CASPER REGION

HABITAT PROJECTS

Bates Creek Watershed Restoration Project Phase V (CY2008)
The project was initiated in the spring of 2004 to set back succession in aspen communities allowing for recruitment of young plants, creating uneven-aged stands across the landscape and improving hydrologic conditions. To date, we have mechanically treated 378 acres of aspen and using prescribed burns we have treated 1,876 acres of big sagebrush and aspen at a cost of $253 per acre. During 2008, we used a GyroTrac to mechanically treat 57 acres of conifer-invaded aspen stands, which is more productive and safer than treating these stands with sawyers (Figure 1). This machine leaves a relatively thick layer of wood chips that we believe will benefit aspen regeneration by retaining moisture during the drought, but may impede herbaceous growth (Figure 2).

Figure 1. GyroTrac equipment used to mechanically treat aspen stands.

Figure 2. Mechanically treated aspen stand using the GyroTrac.

- Gyro Trac equipment used to mechanically treat aspen stands.
- Chemically treated 832 acres of prickly-pear cactus and cheatgrass.
- 1,256 acres of cheatgrass control
- Inventories and grazing plans on three properties.
- Big sagebrush annual growth averaged 1.90 inches.
- Well development near Wellnitz ponds.
- 200 acres Rx burned on mountain big sagebrush .

We have documented herbaceous growth in those areas where wood chip depth is relatively shallow (Figure 3). We will compare aspen regeneration (stems/acre) between mechanically treated stands and prescribed burned stands during our 2009 monitoring efforts (Figure 4).

Figure 3. Herbaceous response following mechanical treatment using the GyroTrac.

Figure 4. Aspen response following mechanical treatment using the GyroTrac.

The next phase is to implement a 2,400 acre prescribed burn during the spring and/or fall of 2009 and mechanically treat 600 acres of conifer invaded aspen stands. Our goal is to treat approximately 5,000 acres of aspen and as many, if not more, big sagebrush communities within the Bates Creek watershed to restore hydrology and natural vegetative processes, which have been interrupted primarily through fire suppression. It will take approximately 20 years to completely treat what is currently delineated.

In 2009, the Bates Hole Big Sagebrush Restoration project will be incorporated into the Bates Creek Watershed Restoration project. Since this project lies within the Bates Creek watershed, we believe this will improve planning and implementation efforts. As a result, we intend to chemically treat 400 acres of cheatgrass, which is in addition to the 2,784 acres already treated. Currently, our efforts are focused on these less desirable plant species, but it is our intention to improve big sagebrush plant vigor and health, and herbaceous understory abundance and diversity. We are investigating several different improvement techniques, but the past and present weather patterns and existing big sagebrush community condition does not lend itself to easy decisions. Therefore, we are going to research additional techniques prior to implementation. Moreover, we intend to restore portions of the Stinking Creek riparian corridor through mechanical and prescribed fire treatments. It is the landowner's and our goal to increase water yield, increase cottonwood and willow regeneration, and improve

riparian area functionality. We are currently working with the landowner(s) on a livestock grazing management system that promotes flexibility and adaptive management. Presently, the landowner has agreed to defer livestock grazing on the treatment area for two growing seasons, and he is working on dividing a few large pastures into several smaller pastures to facilitate improvements in season of use, duration, frequency and intensity. During 2008, we chemically treated 832 acres of prickly-pear cactus and cheatgrass (Figures 5 and 6). Prickly-pear will take approximately 2 to 3 years before it is completely dead because of the low application rate used (Figure 7), whereas cheatgrass did not germinate and was replaced with needle-and-thread grass (Figure 8).

Figure 5. Prickly-pear cactus and cheatgrass infestations.

Figure 6. Prickly-pear cactus and cheatgrass chemical application.

Figure 7. Prickly-pear cactus response following chemical application.

Figure 8. Needle-and-thread grass response following cheatgrass chemical application.

North Laramie Habitat Restoration Project Phase II (CY2008)

Initiated in 2007, the goal is to set back succession in aspen communities allowing for recruitment of young plants, creating uneven-aged stands across the landscape, and improving hydrologic conditions within the Deer Creek watershed. Restoration efforts focus on aspen, big sagebrush and true mountain mahogany communities. The true mountain mahogany community is very important to mule deer as a winter food source, therefore prescribed burns will be conducted to improve forage quality for wintering mule deer.

