4. Morgan-Summit Adaptive Resources Management (MSARM) Local Sage-grouse Working Group

The Morgan-Summit Adaptive Resources Management Sage-grouse Local Working Group was organized 2005 and facilitated by Sarah G. Lupis. Ms. Lupis also served as the technical writer and compiler of the Plan itself. MSARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals.

a. Local Legal Authority

The Morgan and Summit County Commissions serve as the executive and legislative branches of local government. They have the authority to; 1) protect and promote the health, welfare, and safety of the people of Morgan and Summit counties, 2) regulate land use, land planning, and quality and protection of natural resources; and 3) has duly adopted regulations and policies to exercise such authorities including the review and approval or denial of proposed activities and uses of land and natural resources (Summit County Code 2005**)**. The Summit County Code (2005, as amended) makes the following statements relevant to protection of wildlife in the county (Summit County Code 2005, 11-2-4-G):

1. Wildlife, Range Areas, Migration Corridors: Care shall be taken to ensure that development shall not significantly affect wildlife birthing areas, critical winter range areas and migration corridors.

b. Status of Local Population

Plan Area

Morgan and Summit Counties are located in northern Utah. For planning purposes, MSARM combined Morgan and Summit Counties into one Resource Area, geographically defined by the existing county borders (Figure 1). The Resource Area encompasses 2,513 square miles (1,608,659 acres) managed primarily by private landowners and also the USFS, BLM, State of Utah, and private land owners. Elevation in the Resource Area ranges from 1,800-2,600 m.

Summit County is characterized by hot summers and cold winters. According to National Climate Data Center records collected in Coalville from 1961 to 1995, July is the hottest month with an average high temperature of 86.0º F; winter lows reach 10.8º F in January. Morgan and Summit counties are wetter than much of Utah. Summit County receives an average of 15.4 inches of rain per year and the weather station in East Canyon in Morgan County reports an average of 19.9 inches per year from 1952-1971.

Landownership

Most of the Resource Area is private land with small areas managed by the state of Utah, the USFS, and the BLM (Table 15).

Table 15. Landownership in the Morgan-Summit Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2007.

Landowner	Area (acres)	Area (Miles^2)	% of Resource Area
Private	12,884,653	20,132	97
BLM	99,885	156	0.75
State of Utah	2,163	3	0.02
USFS	352,262	550	3

Sage-grouse Population Status and Distribution

The UDWR began monitoring sage-grouse populations in the Resource Area by annually counting males on leks in 1962 and 1969, respectively (Figure 10). Based on lek count information, sage-grouse populations in Summit County reached an all-time high in 1971 when 223 males were counted on 5 leks. This count represents a total estimated spring population of 496 adult birds. Since 1971, lek counts in Summit County have declined, as have the number of males per lek, a trend that better incorporates a measure of counting effort. Currently, based on a high count of 23 males on 5 leks, the population is estimated to be approximately 51 adult birds.

At the start of lek monitoring in Morgan County, a total of 85 males were counted on 2 leks. This count generates a population estimate of approximately 189 adult birds in the spring population. Based on lek count information, the Morgan County population reached an all-time high in 1980 when 131 males were counted on 3 leks. The 1980 spring population estimate, based on lek count information, was approximately 291 adult birds.

Observations of the number of males per lek is another index used to evaluate sage-grouse population trends. In Summit County, the number of males per lek has still reflects a decline in sage-grouse numbers since the early 1970s. In Morgan County, the number of males per lek is quite variable, likely reflecting varying degrees of counting effort (Figure 11).

