7. Southwest Desert Adaptive Resource Management (SVARM) Sage-grouse Local Working Group

The Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group was organized and facilitated by Todd A. Black and S. Nicole Frey of Utah's Community-Based Conservation Program (CBCP); a collaborative partnership between the UDWR and Utah State University Extension Services, with support from the Jack H. Berryman Institute. Dr. Frey and Sarah G. Lupis also served as the technical writer of the Plan itself. SWARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals. The agencies, organizations, and individuals who contributed to the Plan through participation in SWARM are listed in the LWG Plan.

a. Local Legal Authority

The Board of Commissions for Beaver, Iron, Washington Counties 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 these counties
2 Regulate land use, land planning, and quality and protection of natural resources
3 Duly adopt regulations and policies to exercise such authorities including the review and approval or denial of proposed activities and uses of land and natural resources.

Both Beaver and Iron County are currently revising their Habitat Conservation Plans.

b. Status of Local Population

Plan Area

The SVARM Resource Area is located in southwestern Utah, and encompasses Beaver, Iron, and Washington counties, and portions of Garfield, Kane, and Millard, counties. The Resource Area includes 5,672,052 acres, bounded to the north and east by land formations, to the west by the Nevada border, and to the south by the Arizona border (Figure 1). The Resource Area is divided into four focus areas representing sage-grouse breeding complexes. These breeding complexes are based on geographic boundaries and groupings of leks. Although movement between complexes is likely, the complexes represent discrete subpopulations of sage-grouse in the Resource Area.

Southwestern Utah encompasses some of the most varied habitat in North America. The Southwest Desert contains habitat ranging from Alpine Tundra at elevations over 11,000 feet to the Mojave Hot Desert type at elevations as low as 2,000 feet. However, since all present sage-grouse habitat is located within the cold desert ecotone, the Plan limited descriptions to this area. The cold desert is also known as the northern desert shrub, salt-desert shrub, or the Great Basin Desert. The Great Basin is sometimes referred to as a physiographic province, but is more often considered part of the larger Basin and Range Physiographic Province. This desert actually extends beyond the Great Basin into the adjacent Columbia and Colorado Plateaus.

The elevation of sage grouse habitat within the Resource Area is largely between 5,000 and 9,000 feet. Summers are warm and winters are cold. Annual precipitation is mostly between 8 and 16 inches and is most abundant as winter snow, spring storms and brief but high intensity summer monsoonal moisture. As a result, the vegetation is predominantly deep-rooted shrubs or plants that mature prior to the summer drought period. Growth is limited and confined to the brief spring period when plants utilize the deep infiltrated moisture from snow received the previous fall or winter. This desert is a result of its distance from oceanic sources of precipitation and the rain shadow created by high mountain ranges intercepting the westerly flow of the jet stream.

Forbs are an important component of sage-grouse habitat, but their presence is highly variable due to yearly fluctuations in precipitation patterns and historical management activities. Native annuals are not common in this desert, but several exotic annuals introduced from Eurasia have become very common and have had serious impacts on this ecosystem.

Within the three focus areas, it is believed that populations are both migratory and nonmigratory. This is based on cumulative knowledge of the local working group (years of sage-grouse sightings) and unpublished radio telemetry studies conducted by the Utah Division of Wildlife Resources in the 1970s.

Landownership

Most of the Resource Area is public land (Table 27). In Beaver and Iron counties, the majority of federally owned land is managed by the BLM. Land managed by the USFS, Dixie National Forest, and Fishlake National Forest is located in Iron and Washington counties and along the eastern edge of the Resource Area. Private land is scattered throughout the Resource Area with the largest towns, Beaver (Beaver County), Cedar City (Iron County), and St. George (Washington County), located along I-15 which is the primary north– south travel corridor for this area.

Table 27. Landownership in the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2007.