In 2008, we treated 35 acres of aspen in extremely steep topography using a GyroTrac (Figure 9). All total, we have treated 86 acres, which includes 20 acres treated by the Habitat and Access Maintenance personnel. The next phase is to prescribe burn 2,000 acres of true mountain mahogany during the fall of 2009, and mechanically treat 800 acres of conifer invaded aspen stands. Our goal is to treat approximately 6,500 acres of aspen and as many, if not more, big sagebrush communities over the next 20 years.

Figure 9. Mechanically treated aspen stand using a GyroTrac.

Bates Hole Habitat Inventory and Evaluation Area

Casper Region personnel wanted to convey to the public how production and herbivere utilization was affecting the big sagebrush community; hence we developed a use index. The use index shows an upward trend, which contradicts vegetative management philosophy that states an upward trend indicates improved vegetative condition (Figure 10). This upward trend shows the plants are not producing enough annual growth to offset the amount of use they receive on annual basis. The lack of annual growth can be attributed to poor spring precipitation, poor plant health and vigor, and excessive use, which further compounds the problems of poor seed production, increased plant mortality and reduced carrying capacity.

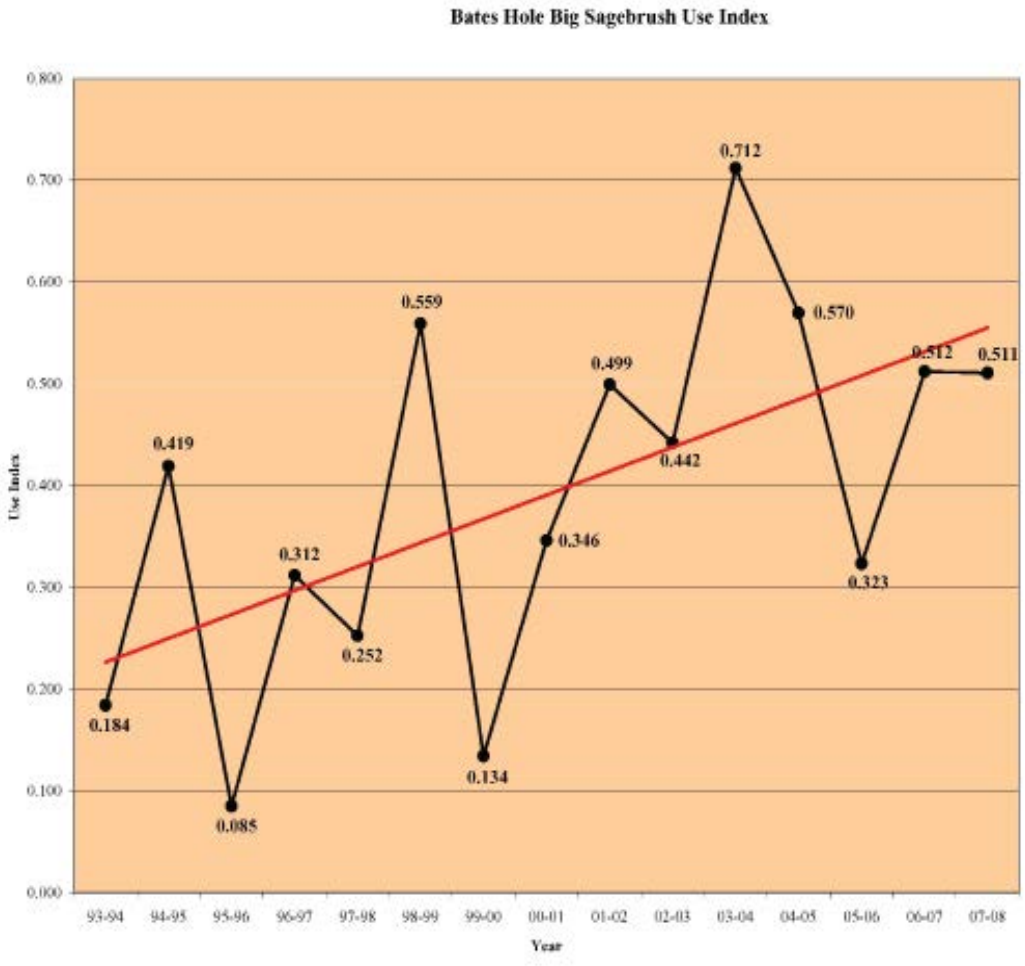

Figure 10. Bates Hole big sagebrush use index with trend line.

Our goal is to have the trend line either horizontal or declining, which tells us the big sagebrush community is improving. In 2003, we documented the highest level ever recorded on the use index, which was the result of poor production (0.51 inches) and an average utilization level of 38 percent. We are modifying the use index, and trying to make it a component of the big game season setting process, but still maintain its value as a way to portray to our constituents the impacts we are observing in the big sagebrush community.

