

LARAMIE REGION

HABITAT PROJECTS

Habitat Based Population Objectives – Medicine Bow Pronghorn Prototype

HOn May 30 Wildlife Division administrators and Laramie and Casper field managers met to discuss the declining winter range shrub conditions of the Medicine Bow pronghorn herd and the potential to use forage availability as the basis for managing this and other big game populations around the state. A variety of topics related to implementing a program of this type were discussed, including the need for a quantifiable habitat condition goal to present to the public and the difficulties encountered when trying to manage populations in areas of mixed land ownership. Casper Region personnel related their experience with implementing habitat based population management in the Bates Hole area of the Medicine Bow pronghorn herd.

Subsequent meetings were held on 6/18 and 8/16 to further address the issues and concerns expressed at the first meeting. A white paper was developed to explain current and historic habitat and population management in the area and generally outline the habitat based population management concept. Despite general agreement that habitat condition needs to be integrated into the process of developing big game population objectives, consensus on how best to implement a management change of this magnitude has not yet been achieved. The Casper biologist coordinator has recently finished developing a formula that provides a scientifically based condition index that can be used by habitat and population managers to determine how their big game management is influencing habitat condition. The data generated by this technique can also be presented to the public enabling them to monitor WGFD progress towards meeting the new habitat based population objectives. In 2008 the group will continue to discuss ways to incorporate the condition index into big game management strategies and how best to apply habitat based population management.

North Platte River Backwaters

NIn 2005, two habitat projects on the North Platte River downstream of the Laramie River confluence were initiated on private land to develop backwater habitat. Both projects were started as USFWS Partners projects, but also utilized WGFD Aquatic LIP funds. By excavating abandoned river channels, backwater habitat was created with only the downstream end connected to the river. Water in the excavated channels is supplied by groundwater. In addition to excavation work, grazing management and removal of invasive species (tamarisk and salt cedar) were also addressed. Both projects were initially identified to benefit two SGCN species, common shiner (NSS3) and plains topminnow (NSS2).

North Platte River flows downstream of Guernsey Reservoir are highly variable throughout the year. Approximately 21 river miles are dewatered from Guernsey Reservoir to the Laramie River confluence during the non-irrigation season. The Laramie River provides water to the North Platte River during the non-irrigation season. During the irrigation season, flows in the North Platte River below Guernsey Reservoir are increased. In 2007, three sampling periods were established to survey seasonal fish use of the newly created backwater habitats. The sampling periods were spring pre-irrigation (low-flow), summer irrigation (high-flow), and fall post-irrigation (moderate-flow).

- Treated a 200 acre cheatgrass infestation through the Southeast Wyoming Cheatgrass Partnership.
- Conducted production and utilization surveys at 55 sites located on deer and pronghorn shrub winter ranges across the Laramie Region.
- Transplanted four beaver from the Wick WHMA to South Lake Creek on the Pennock WHMA.
- 4,600 acres Rx burned on rangeland, cropland, and CRP.
- 2,000 acres of cheatgrass dominated rangelands treated through herbicide application and planned live-stock grazing.
- Monitoring of transplanted bighorn sheep in the Split Rock /Duck Creek area.

The upper backwater project was located northwest of Torrington and less than one mile downstream from the Rawhide WHMA. The lower backwater project was located near the Nebraska border and approximately 20 river miles downstream from the upstream project. There were differences in the habitat and fish collected at the two backwaters (Tables 1 and 2). Backwater habitat, fish barriers, and location may explain differences in the species collected from the two backwaters. Habitat at the lower backwater compared to the upper backwater had higher turbidity, finer substrates (silt), and less aquatic vegetation. Thus, species that prefer clear water and courser substrates, such as brassy minnow and common shiner, were more abundant in the upper backwater. Fathead minnow and white sucker, two habitat generalist species, were the most abundant in the turbid, silt dominated lower backwater project. Additionally, aerial photos show several potential fish barriers on the North Platte River from the Nebraska border upstream to the upper backwater project. These barriers may limit movements of species into these newly created backwaters.