Landowner	**Acres**	**% of Resource Area**
BLM Wilderness Area	3523	< 1
BLM	2858328	51.3
Native American Tribes	30924	< 1
National Park Service	149918	2.7
Private	1377674	24.7
State of Utah	396388	7.1
State, County, City; Wildlife, Park, and Outdoor Recreation Areas	25860	< 1

USFS	670653	12
USFS Wilderness Area	57305	1
Water	3026	< 1
Total	5574132	

Sage-grouse Population Status and Distribution

The UDWR began using lek counts to monitor sage-grouse populations in the Resource Area in 1969 (Figure 19). That year, 100 male sage-grouse were counted on four leks. During early surveys, the locations of only a few leks were known. Thus, most counts of males are accompanied by the number of leks that were counted that year. There was a wide fluctuation in counts of male sage-grouse at leks throughout the data collection period. According to Connelly et al. (2004), a minimum of ten leks must be counted before a reasonably accurate population estimate can be made. It was not until 1998 that ten or more leks were consistently counted each year. By placing a trend line of a five-year moving average over the males per lek counts, it is noticeable that sage-grouse in the Resource Area have been declining since 1993 (Figure 20). The number of active leks can also be used to index sage-grouse population trends. In recent history, little effort was put forth in the Resource Area to locate new leks or survey activity at historic leks that were no longer being counted. Therefore, in spring 2006, the DWR began searching for undocumented activity. Five new leks were discovered, encouraging the DWR to continue to look for new leks.

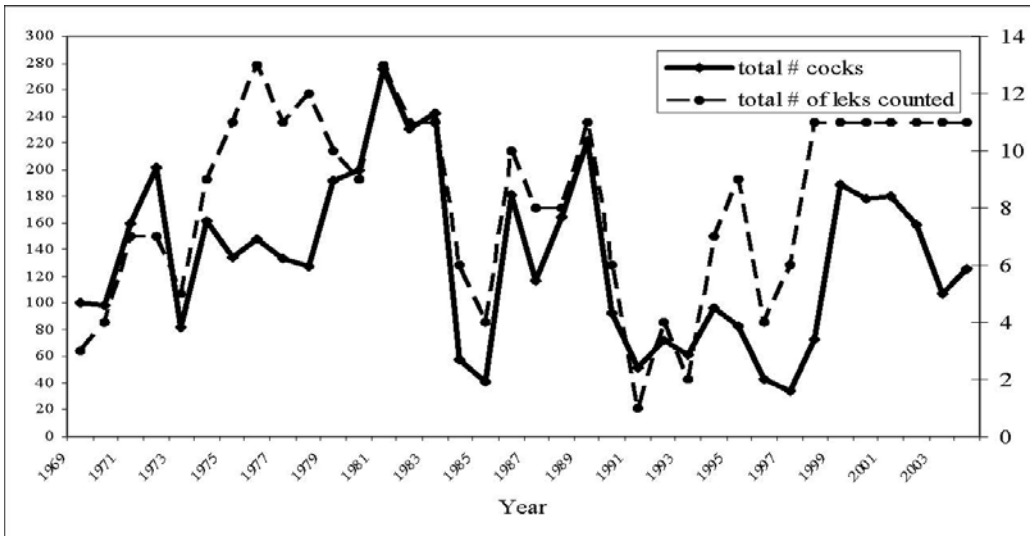

Figure 19. The number of male sage-grouse and sage-grouse leks counted within the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 1969–2005.

