

**Utah's Adaptive Resources Management
Greater Sage-grouse Local Working Groups**

Accomplishment Report

2009-2010



Photo by Todd Black

November 2010

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Utah's Adaptive Resources Management Greater Sage-grouse Local Working Groups

Submitted to

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Preface

This report summarizes the 2009 and early 2010 accomplishments of Utah's Adaptive Resource Management Greater Sage-grouse (*Centrocercus urophasianus*, hereafter referred to as sage-grouse) Local Working Groups (LWGs). These groups were facilitated by staff affiliated with the Utah Community-Based Conservation Program (CBCP). This report incorporates the information requested under 50 CFR Chapter IV, US Fish and Wildlife Service (USFWS) Policy for Evaluation of Conservation Efforts (PECE) When Making Listing Decisions (USFWS 2003). Specific topics addressed by the LWGs plans include:

1. Staffing, funding, funding sources, and other resources necessary to implement LWG's plans.
2. Legal authority of the partners to implement the plan.
3. The legal procedural requirements (environmental reviews) needed to implement the plans and how this will be accomplished.
4. Authorizations or permits that may or will be needed and how these will be obtained.
5. The type and level of voluntary participation (number of landowners involved, types of incentives used to increase participation).
6. Regulatory mechanisms (laws, ordinances, etc.) that may be necessary to implement the plans.
7. A statement regarding the level of certainty that the funding to implement the plans will be obtained.
8. An implementation schedule to include incremental completion dates.
9. A copy of LWG's approved management plans (These reports are available on our web site www.utahcbcp.org).

The conservation plans discuss the level of certainty that the management efforts identified and implemented will be effective. Specific topics addressed in the conservation plans include:

1. The nature and extent of threats to be addressed by the LWG's plans and how management efforts will reduce the threats described.
2. Explicit objectives for each management action contained in the plans and dates for achieving.
3. The steps needed or undertaken to implement management actions.
4. The quantifiable, scientifically valid parameters by which progress will be measured (e.g., change in lek counts, improved habitat conditions).
5. How the effects of the management actions will be monitored and reported.
6. How the principles of adaptive management resource management are being implemented.

The LWG sage-grouse conservation plans, previous annual reports, and meeting minutes can be accessed at www.utahcbcp.org.

Executive Summary

The Community-based Conservation Program (CBCP) encompasses the historical range of sage-grouse in Utah as identified in the 2002 (2009 revised) Strategic Management Plan for Sage-grouse (Figure 1). The plan, approved by the Utah Wildlife Board on 1 June 2002 (revised 2009), mandated the organization of local sage-grouse working groups (LWGs) to develop and implement sage-grouse conservation plans. The Utah Division of Wildlife Resources (UDWR) in cooperation with Utah State University Extension (USUEXT), private landowners, public and private natural resource, wildlife management, and conservation agencies and organizations have implemented the CBCP.

In 2009-2010, Utah's Adaptive Resources Management Greater Sage-grouse (hereafter referred to as sage-grouse) LWGs continued implementation of their Sage-grouse Conservation Plans (Plan). The LWGs include representatives from state and federal agencies of land and resource management, non-governmental organizations, private industry, local communities, and private landowners.

In this report we summarize efforts of the LWGs to implement the conservation strategies and actions outlined in their Plans. Please note that if a strategy or an action number is missing from this report or no comments are reported under a specific strategy; it means that no action(s) were reported during the period towards its completion. These strategies meet the guidelines set forth by the US Fish and Wildlife Service (USFWS) in their Policy for Evaluation of Conservation Efforts (PECE) standards. The conservation strategies and actions address the five USFWS listing factors as they apply to sage-grouse in each LWG area. Plan recommendations and guidance are voluntarily being implemented by all LWGs. The LWGs meet regularly to review actions and encourage adoption of Plan conservation strategies and actions. In 2009-2010, additional emphasis was placed on identifying population and habitat conditions and issues specific to each LWG conservation area.

Each LWG plan contains a table of ranked threats that currently or potentially affecting sage-grouse and sagebrush habitats in their area. This threat analysis, combined with recommended strategies and actions, provided a framework for LWGs to implement their Plans over the next ten years. Plans are being implemented using an adaptive resource management approach. As new information emerges from local and range wide conservation efforts, the LWGs are using it to update management strategies, and priorities in their area. All 10 Utah LWGs have completed sage-grouse conservation plans. These plans and summaries of LWG activities can be found online at www.utahcbcp.org.

In 2010, the USUEXT/UDWR LWG partnership (Utah Community-based Conservation Program) was recognized by the Utah Center for Rural Life at Southern Utah University with a 2010 Utah Rural Honors Award. The award was presented by Gov. Gary Herbert at the 2010 Utah Rural Summit, held in Cedar City, Utah on the SUU campus. The award recognizes the unique partnership for engaging Utah rural communities in proactive efforts to conserve sage-grouse and other sagebrush obligate species.

Staff

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Funding:

In July 2006, Utah State University entered into a 5 year agreement with the Utah Division of Wildlife Resources (UDWR) to develop and facilitate the Utah Community-Based Conservation Program. This agreement provides up to \$136,000 annually in funding and in-kind matches through June 30, 2011, to conduct the program. Additional funding of up to \$160,000 a year is provided through by the Jack H. Berryman Institute through Utah State University Extension. Additional support in terms site and agency specific grants and contracts in the amount of \$300,000 were entered into in 2009-2010 to support local working group activities, project monitoring and evaluation.

Legal Authority

The LWG Plans implement Utah's Sage-grouse Strategic Management Plan (Strategic Plan) that was approved by the Utah Wildlife Board in 2002 (UDWR 2002, revised 2009).

Project Goals

1. Protect, enhance, and conserve Utah sage-grouse populations and sagebrush-steppe ecosystems.
2. Establish sage-grouse in areas where they were historically found and the current sagebrush-steppe habitat is capable of maintaining viable populations (Utah Sage-Grouse Management Strategic Plan 2002).
3. Protect, enhance, and conserve other sensitive wildlife species that inhabit Utah

sagebrush-steppe ecosystems.

4. Sustain and enhance socio-economic conditions in affected local communities.
5. Complete actions that make listing sage-grouse as threatened or endangered unwarranted and/or assist in recovery if the species are listed.
6. Increase local stakeholders and community involvement and ownership in the species conservation planning processes.
7. Increase LWGs awareness, appreciation, and the application of the use of science in making land use and population management decisions.

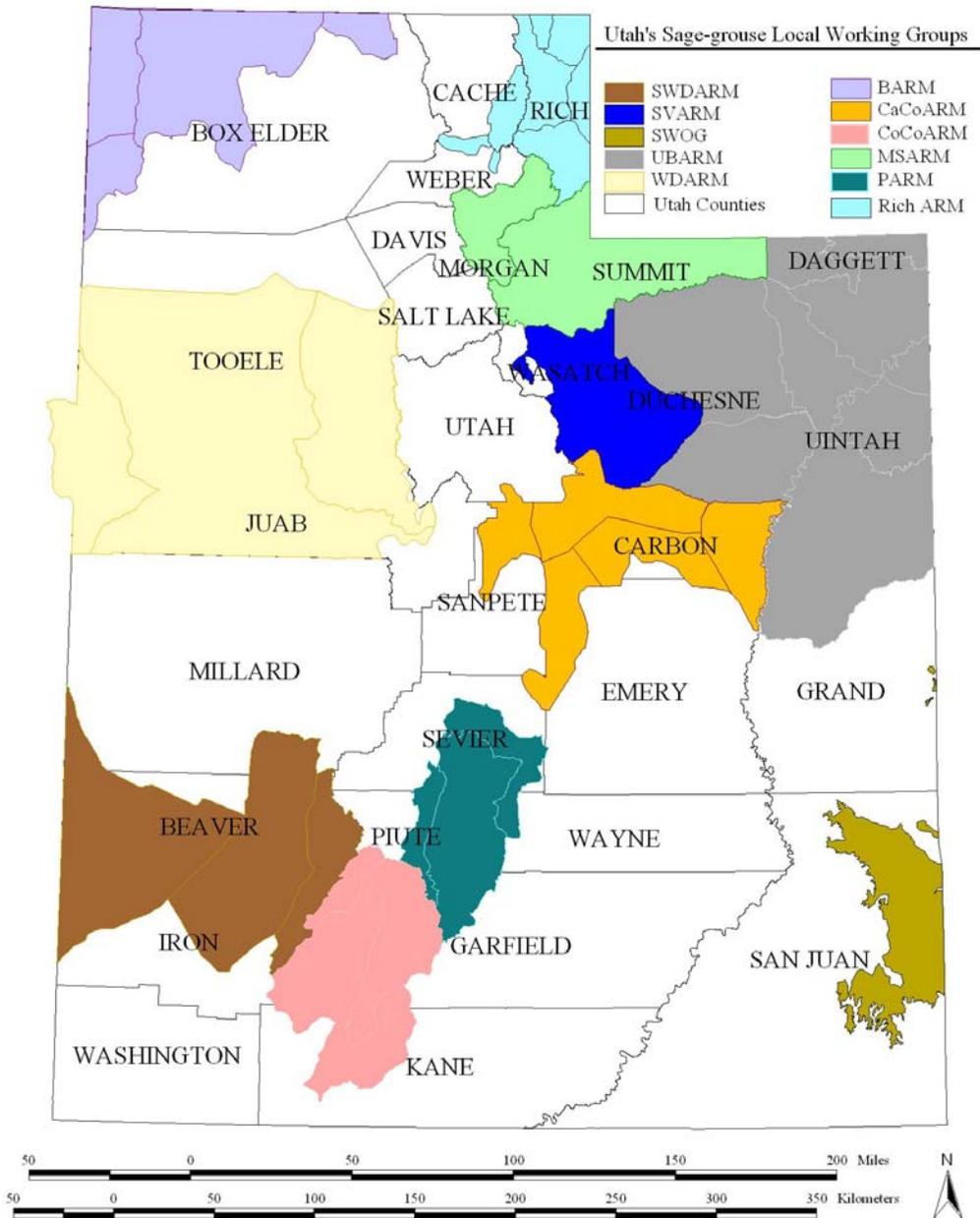


Figure 1. Utah Sage-grouse Conservation Areas, Utah Strategic Management Plan for Sage-grouse (UDWR 2009). (Note this report summarizes conservation actions completed to benefit greater sage-grouse. Thus it does not include Gunnison sage-grouse conservation actions. This species inhabits San Juan County).