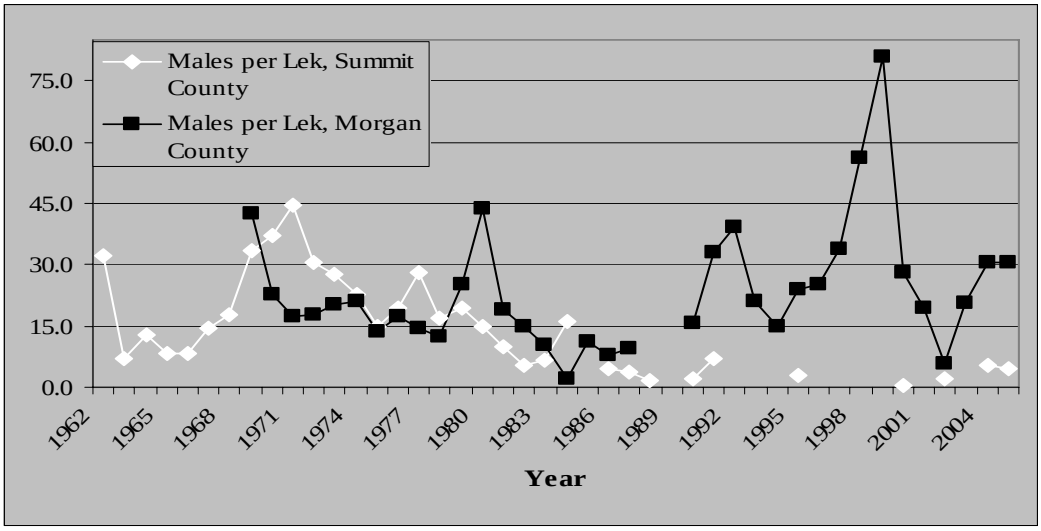

Figure 10. Maximum total number of males counted on all leks in the Resource Area, 1962-2005 in Summit County and 1969-2005 for Morgan County.

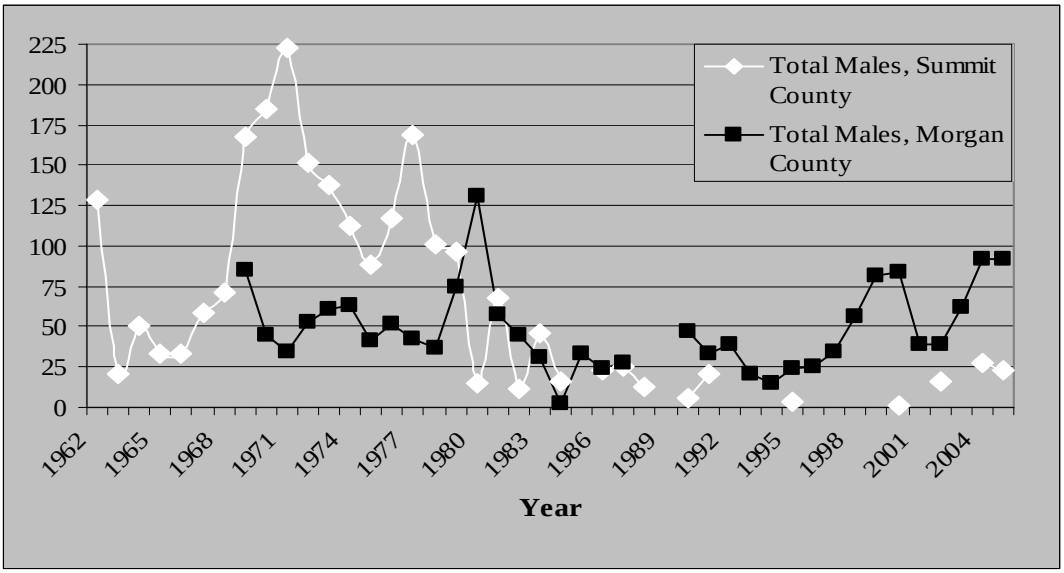

Figure 11. The number of males per lek observed in Summit County, 1962-2005, and Morgan County, 1969-2005.

c. Key Ecological Indicators and Threats

MSARM participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 16). They then identified and ranked potential threats (Table 17).