Big sagebrush annual growth averaged 1.90 inches in 2008, which is 25 percent greater than 2007, and 91 percent greater than 1998, the worst production year recorded. From 1995 to 2008 we have documented a 14 percent increase in big sagebrush production. This past year (2008) was the best production year since 1995. (Figure 11).

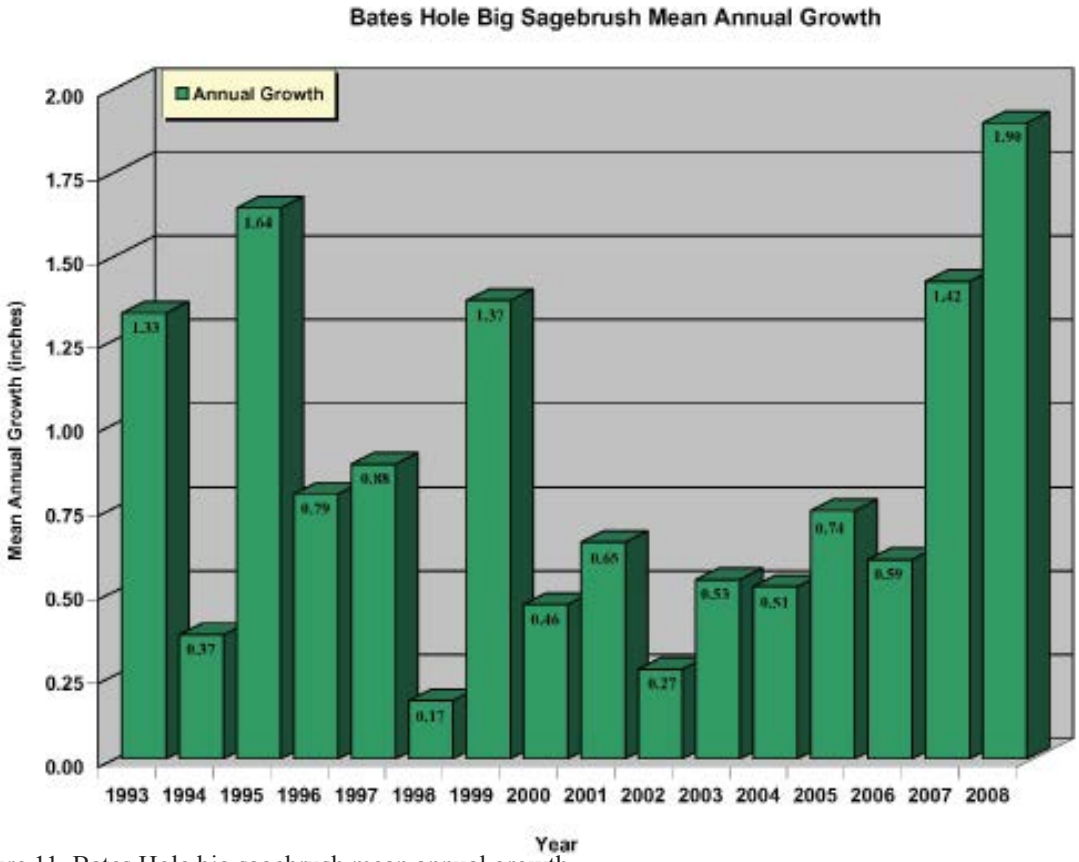

Figure 11. Bates Hole big sagebrush mean annual growth.

Bates Hole Landcover Classification Project Phase II (CY2008)

Bates Hole remote sensing landcover modifications continued in 2008 with a total of 753,219 acres complete out of 771,347 acres, which is 98 percent. The modified landcover classification will provide the most accurate data available when planning habitat improvement projects, preparing wildlife environmental comments, and determining how many acres of a vegetative type exists within the Bates Hole area. The Bates Hole area will be complete during 2009. Once Bates Hole is complete, we will start modifying the North Natrona remote sensing landcover.

To date, we have mapped 23,186 acres of annual grassland, which is predominantly cheatgrass (Figure 12). These acres will likely increase as we continue to modify the remaining areas. Sparse, big sagebrush, 0 to 15% canopy cover, is by far the most representative vegetative community within Bates Hole. The next most dominant cover type is moderately dense big sagebrush with a canopy cover of 16-25%, which has 70,731 acres. The urban area makes up three percent of the acreage. Casper continues to expand to the east and north, and has now reached the Hat Six and Coal Creek Roads. In addition to this expansion, there are housing developments springing up in various places outside the city limits, which will continue to increase the amount of urban acres.