Table of Contents

Preface.....	2
Executive Summary	3
Box Elder County Adaptive Resources Management (BARM) Sage-Grouse Local Working Group	9
Castle Country Adaptive Resources Management (CaCoARM) Sage-Grouse Local Working Group	17
Color Country Adaptive Resources Management (CoCARM) Sage-Grouse Local Working Group	29
Morgan/Summit Adaptive Resources Management (MSARM) Sage-Grouse Local Working Group	33
Parker Mountain Adaptive Resources Management (PARM) Sage-Grouse Local Working Group	39
Rich County Coordinated Resources Management (RICHCO) Sage-Grouse Local Working Group	50
Southwest Desert Adaptive Resources Management (SWARM) Sage-Grouse Local Working Group	65
Strawberry Valley Adaptive Resources Management (SVARM) Sage-Grouse Local Working Group	69
Uintah Basin Adaptive Resources Management (UBARM) Sage-Grouse Local Working Group	77
West Desert Adaptive Resources Management (WDARM) Sage-Grouse Local Working Group	88
Literature Cited	95

List of Figures

Figure 1. Utah Sage-grouse Conservation Areas, Utah Strategic Management Plan for Sage-grouse (UDWR 2009)	6
Figure 2. The Box Elder Adaptive Resource Management (BARM) Sage-grouse Local Working Group Conservation Area consists of 1,702,251 acres located in north-western Utah.....	9
Figure 3. The Castle Country Adaptive Resource Management (CaCoARM) Sage-grouse Local Working Group Conservation Area consists of 1,906,443 acres located in eastern Utah.....	17
Figure 4. The Color Country Adaptive Resource Management (CoCARM) Sage-grouse Local Working Group Conservation Area consists of 4,956,258 acres located in south-central Utah	29
Figure 5. The Morgan-Summit Adaptive Resource Management (MSARM) Sage-grouse Local Working Group Conservation Area consists of 1,608,659 acres located in northern Utah.....	33
Figure 6. The Parker Mountain Adaptive Resource Management (PARM) Sage-grouse Local Working Group Conservation Area consists of 1,789,644 acres located in western Utah.....	39
Figure 7. The Rich County Coordinated Resource Management (RICHCO) Sage-grouse Local Working Group Conservation Area consists of 661,760 acres located in north-eastern Utah	50
Figure 8. The Southwest Desert Adaptive Resource Management (SWARM) Sage-grouse Local Working Group Conservation Area consists of 5,672,052 acres located in south-eastern Utah.....	65
Figure 9. The Strawberry Valley Adaptive Resource Management (SVARM) Sage-grouse Local Working Group Conservation Area consists of 948,568 acres located in north-eastern Utah	69
Figure 10. The Uintah Basin Adaptive Resource Management (UBARM) Sage-grouse Local Working Group Conservation Area consists of 5,375,423 acres located in eastern Utah.....	77
Figure 11. The West Desert Adaptive Resource Management (WDARM) Sage-grouse Local Working Group Conservation Area consists of 5,137,991 acres located in western Utah.....	88

Box Elder County Adaptive Resources Management (BARM) Sage-Grouse Local Working Group

The West Box Elder Adaptive Resource Management Plan (BARM) Sage-grouse Local Working Group was organized in 2001. The group is facilitated by Mr. Todd A. Black. The BARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals.

In 2009 and 2010, BARM met formally three times to discuss strategies and actions and review research findings. Additionally, BARM members participated in two field tours where BARM members reviewed habitat improvement projects in and around the Park Valley area.

The information below summarizes efforts made by BARM and its partners to mitigate threats and implement conservation actions identified in the Box Elder Adaptive Resources Management Greater Sage-grouse Local Conservation Plan, October 2006. This adaptive plan remains in effect until the year 2016. BARM partners reported on specific actions completed or addressed in 2009-2010 and identified steps to be taken to implement additional actions into subsequent years of the plan. The “key ecological aspects (KEA)” were not changed during this reporting period. The BARM will re-assess KAE’s in the fall of 2010 to determine if changes are warranted. For a complete list of threats identified by the BARM group, see page 64 of the conservation plan located on line at http://utahcbcp.org/files/uploads/BARMSAGRPlan_Final.pdf



Figure 2. The Box Elder Adaptive Resource Management (BARM) Sage-grouse Local Working Group Conservation Area consists of 1,702,251 acres located in northwestern Utah.

Conservation Strategies and Actions: 2009-2010 Accomplishments

1. Strategy: By 2016, identify P/J stands within the resource area that encroaching in key sage-grouse habitat.

1.1. Action: Revisit and make recommendations to retreat as needed P/J removal sites.

BARM members continue to work on identifying areas where P/J is encroaching and working with the Watershed Restoration Initiative (WRI) to secure funding and to reduce this threat.

2. Strategy: By 2011 make an assessment of cheat grass and other non-desirable species in sage-grouse habitats.

2.1. Action: Review and monitor all vegetative sampling by all partners (range trend crew completed surveys in 2006 and again in 2011).

BARM data suggested that cheatgrass is increasing in abundance and at higher elevations. This could be in response to observed increases in average temperatures.

2.2. Action: Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other invasive weed species.

No fires were used for habitat restoration in areas where cheatgrass was present in 2009-2010.

2.3. Action: Evaluate all wildfires and prescribed burns and reseed with appropriate species to prevent establishment of cheatgrass and other invasive weed species.

Lynn seeding area was evaluated and BLM will take action in 2010 to complete the reseeding.

2.4. Action: Work with and identify other partners (County, Utah Department of Transportation, and private industry) to establish fire breaks in key areas to protect important sage-grouse habitat.

BARM partners met with BLM to discuss areas to establish fire breaks to protect key wintering and lekking areas for sage-grouse in and around Badger Flats, Dairy Valley, and Curlew Junction.

2.5. Action: Treat areas where undesirable vegetation has become, or is at risk of becoming, a factor in sage-grouse habitat loss or fragmentation.

No action taken in 2009-2010.

2.6. Action: Work with existing weed management programs to control noxious weeds in the Resource Area.

BARM members continue to work with County weed boards in identifying any areas of concern.

2.7. Action: Identify large areas of introduced plant species that are not meeting sage-grouse habitat needs and reseed with native species where appropriate.

No action taken in 2009-2010.

2.8. Action: Identify areas where pinyon or juniper trees are encroaching on good quality sagebrush habitat and treat as needed.

See strategy 1 action 1

2.8. Action: Manage fire, transportation, and vegetation treatments to minimize undesirable vegetation where possible.

No action taken in 200-2010.

3. Strategy: By 2011, complete an assessment on the condition of available water sources and identify potential new water improvement/development projects.

3.1. Action: Manage vegetation and artificial structures to increase water-holding capabilities of likely habitat.

No action taken in 2009-2010.

3.2. Action: Install catchment structures to slow run-off, hold water, and eventually raise water tables.

BARM members were assigned areas within each of their respective jurisdictions to identify potential areas and will report in late2010.

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

No action taken in 2009-2010.

3.3. Action: Locate projects to minimize potential loss of water table associated with wet meadows.

BARM members were assigned areas within each of their respective jurisdictions to identify potential areas and will report in late2010. This report will be included in our 2011 summary.

3.3. Action: Identify key elements of various water projects by developing partners to work cooperatively to maintain existing water sources.

No action taken in 2009-2010.

4. Strategy: By 2011, identify key public, private, and Utah School and Trustlands Administration (SITLA) lands in the Conservation Area (specific locations to be selected) that are protected and/or managed so as to conserve/improve sage-grouse nesting habitat.

4.1. Action: Encourage use of BARM defined desired conditions for state, private, and federal lands and influence management actions in order to move toward those conditions.

BARM partners discuss these areas as projects come up.

4.2. Action: Support partner efforts for special designations that protect sage-grouse nesting habitat on public, private, and SITLA lands.

The BARM group identified the Rosebud/Muddy/Upper Dove Cr./Upper Grouse Cr./Cotton Thomas/Upper Meadow Cr. lek complexes as areas that need special protection and consideration. Almost 80% of all west Box Elder lekking birds and the corresponding nesting occur in an area from Immigration road north to middle/upper Dove Creek, upper Lynn Valley west to Kimbell Cr., north through Cotton Thomas Basin and southwest into the upper Meadow Cr./Joe Dahr Cr. Basin. This relatively small area is the core of the BARMS sage grouse population with corresponding metapopulation extensions into Idaho and NE Nevada.

4.3. Action: Use available grouse and brood telemetry data to identify key nesting/brooding habitat areas within the Grouse Creek sub unit.

Ongoing. USU graduate students are continuing research to identify important areas. This work will be completed by 2012.

4.4. Action: Pursue habitat improvement projects (to meet Desired Conditions) on private and SITLA lands in areas used by sage-grouse for nesting habitat.

All habitat improvement projects are approved and presented to WRI and have BARM support.

4.5. Action: Identify research needs to address sagebrush treatments at 'lower' elevations where the majority of these nesting activities occur.

BARM has identified additional research needs for wintering areas and creating fire breaks and improving wintering habitat in the Badger Flat and Dairy Valley area of the Grouse Creek sub unit and in the Park Valley area.

4.6. Action: Use mechanical or chemical treatments to reclaim and/or reseed areas (when necessary) using suitable seed mixtures.

No action taken in 2009. In the fall of 2010, BLM completed green stripping to mitigate wildfire potential on Badger flats. USU will be evaluating the vegetation and sage-grouse responses in 2011-2013.

4.7. Action: Where economically feasible, restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation.

On going with WRI projects, all WRI funded projects are reviewed by BARM members and re-seeding efforts are a wildlife/sage-grouse approved mix.

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

On going with WRI projects, all WRI funded projects are reviewed by BARM members and re-seeding efforts are a wildlife/sage-grouse approved mix.

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

On going with WRI projects, all WRI funded projects are reviewed by BARM members and re-seeding efforts are a wildlife/sage-grouse approved mix.

5. Strategy: By 2011, identify key public, private, and SITLA lands in the Conservation Area (specific locations to be selected) are protected and/or managed so as to conserve/improve sage-grouse lekking areas/habitat.

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

No action taken in 2009-2010.

5.2. Action: Encourage use of defined desired conditions for state, private, and federal lands and influence management actions in order to move toward those conditions.

On-going

5.3. Action: Support partner efforts for special designations that protect sage-grouse lekking habitat on public, private, and SITLA lands.

No action taken in 2009-2010.

5.4. Action: Pursue habitat improvement projects (to meet Desired Conditions) on public, private, and SITLA lands in areas used by sage-grouse for lekking.

No action taken in 2009-2010.

6. Strategy: Minimize the impact of excessive predation.

6.1. Action: Begin site-specific predation management considering all predator species (especially common raven) where necessary and appropriate.

2009 BARM met with USDA Wildlife Services to identify raven routes for WS to place poisoned eggs to help with raven predation on sage-grouse nest. Work will continue in 2010-2011.

6.2. Action: Support efforts of USDA-WS to remove red foxes and ravens in areas used by sage-grouse for nesting and brood-rearing during spring and early summer.

See 6.1

7. Strategy: Through 2016, avoid natural resource development within important sage-grouse

use areas. If development does occur, work with industry to minimize impacts.

7.1. Action: Participate in county planning efforts for natural resource exploration and development to ensure that biodiversity impacts are minimized.

BARM members commented on various aspects of the project, see Ruby pipeline EA

7.2. Action: Cooperate with partners (BLM/USFS/SITLA/NRCS) planning efforts to minimize impacts on sage-grouse and sage-grouse habitat.

BARM members commented on various aspects of the project, see Ruby pipeline EA

8. Strategy: By 2016, identify measures to protect key wintering areas available to sage-grouse.

8.1. Action: Use available grouse telemetry data in the Grouse Creek sub unit and local knowledge in other sub units to map these areas.