Table 16. Greater sage-grouse key ecological aspects in Utah's Morgan and Summit Counties, Morgan-Summit Adaptive Resources Management (MSARM) Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells' are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource	Area Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for Desired Rating
Morgan-Summit	Landscape Context	Connectivity of Populations & Sub-populations	Interactions with other populations.	Population does not interact with any other population or occupied or potential habitat.	Population occasionally interacts with other populations or occupied or potential habitat.	**Population frequently interacts with other populations or occupied or potential habitat.**	Population frequently interacts with other populations or occupied or potential habitat.		Good		6-Feb	
Morgan-Summit	Condition	Breeding Habitat Quality (leks, nesting, early brood-rearing)	Proximity to sagebrush (or other heavy cover) and vegetation composition and structure on and around lek complex.	Sagebrush covers sparse w/in 2 miles of most leks; significant sagebrush or "weed" encroachment onto lek complex.	Dispersed patches of sagebrush cover and little perennial grass w/in 2 miles of most leks.	**Large patches of sagebrush or other cover w/in 2 miles of lek of suitable height; good perennial grass and forb cover.**	Sagebrush steppe surrounding most lek complexes; most sagebrush cover w/in 2 miles of lek 15-25% with dense perennial grass and forb cover.		Good		6-Feb	
Morgan-Summit	Condition	Summer/Late Brood-rearing Habitat Quality	Shrub cover, understory grass/forb cover, availability of mesic/wet areas.	Shrub over too dense or too sparse; short, sparse grasses/forbs in understory; no mesic/wet areas available.	Shrub cover suitable but poor perennial grass/forb cover in sagebrush, few mesic/wet sites available.	**Good sagebrush cover and good grass/forb cover in understory; mesic/wet areas available.**	Good shrub cover; dense forbs/grasses in the understory; many misic/wet areas available.		Good		6-Feb	
Morgan-Summit	Condition	Winter Habitat Quality	Sagebrush canopy cover; height above snow.	Sagebrush sparse and always covered by snow.	Low stature sagebrush and/or sparse sagebrush cover; frequently covered by snow.	**10-30% canopy cover of sagebrush; rarely covered by snow.**	10-30% canopy cover of sagebrush; never covered by snow.		Good		6-Feb	
Morgan-Summit	Size	Population Distribution	Distribution of leks	Decrease from current distribution.	**Current distribution**	Current distribution plus additional leks within the northern part of Summit and NE part of Morgan counties.	"Good" distribution plus additional leks in the Snyder ville Basin.	See map in Plan	Fair		6-Jan	

Morgan-Summit	Size	Population Size	3-year running average maximum number of males counted on leks	<100	**100-175**	176-299	300+		Fair		6-Jan	
Morgan-Summit	Size	Population Size	Number of active leks	<4	**38813**	38910	12+		Fair		6-Jan	

Table 17. Relative importance/contribution of sage-grouse threats Utah's Morgan and Summit Counties, Morgan-Summit Adaptive Resources Management (MSARM) Sage-grouse Local Working Group, 2007. Rankings are as follows: L = low; M = medium; H = high; and VH = very high. Threats are described in the "Threat Analysis" section of this Plan. Ranks are defined according to TNC (2005).

	Aspects of Sage-grouse population in the MSARM Resource Area							
Threat	Reduced Population Size	Population Distribution	Reduced Nesting Habitat Quality	Reduced Brood-rearing Habitat Quality	Reduced Summer/Fall Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Drought and Weather	M	M	H	H	H	L	M	L
Existing and New Fences	L	L	L	L	L	L	L	L
Home and Cabin Development	H	H	M	M	M	M	H	VH
Power lines and Other Tall Structures	M	H	H	H	H	M	H	H
Renewable and Non-renewable Energy Development	M	M	M	M	M	M	M	M
Roads	M	H	H	H	H	M	H	H
Vegetation Management	M	H	M	M	M	H	M	L
Hunting	L	L	-	-	-	-	-	-
Fire	L	L	L	L	L	L	L	L
Livestock Grazing	L	L	L	L	L	L	L	L
OHV Recreation	M	M	H	H	H	VH	M	M
Invasive/Noxious Weeds	-	-	L	L	L	L	L	-
Parasites and Disease	M	M	-	-	-	-	-	-
Predation	VH	VH	H	H	M	M	M	M
Pinyon-Juniper Encroachment	M	M	M	L	L	M	M	M

d. Status of Conservation Strategies and Actions

MSARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here MSARM partners report on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement addition actions into subsequent years of the plan. If a strategy or an action number is missing from this report; it means that no action(s) were taken in 2006/2007 towards its completion. To access a copy of the MSARM conservation plan visit the following web site address: http://utahcbcp.org/files/uploads/morgan/msarmsagrplan.pdf. The MSARM LWG will be reviewing and updating their Plan in early 2009

1. Strategy: Through 2016, prevent establishment of cheat grass and other non-native vegetation species in sage-grouse habitats.

1.1. Action: Seed treated areas, where appropriate, with ecologically suitable seed mixes
Status: The Echo Canyon fire area was reseeded using suitable seed mixtures. This fire occurred in 2006.

