model selection were used to determine which macro- and micro-habitat factors elk selected for at parturition sites.

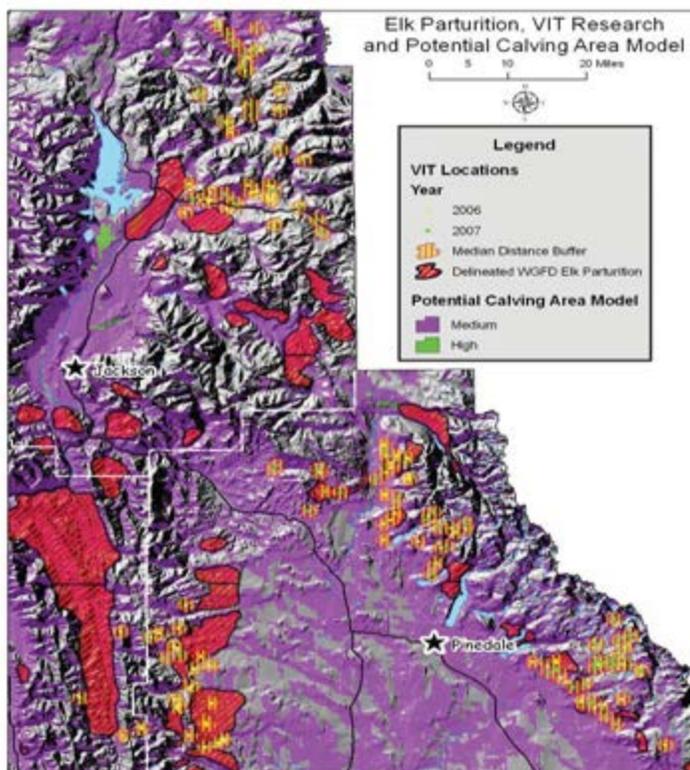


Figure 13. Locations of parturition sites based on VITs implanted in elk from Scab Creek, Soda Lake, and Bench Corral feedgrounds and Buffalo Valley, overlaid with a parturition area model based on macro-habitat variables selected for by elk at parturition sites.

For both years, pooled seroprevalence levels were 12%, 14%, 19%, and 22% at Buffalo Valley, Bench Corral, Soda Lake, and Scab Creek, respectively. Among all project areas, six percent (10/169) of VITs were located in currently delineated WGFD elk parturition areas. Parturition sites occurred in a wide variety of macro-habitat types, ranging from willow bottoms to treeline among a variety of land ownerships. However, macro-habitat analyses suggest that elk tended to select for south-facing slopes and aspen stands. Further analyses of micro-habitat factors suggest that elk were selecting parturition sites with an optimal mix of canopy and concealment (horizontal) cover. Using the most influential macro-habitat factors, a GIS model was derived to delineate likely areas throughout the BT Forest where elk parturition could occur. Future parturition sites from elk implanted at Dell Creek, Grey's River, Soda Lake, Bench Corral, and Scab Creek in winter 2008 will be overlaid on this GIS model to assess its accuracy. Parturition sites based on recaptured animals will be used to determine site fidelity among years, and ultimately incorporated into a global parturition area GIS model.

USFS Feedground Vegetation EIS

In 2007, the Brucellosis Feedground Habitat (BFH) crew was tasked with assisting the USFS with development of an EIS in relation to long-term leasing for seven feedgrounds on USFS lands. These feedgrounds were Muddy Creek, Fall Creek, Green River Lakes in the Wind River Range; Dog Creek in the south Jackson area; and Alkali, Patrol Cabin, and Fish Creek in the upper Gros Ventre River valley. The primary goal was to analyze impacts of feedgrounds on habitat associated with feedgrounds. From mid-August to early September 2007, we quantified and compared 1) plant species composition, richness, and diversity, 2) true basal cover, and 3) shrub or tree size/age and density on feedgrounds and paired reference (control) sites. Line-point, shrub-belt, GIS hardware and software, and several statistical tests were used.