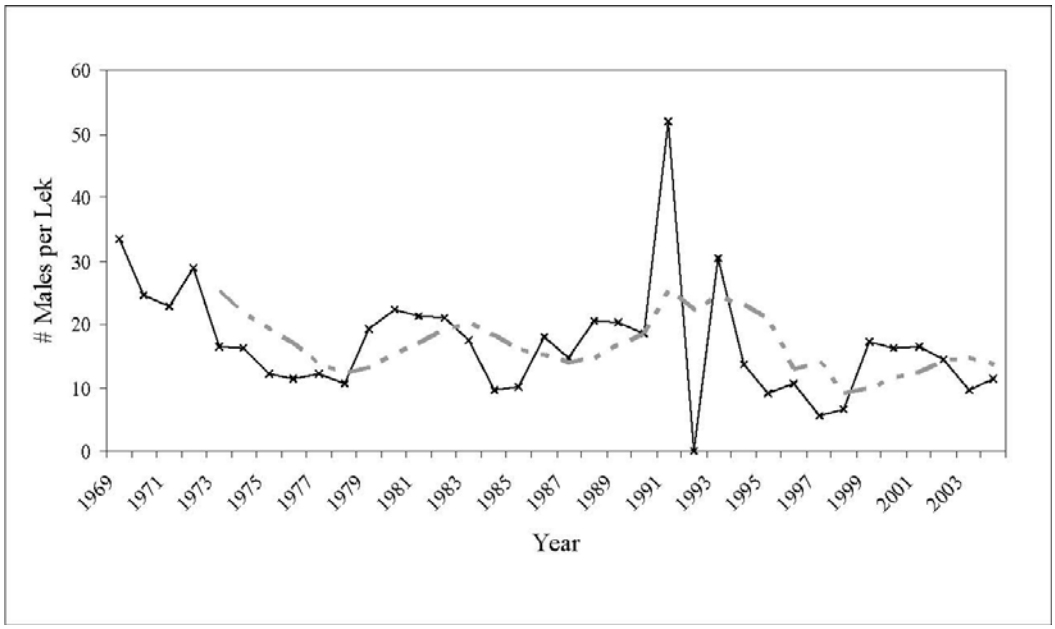

Figure 20. The number of male sage-grouse counted per lek in the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group Resource Area 1969– 2005, shown with a five-year trend line.

c. Key Ecological Indicators and Threats

SVARM 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 28). They then identified and ranked potential threats (Table 29).

Table 28. Greater sage-grouse key ecological aspects identified in Utah's Iron, Milliard, Beaver and Washington Counties, Southwest Desert Adaptive Resources Management 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 re-evaluation
Southwest Desert	Landscape Context	Connectivity of key habitat types	Condition and type of surrounding vegetation	isolated patches of sage-grouse habitat; encroachment by invasive species and/or development; or area heavily disturbed	***Healthy habitat of patchy distribution; managing vegetation may restore most of the communities to a desired quality***	healthy sagebrush community fairly distributed throughout the study area and/or most of the areas have management to maintain a healthy community	healthy sagebrush community well distributed with management in place to maintain this community	Good	Fair	Good	Jan-06	TBD
Southwest Desert	Landscape Context	Connectivity of Sagebrush Communities	Distance to other occupied or potential habitat	Disjointed small patches of habitat isolated from other patches and many barriers to grouse movements between communities.	***Patches of habitat isolated from other patches OR there are barriers to grouse movements between communities***	*Large patches of habitat may be threatened by fragmentation or barriers to grouse movements may be increasing.*	Communities consist of large tracts of unbroken habitat and few barriers limiting sage-grouse movements between communities	Good	Fair	Good	Jan-06	TBD
Southwest Desert	Condition	Breeding Quality (Leks and nesting)	Quality of cover; patch size of sagebrush; disturbance ;strutting patches	roads, trails, man-made structures to disturb lek and nesting, sagebrush patchy and/or sparse; no grass or nesting cover; <10% or > 25% canopy cover	***Either disturbance or sagebrush patchy and/or sparse; canopy cover 10 - 15%; good strutting area; residual grass for nesting***	*Canopy cover 15 - 20%; grass/forb cover > 12%; open lek site;residual grass for nesting*	canopy cover 20 -25%; open areas with grass/forb cover >15%	Good	Fair	Good	Dec-05	TBD
Southwest Desert	Condition	Brood-rearing habitat quality	Sage canopy cover; grass/forb composition and quality	man-made structures facilitating predation; little to no grass/forbs; sagebrush and shrubs sparse	man-made structures nearby; grass/forbs < 10% of habitat	***lack of man-made structures, grass/forb 10 -15% of habitat***	*lack of man-made structures; grass/forb > 15% of habitat*	Good	Good	Very Good	Dec-05	TBD
Southwest Desert	Condition	Riparian Area Quality	Proper functioning condition; classification of water	water intermittent or lacking or PFC rating is "non-functioning"	***PFC rating "functioning at risk"; water intermittent or lacking***	*PFC rating is "properly functioning"; water usually perennial*	PFC rating is "properly functioning"; dependable permanent water source	Good	Fair	Good	Dec-05	TBD
Southwest Desert	Condition	Winter Habitat Quality	Sagebrush canopy cover and height	canopy cover <10%; sagebrush decadent	canopy cover 10 - 15%; sagebrush in poor condition or under 12"	***canopy cover 15 - 20%; age stand diversity includes many patches of decadent sagebrush***	*canopy cover >20%; mosaic age stand diversity*	Good	Good	Very Good	Dec-05	TBD