USU researchers started working on this in 2009 to map these areas and expect to be completed by late 2011.

8.2. Action: Work with public and private partners to identify areas through winter locations (Dry Basin, Montgomery Ranch, South Kilgore, Dakes Pass).

Ongoing USU research has identified additional wintering areas. These areas have been mapped. BARM partners met with BLM to discuss areas to establish fire breaks to protect key wintering and lekking areas for sage-grouse in and around Badger Flats, Dairy Valley, and Curlew Junction.

8.3. Action: Use UDWR fixed wing winter surveys for big game to identify areas.

No action taken in 2009 with the UDWR

9. Strategy: By 2009, maintain or increase populations of sage-grouse in the Conservation Area.

9.1. Action: Support continued sport hunting within current UDWR models.

BARM group supports current UDWR harvest recommendations and models.

9.2. Action: BARM group will consider support of any translocation of sage-grouse hens from the Conservation Area.

No birds were translocated in 2009 or 2010.

9.3. Action: Work with UDWR to explore other methods (Selected lek or lek complexes counts and statistical inferences,

Post doc work by USU to explore and evaluate these methods. Results expected by 2012

10. Strategy: Increase cooperation and coordination between BARM and other public and private partners.

10.1. Action: Continue with quarterly BARM meetings. Review and assess our local plan and MOU.

BARM partners meet 3-4 times a year as a group with three meetings and a field tour in 2009-2010. See BARM meeting schedule on the web at <http://utahcbcp.org/htm/groups/boxelder>

11. Strategy: Through the duration of the plan, continue looking at and evaluating current predator management strategies especially in areas used by sage-grouse for nesting and brood-rearing.

11.1. Action: Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas, where feasible and where predator concerns have been identified.

USU published results of these monitoring efforts in; http://utahcbcp.org/files/uploads/boxelder/Thacker_Dissertation%20.pdf and http://utahcbcp.org/files/uploads/boxelder/2008BARM_Final.pdf

11.2. Action: Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.

BLM ongoing lop and scatter and brush hog work east of Badger flat and up Pole Creek and Dry Canyon area.

11.3. Action: Maintain or increase site-specific predation management to consider all predator species (especially common ravens and red fox) where necessary and appropriate.

See strategy and action 6 above

11.4. Action: Initiate research on direct and indirect impacts of predation during each sage-grouse life history phase.

No action taken to date by any working groups.

11.5. Action: Coordinate management and research with USDA-WS.

See strategy and action 6 above

11.6. Action: Support efforts of USDA-WS to remove mammalian predators and corvids in areas used by sage-grouse for nesting and brood-rearing during spring and early summer.

See strategy and action 6 above

11.7. Action: Identify additional sources of funding to continue current predator removal efforts.

Ongoing

Major Needs and Concerns

Wildfire and subsequent invasive species still remain the biggest overall threat to sage-grouse in the conservation area. There are some concerns with the Ruby Pipeline project and how additional fragmentation may affect sage-grouse populations in certain areas. Mitigation measures will be taken by Ruby and monitored by BARM members to determine impacts. Additionally, there are concerns with nest predation and little or no raven control in critical nesting habitat. USU research indicates high nest predation over the past 4 years in the Grouse Creek area. It is believed similar predation rates occur on the Park Valley side of the mountain as well.

Castle Country Adaptive Resources Management (CaCoARM) Sage-grouse Local Working Group

The Castle Country Adaptive Resource Management Plan (CaCoARM) Sage-grouse Local Working Group was organized in 2004. This LWG is facilitated by Mr. Todd A. Black. CaCoARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals.

In 2009-2010, the group met formally three times to discuss strategies and actions and receive research updates. A field tour was held in 2009 to review the Horn and Wildcat Mountain Research project and the Forest Service treatment sites on Wildcat Mountain. Another field trip was held in 2010 to review work proposed by Bill Barrett Corp. on the West Tavaputs Plateau.

The information below summarizes efforts made by individual and partners to address threats and strategic actions for the Castle Country Greater Sage-grouse Local Conservation Plan October 2006. This adaptive plan is in effect until the year 2016. CaCoARM partners reported on specific actions completed or addressed in 2009-2010 and identified steps to be taken to implement additional actions into subsequent years of the plan. For the complete list of threats identified by the CaCoARM group, see page 64 of the conservation plan located on line at http://utahcbcp.org/files/uploads/carbon/CaCoARM_final-01-07.pdf



Figure. 3. The Castle Country Adaptive Resource Management (CaCoARM Sage-grouse Local Working Group Conservation Area consists of 1,906,443 acres located in eastern Utah.

Conservation Strategies and Actions: 2009-2010 Accomplishments

1. **Strategy** By 2011, make an assessment of pinyon/juniper stands in key sage-grouse habitat throughout the conservation area.
 - 1.1. **Action:** Revisit and make recommendations to treat or retreat as needed pinyon/juniper removal sites (west Tavaputs, Horn Mountain, Price Airport (West) benches, Gordon Creek area, Sanpete County area).

CaCoARM partners completed projects in these areas in 2009-2010. The group discussed and felt it important to continue work in this area focusing on SITLA grounds.

2. **Strategy:** By 2011, make an assessment of non-desirable vegetative species in sage-grouse habitats.

2.1. Action: Review and monitor all vegetative sampling data collected by all partners and monitor as needed.

Skyline Cooperative Weed Management Association (CWMA) treated (musk beetle) and sprayed musk thistle and hounds tongue in the Emma Park area to determine encroachment.

2.2. Action: Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other invasive weed species.

No fires were used as treatments in areas prone to invasive species in 2009-2010.

2.3. Action: Evaluate all wildfires and prescribed burns and reseed with species that are adapted to the site and/or competitive with non-desirable plants.

No fires occurred in the conservation area in 2009 but are scheduled for 2010.

3. Strategy: By 2011, assess mesic vegetation sites and identify potential new water projects.

3.1. Action: Identify key elements of various water/erosion projects by developing partnerships to work cooperatively to maintain existing water sources (natural and or manmade) and control erosion.

Ongoing

3.2. Action: Identify key elements of various water projects by developing partnerships to work cooperatively to develop new water sources.

SUFCA Mine and USFS continue to work on improving water distribution in the Wildcat Mtn. area.

3.3. Action: Work with the NRCS and private partners to develop NRCS, WHIP, and EQIP projects that would increase mesic sites and brood-rearing habitat quality in the Conservation Area.

Dixie Harrow work was completed on private property north of Scofield in upland habitat to increase wet meadow area.

3.4. Action: Work with agency partners to develop projects that would increase mesic sites and brood-rearing habitat quality in the Resource Area.

SUFCA Mine and USFS are proposing developing water sources on Wildcat Knoll. Dixie Harrow work was completed on private property north of Scofield in upland habitat to increase wet meadow area.

3.5. Action: Work with private and public partners to monitor effects of water improvement projects on vegetation and sage-grouse habitat use.

No action to monitor effects of water improvement projects were taken in 2009-2010.

3.6. Action: During times of drought, coordinate with public and private partners to maintain water available for sage-grouse during late summer and early fall in areas used by sage-grouse during this time.

No action taken in 2009-2010, non-drought years.

4. Strategy Through 2016, identify key public/SITLA and private lands in the Resource Area (specific locations to be selected) that are recognized by the group as critical to be protected and/or managed to effectively conserve/improve sage-grouse nesting/brood rearing habitat.

4.1. Action: Encourage the use of group defined, desired conditions for state and federal lands and influence management actions in order to move toward those conditions.

On going process with all partners.

4.2. Action: Support partner efforts for special designations that protect sage-grouse nesting/brood rearing habitat on public/SITLA and private lands.

On going process with all partners.

4.3. Action: Use available grouse and brood telemetry data to identify key nesting/brood rearing habitat areas within the Emma Park subunit.

UDWR has completed this information in Emma Park and West Tavaputs. USU is compiling data state wide to develop brood rearing habitat model.

4.4. Action: Support partner efforts to rehabilitate historical nesting/brood rearing habitat within Sanpete subunit.

Dixie Harrow work was completed on private property north of Scofield in upland habitat to increase wet meadow area—also will include grazing management plan.

4.5. Action: Pursue habitat improvement projects (to meet desired conditions) on public/SITLA and private lands in areas used by sage-grouse for nesting/brood rearing habitat.

Ongoing process with all partners.

4.6. Action: Identify research needs to address sagebrush treatments at ‘lower’ elevations where the majority of the nesting/brood rearing activity occurs.

No action taken in 2009—some preliminary data should be available from USU and UDWR research late 2011.

4.7. Action: Work with the NRCS and private partners to develop NRCS, WHIP, and EQIP projects that would increase nesting/brood rearing habitat quality in the Conservation Area.

Dixie Harrow work was completed on private property north of Scofield in upland habitat to increase wet meadow area—also will include grazing management plan.

4.8. Action: Work with agency partners to develop projects that would increase brood-rearing habitat quality in the Conservation Area.

Ongoing process with all partners.

4.9. Action: Work with private and public partners to monitor effects of habitat improvement projects on vegetation and sage-grouse nesting/brood rearing habitat use.

UDWR has monitored vegetation in some areas on the Preston Nutter Ranch.

5. Strategy: Through 2016, identify key public/SITLA and private lands in the Resource Area (specific locations to be selected) that are recognized by the group to be protected and managed to conserve and improve sage-grouse lekking areas and habitat.

5.1. Action: Encourage the use of group defined desired conditions for state and federal lands and influence management actions in order to move toward those conditions

Ongoing process with all partners.

5.2. Action: Support partner efforts for special designations that protect sage-grouse lek habitat on public/SITLA and private lands.

Ongoing process with all partners.

5.3. Action: Use available grouse and brood telemetry data to identify key lek habitat areas within the Emma Park subunit.

UDWR has completed studies in this area. USU researches are compiling and analyzing this and other data from across the state and results should be available late 2011.

5.4. Action: Support partner efforts to rehabilitate historical lek habitat within Sanpete subunit.

No action taken in 2009-2010.

5.5. Action: Pursue habitat improvement projects (to meet desired conditions) on public/SITLA and private lands in areas used by sage-grouse for lek habitat.

Ongoing process with all partners.

5.6. Action: Identify research needs to address sagebrush treatments at ‘lower’ elevations where the majority of the lek activity occurs.

No action taken in 2009-2010, no research has been identified to date.

5.7. Action: Work with the NRCS and private partners to develop NRCS, WHIP, and EQIP projects that would increase lek habitat quality in the Conservation Area.

No action taken in 2009—group will work to identify areas through 2011

5.8. Action: Work with agency partners to develop projects that would increase lek habitat quality in the Conservation Area.

No action taken in 2009—group will work to identify areas through 2011.

5.9. Action: Work with private and public partners to monitor effects of these habitat improvement projects on vegetation and sage-grouse lek habitat.

No action taken in 2009—group will work to identify areas in through 2011.

6. Strategy: Change lek vegetation conditions to allow for predator recognition and visibility.

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

Work continued on Emma Park landowner (Butchers) cleared brush in and around a historical lekking area on approximately 40 acres.