Although we typically found greater numbers of grass, forb, and shrub species on reference than feedground sites, species richness did not differ among plant categories. Shannon-Wiener and Simpson's species diversity indices, however, differed among site types (Figure 14) and individual feedground and reference sites (Figure 15). Basal cover of plants, litter, and rock differed among site types, with cover of plants and litter on feedgrounds lesser and greater, respectively, than on reference sites. Shrub densities differed among site types (Figure 16) and individual feedground and reference sites (Figure 17), and showed similar patterns to those observed for species diversity indices. The age/size class of shrubs encountered were mostly "mature", but proportions in all classes appeared similar among sites and mimicked findings from other sites throughout western Wyoming. Our results suggest that increased levels of disturbance from Reference to Low Use to High Use sites reduce species diversity and shrub density from areas adjacent to within feedgrounds. Litter depositions (primarily from accumulated elk feces and unconsumed hay) are greater on feedground than reference sites, but those depositions do not appear to preclude vegetation growth. It is likely that differences among feedgrounds in overall productivity, length of feeding season, and total years elk were (or were not) fed on those sites resulted in differences in species diversity and shrub density.

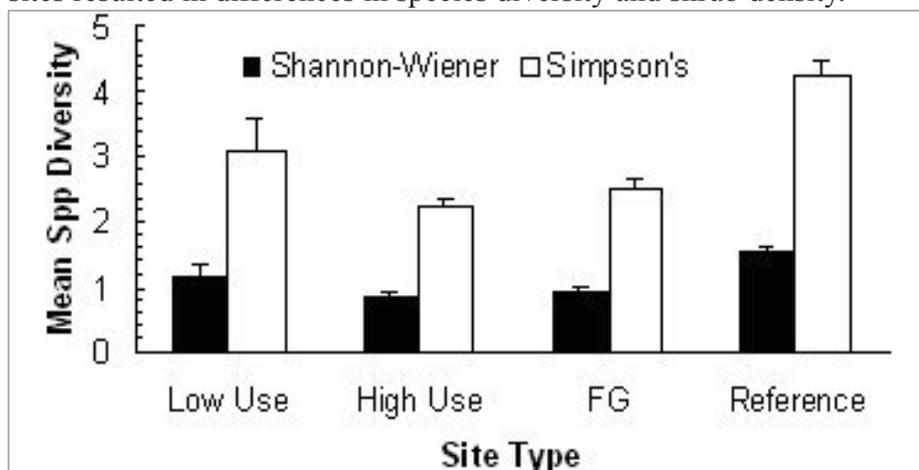


Figure 14. Mean (+SE) Shannon-Wiener and Simpson's species diversity indices observed on Low Use and High Use sites within feedgrounds, all sites within feedgrounds (FG), and paired Reference sites on USFS lands, western Wyoming.

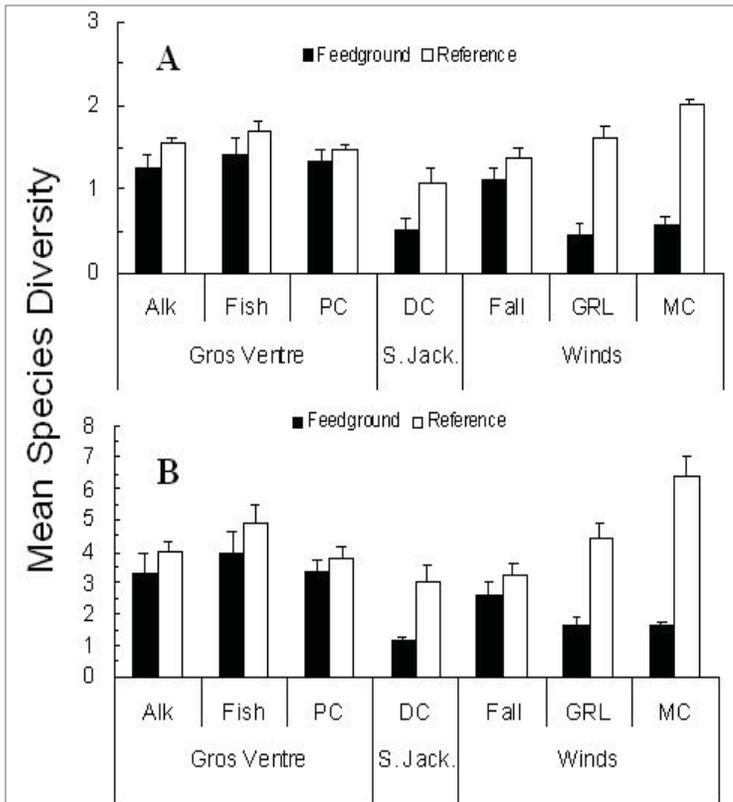


Figure 15. Mean Shannon-Wiener (A) and Simpson's (B) species diversity indices on USFS lands of Alkali (Alk), Fish Creek (Fish), Patrol Cabin (PC), Dog Creek (DC), Fall Creek (FC), Green River Lakes (GRL), and Muddy Creek (MC) feedgrounds and respective paired reference sites within the Gros Ventre River drainage, south Jackson (S. Jack.) area, and Wind River Range (Winds), western Wyoming.