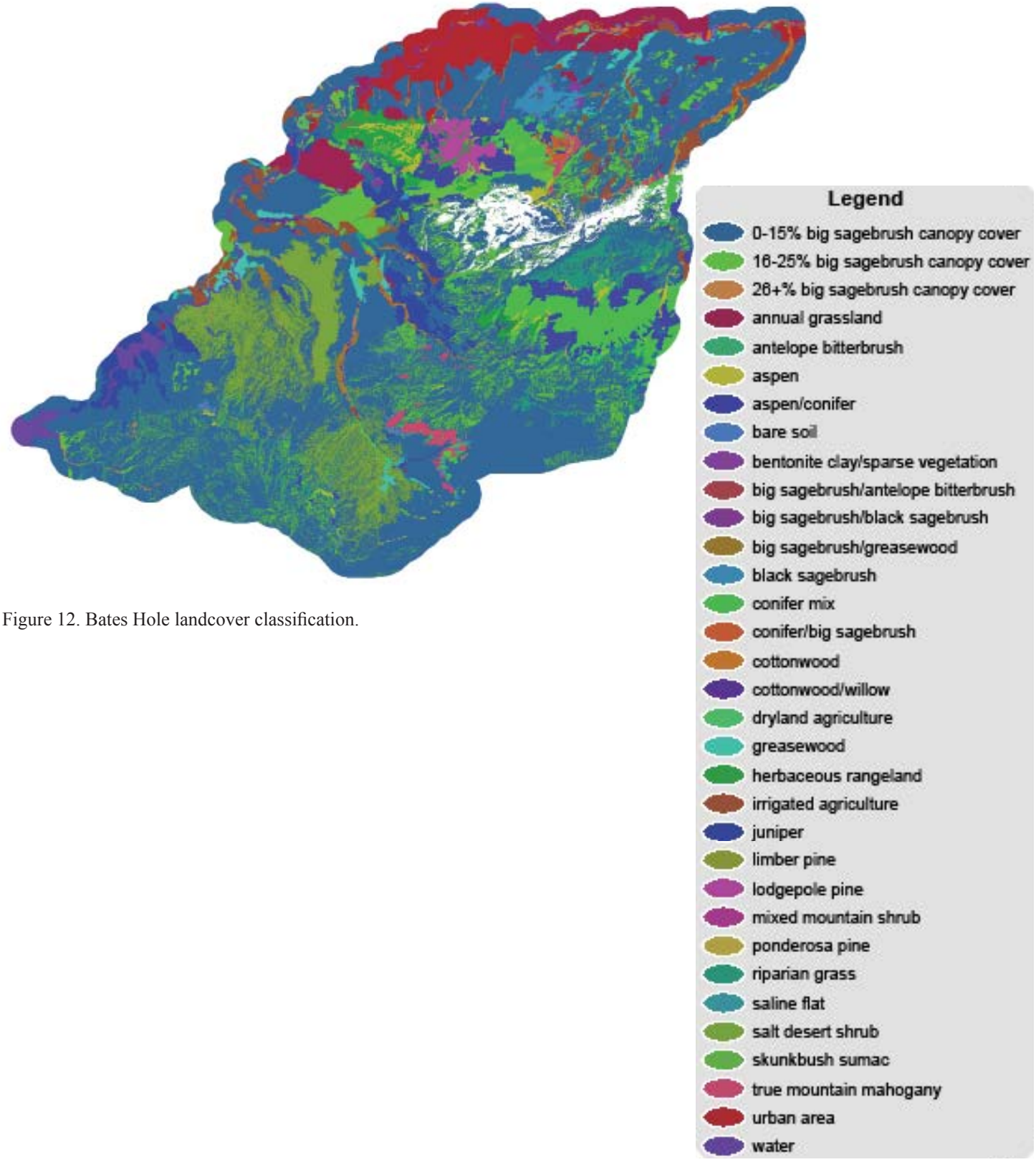

Figure 12. Bates Hole landcover classification.

HABITAT EXTENSION SERVICES

Shook Ranch Range Improvement

In the fall of 2008, 60-80% of the dense mountain big sagebrush in a 200 acre area was burned and 12,000 ft. of cross-fence was contracted to better control livestock (Figure 13). The project was funded through NRCS-EQIP funds and the Bates Hole/Shirley Basin sage grouse local working group. Additional acreage was burned on the ranch using funding through the Bates Creek Watershed Restoration Project. There are plans to burn additional acres and develop springs for livestock and wildlife use in future years.

Figure 13. Fall 2008 Mountain Big Sagebrush prescribed burn.