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

No action taken in 2009-2010.

6.3. Action: Maintain and enhance desired conditions for leks.

Work continued on Emma Park landowners cleared brush in and around a historical lekking area on approximately 40 acres.

7. Strategy Increase cooperation and coordination between CaCoARM and public and private partners.

7.1. Action: Work with the NRCS to review and potentially endorse NRCS WHIP and EQIP projects that would benefit sage-grouse in the Conservation Area.

Ongoing process with all partners.

7.2. Action: Continue to work with and identify key landowners within the Resource Area that have sage-grouse or sage-grouse habitat.

Ongoing process with all partners.

8. Strategy: Increase informational and educational opportunities with local community and CaCoARM partners.

8.1. Action: By 2008, develop informational handouts about sage-grouse ecology and CaCoARM activities.

Task accomplished through USU's Community Based Conservation Program (CBCP) newsletter.

8.2. Action: Through 2016, include information about CaCoARM activities in County Extension newsletter.

8.3. Action: Work with NRCS, UDWR and CD to schedule spring field tour of habitat management projects on private lands.

UDWR held a spring lek viewing opportunities on the Emma Park Road.

8.4. Action: Coordinate workshops for private partners to share information about habitat enhancement, funding opportunities, and other relevant topics to be identified as needed.

No action taken in 2009-2010.

9. Strategy: Through 2011, work with industries involved in natural resource development within important sage-grouse use areas to minimize impacts.

9.1. Action: Participate in county planning efforts for natural resource exploration and development to ensure that impacts to biodiversity are minimized.

Ongoing process with all partners.

9.2. Action: Evaluate the interest and possibly develop a demonstration garden for the common vegetative species used in restoration.

Ongoing process with all partners.

9.3. Action: Cooperate with partners' planning efforts to minimize impacts on sage-grouse and sage-grouse habitat.

Ongoing process with all partners. BLM EIS for West Tavaputs.

10. Strategy: Through 2016, increase population and habitat monitoring efforts for sage-grouse

in the Conservation Area.

10.1. Action: Encourage public and private partners to use techniques from Connelly et al. (2003a) “Monitoring of Greater Sage-grouse Habitats and Populations.”

Ongoing process with all partners

10.2. Action: Through 2009, search additional areas (TBD by the group) for new active lek sites.

UDWR surveyed Ford Ridge and the West Tavaputs, Wildcat Knoll, and Horn Mountain areas.

10.3. Action: Work with UDWR to enlist and coordinate private volunteers and/or other agency biologists to search for new leks and conduct lek counts on active leks.

UDWR personnel and volunteers from the public to search for leks in Ford Ridge/Emma Park and the West Tavaputs—USU graduate students and technicians conducted leks searches on Wildcat Knolls and Horn Mountain.

10.4. Action: Coordinate with UDWR, public, and private partners to conduct terrestrial lek searches in areas suspected to contain undiscovered active leks. These sites include the area around Scofield Reservoir, portions of the Tavaputs Plateau, and portions of the South Manti populations.

In 2007/08, UDWR personnel and volunteers from the public to search for leks in Ford Ridge/Emma Park and the West Tavaputs—USU graduate students and technicians conducted searched on Wildcat Knolls and Horn Mountain.

10.5. Action: Through 2016, test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance.

No dead birds were found in 2009-2010.

10.6. Action: Coordinate with UDWR to conduct aerial surveys in areas (Tavaputs and Scofield areas) suspected to contain undiscovered active leks.

Areas were surveyed aerially in 2009.

11. Strategy: By 2016, minimize effects of roads and utilities in areas used by sage-grouse.

11.1. Action: Re-vegetate utility corridors with sage-grouse seed mixes.

More work will continue with re-seeding efforts on private landowners in the Emma Park area. Reclamation and reseeding work done on Emma Park Soldier creek side. Quest re-

seeded the pipeline on the West Tavaputs. UDWR re-seeded an old road in the lower fish creek area.

11.2. Action: Avoid placement of new roads and utilities near lek sites (specific distances should be site specific).

New BLM RMP stated specific regulations with regards to roads.

11.3. Action: Where possible, install perch deterrents on tall structures located in areas used by sage-grouse.

No tall structures were identified and no action taken in 2009-2010 .

***11.4. Action:** Where practical, install low-profile tanks in areas used by sage-grouse.

No tanks installed in 2009-2010.

***11.5. Action:** Work with appropriate agencies to identify and implement seasonal closures of roads as needed to protect critical sage-grouse habitat.

Roads were closed during winter months on West Tavaputs—this action will continue and will be on going.

**new action added to the Area Conservation plan in 2008*

12. Strategy: Through 2016, avoid locating homes or cabins within important sage-grouse use areas, within limits of private property rights. When necessary development does occur, work to minimize impacts to biodiversity.

12.1. Action: Participate in county planning efforts for home and cabin development to ensure that biodiversity impacts are minimized.

CaCoARM members sit on planning boards in Carbon and Emery County.

12.2. Action: Educate County planning departments about where important sage-grouse use areas are located.

CaCoARM members work for various planning departments within the county and keep them apprised of sage-grouse and CaCoARM activities and concerns.

12.3. Action: Establish easements or other land protection in crucial habitat.

CaCoARM members work for various planning departments within the county and keep them apprised of sage-grouse and CaCoARM activities and concerns.

12.4. Action: Work with county planners and county council to establish zoning ordinances for crucial habitat that protect those areas from inappropriate development.

CaCoARM members work for various planning departments within the county and keep them apprised of sage-grouse and CaCoARM activities and concerns.

13. Strategy: Through 2016, avoid locating oil and gas roads or pads near lek sites. Where impacts do occur, implement interim reclamation to well sites as soon as practical.

13.1. Action: Participate in county planning efforts for oil and gas exploration and development to ensure that sage-grouse impacts are minimized.

Ongoing process with all partners. BLM EIS for West Tavaputs.

13.2. Action: Influence BLM/USFS/SITLA/private enterprise planning efforts to minimize impacts to sage-grouse.

Ongoing process with all partners. BLM EIS for West Tavaputs.

14. Strategy: Provide for a use level and management 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.

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

Ongoing process with all partners. Dixie Harrow work was completed on private property north of Scofield in upland habitat to increase wet meadow area—also will include grazing management plan. Bill Barrett Cooperation voluntary rested the Stone Cabin allotment.

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

Ongoing process with all partners.

14.3. 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.

Ongoing process with all partners.

15. Strategy: Maintain and, where possible, improve the perennial forb component in the understory.

15.1. Action: Reclaim and/or reseed areas disturbed by treatments using seed mixtures high in native bunch grasses and desirable forbs.

USFS continued work south of Joes Valley Reservoir and into the Black Dragon area to seed and treat these areas. Also the area around Hayes Wash, Coal Creek and Wood Hill area.

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

Ongoing process with all partners accomplished through collaborative efforts with Utah's WRI.

15.3. Action: Conduct vegetation treatments to improve forb diversity, (e.g., harrowing, aerating, churning) and reclaim or reseed disturbed area, where appropriate.

Plans for West Tavaputs by Bill Barrett Corp. (hand removal of encroaching P/J) as part of a mitigation requirement by BLM.

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

Ongoing with all partners.

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

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

CaCoARM members work for various planning departments within the county and keep them apprised of sage-grouse and CaCoARM activities and concerns.

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

Ongoing process with all partners accomplished through collaborative efforts with Utah's WRI.

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

Ongoing with all partners.

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

Dixie Harrow work was completed private property north of Scofield in upland habitat to increase wet meadow area—also will include grazing management plan.

17. Strategy: Minimize the impact of excessive predation, especially in areas used by sage-grouse for nesting and brood-rearing.

17.1. Action: Plan and conduct research to determine the population-level effects of predation on sage-grouse.

USU research on Wild Cat Knolls and Horn Mountain is looking at predation on nesting grouse.

17.2. Action: Where sage-grouse population-level effects from predation are clearly identified, plan and implement site-specific predation management as necessary. Incorporate a monitoring plan to determine success.

Group is waiting for UDWR biologist to summarize Emma Park data.

17.3. Action: Support efforts of USDA-WS to remove coyotes, red foxes, and ravens in areas used by sage-grouse for nesting and brood-rearing during spring and early summer.

Ongoing support by partners.

17.4. Action: Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas where feasible and where predator concerns have been identified.

No action taken in 2009-2010.

17.5. Action: Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat where predation concerns on sage-grouse have been identified.

No action taken in 2009-2010.

17.6. Action: Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.

Group discussed specific areas to do work in and around Emma and Whitmore Park area and on the Wild Cat Knolls and Horn Mountain area. UDWR will coordinate with WS.

USU researchers met with USDA Wildlife Services to identify raven routes for WS to place poisoned eggs to help with raven predation on sage-grouse nest. Work will continue in 2010 with funding.

17.7. Action: Work with partners to identify additional sources of funding to continue current predator removal efforts.

On-going.

Major Needs and Concerns

Concerns remain over oil and gas development in the Resource area, particularly near the Emma Park area. Additionally, CaCoARM is concerned about the isolated populations of grouse on the Horn and Wild Cat Mountains. USU is collected DNA samples to determine if these two populations are linked to other populations in the conservation area. Nest predation continues to be a concern especially in dry years. Wildlife Services needs to be more involved in the CaCoARM group and identify areas of concern.

Color Country Adaptive Resources Management (CoCARM) Sage-grouse Local Working Group

The CoCARM Local Working Group is facilitated by Dr. Nicole Frey. CoCARM is comprised of state and federal agency personnel, representatives from local government, academic institutions, private industry, and private individuals.

One of the main purposes of the Conservation Plan is to provide a framework of strategies and associated actions that can be implemented to abate threats, address information gaps, and guide monitoring efforts. Strategies and actions listed below (the order is irrelevant) were developed by CoCARM partners. Several other documents and publications provide recommendations and guidelines for management of sage-grouse populations and their habitats, many of which were reviewed in the Introduction of the Plan. Strategies developed by CoCARM are designed to be specific to the local area while taking into consideration the guidelines at a rangewide level.

Implementation of strategies and actions is strictly voluntary on the part of CoCARM partners. Despite this, we have designated for each strategy the public and private partners who might be involved in implementation. Designation does not imply responsibility or commitment of resources of any sort to implementing, initiating, or completing any actions; however, it does provide a framework of resources and expertise.



Figure 4. The Color Country Adaptive Resource Management (CoCARM) Sage-grouse Local Working Group Conservation Area consists of 4,956,258 acres located in south-central Utah.

Conservation Strategies and Actions:

1. **Strategy:** Reduce threat of predators on sage-grouse over ten-year period.
 - 1.1 **Action:** Determine predator community composition and depredation rate.
 - 1.2 **Action:** Avoid creating or improving raptor-nesting habitat in sage-grouse habitat. Remove raptor perches when possible.
 - 1.3 **Action:** Determine brood-rearing success in each focus area annually.
 - 1.4 **Action:** Enlist Wildlife Services to reduce population numbers of problematic predator species.
 - 1.5 **Action:** Support current predator management efforts by other groups or agencies in the focus areas.