Table 1. SGCN status and species presence (X) at the upper backwater project area during the three sampling events in 2007.

Species	SGCN			
	Status	May	July	October
Bigmouth shiner	4			X
Brassy minnow	6	X	X	X
Central stoneroller	4		X	X
Common carp	Introduced		X	X
Common shiner	3		X	X
Creek chub	5	X	X	X
Fathead minnow	6	X	X	X
Iowa darter	4		X	X
Longnose dace	7			X
Plains killifish	6	X	X	X
Quillback	4		X	
Red shiner	7			X
Sand shiner	7			X
White sucker	7	X	X	X
Unknown	n/a		X	

Table 2. SGCN status and species presence (X) at the lower backwater project area during the three sampling events in 2007.

Species	SGCN			
	Status	May	July	October
Bigmouth shiner	4	X	X	X
Brassy minnow	6		X	X
Brook stickleback	Introduced	X	X	X
Common carp	Introduced		X	X
Common shiner	3	X		X
Creek chub	5	X	X	
Fathead minnow	6	X	X	X
Green sunfish	Introduced		X	X
Plains topminnow	2	X		
Red shiner	7	X		X
Sand shiner	7	X		X
Western mosquitofish	Introduced	X	X	X
White sucker	7		X	X
Unknown	n/a		X	

- Rangeland inventories conducted and grazing plans developed on 35,000 acres.
- Over 37 miles of stream were inventoried on Pole Mountain.
- Collected 14 native fish species including 4 SGCN species at two newly constructed backwater habitats on the North Platte River.
- Over 23 miles of stream were inventoried for the Wagonhound Creek watershed on the Wick WHMA and adjacent USFS lands.
- Pennock Mt. WHMA: annual irrigation of the 45-acre hay meadow and thirteen-acres of noxious weed control were completed.

Both backwater habitats have created valuable, unique opportunities to study native fish and their habitats in the lower North Platte River. Monitoring should continue as these excavated habitats mature, and land management activities associated with the projects continue (i.e., grazing management and invasive plant species removal). If other opportunities for similar projects arise, monitoring data will enable biologists to provide design recommendations to benefit species of greatest conservation need and other native species (Figure 1).



Figure 1. Upper backwater habitat project area along North Platte River.

Comprehensive Management Plan for the Platte Valley Mule Deer Herd

Because of their size, importance and somewhat controversial nature, Wildlife Division initiated in-depth management evaluations of the Wyoming Range and Platte Valley mule deer herds. The evaluation of Platte Valley mule deer management began in December of 2007 with the creation of a draft outline of future habitat and population management considerations. The outline was based on the management goals, objectives and strategies presented in the Wyoming Mule Deer Initiative created by the WGFD.

In 2008 the management objectives will be prioritized and timed and achievable strategies assigned to each objective. This document can be used to guide future project planning and development.

Large scale, landscape/watershed level projects completed by the Habitat Extension Biologist:

Continued to monitor shrub habitat conditions / production and annual utilization within the Laramie Range foothills and Goshen Rim on 18 transect locations.

- Developed area maps with GIS for use by Laramie Region Wildlife Division personnel, required for bighorn sheep population augmentation project for the Laramie Peak herd unit, assisted with monitoring efforts of radio-collared sheep throughout 2007 (Figure 2 and 3).



Figure 2. Bighorn sheep capture in northwestern Montana.



Figure 3. Bighorn sheep capture in northwestern Montana.