Southwest Desert	Size	Population Distribution	Distribution of Leks (secondary consideration)	Few leks within the focus area or clumped in one portion of the focus areas	***Active leks well distributed in 1 or 2 of the focus areas but other focus areas are in poor condition***	Active leks well distributed throughout all focus areas	*Active leks well distributed in all focus areas, and new leks found outside the focus areas*	Fair	Fair	Very Good	Dec-05	TBD
Southwest Desert	Size	Population Size	Number of known active leks	< 10	10 -12	**13 - 18**	> 19	Good	Good	Good	Dec-05	TBD
Southwest Desert	Size	Population Size	Number of males counted on active leks	< 200 males	***201- 300 males***	*301-375 males*	> 375 males	Fair	Fair	Good	Feb-06	TBD

Table 29. Relative importance/contribution of threats to sage-grouse populations in Utah's Iron, Milliard, Beaver, and Washington Counties, Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group, 2007. Threats are described in the "Threat Analysis" section of this Plan. Rankings are as follows: L=low; M=medium; H=high; and VH=very high. Ranks are defined according to TNC (2005).

	Aspects of Sage-grouse population in the SWARM Resource Area							
Threat	Lack of key habitat type connectivity	Poor Condition of Surrounding Community	Degradation of Winter Habitat Quality	Loss of Breeding Quality (Leks and nesting) Habitat	Loss of Brood-rearing habitat quality	Loss of Riparian Area Quality	Reduction of Population Size	Reduction of Popula-tion Distribu-tion
Enhanced native and domestic predators	Medium	Low	Low	High	High	Medium	High	High
Recreation use	Medium	Medium	Medium	High	High	High	Medium	Medium
Invasive/ alien vegetation species	High	High	High	Very High	High	Medium	High	High
Concentrat ed wildlife and/or livestock use	High	Medium	Medium	High	High	Medium	Medium	Medium
Fire and Vegetation Manage-ment	High	Medium	Medium	High	High	High	High	High
Developme nt of roads or utilities	High	Medium	Low	Very High	High	Medium	Medium	High
Lack of communica tion among public parties	Medium	Medium	Low	High	Medium	Medium	Medium	Medium
Diseases and parasites	Medium	Medium	Low	High	Medium	Medium	High	High
Alternative Land Uses (mining, wind power, water develop-ment)	High	High	Medium	High	High	High	High	High
Dramatic Weather	High	Medium	Medium	Very High	High	High	High	High

Events								

d. Status of Conservation Action and Strategies

SWARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here SWARM 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 SWARM conservation plan visit the following web site address: http://utahcbcp.org/files/uploads/SWARM/SVARMfnl-10-06-web.pdf. The SWARM LWG will review and update their Plan in early 2009