Predator control will begin in the Alton Sink/Valley area with the upcoming mining activity in the area.

2. **Strategy:** Improve age distribution of plants within sagebrush-steppe communities by 2016.
 - 2.1 **Action:** Identify and prioritize target areas needing improvement.

Each year, all projects are presented to Utah Partners for Conservation Development. Partners of SWARM present their projects to the group for approval before presenting them to UPCD. Thus all projects meet with the approval of SWARM and the southern region.

- 2.2 **Action:** Coordinate among agencies and landowners to fund implementation of projects and monitoring.
- 2.3 **Action:** Monitor the response of sage-grouse to changing habitat conditions.

3. **Strategy:** Improve water availability and riparian habitat in brood-rearing habitat by 2016.
 - 3.1 **Action:** Survey and evaluate current water sources and needs.
 - 3.2 **Action:** Partner with watershed specialists to identify new water sources.
 - 3.3 **Action:** Consider new water developments that are multi-use and multi-purpose.

NRCS has addressed new water developments in the EQUIP and WHIP grants it has worked on this year. This includes installing new pipeline and modifying old lines to create wet meadows for grouse during the course of other vegetation treatment projects.

FS and UDWR are considering new guzzlers in the Panguitch Valley area.

- 3.4 **Action:** Coordinate with private landowners to protect current water availability that benefits brood-rearing habitat.

4. **Strategy:** Increase participation of public and private landowners within the Resource Area.
 - 4.1 **Action:** Develop partnerships with landowners and interest groups to increase visibility of sage-grouse management.

CCARM continues to work actively with the local landowners and industry personnel in the CCARM focus areas.

- 4.1.1 **Action step:** Identify regional groups and their contact person.

- 4.2 **Action:** Develop fact sheet to distribute to special interest groups.
- 4.3 **Action:** Support partnership efforts for special designations that promote sage-grouse habitat.
- 4.4 **Action:** Host open houses, field tours, and presentations.

CCARM hosted an open house to discuss the latest information on grouse from the UDWR. CCARM created 3 billboards explaining grouse habitat and natural history to post at trailheads.

- 4.5 **Action:** Distribute annual reports to local management agencies, county commissioners, and other interested parties.
- 4.6 **Action:** Proactively seek partnerships when developing new projects.

5. **Strategy:** Locate and monitor new active lek sites within the Resource Area.
 - 5.1 **Action:** Survey landowners and land users to determine extent of sage-grouse distribution.

CCARM continues to search for new leks, or investigate historic leks.

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

Local BLM employees noticed grouse in a newly treated area. Biologists have investigated the site, but it does not appear to be a lek. However it does appear to be summer habitat.

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

- 5.4 **Action:** Rejuvenate historic lek site habitat for potential re-use.

6. **Strategy:** Increase sage-grouse populations using direct management in Resource Area by 2016.

- 6.1 **Action:** Evaluate potential of translocation to supplement local populations.

- 6.2 **Action:** Support and encourage prevention of illegal harvest of sage-grouse.

Partners: UDWR, USU EXT

7. **Strategy:** Minimize affects of new land developments and/or recreational uses on sage-grouse populations. This is something that we really need to work on. We haven't done much with this strategy this year. WORK WITH SITLA

- 7.1 **Action:** Provide consultations and recommendations for new land developments and/or recreational uses.

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

- 7.2 **Action:** Identify and maintain a list of contact people involved in land and recreational developments.

- 7.3 **Action:** Involve local county and city planning commissions in meetings.

8. **Strategy:** Reduce impacts of concentrated wildlife or livestock use of sage-grouse winter and brood-rearing habitat by 2016.

- 8.1 **Action:** Identify and prioritize target areas needing improvement.

- 8.2 **Action:** Implement habitat improvements and direct management actions to improve distribution of problem animal communities.

CoCarm participating agencies are actively trying to improve water sources. By improving water sources, they intend to improve distribution. UDWR is proposing/planning to remove a portion of the pronghorn population, which may alleviate some pressure on the resources.

9. **Strategy:** Reduce threat of invasive/unwanted plant species in sage-grouse habitat by 2016.

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

UDWR/BLM/USFS/UACD have focused their efforts on projects to address this action through the UPCD process.

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

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

This is a standard practice for BLM/USFS/UDWR.

9.2.2 Action step: Use dedicated hunters to help with re-seeding and rehabilitation efforts.

CoCARM region often uses dedicated hunters to help with their restoration efforts. Several projects are planned to utilize dedicated hunters

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

9.4 Action: Evaluate the feasibility of using fire as a tool in areas where cheatgrass has been established or is prone to establish.

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

The Morgan-Summit Adaptive Resource Management (MSARM) sage-grouse local working group is facilitated by Ms. Lorien Belton. MSARM sage-grouse local working group restarted in 2009 after a period of inactivity. Meetings in August and November provided opportunities for new agency staff, local landowners, and prior members of the group to convene and discuss topics of local relevance. The group continues to meet on a regular schedule.

Conservation Strategies and Actions: 2009-2010 Accomplishments

The following updates reflect the individual or joint efforts of MSARM partners in 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
 - 1.2. **Action:** Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other invasive weed species.
 - 1.3. **Action:** Evaluate all wildfires and prescribed burns and reseed with ecologically suitable seed, where appropriate, to prevent establishment of cheat grass and other invasive weed species.

NRCS has planned several projects. Local education efforts take place through the Cooperative Weed Management Area. Deseret Land and Livestock ranch does Dyer's wood management. DWR also does ongoing weed management on the Henefer/Echo and East Canyon Wildlife Management Areas.

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.
 - 2.2 **Action:** Seed, when possible, treated areas with ecologically suitable seeds.
 - 2.3 **Action:** Reclaim and/or reseed areas disturbed by treatments when necessary, using seed mixtures with appropriate grasses and desirable forbs
 - 2.4 **Action:** Restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation where economically feasible.



Figure 5. The Morgan-Summit Adaptive Resource Management (MSARM) Sage-grouse Local Working Group Conservation Area consists of 1,608,659 acres located in northern Utah.

- 2.5 Action:** Conduct vegetation treatments to improve forb diversity (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed area, if needed
- 2.6 Action:** Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations
- 2.7 Action:** Work with public and private partners to implement rest-rotation grazing systems, where possible

NRCS has many acres in the CSP program, which provides rest-rotation grazing that can increase understory in sagebrush steppe areas. Private land projects have included sage-beating tall older sagebrush, and seeding behind the aerator. Above 7000 feet, reseeding may be less necessary. A planned project on Henefer Echo WMA had to be postponed to 2010, but will focus on increasing forb and shrub diversity and decreasing grass dominance. In addition, the QRM group has begun working with landowners to encourage work on adjacent lands.

- 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.
 - 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
 - 3.3. Action:** Cooperate with Summit County Mosquito Abatement District.
 - 3.4. Action:** Assess any new water projects for contributions toward conditions that may enhance mosquito populations

West Nile is still not a concern in the area. Efforts will be made to include the mosquito abatement district in future MSARM discussions or meetings to stay ahead of this issue.

- 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.
 - 4.2. Action:** Coordinate with public and private partners to conduct terrestrial lek searches in areas suspected to contain undiscovered active leks
 - 4.3. Action:** Coordinate with public and private partners to conduct count surveys of known active leks.
 - 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.
 - 4.5. Action:** Through 2016, test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance

No specific lek-searching activities took place this year, although DWR biologists stay alert to possible new leks when conducting other work. Helicopter surveys may take place in 2010. Powerline and pipeline companies also search for sage-grouse activity when surveying for

wildlife, although those results are not publicly available. Some landowners are wary of reporting leks on private property.

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
 - 5.2. **Action:** Develop educational materials and distribute to recreationists that provide information on the impact to non-native predator species from littering

Morgan Woolgrowers do coyote control near some sage-grouse areas. No raven control occurs in the area. Much of the funding for predator control comes from local stock producers, who are taxed per head of livestock.

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.
 - 6.2. **Action:** Increase law enforcement patrols in and around crucial lek sites
 - 6.3. **Action:** Through 2016, include information about MSARM activities in County Extension newsletter

Wasatch Audubon contacted Utah Dept. of Transportation to explore the ideas of posting signs asking people to slow down during the lekking season, but was turned down because they were told that sage-grouse were not on a list of approved species that require signs. Also, the Utah Audubon Council has begun to explore getting fence reflectors up on some of the fences around the lek. Audubon is increasing their involvement in the LWG to increase coordination.

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
 - 7.2. **Action:** Increase information dissemination about funding opportunities to private partners
 - 7.3. **Action:** Develop educational material about habitat improvement techniques appropriate for sage-grouse habitat improvement and distribute to private partners
 - 7.4. **Action:** Coordinate habitat projects on private land that meet the needs outlined in Plan and the needs of private partners

NRCS has increased its involvement in the LWG and works with landowners to develop projects. As of March 2010, EQIP and WHIP money is also available specifically for sage-grouse projects. Promontory Ranch has funded species inventories on their property and is investing in educational efforts for homeowners in the development.

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
 - 8.2. **Action:** Work with NRCS and private partners to implement Farm Bill programs beneficial to sage-grouse
 - 8.3. **Action:** Coordinate with county weed board to implement noxious weed program to reduce impacts on sage-grouse
 - 8.4. **Action:** Work with NRCS and private partners to monitor effects of treatments on sage-grouse populations and habitat

NRCS’s CSP program provides sage-grouse breeding season grazing deferment plans to ensure that adequate forbs are available for sage-grouse. No active projects were implemented in 2009-2010.

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
 - 9.2. **Action:** Re-seed sites, post-burn, with ecologically suitable seed mixture to prevent the establishment of cheat-grass
 - 9.3. **Action:** Use fire management to reduce sagebrush canopy cover and create diverse sagebrush stands in brood-rearing and summer use areas

No known fire projects were conducted in 2009-2010.

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
 - 10.2. **Action:** Map and inventory leks with potential for restoration
 - 10.3. **Action:** Maintain and enhance desired habitat conditions for leks

No projects to improve lek vegetation were done in 2009, although mowing projects have been discussed.

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
 - 11.2. **Action:** Design and implement livestock grazing management practices to benefit riparian areas
 - 11.3. **Action:** Modify or adapt pipelines or developed springs to create small wet areas
 - 11.4. **Action:** Locate projects to minimize potential loss of water table associated with wet meadow

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

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

No sage-grouse specific work was done in the area during 2009-2010. Some private lands water projects may benefit sage-grouse but not be reported to the group.

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

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

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

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

County planners have been provided with maps of sage-grouse habitat known locally. The Summit Land Conservancy holds agricultural easements in the area, including one riparian easement north of Henefer.

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

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

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

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

DWR is working to obtain funding for new collaring studies for sage-grouse in the area, in addition to regular spring lek counts. No field tour was conducted in 2009. A tour for the group was completed in summer of 2010.

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

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

No translocations have occurred in the area.

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

As noted previously, the CSP program has done grazing system design that allows for sage-grouse breeding areas to be rested (not grazed) during critical times for sage-grouse. On the Henefer/Echo WMA, improved water distribution (2010) and fencing (2011) will be done to graze cattle to improve wildlife habitat. These are UPCD projects.