- Participated in development of Platte County Russian Olive Task Force, development of focus area, and implementation of practices to remove noxious weeds in and around Festo Lake on 100 acres of private and public lands.
- Conducted prescribed burns on 600 acres of CRP and 3,000 acres of mixed mountain shrub dominated rangelands.
- Assisted CSU graduate student with set-up of cheatgrass Master's study, to assist in determining proper treatment prescriptions post-cheatgrass invasion.
- Continuing to serve as the State Coordinator for Water For Wildlife Foundation and Western United States Project Advisor

Encampment River Fish Passage

Efforts were initiated on a potential fish passage project at a diversion dam on the Encampment River approximately one mile upstream of the North Platte River confluence. Both upstream and downstream movements of rainbow and brown trout are impeded by this structure. Several meetings and site tours focused on the problems associated with this diversion dam and the concerns of the meeting participants. The participants included Saratoga, Encampment, Riverside (S-E-R) Conservation District, NRCS, USFWS, WGFD, WYCO Club, several water right holders, and a stream restoration consultant. The Laramie Fisheries Management Crew will be conducting a telemetry study in 2008 to determine how far upstream brown trout will travel above the dam. Fish will be collected below the dam and a radio tag will be inserted (Figure 4). The fish will be released above the dam and their movements throughout the summer and fall will be tracked. We will keep in contact with the S-E-R Conservation District regarding any further developments with this project.



Figure 4. Laramie Regional Fisheries Management Crew electrofishing for brown trout below the Encampment River diversion dam.

South French Creek Bighorn Sheep Migration Corridor

This project was intended to propose the use of silvicultural treatments to create a bighorn sheep migration corridor from the North Platte River to Medicine Bow Peak. The corridor would have been developed by removing the timbered pockets located between existing areas of rocky escape cover scattered along the north canyon walls of South French Creek. In 2006, a considerable amount of time was spent traversing the area to delineate the shortest and safest route for migrating bighorns. The project, however, has been postponed indefinitely due to potential conflicts that may arise if the U.S. Forest Service is asked to abandon the vacant domestic sheep allotments at the top of the proposed corridor. Potential political pitfalls and a relatively low priority given this herd by the statewide Bighorn Sheep Working Group makes it unlikely that this project will be revived anytime in the near future.

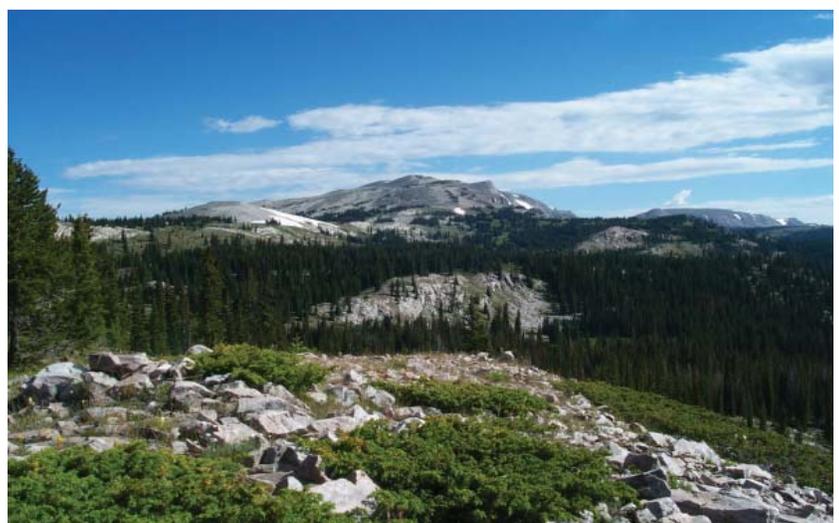


Figure 5. Upper segment of the proposed bighorn sheep migration corridor.

Wagonhound Creek Watershed Surveys

WHAM Level 1 surveys were conducted on the Wick WHMA and adjacent USFS lands during summer 2007 in the Wagonhound Creek-Medicine Bow River watershed (HUC 101800040106). Over 23 miles were surveyed on the following streams: East Fork Wagonhound Creek, Mule Creek, North Mule Creek, Wagonhound Creek, West Fork Wagonhound Creek, and Wick Reservoir Creek. On the Wick WHMA beaver activity is abundant in Wagonhound Creek and they may be impacting brown trout spawning habitat by impounding spawning gravels (Figure 6). Also, aspen stands on the WHMA show conifer encroachment. Upstream of the WHMA on the Medicine Bow National Forest, riparian shrubs showed heavy utilization by ungulates. Many dead lodgepole pine trees caused by bark beetle infestation were observed throughout the watershed.