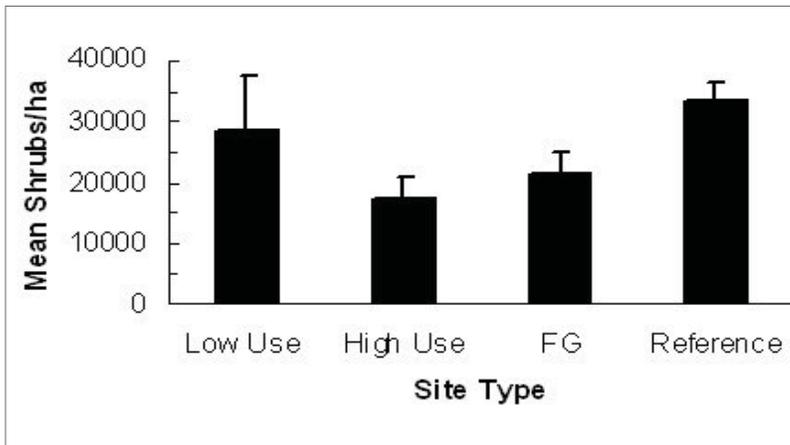


Figure 16. Mean (+SE) density of shrubs encountered on Low Use and High Use sites within feedgrounds, all sites within feedgrounds (FG), and paired reference sites on USFS lands, western Wyoming.

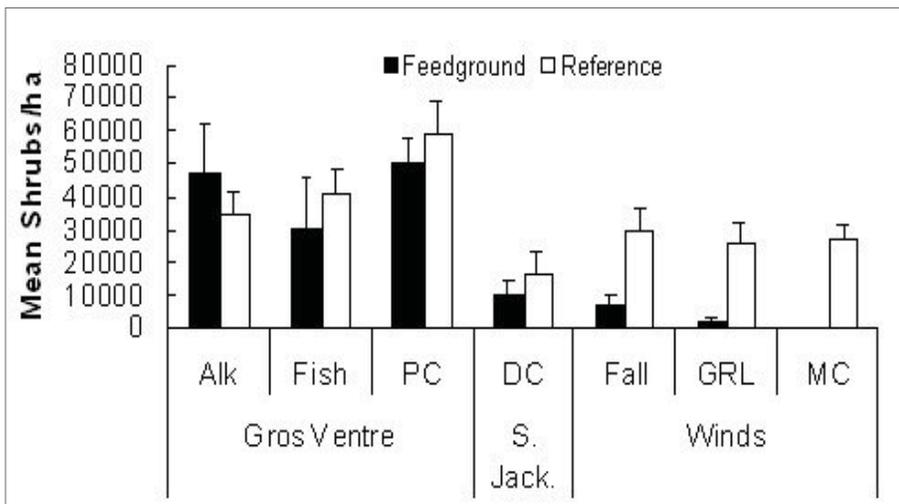


Figure 17. Mean (+SE) density of shrubs encountered on USFS lands of Alkali (Alk), Fish Creek (Fish), Patrol Cabin (PC), Dog Creek (DC), Fall Creek (FC), Green River Lakes (GRL), and Muddy Creek (MC) feedgrounds and respective paired reference sites within the Gros Ventre River drainage, south Jackson (S. Jack.) area, and Wind River Range (Winds), western Wyoming.

Green River Lakes (GRL), and Muddy Creek (MC) feedgrounds and respective paired reference sites within the Gros Ventre River drainage, south Jackson (S. Jack.) area, and Wind River Range (Winds), western Wyoming.

Green River Huston Access and Jerry Moore Property Projects

Potential projects and management opportunities were coordinated with Jerry Moore’s lessee and consultant. On-going efforts to regenerate woody riparian species on Jerry’s property and grazing plans for 2007 were evaluated and discussed. Again, winter use by big game is limiting woody species regeneration to a much greater extent than spring livestock use under current management.