Major Needs and Concerns

The Morgan-Summit group has two primary challenges: a lack of specific knowledge of area populations sufficient to recommend habitat improvement projects, and a large amount of private land. In addition, the overlapping boundaries of two UDWR regions in the area make coordination slightly more complex. The group is working toward greater inclusion of NRCS employees in the LWG efforts, in order to address the private lands access issue. In addition, DWR habitat and wildlife biologists are working together to propose radio telemetry work for sage-grouse in the area.

Parker Mountain Adaptive Resource Management (PARM) Local Sage-grouse Working Group

The Parker Mountain Adaptive Resource Management Plan (PARM) Sage-grouse Local Working Group was organized in 1997. PARM is facilitated by Mr. Todd Black. The PARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals. At that time the group met quarterly to discuss the status of greater sage-grouse on Parker Mountain. The first decision the group made was to radio-collar hens to determine nesting ecology, habitat use, and reproduction. After a 2 year study, the group learned that nesting and brood success was low and this was probably related to poor nesting and brooding rearing cover. The PARM obtained a NRCS Wildlife Habitat Incentive Program cost-share challenge grant. PARM used these funds to implement and evaluate two mechanical methods and one chemical method to reduce sagebrush canopy cover as a means of increasing grass and forb cover. The success of these management experiments set the stage for PARM to design and implement other conservation actions. A history of PARM actions, annual reports, meeting minutes, and their conservation plan can be found on-line at <http://utahcbcp.org/files/uploads/parm/PARMfnl-10-06-web.pdf>

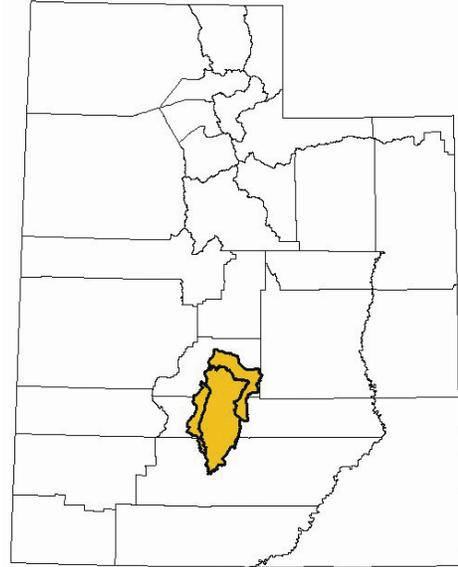


Figure 6. The Parker Mountain Adaptive Resource Management (PARM) Sage-grouse Local Working Group Conservation Area consists of 1,789,644 acres located in south-central Utah.

In 2009-2010, the group met formally three times to discuss strategies and actions and receive research updates. Additionally, one field tours were held to view and discuss research efforts and implanted actions and strategies. The information below summarizes efforts made by individual and partners to address threats and strategic actions for the Parker Mountain Greater Sage-grouse Local Conservation Plan, October 2006. This adaptive plan is in effect until the year 2016. PARM partners not only reported 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. For the complete list of threats identified by the PARM group, see page 64 of the conservation plan located on line at <http://utahcbcp.org/files/uploads/parm/PARMfnl-10-06-web.pdf>

Conservation Strategies and Actions: 2009-2010 Accomplishments

1. Strategy: By 2011, assess pinyon-juniper stands in the PARM Resource Area.

1.1. Action: As a PARM group revisit and make recommendations to treat as needed pinyon/juniper sites (North Mytoge Mountain and North of the Fish Lake turn off).

Under the direction of PARM members the Bureau of Land Management (BLM) used Dixie harrow to treat 5000 acres (7 mile allotment) north and east of North Mytoge Mountain. Additionally the Praetor Slope (south of Koosharem Reservoir) area was identified and small P/J trees were identified and treated using hand thinning by Dedicated Hunter Volunteers and supervised by Utah Division of Wildlife Resources (UDWR) habitat managers. In 2008 the SITLA block around Sand Ledges about 2000 acres was assessed and decisions made to treat P/J in these areas to create and enhance potential sage-grouse habitat. USFS personnel assessed areas in and around Cedar Creek approximately 2000 acres in the Fish Lake sub-unit. Preliminary work is being done in Solomon Basin (2000 acres) and Government Creek.

2. Strategy: By 2011, make an assessment of non-desirable/invasive vegetation in sage-grouse habitats.

2.1. Action: Review and monitor all vegetative sampling by all partners and more specifically with UDWR range trend data.

In 2006/2007 UDWR in conjunction with Utah State University Extension (USU/EXT) placed vegetation study plots in Terza Flats and Tommy Hollow to assess the effectiveness of re-seeding these areas. These plots were assessed and read again.

2.2. Action: Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other non-desirable species.

No prescribed or control burns in the PARM area in 2009-2010.

2.3. Action: Evaluate all wildfires and prescribed burns and reseed with forage kochia or other fire-resistant species where appropriate to prevent establishment of cheatgrass.

No prescribed or control burns in the PARM area in 2009-2010.

2.4. Action: Identify areas where undesirable vegetation is encroaching on sage-grouse habitat.

PARM members have identified halogeton presence along county maintained roads at lower elevations as a major threat and concern. Additional efforts have identified cheatgrass in localized camp sites and disturbed areas. PARM partners will identify specific areas during the next 3 years. An area north of Koosharem Cemetery on BLM lands was identified as an area of concern to watch over the next few years.

2.5. Action: Treat areas where undesirable vegetation has become, or is at risk of becoming, a factor in sage-grouse habitat loss or fragmentation.

See action 2.1. PARM partners are working towards this action through study with PARM members with study plots in Terza Flats and Tommy Hollow. No Action taken in 2009-2010.

2.6. Action: Work with existing weed management programs to control noxious weeds in the Resource Area.

PARM members have identified halogeton presence along county maintained roads at lower elevations as a major threat and concern. Additional efforts have identified cheatgrass in localized camp sites and disturbed areas. PARM partners will identify specific areas during the next 3 years. Additionally, PARM partners hand treated musk thistle on Parker Knoll. BLM treated Russian knapweed the main Black Point road. Monitoring shows no return of the species in the area. Wayne County weed crew is spraying black henbane on BLM lands on smooth Knoll allotment North Timbered Knoll. In 2008 UDWR and County weed crew sprayed halogeton (2 times) and seeded the area along the long hollow road (east of the county landfill). USFS sprays for thistle and other noxious weeds on USFS properties on the south end of the Parker Subunit.

2.7. Action: Identify large areas of introduced plant species that are not meeting sage-grouse habitat needs and reseed with native species where appropriate.

In 2006/2007 UDWR in conjunction with Utah State University Extension (USU/EXT) placed vegetation study plots in Terza Flats and Tommy Hollow to assess the effectiveness of re-seeding these areas. In 2009-2010 these plots were assessed and read again and determined to basically be a failed project as we see little or no effects of the project and the site is dominated by rabbit brush and other non-desired species.

2.8. Action: Identify areas where pinyon or juniper trees are encroaching on good quality sagebrush habitat and treat as needed.

In 2008 the BLM Dixie Harrowed ~3000 acres in and around the North Narrows area removing some P/J in the upper end of the treatment area (North Narrows UPCD project). BLM is also doing contract work of hand thinning of P/J in this same area—on going work.

2.9. Action: Manage fire, transportation, and vegetation treatments to minimize undesirable vegetation where possible.

No prescribed or wildfires in the PARM area in 2009-2010.

3. Strategy: By 2011, complete an assessment on the condition of available water sources and identify potential new water improvement/development projects.

3.1. Action: Manage vegetation and artificial structures to increase water-holding capabilities of likely habitat.

PARM identified bush spring pond as an area to be improved. Parker Mountain Grazers built one new pond south of Jakes Knoll, repaired breach on Ottys Pond (Ottos Reservoir sage-grouse lekking area) on the Cedar Peak allotment and cleaned out sediments in dog lake pond on the dog lake allotment (USFS lands). In 2008 Parker Grazers cleaned and re-layed existing ponds in 1 in the Parker Lake Allotment, 1 in the Buttes Allotment, and Flossy

Lake Allotment. New ponds were built: South Jakes Knoll pond and the Oscar Pond north of Jakes Knoll.

3.4. Action: Locate/identify projects to minimize potential loss of water table associated with wet meadows.

No action taken in 2009-2010.

3.5. Action: Identify key elements of various water projects by developing partners to work cooperatively to maintain existing water sources/wet meadows.

In 2008, PARM partners discussed the need to maintain existing wet meadow enclosures on the USFS properties—specifically Antelope Springs and Big Lake. No action was taken in 2009-2010.

4. Strategy: By 2011, identify key public, SITLA, and private lands in the Resource Area (specific locations to be selected) that are managed so as to conserve/improve sage-grouse nesting/brooding habitat.

4.1. Action: Encourage use of PARM defined conditions for state and federal lands to influence management actions to move toward improved conditions for sage-grouse.

In order to achieve this action PARM partners determined that we need to have USU graduate work summarized to identify acres treated, treatment sites, and evaluation of these areas. It would be ideal to have document/guidelines that indicate this is what we have done and what we know and management recommendations here. Also look at NRCS WHIP plan. USU will work with graduate students to publish an extension bulletin in 2010 on this work.

4.2. Action: Support partner efforts that manage sage-grouse nesting habitat on public, SITLA, and private lands.

On going, PARM partners support and encourage efforts to improve grouse nesting habitat.

4.3. Action: Use available grouse and brood telemetry data to identify key nesting habitat areas within the Parker Mountain subunit.

In order to achieve this action PARM partners determined that USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues. In 2009, work began to start looking at landscape level questions work will continue in conjunction with Todd Black PhD project with project completion late winter 2011.

4.4. Action: Pursue habitat improvement projects (to meet PARM defined conditions) on SITLA lands in areas used by sage-grouse for nesting habitat.

In 2008 SITLA treated 60 acres with Spike on the South Buttes enclosures. Additionally 50 acres were treated in and around the South Buttes area using sheep to control rabbit brush and improve nesting conditions.

4.5. Action: Identify research needs to address sagebrush treatments at ‘lower’ elevations where the majority of these nesting activities occur.

In 2006/2007 UDWR in conjunction with Utah State University Extension (USU/EXT) placed vegetation study plots in Terza Flats and Tommy Hollow to assess the effectiveness of re-seeding these areas. These sites were monitored and read again in 2008. While the blue gramma grass showed a good response, no significant changes were noticed with the seeded or non-seeded areas.

In 2009-2010 these plots were assessed and read again and determined to basically be a failed project as we see little or no effects of the project and the site is dominated by rabbit brush and other non-desired species.

4.6. Action: Use mechanical or chemical treatments to reclaim and/or reseed areas (when necessary) using suitable seed mixtures.