Additionally, segments of Wagonhound Creek adjacent to old clearcuts were aggraded, and bank erosion was evident. The Foote Creek drainage on the Wick WHMA and USFS lands will be surveyed in 2008. An administrative report detailing observations and management recommendations will also be completed.



Figure 6. Beaver activity in Wagonhound Creek on the Wick WHMA.

Pole Mountain WHAM Surveys

WHAM Level 1 surveys on Pole Mountain watersheds were completed in 2007. Headwater portions of seven 6th-level watersheds were surveyed over the last 5 years. In 2007, eight streams were surveyed with over 37 miles of stream inventoried. Large-scale issues observed in most watersheds included grazing, recreation, and invasive species. Past and present grazing in upland and riparian areas has resulted in increased erosion and overgrazing in some areas. By grazing stream bank vegetation and trampling banks, cows have caused stream widening, incision, and localized instability. Due to its proximity to Laramie, Cheyenne, and the Colorado Front Range, the area receives high public use. Many user-created roads occur throughout Pole Mountain, which already has numerous designated roads. Several observations of off-highway vehicle disturbances in hydric meadows, and riparian and upland areas were documented. Disturbance caused by campsites were also documented throughout the watersheds. Some of the invasive species observed included cheatgrass, Dalmatian toadflax, and thistle. An administrative report summarizing the surveys and offering management recommendations will be completed in 2008.

Additionally, several years of beaver pond inventory data have also been collected by WGFD and volunteers. A report will be written regarding the current status of beaver activity on Pole Mountain and offering recommendations for their management. Also, there are plans to submit a graduate research project proposal to investigate relationships between beaver ponds and Pole Mountain woody vegetation dynamics.

Southeast Wyoming Cheatgrass Partnership

The Southeast Wyoming Cheatgrass Partnership (SWCP) has grown to 35 individuals representing 12 different organizations, agencies and two universities. Despite this broad spectrum support the group has had difficulty locating projects because neither the BLM or USFS had completed the NEPA documents required to obtain authorization to aerially apply cheatgrass effective herbicides. Consequently, many infestations in steep, rocky terrain could not be treated because they were inaccessible to ground application equipment. Very few treatment opportunities on private land have appeared even though cheatgrass poses quantitative and qualitative threats to livestock grazing.

In 2007 the signing of a Record of Decision for their Vegetation Treatment EIS opened the door to broad scale treatments on BLM land. The USFS is also progressing on a similar EIS for aerial treatment of cheatgrass on the Medicine Bow/Routt National Forest. The SWCP is currently working with the Rawlins BLM Field Office to locate projects that can be addressed in the fall of 2008.

In 2007 the Wyoming Game and Fish Department, acting through the SWCP, provided \$5,000 to the Albany County Weed and Pest District to purchase Plateau herbicide to have on hand for upcoming projects. Approximately half of the chemical was used this year to treat a 200 acre cheatgrass infestation on the Tom Thorne/Beth Williams estate in Sybille Canyon. The Laramie Rivers Conservation District paid for the application. The treatment will be rested from grazing during the first growing season. The efficacy of the treatment will not be apparent until late spring or early summer of 2008.

South Fork Middle Crow Creek Exclosure Maintenance

With the assistance of the Laramie Fisheries Management Crew, USFS personnel, and volunteers from the Travelle Chapter of the Izaak Walton League, four riparian fence exclosures were maintained (Figure 7). Six riparian exclosures were installed in the early 1980s as part of mitigation for the Cheyenne Stage II Water Diversion Project on the South Fork Middle Crow Creek in the Pole Mountain Area. Two of the six exclosures were removed after the 2004 grazing season. It is anticipated that this will become an annual event utilizing local volunteers.

2007 Production and Utilization Surveys

Game wardens and population biologists assisted with collecting production, utilization and shrub health information at approximately 25 of the Laramie Region's 55 pronghorn and mule deer winter range monitoring stations. The regional habitat biologist read the remaining 32 transects.