1. **Strategy:** Improve age distribution of sagebrush-steppe communities by 2016.
   1.1. Action: Identify and prioritize target areas needing improvement.
   Status: Working group has identified Hamlin Valley and Pine Valley as the primary target for grouse research and monitoring
   1.2. Action: Coordinate associations among agencies and landowners to fund implementation of projects and monitoring.
   Status: Each meeting consists of a report from each agency to notify group about upcoming projects. The group then collaborates as needed. For example, collaboration resulted in support for a retired UDWR employee to search for new lek sites based on his research from the 1970s.
   1.3. Action: Monitor the response of sage-grouse to changing habitat conditions.
   Status: We have 2 research studies initiated to monitor the change in grouse use in areas where UDWR and BLM have conducted habitat improvement projects.
   1.4. Action: Implement treatments to change age class distribution of sagebrush.
   Status: At least 2 projects have been initiated in the focus areas due to discussions at the SWARM meeting to improve sagebrush age class. Mechanical, chemical and fire treatments have been used.
   1.5. Action: Assist agencies in assessing wildfires in focus areas and restoration needs for sagebrush seed in mixes.
   Status: The group partners have surveyed areas after a fire (eg. Bald Hills) to determine grouse losses and post-fire use of the area by grouse. USU has submitted a proposal to study the effects of fire on grouse use of habitat.

2. **Strategy:** Improve water availability in brood-rearing habitat by 2016.
   2.1. Action: Survey and evaluate current water sources and needs.
   Status: Hamlin Valley has been surveyed as to water condition. BLM has proposed several projects to improve springheads. NRCS has signed on 2 projects to improve water conditions for grouse.
   2.2. Action: Partner with watershed specialists to identify new water sources.
   Status: NRCS, DWR, and BLM have surveyed potential sources, such as removing trees,

improving grazing practices, etc. to create new water sources (or reclaim historical sources).

2.3. Action: Restore and improve wildlife access to water.

Status: NRCS has signed on two landowners to initiate projects that improve water sources. These projects have modifications that designed specifically to improve access to water for most wildlife species.

2.4. Action: Improve riparian conditions.

Status: BLM has approved several major projects in Hamlin Valley that will improve riparian conditions along Ash Creek, marsh areas around springheads, and develop "spillouts" around existing water troughs.

3. **Strategy:** Improve wildlife and livestock distribution in winter and brood-rearing habitat throughout the next ten years.

3.1. Action: Identify and prioritize target areas needing improvement.

Status: Hamlin Valley and Pine Valley have been identified as our priority areas. Additionally, within these valleys important areas for grouse have been identified and projects across agencies have been prioritized as to our focus and monitoring.

3.2. Action: Implement habitat improvements and direct management actions to improve distribution.

Status: Two projects in Hamlin Valley have been coordinated between NRCS and BLM to install fences, watering sources, and initiate habitat improvement projects to change livestock land use and distribution.

4. **Strategy:** Increase participation of local public and private landowners with SWARM over the next ten years.

4.1. Action: Develop partnerships with landowners and interest groups to increase visibility of sage-grouse management.

4.1.1. **Action step:** *Develop fact sheet to distribute to special interest groups concerning sage-grouse natural history and threats to populations.*

Status: A fact sheet has been created and distributed

4.1.2. **Action step:** *Identify regional groups and their contact person to promote cooperation from these groups.*

Status: A list of regional groups was created during a meeting. Several group members assisted in contacting a representative from each group. These people also get emails announcing the next meeting.

4.2. Action: Host open houses, field tours, and presentations.

Status: An annual open house was initiated last fall and will be repeated annually. Field tours, organized and initiated by the group, have been conducted several times each year to investigate potential projects or investigate the status of an ongoing project.

4.3. Action: Distribute annual reports to local management agencies, county commissioners, and other interested parties.

Status: Annual reports of agency projects are distributed among our group. Additionally, annual reports of research are disseminated at the group meeting as well as post-mailed to county commissioners and other parties.

4.4. Action: Develop incentives for landowners and interest groups.

4.4.1. Action step: Host educational field trips and provide interpretive areas.

Status: Educational field trips were conducted during the summer 2007. Several trailheads were identified as places to install interpretive signs.

5. Strategy: Locate and monitor new active lek sites over the next ten years.

5.1. Action: Survey landowners and land users to determine sage-grouse distributions.

Status: Via NRCS employees and county Extension employees, landowners are continuously surveyed to gather sage-grouse locations and habitat use information. This information is gathered at the local working group meetings and entered into the DWR database as well as USU Extensions records.