In late March and early April, longitudinal profile data were collected on approximately 1.5 miles of river through the Huston Public Fishing Access and Moore’s property with assistance from Pinedale Fish Management Section and Water Management (WM) personnel. These data document the distribution of habitat types through the reach and the slope of the individual habitat units. Summarized data were provided by WM and will be used to develop a restoration plan.

JONAH INTERAGENCY OFFICE

TNC Prioritization

The Jonah Interagency Office (JIO) is tasked with selecting and funding projects that best address the wildlife resources adversely impacted by Jonah Field energy development. In order to focus efforts and dollars on projects that most accurately capture the biological assets compromised, British Petroleum (BP) contracted the Wyoming Chapter of TNC to assist with this effort. In addition to using its own ecoregional planning methodology, TNC’s process incorporated the Marxan Sites Model to predict occurrences of plant and animal communities that most replicate the Jonah Field prior to energy development taking place. TNC contacted numerous sources including agency biologists, wildlife consultants, researchers and others who agreed to share information on the various plant and animal species specific to the Jonah Field.

The distribution of species was graphically illustrated in a number of maps; the most important for JIO needs is shown in Figure 18.

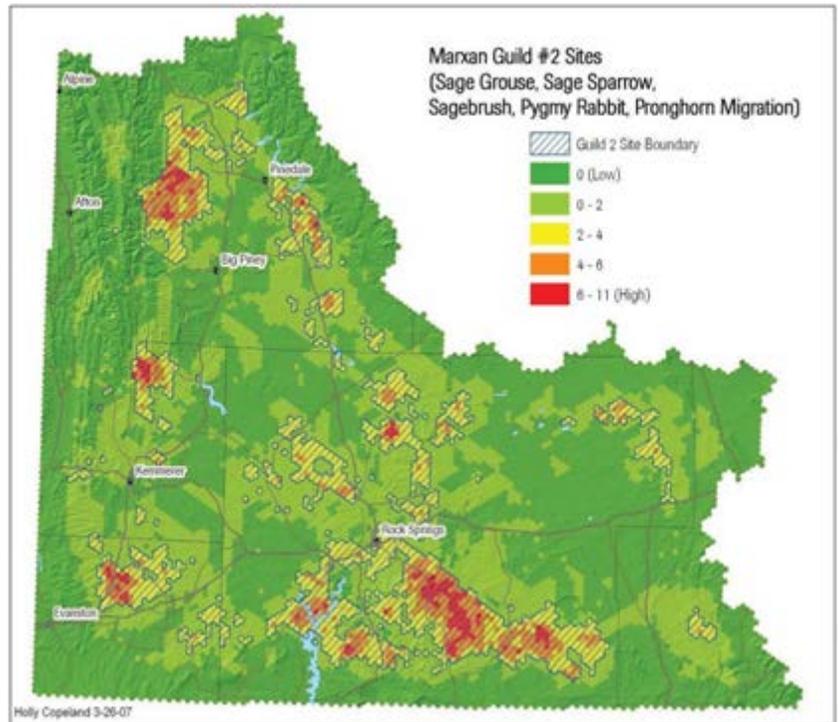


Figure 18. Marxan Guild #2 Sites

The map illustrates the presence of the guild of species most impacted by development on the Jonah Field, particularly sage-grouse and pronghorn, as well as habitat areas sufficient for them to thrive. The areas which capture the highest populations and best quality habitat are illustrated by color (the highest/best in red). Future proactive efforts by JIO will focus on these priority sites to some extent, although will not eliminate other areas of importance to one or more species. One added highlight of these mapping efforts is that TNC’s modeling not only indicates areas of importance for various species, but also factors in future development potential for oil and gas.

JIO Mitigation Plan and Focus Areas

A new effort JIO is embarking on is the formulation of a strategic plan and the identification of specific mitigation focus areas. The plan will better guide JIO mitigation activities towards areas of importance for wildlife species impacted from the Jonah Field. Another purpose of the plan is to answer some very common questions including:

- 1) What kind of vegetative communities/habitat are on the ground now?
- 2) What kind of vegetative communities/habitat do we want to see on the ground in the future?
- 3) How can we achieve those communities/habitats through mitigation efforts?
- 4) What was the response of mitigation efforts?

Focus or “target” areas have been delineated from a review of other efforts including: TNC prioritization modeling; The Upper Green River Sage-Grouse Conservation Plan; discussions with local biologists; and the WGFD’s Strategic Habitat Plan. These areas are illustrated in Figure 19.