In 2007 the Habitat Section adopted a maximum utilization threshold of 35% for all winter range forage shrub species. The threshold was established to help address concerns for the over utilized condition of many of the winter range shrub communities and the adverse effects persistent drought is having on the health and vigor of these important plants. Uniformly heavy browsing, as a result of drought decreasing plant production and big game numbers exceeding the threshold, resulted in utilization levels at many transects that exceeded recommended limits. A general increase in production occurred at most transects as plants responded to higher growing season precipitation. The increased forage production may be key to the survival of many deer and pronghorn, as the 2007 winter has been colder and produced more snow than those of the recent past.

Mule Deer/Elk Summer Range Evaluations

Mocular assessments of summer range habitat condition were conducted in the southern portion of the Snowy Range and along the eastern front of the Sierra Madres. These evaluations allow the observer to locate obvious habitat degradation, and if necessary, initiate specific monitoring to provide information needed to direct management changes.

The results of habitat examinations, used in conjunction with big game body condition evaluations, made at fall check stations, determine if wild ungulate survival is being effected by the quantity and condition of high elevation summer ranges. Body condition scores in the Laramie Region remain relatively high and have given no indication of significant problems on summer range.



Figure 7. Izaak Walton League volunteers working on a South Fork Middle Crow Creek riparian exclosure.

Summer range evaluations in 2007 revealed no areas of obvious damage resulting from livestock or big game use. Cattle grazing in the Pelton Creek area has resulted in riparian trailing, minor bank damage and relatively heavy plant utilization that should be closely monitored in the future to determine if the U.S. Forest Service should be asked to consider management changes. It is not clear at this point, however, that the current level of livestock use is inappropriate.

Beetle kill occurring across broad areas of the conifer forest is the most obvious and significant impact encountered during the 2007 examinations. As suggested in previous annual reports, the loss of the conifer trees may have a positive effect in some areas as the removal of the forest canopy decreases competition for sunlight and moisture and increases production of grasses, forbs and shrubs. The beetle infestation may release conifer encroached aspen, helping solve a problem that has plagued land and wildlife managers for many years. The exposed understory, however, may also provide additional areas that could be vulnerable to cheatgrass expansion. This potential threat should be monitored closely. The mosaic of dead and live trees will cause forest fragmentation affecting a variety of wildlife species. Loss of large areas of the conifer forest will drastically reduce big game security cover and as older, dead trees begin to fall, the “jack straw” effect will make extensive areas of montane habitats inaccessible to large ungulates. These changes should be considered when developing management recommendations for species such as moose, mule deer and elk.

Laramie River Greenbelt Enhancement

The Laramie River Greenbelt Enhancement project developed into a much broader project in 2007 (see 2006 Strategic Habitat Plan Report). Initial plans were to grant \$18,000 of fine money (donated to WGFD) to the City of Laramie for a habitat enhancement design plan for the Laramie River Greenbelt. In 2007, the Aquatic Habitat Biologist worked with the Laramie Rivers Conservation District and the Laramie Beautification Committee to develop project ideas. In addition, other project partners and cooperators were involved including the City of Laramie, University of Wyoming, Union Pacific Railroad, Trout Unlimited, Audubon Society, and Izaak Walton League. The project area has expanded to include the Laramie River from the Monolith Ranch downstream to the water treatment facility, as well as Spring Creek. The group is currently raising money to hire local hydrological and civil engineering consultants to design the habitat enhancement project and to negotiate the permitting process.