1.2. Action: Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other invasive weed species.
Status: Echo Canyon wildfire area reseeded – landowners did reseeding in cooperation with agencies

1.3. Action: Evaluate all wildfires and proscribed burns and reseed with ecologically suitable seed, where appropriate, to prevent establishment of cheat grass and other invasive weed species.

Status: Wildfire areas were reseeded – cost share was provided through NRCS -DWR

2. **Strategy**: By 2016, increase grass/forb understory in sagebrush stands.

2.1 Action: Use sagebrush thinning techniques (Lawson aerator, spike, etc) in a mosaic pattern, where possible, to thin sagebrush stands.

Status: Joseph Fawcett and Sons – Inc. treated 600 ac in 2005 using the Lawson aerator. The area was reseeded with a seed mixture provided by DWR.

2.2 Action: Seed, when possible, treated areas with ecologically suitable seeds.

Status: See action 2.1

2.3 Action: Reclaim and/or reseed areas disturbed by treatments when necessary, using seed mixtures with appropriate grasses and desirable forbs

Status: See action 2.1.

2.4 Action: Restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation where economically feasible.

Status: See action 2.1

2.5 Action: Conduct vegetation treatments to improve forb diversity (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed area, if needed

Status: See action 2.1

2.6 Action: Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations

Status: On-going through Utah Partners for Conservation and Development and Quality Resource Management (QRM).

2.7 Action: Work with public and private partners to implement rest-rotation grazing systems, where possible

Status: On-going - private rangeland is fenced off in sections and livestock rotation – deferred grazing is common in the LWG area.

3. **Strategy:** By 2016, all new water projects will take into account MSARM recommendations to prevent conditions for extraordinary mosquito populations and potential persistence and spread of West Nile Virus in the Resource Area.

3.1. Action: Identify key elements of various water projects that are needed to prevent existence of standing water and minimize mosquito populations.

Status: Morgan and Summit Counties has mosquito abatement program that treats potential problems sites

3.2. Action: Develop partnerships with key water management agencies to work cooperatively to both maintain necessary flow regime and prevent conditions for extraordinary mosquito populations

Status: See action 3.1

3.3. Action: Cooperate with Summit County Mosquito Abatement District.

Status: See action 3.1

3.4. Action: Assess any new water projects for contributions toward conditions that may enhance mosquito populations

Status: See action 3.1

4. **Strategy:** By 2016, search additional areas (TBD) for new active lek sites.

4.1. Action: Coordinate with UDWR to conduct aerial surveys in areas suspected to contain undiscovered active leks.
Status: Ongoing – LWG partners participate in spring lek search activities
4.2. Action: Coordinate with public and private partners to conduct terrestrial lek searches in areas suspected to contain undiscovered active leks
Status: Ongoing – LWG partners participate in spring lek search activities. This effort is coordinated by the DWR.
4.3. Action: Coordinate with public and private partners to conduct count surveys of known active leks.
Status: Ongoing – LWG partners participate in spring lek search activities
4.4. Action: UDWR to enlist and coordinate private volunteers and/or other agency biologists search for new leks and conduct lek counts on active leks.
Status: Ongoing – LWG partners participate in spring lek search activities. The DWR and USU Extension have implemented a training program to train individuals that participate in Utah's Dedicated Hunter Program to assist in this effort
4.5. Action: Through 2016, test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance
Status: On-going. The DWR operates this program

5. Strategy: By 2016 decrease populations of sage-grouse predators, especially in areas used by sage-grouse for nesting and brood-rearing.
5.1. Action: Support efforts of USDA-WS to remove red foxes, coyotes, and ravens in areas used by sage-grouse for nesting and brood-rearing during spring and early summer
Status: On-going. USDA Wildlife Services conducts programs to manage predation on sage-grouse and other wildlife populations in the area.
5.2. Action: Develop educational materials and distribute to recreationists that provide information on the impact to non-native predator species from littering
Status: Pending. USU Extension will develop a brochure for LWG review. This brochure will be completed by July 08.