The Strategic Plan will be developed during the upcoming year and will address a large number of topics including sage-grouse biology, other “guild” species biology, pronghorn migratory routes, mitigation options available for JIO, baseline data collection (what and how), and how JIO will oversee implementation of projects within these areas. If approved by the managers,

it will also include a baseline vegetation inventory for these areas, using methodologies for ecological site descriptions and similarity indices. Vegetative objectives may also be included for these planning/focus areas to illustrate what JIO wants to see on the ground, and how that relates to the impacted species in the Jonah Field.

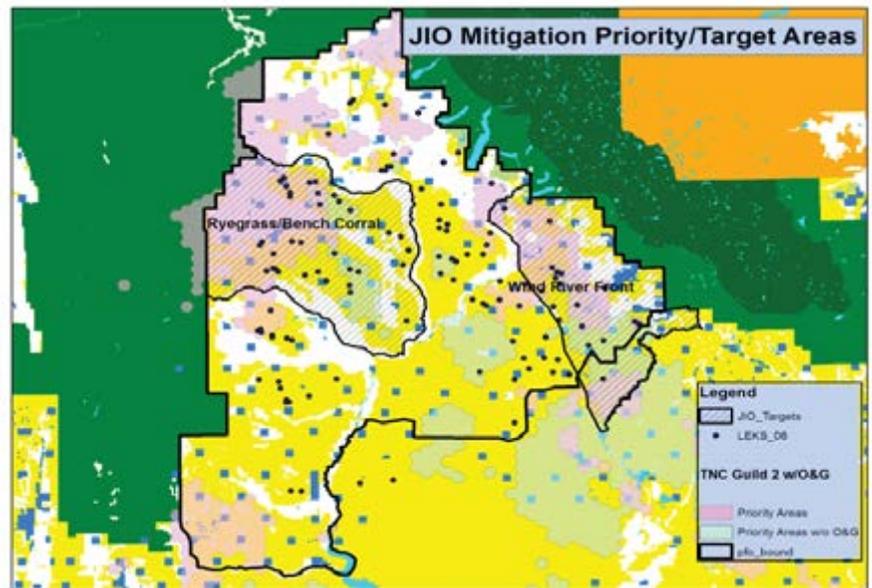


Figure 19. JIO Mitigation Priority/Target Areas

Jonah Field Wildlife Species (Potentially Impacted Species) – Relationship to Mitigation Goals

The JIO gets a lot of questions regarding what wildlife species are addressed in our off-site mitigation efforts. To be very specific, we look at those species using the Jonah Field as well as those species that are either obligates or dependents in sagebrush communities. The EIS for the Jonah Infill Project lists a large number of species that are known to occur or expected to occur in that area. These may be summarized as follows:

Big Game – Pronghorn is the primary big game species inhabiting this area, although a few mule deer reports are on record.

Other Mammals – This is a big list and includes the following that are listed as “known or likely to occur in the Jonah Infill Development Project Area (JIDPA) based on observations and range and habitat preferences:” dwarf shrew, 10 bat species (California myotis, small-footed myotis, Yuma myotis, little brown myotis, long-legged myotis, silver-haired bat, big brown bat, hoary bat, Townsend’s big-eared bat, and pallid bat); four species of hares and rabbits (pygmy rabbit, Nuttall’s cottontail, desert cottontail, and white-tailed jackrabbit); five squirrel species (least chipmunk, Uinta ground squirrel, Wyoming ground squirrel, thirteen-lined ground squirrel, and white-tailed prairie dog); northern and Idaho pocket gophers; six species of new world rats and mice

(Ord's kangaroo rat, deer mouse, grasshopper mouse, bushy-tailed woodrat, sagebrush vole, and long-tailed vole); coyote and red fox; four mustelid species (long-tailed weasel, badger, western spotted skunk, and striped skunk); and bobcat. Porcupines have been observed in the vicinity of the project area but are uncommon.

Game Birds – The principle game bird occupying the Jonah Field is the sage-grouse, which has been getting a lot of publicity lately due to its rangewide declines. The only other game bird likely to occur in Jonah is the mourning dove.