Wetland Construction Project and Fishery Assessment

Several fishery assessments were made in anticipation of a stream enhancement project on Crow Creek at the Wyoming Hereford Ranch (WHR). Seven assessments were made from the City of Cheyenne downstream to WHR. Most assessments involved seining and/or electrofishing to detect fish presence. Species collected from the two surveys within the City of Cheyenne included brown trout, common shiner, creek chub, fathead minnow, green sunfish, longnose dace, and white sucker. No fish were collected or observed at two sites on a ranch directly downstream from the Frontier Oil Refinery. Three sites were surveyed on the WHR. At the uppermost sampling location on the WHR, only creek chub and fathead minnow were collected. This location is downstream from a wastewater treatment facility and the WHR Reservoir No. 1. Creek chub was the only species collected at the location of the habitat enhancement project on the WHR. Prior to the 2007 surveys in Crow Creek, brown trout were stocked between the habitat enhancement project site and the most downstream site surveyed on the WHR. No brown trout were captured on the WHR. Several large-bodied fish were observed at the most downstream site and these fish were probably brown trout and/or white sucker. It is unlikely that other species besides fathead minnow, creek chub, and white sucker will naturally colonize the habitat enhancement project area due to upstream and downstream barriers and warm water temperatures. Upstream of the project site is WHR Reservoir No. 1 and downstream is WHR Reservoir No. 2. Monitoring of the WHR habitat enhancement project in 2008 will include taking pictures and detecting fish presence.

A wetland construction / stream restoration project was initiated on a 1.5 mile long section of Crow Creek near Cheyenne. The goal was to create a series of wetland complexes along the stream to raise the water table and provide water for increased riparian vegetation development and enhanced base flows. Three wetland complexes were built in 2007 (Figures 8 and 9). In 2008, the entire project area will be fenced and native trees and shrubs will be planted.



Figure 8. Placement of quarry rock to construct the upper weir at the most upstream wetland site. Each wetland site consisted of a series of three step-down weirs in the channel.



Figure 9. Finished weir for the most upstream weir at the most upstream wetland site. Each wetland site consisted of a series of weirs like this one at successively lower elevations.

Crow Creek – Griffin Park Project

An opportunity for habitat improvement in Crow Creek in Cheyenne was investigated. Two new hotels will be built on a parcel of land between I-25 and Westland Road. Additionally, the Crow Creek Greenway will extend to this location and a new park (Pat Griffin) will be established along the stream and adjacent to the hotels. Preliminary channel morphology data was collected in 2007 including a rough longitudinal profile, riffle cross-section, and riffle pebble count (Figure 10). A search for a reference reach on F. E. Warren Air Force Base was conducted, but no reference reach was located. Potential partners were also contacted including Trout Unlimited and Laramie County Conservation District. Additional data will be collected in 2008 for the design plan.



Figure 10. Collecting longitudinal profile data at Crow Creek – Griffin Park.

Alsop Lake Water Acquisition

Investigations were initiated to effect a long-term contract with a private landowner to purchase water for storage in Alsop Lake. The goal is to secure a more stable lake level and improve this fishery for anglers. Meetings were held and a draft contract was prepared but negotiations are not complete.

Red Mountain Project

Department involvement in this project began in 2004. A project update has been included in the previous two annual reports.

In 2007 project proposals were submitted to the Sage grouse conservation fund (SGCF), WGFD Trust Fund and the WWNRTF to acquire the money needed to conduct 150 acres of sagebrush chopping, fence three meadows away from livestock and remove encroaching limber pines from sagebrush stands important to sage grouse. These projects were scheduled for completion in late 2007, but problems obtaining all necessary NEPA clearances pushed project initiation into early 2008. In 2007 personnel from the WGFD, the Laramie Rivers Conservation District and volunteers from the Mule Deer Foundation (MDF) used funds contributed by the MDF to complete a spring development on Ring Mountain (Figure 11). WGFD personnel conducted insect sampling on six sites within treatment areas to help determine if planned vegetation manipulations will increase insect abundance and diversity and thereby improve forage availability for sage grouse chicks. WGFD personnel located a domestic sheep operator who would be available to graze the area as a means to control larkspur. At the writing of this report, the current lessee has not agreed to a shared grazing arrangement.



Figure 11. Ring Mountain spring development.