6. Strategy: Monitor impacts of lek viewing opportunities on lek behavior and lek attendance.
6.1. Action: Provide educational material (brochures, presentations, etc.) to interested birding groups about the ecology of sage-grouse and threats they face in the Resource Area.
Status: Pending. To be completed in 2008
6.2. Action: Increase law enforcement patrols in and around crucial lek sites
Status: On-going
6.3. Action: Through 2016, include information about MSARM activities in County Extension newsletter
Status: On-going

7. Strategy: By 2016, increase funding opportunities for private partners interested in improving sage-grouse habitat on private land.
7.1. Action: Participate in SCD and UPCD northern region team; share Plan Strategies with these groups and encourage funding of Plan Strategies
Status: On-going. LWG members participate in SCD and Utah Partners meetings
7.2. Action: Increase information dissemination about funding opportunities to private partners
Status: On-going. Utah partners and LWG members regularly meet with landowners and other

groups to discuss this information.

7.3. Action: Develop educational material about habitat improvement techniques appropriate for sage-grouse habitat improvement and distribute to private partners

Status: On-going. LWG Partner engage in these activities. Examples of this type of information can be found on the LWG web site (www.utahcbcp.org)

7.4. Action: Coordinate habitat projects on private land that meet the needs outlined in Plan and the needs of private partners

Status: Ongoing.

8. Strategy: By 2016 increase amount breeding habitat in "good" condition.

8.1. Action: Work with public and private partners to implement rest-rotation/time controlled grazing management strategies, where appropriate

Status: Ongoing

8.2. Action: Work with NRCS and private partners to implement Farm Bill programs beneficial to sage-grouse

Status: Ongoing. LWG partner work with Travis Thomason, NRCS District Conservationist, Coalville Utah to develop projects that quality for Farm Bill funding

8.3. Action: Coordinate with county weed board to implement noxious weed program to reduce impacts on sage-grouse

Status: On-going – The Summit County Area Spray Program Noxious weed program has identified and treated approximately 3,778 acres in 2005 and 4,000 acres in 2006 and 2007 to eliminate the spread of musk thistle on native rangeland using 2-4D dicamba

8.4. Action: Work with NRCS and private partners to monitor effects of treatments on sage-grouse populations and habitat

Status: Ongoing

9. Strategy: Coordinate fire management practices with public and private partners to prevent loss of crucial sage-grouse habitat and enhance/improve sage-grouse habitat, where appropriate.

9.1. Action: Comment on BLM/USFS fire plans

Status: No action

9.2. Action: Re-seed sites, post-burn, with ecologically suitable seed mixture to prevent the establishment of cheat-grass

Status: Ongoing

9.3. Action: Use fire management to reduce sagebrush canopy cover and create diverse sagebrush stands in brood-rearing and summer use areas

Status: Some work has been done on Ensign Ranch. Approximately 8,000-10,000 acres have been burned to create a mosaic. Sage-grouse populations are being monitored on the ranch. The burns were conducted by Chris Robinson, Jeff and Kitty Young

10. Strategy: Improve lek vegetation conditions to allow for predator recognition and visibility.

10.1. Action: Open lek areas that have been invaded by sagebrush and other shrubs

Status: USFS has handcut openings in sagebrush to create lek sites

10.2. Action: Map and inventory leks with potential for restoration

Status: Ongoing. LWG partners are cooperating with DWR personnel to inventory and map areas.

10.3. Action: Maintain and enhance desired habitat conditions for leks

Status: Ongoing. See Action 10.1.

11. Strategy: Improve mesic and riparian areas for sage-grouse and watershed health.

11.1. Action: Identify opportunities or needs to create small wet areas, implement such projects where economically feasible

Status: Ongoing

11.2. Action: Design and implement livestock grazing management practices to benefit riparian areas

Status: Ongoing.

11.3. Action: Modify or adapt pipelines or developed springs to create small wet areas

Status: No action

11.4. Action: Locate projects to minimize potential loss of water table associated with wet meadow

Status: Ongoing

11.5. Action: Protect existing wet meadows and riparian areas where necessary

Status: Ongoing. Projects have been completed in Chalk Creek, Echo Canyon, and Weber Grass Creek.

11.6. Action: Manage vegetation and artificial structures to increase water-holding capability of areas.

Status: Ongoing. See action 11.5.

12. Strategy: Minimize the amount of quality sage-grouse habitat eliminated by residential and commercial land development consistent with private property rights.

12.1. Action: Participate with County land use decision makers in identifying key sage-grouse habitats

Status: Development activities have been reviewed by the Agricultural Easement Committee through County. Both Morgan and Summit Counties have provisions that require developers to consider impacts wildlife in planning developments.