Other Birds – Other bird species known or likely to occur in the JIDPA include: common raven, horned lark, lark bunting, loggerhead shrike, sage sparrow, sage thrasher, Brewer's sparrow, cliff swallow, barn swallow, mountain bluebird, western kingbird, grasshopper sparrow, killdeer, common nighthawk, black-billed magpie, American crow, canyon wren, western meadowlark, Brewer's blackbird, common grackle, and brown-headed cowbird. There may also be several species of shorebirds occupying areas on or near reservoirs, including such birds as the black-necked stilt, willet, Wilson's phalarope, common snipe, great blue heron, snowy egret, long-billed dowitcher, black-crowned night heron, piedbilled grebe, eared grebe, western grebe, green-winged teal, blue-winged teal, cinnamon teal, mallard, northern pintail, northern shoveler, gadwall, American wigeon, and ruddy duck.

Amphibians and Reptiles – Based on range and habitat preferences, two amphibian and four reptile species are likely to occur. Amphibians include the Great Basin spadefoot and northern leopard frog, and reptiles include the northern sagebrush lizard, eastern short-horned lizard, bullsnake, and wandering garter snake.

Fisheries – There are no known fisheries that occur in JIDPA

Threatened, Endangered, Proposed, and Candidate Species and BLM Wyoming Sensitive Species – Species which fall under the category of TEP&C include seven federally listed species which could potentially occur in the vicinity of the JIDPA or could otherwise be potentially affected by the proposed project include: the black-footed ferret, bald eagle, four Colorado River endangered fish species (Colorado pikeminnow, humpback chub, razorback sucker, and bonytail chub), and one plant species (Ute ladies'-tresses). Fish species are listed due to specific acts that are in place regarding water input or reduction into the Colorado River system. Regarding the BLM Sensitive Species, there are 28 identified animal and 25 identified plant species that may occur in the JIDPA. These are listed in the EIS, and some are duplicates of what has already been mentioned here, so refer to the EIS.

While many of the species listed above are not specifically identified as sagebrush obligates or dependents, the JIO has tiered its mitigation efforts towards sagebrush communities. If we manage for enhanced health of communities off-site, JIO is of the opinion that we can enhance habitat for many of the species impacted. Through the development of specific vegetation objectives targeted at different ecological sites, allowing for site potential, these objectives will be used to aid in defining "healthy" sagebrush communities, and should provide benefits to all species that are dependent on these communities for part or all of their life cycle.

JIO funded projects

Square Top Wildlife/Livestock Project

This project includes the upgrade of 3 watering facilities on the Square Top Allotment. Each of these watering facilities provides high quality drinking water to both wildlife and livestock. Each facility has a water overflow into a fenced area known as the "Wildlife Area". These wildlife areas provide for sage-grouse brood rearing as the run-off creates a "green zone" providing needed forbs (broad-leaf plants) and insects for chicks. The fencing on these projects has recently been completed and next year's photos will show "green-up" zones created by the overflows. Note that during field visits in the summer of 2006 abundant sage-grouse tracks were found in the current run-off areas.

The photos (Figure 20 and 21) show a “wildlife area” and “green zone”. Fences are equipped with reflectors to avoid bird/wire collisions and one pole top fence was installed. The different types of fence will aid determination of best fencing for these types of projects. Exclosure areas ranged in size from about 2 acres to 12 acres. Next summer, a “drip irrigation” system is anticipated to be installed in the largest exclosure. This project was implemented by members of the Square Top Grazing Association.



Figure 20. Square Top Allotment wildlife area.



Figure 21. Square Top Allotment green zone.

Elk Mountain/Red Canyon Prescribed Burn

JIO partnered on this prescribed burn with 8 other groups, including Kemmerer BLM, Bear River Divide Coordinated Resources Management Group, State of Wyoming, WGFD, SW Wyo. Sage-grouse Working Group, private landowners, RMEF, and the WWNRT. The burn provides a mosaic landscape of burned-unburned vegetation on 20,000 acres (Figure 22 and 23). The burned areas are regenerated and stimulate growth of new healthy sagebrush and herbaceous vegetation. Future monitoring efforts will evaluate the treatment. Additional similar treatments have been done in this area, mostly in conjunction with the Cumberland Allotment Plan. These treatments have shown positive results for regenerating sage-grouse habitats. A previous master’s thesis on the effects on sage-grouse was also completed on one of these areas. The research indicated no detrimental and some positive effects from the burns on sage-grouse habitat and use.



Figure 22. Elk Mt./Red Canyon Rx burn.



Figure 23. Elk Mt./Red Canyon Rx burn.