HABITAT EXTENSION SERVICES

Terrestrial Extension Services

In 2007, over 30 major landowner contacts/field visits were made. Technical and cost share assistance was provided to private landowners who implemented projects including: rangeland seedings (native and introduced), guzzlers, noxious weed management, seedling tree plantings, CRP Dense Nesting Cover enhancements, livestock/wildlife water developments, cropland stubble management, prescribed burning in mountain shrub and CRP grassland habitats, and range inventories / grazing system plans (Figures 12, 13, 14, 15).



Figure 12. Aerial application of Plateau® herbicide on cheatgrass dominated rangelands.



Figure 13. Application of Plateau® herbicide on cheatgrass dominated rangelands.



Figure 15. *Ceutorynchus litura* insects released for bio-control of Canada thistle.



Figure 14. Canada thistle infestation in a burned aspen stand.

Project Totals

Type

Guzzlers / Water Developments

Rangeland Seedlings (Native and Introduced)

Wetlands

Noxious Weed Management

Prescribed Burns

Rangeland Inventory / Habitat Assessment

Grazing Plans

Tree / Shrub Seedlings

CRP Enhancement

Crop Stubble Management / Stripper Header

Russian Olive Removal / Herbicide App

(Figures 16, 17, 18, 19)

Bio Control / Canada Thistle

Completed

3

300 acres

5 acres planned / designed

2,100 acres

4,600 acres

3,000 acres rangeland, 600 acres CRP, 1,000 acres cropland stubble

35,000 acres

35,000 acres

1,000 seedlings planted

600 acres

2,000 acres

100 acres

30 releases / 30 acres



Figure 16. Gyrotrac machine eating Russian Olive trees near Festo Lake.



Figure 17. Gyrotrac machine eating Russian Olive trees near Festo Lake.



Figure 18. Post-removal of Russian Olive trees.



Figure 19. Russian Olive trees reduced to mulch.

WILDLIFE HABITAT MANAGEMENT AREAS

Springer Prescribed Burns

Burn plans were developed and a smoke permit obtained for a 90 acre burn designed to increase productivity and vigor in decadent cover plantings. The burns are part of the routine maintenance of these cultivated grass stands and are conducted annually on various areas of the WHMA. The burns will be completed prior to March 31, 2008.

Pennock Mountain Beaver Transplant

A contractor was hired to trap as many beaver as possible, to a maximum of 16, for transplant into upper South Lake Creek, near the Edward's homestead on the Pennock Mountain WHMA. The contractor, who was instructed to take the beaver from the Wick WHMA, was only able to provide 4 live beaver for transplant. The beaver adapted quickly and have developed several dams and from all indications appeared to be thriving during a visit in early December.

Wick WHMA

2007 was the fifth year of improvements to the hay meadow irrigation system on the Wick WHMA. The irrigation system was improved with some modifications to the water diversion structure for the 206-acre Oleson and Wick hay meadow and installation of eleven rock sill structures in the Tom's and Upper 18 meadow ditch systems. The snow pack and spring runoff during 2007 was sufficient to irrigate the entire 751-acre hay meadow system twice this year. The State Engineers Office irrigation-mapping technician recorded this irrigated acreage; therefore the water rights usage for the hay meadows has been recorded for compliance with the Tri-state agreement for Wyoming, Colorado and Nebraska on the North Platte River. The fifth year of the noxious weed control plan included the contract herbicide application on 144 acres of meadows, ditches, roads and upland sites. The riparian areas along Wagonhound Creek and Foote Creek were treated for noxious weeds with the release of 1670 insects for biological control.

The fifth year of using an experimental cattle-grazing treatment on the hay meadows was performed during June. The high intensity short duration grazing plan used 302 cow/calf pairs to treat the vegetation on 380 acres of grass hay meadows. The Sims Cattle Company provided the personnel, livestock, electric fences, monitoring and herding of the cattle 24 hours per day during the twenty-day grazing treatment. The cattle are contained with electric fencing on treatment paddocks of twenty to eighty acres in size. The grazing effectiveness is monitored against predetermined goals. When the vegetative treatment goal is reached the cattle and fences are moved from paddock to paddock. The grazing treatment focus is to remove ground litter, old growth, and specific noxious weeds and to stimulate higher quality regrowth of standing forage for big game, particularly elk (Figure 20).