12.2. Action: Maintain sagebrush environments of sufficient size and shape around developments in sage-grouse habitat.

Status: Ongoing. Both Morgan and Summit Counties have open space zoning requirements.

12.3. Action: Encourage the voluntary use of conservation easements and other land protection vehicles with willing sellers in sage-grouse habitats

Status: Ongoing. The Summit Land Trust works with developers to guide development in to protect natural areas. This process is regulated through a system of development fees.

12.4. Action: Educate rural residents about the importance of good grazing management in keeping small tracts weed free and capable of providing wildlife habitat

Status: Ongoing through NRCS and Utah partners.

13. Strategy: Encourage monitoring programs that are consistent with NRCS practices and Connelly et al. (2003).

13.1. Action: Coordinate with MSARM partners to facilitate data collection

Status: Ongoing through Utah Partners and Range Trends studies

13.2. Action: Schedule and/or advertise educational opportunities, disseminate printed materials

Status: Ongoing through Utah Partners

13.3. Action: Coordinate with academic institutions to utilize students in monitoring efforts

Status: Pending

13.4. Action: Hold annual field tours of habitat improvement projects

Status: Ongoing. Field tours are scheduled through UACD.

14. Strategy: Improve efforts to increase size of sage-grouse population in the Resource Area.

14.1. Action: Explore possibility of initiating translocations of hen sage-grouse from other areas within Utah with stable or increasing populations

Status: Ongoing. Sage-grouse populations status are being monitoring relative to conservation actions implemented.

14.2. Action: Continue existing predator management activities as called for by UDWR, USDA-WS, and other participating agencies and organizations

Status: Ongoing. Work is conducted by USDA Wildlife Services in cooperation with the DWR.

15. Strategy: Provide for a level and system of domestic livestock grazing that maintains and improves both the long-term stability of sage-grouse populations and habitats and the livestock industry in the Resource Area.

15.1. Action: Coordinate grazing management with livestock operators to reduce resource and timing conflicts on leks and prime nesting habitat when possible

Status: Ongoing**.**

15.2. Action: Apply grazing management practices to achieve desired conditions including maintenance of residual herbaceous vegetation appropriate for the site

Status: Ongoing**.**

15.3. Action: Encourage implementation of grazing systems that provide for areas and times of deferment while taking into consideration the resource capabilities and needs of the livestock operator

Status: Ongoing**.**

e. Habitat Improvements and Completed Conservation Actions

The UDWR has implemented several habitat improvement projects in the Resource Area targeted at restoring or enhancing sage-grouse habitat. In 2004, approximately 4,100 acres of habitat in the Resource Area were treated and 7,000 acres were treated in 2005. Treatments were aimed at reducing sagebrush canopy and enhancing native grass/forb cover in the understory. Additional habitat improvement projects are planned for 2006. Several Big Game Range Trend sites were established in 2006 to monitor treatments. The UDWR anticipates treating 15,425 acres in the Resource Area in 2006. In Morgan County, the NRCS has provided or is providing technical assistance on 18,900 acres of rangeland. Most of these projects have been a combination of fence, water development and brush management. The acreage and general location of habitat improvement projects implemented in 2004 and 2005 and proposed for 2006 by the UDWR is listed Table 18. No map was generated to identify project locations because only one project was completed in 2007.

Table 18. Habitat improvement projects implemented to address sage-grouse threats identified by the Morgan-Summit Adaptive Resource Management Sage-grouse Local Working Group, 2004 2006.

Year	Project Name	Acres
2004	Red Fleet	1,600
	Deadman Bench	500
	Bare Top	1,100
	Horse Point	900
2005	Taylor Flat	1,000
	Red Creek Flat	1,000
	Monument Ridge	1,000
	Wolf Point	1,000
	Ruple Cabin	1,800
	V Canyon Ridges	1,000
	Snake John	200
2006 (proposed)	Blue Knoll	1,000
	Winter Ridge	2,000
	North King's Point	1,000
	King's Point	1,000
	Wolf Point Phase 2	1,350
	Little Asphalt Ridge	1,000
	Goslin Mountain	1,000
	Chew-Blue Mountain	500
	West Stuntz	180
	Brush Creek Bench	300
	Red Creek Flat Phase 2	500
	Clay Basin	1,225
	Anthro Mountain	1,000
	Siddoway	700