Reclamation - Jonah Disturbance Report

One of the many innovations in the Jonah Record of Decision was the establishment of an acreage “roll-over” credit. What that means is although a total of 20,334 acres are allowed to be disturbed in Jonah, only 14,030 (46% of the 30,500 ac. field) can be disturbed at any given time. Therefore, once the 14,030 mark is reached, land must be successfully re-claimed in order for more acreage to be disturbed. This “roll-over” caveat gives an incentive for gas operators to restore the land to a functioning ecosystem as quickly as possible. This requirement also demands close attention to surface disturbance tracking.

The first figure (Figure 24) shows total allocated field disturbance by operators as of October 1st, 2007. The column in red indicates the number of acres disturbed; the column in yellow indicates how many acres are allowed prior to requiring roll-over for additional acreage.

The second figure (Figure 25) shows total field disturbance by operator. Notice, total field disturbance as of October 1st was 5,222 acres.

In 2007, EnCana had two mat pads meet the roll-over criteria and they were granted 2.7 acres in roll-over release. It is anticipated many more mat pads will meet roll-over in 2008.

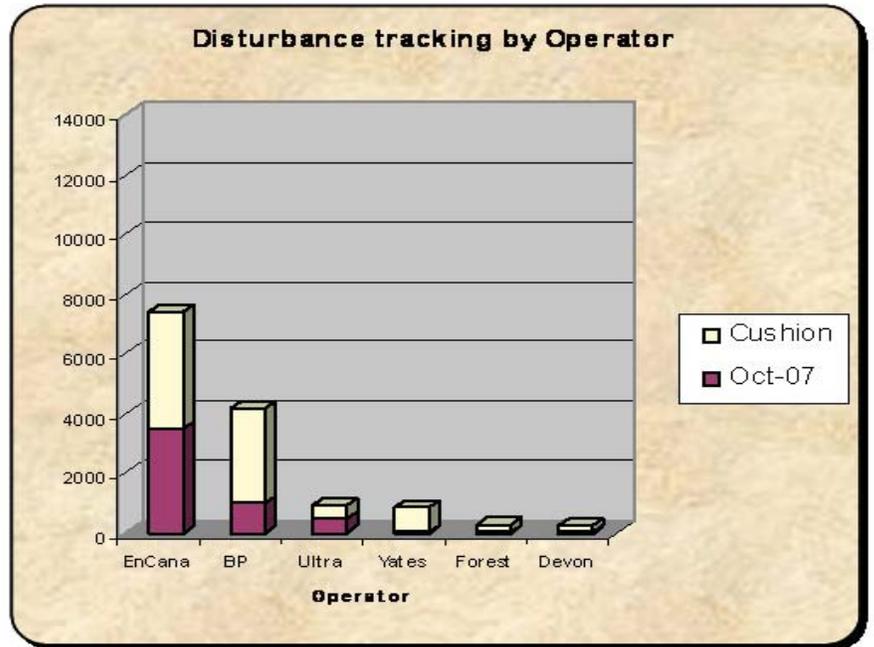


Figure 24. Disturbance tracking by operator.