5.2. Action: Investigate possible new lek sites based on local reports.

Status: Independently, group members investigate local reports. This has expanded our information regarding habitat use and distribution, but has not resulted in new lek sites.

5.3. Action: Survey for new lek sites during lek counts and survey historic sites for new activity.

Status: UDWR supported a retired employee to investigate possible new lek sites. 6 new sites were found. This effort will be repeated each spring.

6. Strategy: Maintain or increase sage-grouse populations through direct management.

6.1. Action: Work with enforcement agencies to prevent illegal harvest of sage-grouse.

Status: Local reports or comments concerning possible poaching were recorded by group members. These reports were in turn reported to UDWR Conservation Officers and USFWS enforcement. These 2 groups will increase their presence in the areas where potential poaching might occur again.

6.2. Action: Monitor the presence of West Nile Virus or other diseases in sage-grouse populations.

Status: During the summer months, UDWR monitors the presence of WNV throughout the state. These reports are emailed to the facilitator and shared with the group. Suspicious deaths of birds are reported among the group as well.

7. Strategy: Manage unwanted plant species in sage-brush steppe habitat by 2016.

7.1. Action: Remove juniper and pinyon pines from brood-rearing habitat.

Status: Several projects have been initiated by management agencies throughout the focus areas to reduce invasive juniper and pinyon pines.

7.2. Action: Reduce abundance of unwanted and/or invasive plant species.

7.2.1. Action step: Re-seed area after land disturbances such as mechanical treatments, fire, and human development.

Status: UDWR and BLM have grouped together to be more efficient with reseeding efforts post-treatment.

7.3. Action: Evaluate and utilize chemical applications where appropriate to restore habitat dominated by cheatgrass and/or noxious weeds.

Status: A research project was initiated to study the impacts of chemical treatments on sagebrush in Hamlin Valley. This study will also monitor the establishment of cheatgrass in the area.

8. **Strategy:** Minimize impacts of new land developments and/or recreational uses on sage-

grouse populations during the next ten years.

8.1. Action: Provide consultations and recommendations for new land developments and/or recreational uses.

Status: The group has written letters of recommendations for proposed ATV and recreation trails that may impede on grouse habitat use. Additionally, NRCS is actively engaged in the working group process and utilizes the grouse management plan when assisting with landowner project development.

8.2. Action: Regularly discuss new developments and alternative land uses to management agencies at local working group meetings.

Status: The group reports on new developments at each meeting and determines what actions the group should take to support the development or provide comments.

8.3. Action: Provide input into management plans for federal, state, and local agencies.

Status: Due to the constant involvement of agencies in the working group, we are able to provide input to their representatives within the group, who then share this with the management agency.

9. Strategy: Take steps to reduce the negative impact of dramatic weather events during the next ten years.

9.1 Action: Manage for diverse and healthy habitat that will withstand effects of drought or other long-term weather events.

Status: A diverse array of projects have been initiated that will improve the health of the ecosystem. By managing for diversity within these ecosystems, we feel that they will be better able to withstand drastic weather events and drought.

10. Strategy: Reduce threat of predators on sage-grouse over ten-year period.

10.1. Action: Determine predator community composition and depredation rate.

Status: A study of the predator community around Cedar City has been initiated and will be summarized by Fall 2008.

e. Habitat Improvements and Completed Conservation Actions

The BLM has participated in several projects to improve areas that were degraded, in an effort to improve sagebrush habitat. For example, in 1999 280-acres and in 2003 370-acres were reseeded to stimulate growth of sagebrush-steppe vegetation. In 2005, the BLM reseeded Lee's Wash after a wildfire to promote the re-growth of this landscape into a healthy sagebrush-steppe ecosystem.

Table 30. Habitat improvement projects implemented to mitigate sage-grouse threats identified by the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group, 2005-2007.