Figure 20. Sims Cattle Company's cow and calf pairs grazing the Upper 18 meadow in June 2007.

A three-acre broadcast seeding was done on the Toms and Johnson-Oleson meadow using a cool season grass, legume and forbs mix. The goal of the seeding is to reestablish preferred vegetation on an area of bare ground and reduce the potential of noxious weed invasion on the hay meadow.

Hornyhead chub Habitat Associations

Further hornyhead chub investigations in the Laramie River through the Laramie Peak WHMA were conducted in 2007. A potential natural barrier was located in 2006 within the narrow, steep canyon area of the Laramie River. Several overnight minnow traps were set above the barrier, but no fish were caught and no further investigations were conducted. Additionally, a graduate student project proposal was developed to investigate hornyhead chub populations in the Lower Laramie River watershed. Fish Staff selected the proposal for funding in FY09. The graduate student will work to identify threats and management needs for hornyhead chub in Wyoming.

OTHER SIGNIFICANT ACCOMPLISHMENTS

- Submitted an article discussing the environmental impacts of subdivisions for the August edition of the Wyoming Wildlife Magazine.
- Participated in the Mule Deer Working Group and assisted with the development of the Mule Deer Initiative.
- Operated a booth at the Medicine Bow Livestock Operators Seminar on January 5.
- Participated in a media tour developed by the I&E supervisor informing the public of current mule deer and pronghorn winter range habitat conditions and the need to manage these animals within the carrying

capacity of the range (6/14 and 9/20).

- Participated in two meetings and attended one field tour conducted by the Nature Conservancy. The gatherings were held to solicit habitat improvement suggestions for the Laramie Rivers/Shirley Basin area.
- Met with Belvoir Ranch managers and toured the area with personnel from the Laramie County Conservation District and discussed land management options that could improve the site for wildlife. Attended two public planning meetings conducted by the City of Cheyenne.
- Continued to assist the Laramie Rivers Conservation District with the development of plans to improve range and riparian conditions on the Carlin Ranch.
- Began writing a manuscript for submission to a journal summarizing the Northeast and Southeast Prairie Streams projects (SWG funded) conducted from 2004-2006.
- In 2007, several I&E efforts were completed. Formal presentations were given to over 200 individuals at organized functions including Wheatland Elementary Science Day, The Nature Conservancy's Red Canyon Ranch Field Day and Planning Workshop, Platte County Range Day, Wyoming Wildlife Summit, WyRED – Wyoming Resource Education Days, and WWF. Several news articles were written for publications such as Platte County Resource District Quarterly newsletter and Wyoming Wildlife magazine.
- The Habitat Extension Biologist continued to assist with statewide efforts to complete and distribute educational road-side signs explaining the benefits of fire, wild and prescribed, to wildlife. Several of those signs will be installed in Spring 2008 (Figure 21).
- Platte County Russian Olive Task Force member.
- State Forestry's Forest Land Enhancement Program – Development of Forest Legacy Program.
- Water For Wildlife Foundation – State Coordinator and Western States Project Advisor.
- Wyoming Association of Conservation Districts – attend local conservation district board meetings throughout SE Wyoming and the state association's annual convention.
- The Southeast Wyoming HEB assisted the Platte County Weed & Pest with submittal of a proposal for Grayrocks Reservoir Salt Cedar Control in the amount of \$5,000.
- The Laramie Habitat and Access Maintenance Supervisor monitored the Overland Pass natural gas liquids pipeline construction project on the Daley WHMA, Wick WHMA and Ft. Steele Public Access Area (PAA) for compliance with WGFD property rights, reclamation and reseeding requirements.



Figure 21. Ryan Amundson leads a discussion with Wheatland 3rd graders on the recent bighorn sheep transplant project at the Science Day.