BLM used Dixie harrow to treat 5000 acres (7 mile allotment) north and east of North Mytoge Mountain and additional acreage on the Praetor Slope (south of Koosharem Reservoir). BLM reseeded and Dixie Harrow (north of Koosharem town and North of Greenwich to Burrville). USFS Pollywog Lake treated 80 acres in ‘07 and will do more in ‘08. Brush was treated by mowing with and additional sites Fish Lake Basin of approximately 400 acres. Additional work was done on this area in 2008 and is about ¾ completed and will continue again in 2009. Sheep Valley ~350 acres was treated (mower) as well and was completed.

4.7. Action: Where economically feasible, restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation.

BLM used Dixie harrow to treat 5000 acres (7 mile allotment) north and east of North Mytoge Mountain and additional acreage on the Praetor Slope (south of Koosharem Reservoir). BLM reseeded and Dixie Harrow (north of Koosharem town and North of Greenwich to Burrville).

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

BLM used Dixie harrow to treat 5000 acres (7 mile allotment) north and east of North Mytoge Mountain and additional acreage on the Praetor Slope (south of Koosharem Reservoir). BLM reseeded and Dixie Harrow (north of Koosharem town and North of Greenwich to Burrville). USFS Pollywog Lake treated 80 acres in 07 and will do more in ‘08. Brush was treated by mowing with and additional sites Fish Lake Basin of approximately 400 acres.

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

In order to achieve this action PARM partners determined that USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues. In order to achieve this action PARM partners determined that USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues. In 2009, work began to start looking at landscape level questions work will continue in conjunction with Todd Black PhD project with project completion late winter 2011.

5. Strategy: By 2011, identify key public, SITLA, and private lands in the Resource Area (specific locations to be selected) that are managed so as to conserve/improve sage-grouse lekking habitat.

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

PARM partners identified areas in and around black point lek complex that need to address increasing shrub numbers and density. USU sent DWR (Jason Robinson) a data sheet designed to monitor the condition of habitat in and around leks—including photos.

In 2010, Andy Taft will use his sheep herd to treat several sites. PARM will evaluate sage-grouse lekking response to the treatments in 2011.

5.2. Action: Encourage use of PARM defined conditions for state and federal lands to influence management actions to move toward improved conditions for sage-grouse lekking habitat.

In order to achieve this action PARM partners determined that USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues. USU sent DWR (Jason Robinson) a data sheet designed to monitor the condition of habitat in and around leks—including photos.

5.3. Action: Support partner efforts that manage sage-grouse lekking habitat on key public, SITLA, and private lands

PARM partners are encouraged the use of supplement to increase winter grazing efforts by sheep in the Black point lek complex. PARM partners identified 3 specific sites on Black Point that needs to have some brush reduction work done on the lekking sites. USU Extension will follow up with BLM on this.

5.4. Action: Pursue habitat improvement projects (to meet PARM defined conditions) on SITLA lands in areas used by sage-grouse for lekking habitat.

SITLA put sage-grouse discouragers on the fence in and around Morrell pond lek where sage-grouse were colliding/striking into this fence. PARM partners identified 3 specific sites on Black Point that needs to have some brush reduction work completed to open lekking sites.

6. Strategy: Through 2011, avoid natural resource development (oil/gas exploration and development) within important sage-grouse use areas. If development does occur, work with private industry to minimize impacts and follow recommended actions below.

*No action was taken on **action items 6.1—6.21** because no natural resource development (oil gas development) took place within the resource area during 2009-2010.*

7. Strategy: Through 2011, identify high use areas available to sage-grouse during the late summer and early fall brood rearing time period.

7.1. Action: Use available grouse and brood telemetry data and remote sensing data to identify key brood rearing habitat areas within the Parker Mountain subunit.

In order to achieve this action PARM partners determined that USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues. In 2009, work began to start looking at landscape level questions work will continue in conjunction with Todd Black PhD project with project completion late winter 2011.

7.2. Action: Work with public and private partners to maintain areas use by sage-grouse during late summer and early fall.

Ongoing process with all partners. In 2009, work began to start looking at landscape level questions work will continue in conjunction with Todd Black PhD project with project completion late winter 2011.

8. Strategy: Through 2016, identify measures to manage key wintering areas available for sage-grouse.

8.1. Action: Use available winter grouse telemetry data and local knowledge to map these areas.

In order to achieve this action PARM partners determined that USU graduate work needs to be summarized to identify acres treated, treatment sites, and evaluation of these areas. Use existing GIS data and nesting/brood rearing locations to address these issues. In 2009, work began to start looking at landscape level questions work will continue in conjunction with Todd Black's PhD project with project completion late winter 2011.

8.2. Action: Work with public and private partners to identify winter locations.

PARM partners directed UDWR/USU EXT to get more wintering locations on birds and work to have a mapping day where PARMs expert knowledge would be used to identify areas. In 2009-2010, work will be completed by USU researchers and results will be posted in a form of a MS thesis by Danny Caudall.

8.3. Action: Use UDWR aerial winter big game surveys to identify and map these areas.

Ongoing process each time UDWR flies and conducts big game surveys. All sage-grouse locations are noted and will be in cooperated in the final model being worked on by USU researchers.

9. Strategy: By 2009, maintain or increase populations of sage-grouse in the Conservation Area.

9.1. Action: Support and encourage the prevention of illegal harvest of sage-grouse on public lands throughout the year.

PARM partners will work with UDWR to develop and implemented an action plan to address this issue.

9.2. Action: Support continued sport hunting within current UDWR models.

PARM partners supported UDWR recommendations for 2009 sage-grouse permit allocation numbers.

9.4. Action: Continue with annual PARM group counting/classification efforts with sage-grouse lek surveys.

In conjunction with UDWR, PARM partners conducted their annual 1 day lek counting efforts on Parker Mountain in April 2009. These efforts were continued in 2010.

***9.5 Action:** Work with other Local Working Groups and the State UDWR office to develop a translocation effort state wide to look increasing genetic heterogeneity and expanding existing population distribution. Thirty sage-grouse were captured from Parker Mountain and translocated to Anthro Mountain to augment the population in this area. This work is being evaluated by DWR and USU.

Ongoing, in 2009, PARM members helped trap and translocation sage-grouse to Anthro Mountain to support research efforts and supplement populations in that area.

**new action added to the Area Conservation plan in 2008*

10. Strategy: Through 2009, search additional areas (TBD by PARM) for new/previously undiscovered sage-grouse lekking sites

10.1. Action: Coordinate with UDWR to conduct aerial surveys in areas (Bear Valley, north of Koosharem reservoir, north/Mytoge Mountain, Greenwich) suspected to be undiscovered lekking areas.

In 2009, UDWR flew lek count transects for the entire resource area.

10.2. Action: Coordinate with UDWR, public and private partners to conduct terrestrial lek searches in areas (Bear Valley, north of Koosharem Reservoir, north/Mytoge Mountain, Greenwich) suspected to be undiscovered lekking areas.

In 2008 PARM partners and volunteers searched areas in and around Koosharem and Rex's Reservoir. Additional areas were searched Mytoge Mountain and Greenwich. In 2009, UDWR flew lek count transects for the entire resource area.

10.3. Action: Continue with and expand annual PARM group counting/classification efforts to include the entire Resource Area.

In conjunction with UDWR, PARM partners conducted their annual 2 day lek counting efforts on Parker Mountain in April 2009. These efforts were continued in 2010.

11. Strategy: Increase cooperation and coordination between PARM members and other public and private partners.

11.1. Action: Continue with quarterly PARM meetings.

*Ongoing process, see PARM's web page for news events and meetings
<http://utahcbcp.org/htm/groups/parkermountain>*

11.2. Action: Annual review and assessment of PARM plan.

Through quarterly meetings PARM partners did, and will continue to meet this action item.

11.4. Action: Develop means to inform, involve, and educate the local communities as to the efforts of PARM and sage-grouse.

USU/EXT publishes quarterly newsletters highlight PARM activities. Additionally, the Utah Farm Bureau published an article of a recent PARM range tour in their 2009 newsletter.

12. Strategy: By 2016, work to decrease the populations of sage-grouse predators, especially in areas used for nesting and/or brood-rearing.

12.1. Action: Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas, where feasible and where predator concerns have been identified.

No action taken in 2009-2010 due to lack of activity

12.2. Action: Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.

No action taken in 2009-2010 due to lack of activity

12.3. Action: Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.

In 2009-2010, USDA-WS did egg routes this spring as provided by PARM partners. USDA-WS put up 60 M44 guns in wintering sage-grouse areas.

12.4. Action: Support efforts of USDA-WS to remove red foxes and ravens in areas used by sage-grouse for nesting and brood-rearing during spring and early summer.

Through quarterly meetings PARM partners did, and will continue to meet this action item.

12.5. Action: Identify additional sources of funding to continue with the current predator removal efforts.

PARM members in conjunction with USU researchers met with WS to identify additional funding resources and needs for future work.

13. Strategy: Provide an appropriate level and system for 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.

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

Grazing plans are continually being followed and monitored and adjusted to improve grazing conditions.

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

Research is continuing looking into to this with USU PhD candidate Mike Guttery and will continue through 2009 with results published in a form of a dissertation in 2010.

13.3. 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.

Through quarterly meetings PARM partners did, and will continue to meet this action item.

14. Strategy: Minimize impacts of utilities lines in sage-grouse habitat.

No action due to lack of development taking place within the resource area.

15. Strategy: Improve knowledge of disease in sage-grouse populations.

15.2. Action: Monitor radio-collared and other sage-grouse for West Nile Virus and other disease outbreaks.

Task was completed by USU graduate students and will continue in subsequent years. No disease birds were identified in 2009-2010.

16. Strategy: By 2016 work to begin to improve understanding of the relationship between livestock grazing and sage-grouse in the Resource Area.

16.1. Action: Conduct study on the affects of different types of livestock use, time of use, and intensity of use on sage-grouse populations.

Research is continuing looking into to this with USU PhD candidate Mike Guttery. Results anticipated by December 2010.

17. Strategy: By 2016 implement a study to better understand of the predator/prey dynamics specific to sage-grouse in the Resource Area.

17.1. Action: Conduct study of the effects of predation on sage-grouse populations.

No action has been taken towards this strategy to date

Major Needs and Concerns

One of the most pressing research needs on Parker Mountain is to look at the effects of increased predation on this population. Intensive predation management that occurred in the area in the past (associated with the sheep industry) is being curtailed. Additionally, USDA-WS had been addressing raven populations for the past several years but may not continue at current levels. The big question that remains unanswered is: Can this population continue to increase without predation management?

Rich County Coordinated Resource Management Sage-grouse Local Working Group

The Rich County Coordinated Resource Management (RICHCO) Sage-grouse Local Working Group is facilitated by Mr. Todd A. Black. RICHCO is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals.

In 2009-2010, the group met formally three times to discuss strategies and actions and receive research updates. Additionally, one field tour was held to view and discuss research efforts and implement actions and strategies.

This information below summarizes efforts made by individual and partners to address threats and strategic actions for the Rich County Greater Sage-grouse Local Conservation Plan. This adaptive plan is in effect until the year 2016. RICHCO partners not only reported on specific actions completed or addressed in 2009-2010 but also identified steps to be taken to implement additional actions into subsequent years of the plan. For the complete list of threats identified by the RICHCO group, see page 64 of the conservation plan located on line at http://utahcbcp.org/files/uploads/rich/RICOSAGRPlan_Draft1.pdf



Figure 7. The Rich County Coordinated Resource Management (RICHCO) Sage-grouse Local Working Group Conservation Area consists of 661,760 acres located in north-eastern Utah.