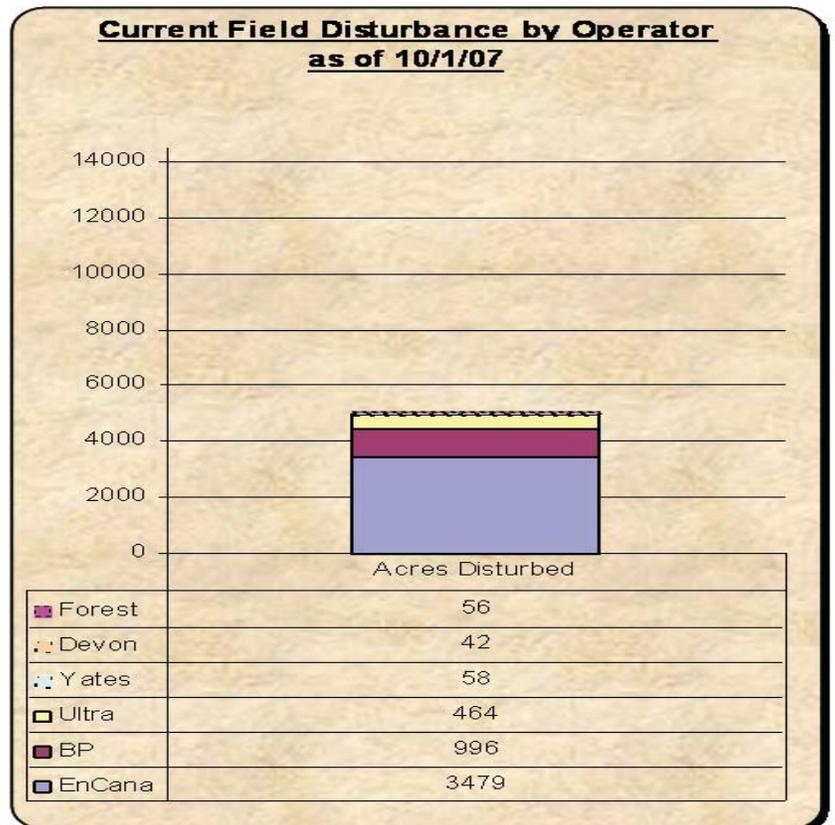


Figure 25. Current Field Disturbance by Operator as of 10/1/07.

OTHER SIGNIFICANT ACCOMPLISHMENTS

- Wyoming Range Mule Deer Initiative was started and will have a large habitat component to it. A Habitat Assessment is planned to start in 2008 to assist with this effort and improving management of important habitats for the Wyoming Range mule deer herd.
- A Sagebrush Ecology Workshop was planned and conducted in August for the public and agency personnel to learn about our sagebrush ecosystems and how they relate to wildlife. Dr. Alma Winward led the discussions with several field personnel and some public participation from Pinedale, Jackson and Green River.
- Wyoming Range Interagency Habitat Initiative (WRIHI) worked cooperatively on project implementation and discussions across landownership and management boundaries.
- Shrub monitoring with game wardens and wildlife biologists.
- Assistance with BFH program: Test and Slaughter and elk brucellosis research projects.
- JIO and BLM meetings to set-up mitigation projects.
- Regional Department personnel hosted the annual Wyoming Game and Fish Commission tour in the Pinedale Region in July. A variety of on-going projects were showcased including the LaBarge CRC restoration project, TPFR, aspen and tall forb community restoration work, winter range issues and concerns on the Piney Front, and a visit to the Fall Creek and Muddy Creek elk feedgrounds where the test and removal pilot projects are being implemented.
- A WER for a proposed “Fisheries Improvement” project in the New Fork River on the Bar Cross Ranch was reviewed and comments were provided to the COE.
- In January, the Regional Nongame Biologist, in cooperation with the NRCS and landowner, developed a WWNRT proposal for the Fenn Wetland on Duck Creek. The project was designed primarily to benefit trumpeter swans. Extensive coordination with a very cooperative landowner, the Regional Nongame Biologist, and FMPE ensued and led to compromises to make this project beneficial, or at least neutral, in terms of the Duck Creek fishery, while maintaining values for swans.
- A 1,600-acre property on the East Fork River was visited with the landowner (Joe Smyth), LIP coordinator, and FMPE. Approximately 2 miles of the East Fork River flows through this property and offers potential to benefit a wide variety of wildlife / fisheries habitat through improved vegetation management. There is potential to use it as a forage reserve to improve nearby BLM allotments.
- A potential wetland project on Bill and Carrie Budd’s property on North Piney Creek near Marbelton was evaluated and discussed with the Regional Terrestrial Habitat Biologist, the landowner, and the NRCS. Engineering and wetland delineation surveys were recommended and completed by NRCS in November. The Regional Nongame Biologist agreed to become the Department’s lead representative and developed a WWNRT proposal to assist with funding. Primary benefits would be to trumpeter swans.
- The PE-AHAB continued representing the Department on the Kemmerer BLM Resource Management Plan revision. Primary tasks included reviewing and commenting on the second version of the “Preliminary Draft” and the “Draft Resource Management Plan and Environmental Impact Statement”. The draft EIS was the first draft of this RMP revision released for public review and comment.
- Personnel from three WGFD regions, two BLM Field Offices, and two Ranger Districts of the BTNF cooperatively formed the Wyoming Range Interagency Habitat Initiative. Representatives agreed upon the following mission statement: “Facilitate the restoration and maintenance of native habitat conditions that support a native diversity of wildlife across the region through interagency cooperation in the identification and implementation of habitat restoration and enhancement opportunities.” The geographical area covered has nearly been agreed on and maps are currently being developed.