Figure 14. Coordinators meet on the ground to discuss wildlife, range condition, ecosystem processes, monitoring, and future management.

R.B. Keith Ranch and M&D Land Ranch wildlife inventories and grazing management

Resource inventories on two ranches totaling approximately 43,000 acres in western Natrona and eastern Fremont Counties were completed and are being used to guide future management decisions. The goal is to develop land management plans that benefit livestock, sage grouse, and other wildlife. The project was funded through the NRCS' Grazing Lands Initiative and the Bates Hole/Shirley Basin and Wind River/ Sweetwater River sage grouse local working groups. Infrastructure improvements and continued grazing management planning and monitoring are planned for future years (Figure 14).

Thunder Basin Big Sagebrush Restoration Project

In the summer of 2008, 1,256 acres were chemically treated on four different properties to control cheatgrass invasion (Figure 15). The project aims to reduce competition with desirable, perennial vegetation and eventually improve the overall range condition. Additional work and grazing management planning is ongoing.


Figure 15. Contractors apply Plateau herbicide using ATV mounted sprayers to control cheatgrass.

Mills Livestock Forest Stand Improvement
In the summer of 2008, 42 acres of conifer forest were thinned as part of a forest stand improvement contract to make the forest more accessible for wildlife and humans, reduce the potential for beetle and mistletoe infestation, and improve the overall health of the forest (Figures 16 and 17). This project was completed with the assistance of Wyoming State Forestry.


Figure 16. Conifer forest prior to thinning treatment.


Figure 17. Conifer forest following thinning.

WILDLIFE HABITAT MANAGEMENT AREAS (WHMA)

Springer/Bump Sullivan WHMA food plots and dense nesting cover plantings
The Casper Habitat and Access crew planted 5 acres of dryland sunflowers, 23.5 acres of dense nesting cover, 3 acres of sorghum/sudangrass hybrid at Springer WHMA, and planted 20 acres of dense nesting cover and 10 acres of dryland sunflowers at Bump Sullivan WHMA.

Goshen County continues to suffer under a drought. However, spring rains allowed most of the dense nesting cover to germinate and achieve several inches of growth before turning brown. Hopefully, additional spring moisture will allow these plantings to become fully established in the second year (Figure 18).


Figure 18. Hunters utilizing the food plots strips at Table Mountain WHMA.

Table Mountain WHMA food plots

The Casper Habitat and Access crew planted 14 acres of sorghum/sudangrass hybrid, 3.5 acres of a hybrid corn known as CanaMaize, 4 acres of irrigated sunflowers (Figure 19) and 6 acres of dryland sunflowers on Table Mountain WHMA.

The sorghum/sudangrass hybrid we planted features the tall growth aspects of sudangrass, with a fuller seed head reminiscent of sorghum. Sudangrass provides excellent cover, and in winter tends to "lodge" (the stalks fall over or break over). The lodging characteristics provide tunnels for upland and waterfowl species to feed in and find cover under the snow in the winter (Figure 20).

Figure 19. Irrigated sunflowers at Table Mountain WHMA.

The CanaMaize hybrid corn variety we planted has a low growth characteristic that makes it ideal as a food source for birds, as the ears are much lower to the ground as compared to most varieties of corn. It also only grows about four feet tall allowing hunters the opportunity for good shots at flushing birds.

In most areas, we planted our food plots in strips, which often followed natural contours. This is a method recommended by the NRCS for food plot development. This method provides greater "edge effect."

Figure 20. Sorghum/sudangrass hybrid food plots at Table Mountain WHMA.

Figure 21. Wellnitz Ponds well drilling

Springer WHMA water well project

The Casper Habitat and Access crew began development of a well near the Wellnitz ponds near the southwest boundary of the WHMA. The Wellnitz ponds have been dry for several years because of on-going drought and changes in irrigation practices in the area. When fully developed, the well will begin to fill the Wellnitz ponds. Once filled, the well will allow managers the opportunity to fluctuate pond levels to stimulate wet vegetation growth. We received $10,000 from the WGFD Trust Fund and $4,000 from the Terry Killough Fund to complete this project. We hope to have the project completed by summer of 2009 (Figure 21).

OTHER SIGNIFICANT ACCOMPLISHMENTS

- Received WGFD Leadership Development Program Graduation certificate.
- Coordinated two landowner focused grazing management workshops with Roy Roath for the Bates Hole/ Shirley Basin sage grouse local working group.
- Assisted with sage grouse trapping and project planning in the Rattlesnake Hills area for a graduate project with UWCC.
- Attended the Plant-Herbivore Interaction Short-course at Utah State University.