Year	Project Name	Acres
2005	Fishlake NF Sagebrush Enhancement	4445

2006 (proposed)	South Beaver Rehabilitation	2000
	Brad Bowler chaining	1000
	North Hills Lop and Scatter	1000
	Blawn Wash Seeding	2700
	Salt Cabin Re-seed	1200
	Pine Valley Guzzler Repair	
	Hamlin Valley Pinyon Juniper Removal	1000
	Hamlin Valley	10
	Mt. Home Post Harrow Cutting	2500
	Parowan Front Dixie Harrow	250

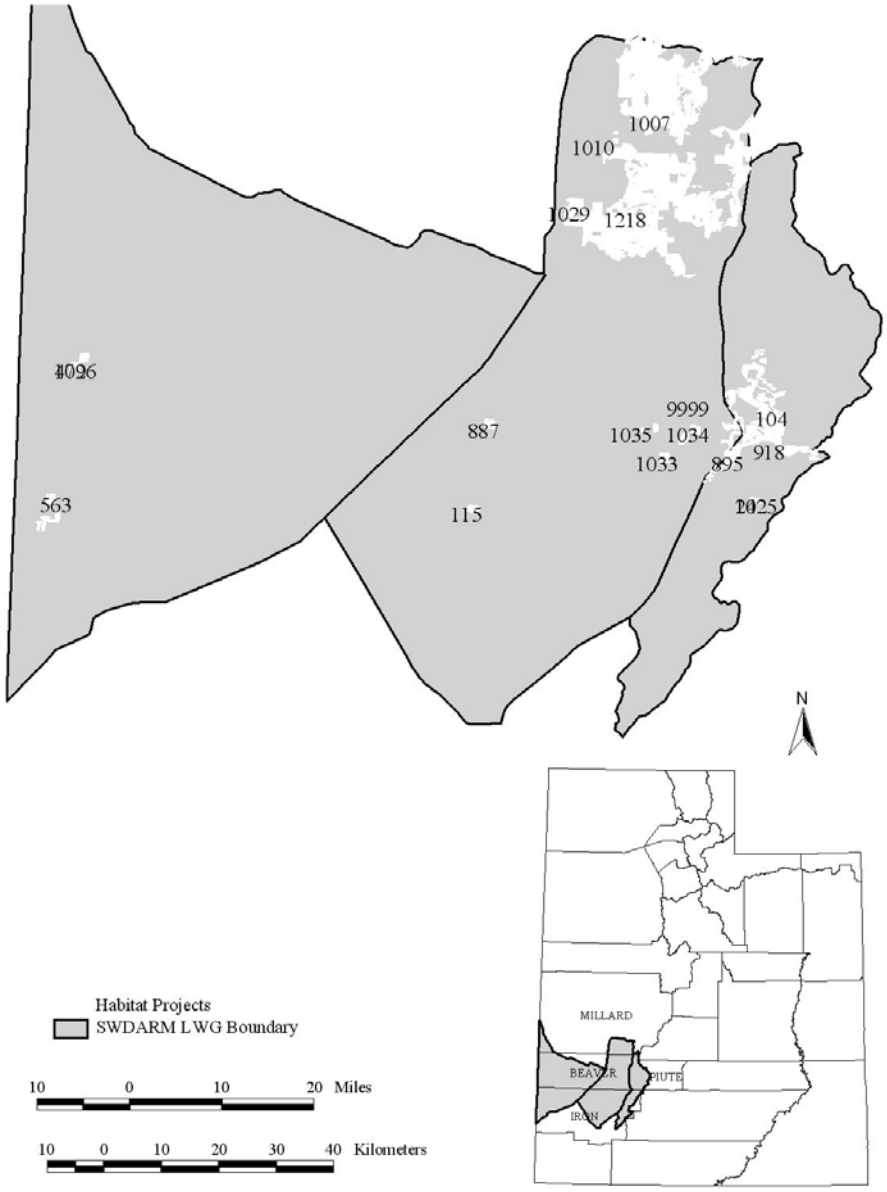

Figure 21. Location of habitat projects completed to mitigate sage-grouse threats in the Southwest Desert Adaptive Resources Management Sage-grouse Local Working Group Resource Area, 2006-2007.