Conservation Strategies and Actions: 2009-2010 Accomplishments

1. Strategy: By 2016 increase amount of breeding habitat in “good” condition the northern two-thirds of the County.

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

Landowners Permittees and GIP partners are working with BLM to initiate a large scale restoration grazing system for various allotments in Rich County. (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph)

1.2. Action: Implement appropriate treatments and seeding in CRP fields and stands dominated by crested wheatgrass.

UDWR interseeded a crested wheat dominated stand with a forb/shrub mix on UDWR and BLM lands in Woodruff Coop.

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

See #1.1 Landowners and permeates are working with Utah Grazing Improvement Program (GIP) to initiate a large scale restoration grazing system for the northern part of Rich County.

1.4. Action: Work with public and private partners to research/monitor effects of treatments on sage-grouse populations and habitat.

Steps are being taken to ensure research and monitoring efforts continue in conjunction with Utah State University (USU, UDWR, QRM, BLM, USFS) to monitor the effects of various habitat actions (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph).

2. Strategy: Minimize impacts of agricultural conversion on sage-grouse.

2.1. Action: Maintain the CRP program and improve its benefit to wildlife by altering seed mixes to include a greater proportion of ecologically appropriate species.

SITLA renewed (10 years) 2,500 acres.

2.2. Action: Maintain or reestablish sagebrush patches of sufficient size and appropriate shape to support sage-grouse between agricultural fields.

No action taken in 2009-2010—no sagebrush was planted or plowed up and converted to agricultural production.

2.3. Action: Work with NRCS/FSA and others to maintain the CRP program and enroll important sage-grouse habitats currently in grain production.

SITLA renewed (10 years) 2,500 acres. Group was informed about changes in the new 2008 farm bill which put all CRP at risk for re-enrollment.

2.4. Action: Encourage use of sage-grouse friendly seed mixes, including bunchgrasses, forbs and big sagebrush, in CRP and other grassland plantings.

No action taken in 2009-2010 with CRM partners as no new ground was put into CRP.

2.5. Action: Rehabilitate old low diversity, CRP fields with ecologically appropriate seed mixes including bunchgrasses, forbs, and big sagebrush.

No action taken in 2009-2010 with CRM partners

2.6. Action: Encourage interest and enrollment of key sage-grouse habitats in the Grassland Reserve Program or other relevant Farm Bill programs.

Ongoing process with CRM partners and private landowners

2.7. Action: Work with NRCS and private partners to identify areas important to sage-grouse that should be given higher priority for CRP.

Ongoing process with CRM partners and private landowners

2.8. Action: Work with public and private partners to implement sage-grouse appropriate management of CRP.

No action taken in 2009-2010 with CRM partners. Group was informed about changes in the new 2008 farm bill which put all CRP at risk for re-enrollment.

3. **Strategy:** Maintain and/or increase amount of winter habitat in “good” condition in the Southern Subunit through the use of appropriate treatments and/or land management strategies.

3.1. Action: Work with public and private partners to manage livestock grazing to increase quality and condition of sagebrush stands, where appropriate.

20,000 feet of fencing was put up in the Middle Ridge allotment to allow for rest rotation grazing system. UDWR is working with the Woodruff Coop to produce better wintering conditions for sage-grouse and reduce competing grass species. No action taken in 2009-2010 with CRM partners.

3.2. Action: Work with public and private partners to avoid sagebrush-reducing grazing in areas important for winter use, where feasible.

UDWR is working with the Woodruff Coop to produce better wintering conditions for sage-grouse and reduce competing grass species. No action taken in 2009-2010 with CRM partners.

3.3. Action: Plant sagebrush seedlings into crested wheatgrass stands, where appropriate and feasible.

No action taken in 2009-2010 with CRM partners.

4. **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.

4.1. Action: Comment on BLM/USFS fire plans.

No comments were given to BLM new IM but key sage-grouse habitat and prioritizations were given in this IM.

4.2. Action: Re-seed sites, post-burn, with ecologically appropriate seed mixture to prevent the establishment of cheat-grass and other invasive/noxious species.

BLM re-seeded Rabbit Creek fire in 2007/08 with seed mixture favorable to sage-grouse. No action taken in 2009-2010 with CRM partners.

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

BLM burned areas in Sage Hollow late fall of 2007 200-300 acres. Forest Service did controlled burns in the Saddle Creek area. No action taken in 2009-2010 with CRM partners.

5. Strategy: Maintain and where possible, improve grass/forb component in the understory in nesting and brood-rearing areas.

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

UDWR plowed up a crested wheatgrass stand and interseeded with a forb/shrub mix on UDWR and BLM lands in Woodruff Coop. 45 acres of farm land were reclaimed east of Woodruff south of the Bear River in the Southern sub unit.

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

Deseret Land and Livestock (DLL) treated 500 acres on South Wasatch ridge in the southern sub unit.

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

Steps are being taken to ensure research and monitoring efforts continue in conjunction with Utah State University (USU, UDWR, QRM, BLM, USFS) to monitor the effects of various habitat actions (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph).

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

No action taken in 2009-2010 with CRM partners.

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

CRM partners are working on monitoring the effects of various treatments across the resource area. Steps are being taken to ensure research and monitoring efforts continue in conjunction with Utah State University (USU, UDWR, QRM, BLM, USFS) to monitor the effects of various habitat actions (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph).

5.6. Action: Avoid land use practices that reduce soil moisture, increase erosion, cause invasion of exotic plants, and reduce abundance and diversity of forbs.

Steps are being taken to ensure research and monitoring efforts continue in conjunction with Utah State University (USU, UDWR, QRM, BLM, USFS) to monitor the effects of various habitat actions (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph).

5.7. Action: Develop springs/pipelines for livestock that are beneficial for and will not adversely affect crucial sage-grouse nesting and brood-rearing areas.

No action taken in 2009-2010 with CRM partners.

6. Strategy: Increase information dissemination and education opportunities for public and private partners regarding sage-grouse ecology and habitat needs.

6.1. Action: Develop educational materials (brochures, presentations, etc.) about sage-grouse ecology, habitat needs, and habitat management strategies.

Ongoing with USU and partners CBCP newsletter. Additionally, several presentations were given to the CRM partners throughout the year on sage-grouse biology, translocations, and research effort.

6.2. Action: Share information and educational materials with CRM and other partners through use of printed materials, field tours, websites, reports, and other opportunities.

CRM partners are still working on several methods to disseminate including the CRM web page, USU's community based conservation web page and newsletter. CRM partners conducted a field tour of the Sage Creek/New Canyon allotments to discuss GIP project.

6.3. Action: Support involvement of public and private partners in sage-grouse monitoring (lek counts, brood counts, etc.) and management.

USDA-WS flew selected polygons to search for leks and other volunteers conducted lek searches for new leks in 2008. USU continues research efforts with sage-grouse. UDWR flew the middle ridge searching for new leks. QRM (private landowners) conducted ground

lek searches on private lands. In 2009, UDWR flew entire resource area in a helicopter specifically looking for sage-grouse lekking areas.

7. Strategy: By 2016, increase percentage of riparian areas in Rich Co. that are functioning properly and provide suitable habitat for sage-grouse brood-rearing.

7.1. Action: Work with public and private partners to implement appropriate grazing management practices in riparian areas.

Steps are being taken to implement new grazing systems on (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph) to improve riparian areas and wet meadows. BLM did maintenance on 7 different grazing enclosures on riparian areas.

7.2. Action: Work with public and private partners to implement appropriate management to reduce amount of noxious/invasive weeds in riparian areas.

BLM did spraying in Big Creek, USFS sprayed areas on the North Rich allotment. Rich County is working in and around Bear Lake. Forestry and State lands did work (burning/spraying) in and around the lake shore (southwest corner of the lake).

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

Duck Creek project completed in 2009 with developed and springs and areas to allow overflow for wet meadows.

7.4. Action: Protect existing wet meadows and riparian areas, with a focus on those areas in crucial sage-grouse brood-rearing habitats.

Steps are being taken to implement new grazing systems on (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph) to improve riparian areas and wet meadows. BLM did maintenance on 7 different grazing enclosures on riparian areas.

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

Steps are being taken to implement new grazing systems on (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph) to improve riparian areas, artificial watering structures, present water catchments and wet meadows. Landowners have put in several thousand feet of pipe and water storage units east of Bear Lake and South Sub unit (wheatgrass hollow).

7.6. Action: Install catchment structures to slow run-off, hold water, and eventually raise water tables.

BLM did some work (check dams) late 2007 in the Twin Peaks and Rabbit Creek fire areas.

8. Strategy: Increase practice of time-controlled, seasonally appropriate, rest-rotation grazing.

8.1. Action: Encourage small operators to combine herds and allotments to provide restoration with minimal fencing.

Steps are being taken to implement new grazing systems on (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph) to improve riparian areas, artificial watering structures, present water catchments and wet meadows. Landowners have put in several thousand feet of pipe and water storage units east of Bear Lake and South Sub unit (wheatgrass hollow).

8.2. Action: Facilitate cooperation and communication between private livestock operators.

Steps are being taken to implement new grazing systems on (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph) to improve riparian areas, artificial watering structures, present water catchments and wet meadows. Landowners have put in several thousand feet of pipe and water storage units east of Bear Lake and South Sub unit (wheatgrass hollow).

8.3. Action: Provide educational opportunities for private operators about benefits of time controlled grazing.

Education and information being disseminated by Utah Dept. Agriculture and food Grazing Improvement Program (GIP)

8.4. Action: Provide incentives (habitat project approval from CRM, UDWR, BLM, etc.) for cooperation between private partners.

Ongoing process with all CRM partners.

8.5. Action: Avoid dividing allotments into pastures, where possible.

Steps are being taken to implement new grazing systems on (Middle Ridge, Black Mountain, South Eden, Monty Weston, Duck Creek, Big Creek, New Canyon, Sage Creek, North and South Randolph) to improve riparian areas, artificial watering structures, present water catchments and wet meadows. Landowners have put in several thousand feet of pipe and water storage units east of Bear Lake and South Sub unit (wheatgrass hollow).

9. Strategy: Minimize the impact of excessive predation.

9.1. Action: Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas, where feasible and where predator concerns have been identified.

No action taken in 2009-2010 due to lack of activity

9.2. Action: Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.

No action taken in 2009-2010 due to lack of activity

9.3. Action: Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.

CRM partners are working with USDA Wildlife Services to identify these areas.

10. Strategy: Improve knowledge of disease in sage-grouse populations.

10.1. Action: Collect grouse parasite and disease organism samples while handling birds for other research.

No samples were collected in 2009-2010.

10.2. Action: Monitor radio collared and other grouse for West Nile Virus and other disease outbreaks.

USU research continues in the area, no birds were discovered to have any diseases in 2009-2010.

11. Strategy: Minimize impacts of utilities lines in sage-grouse habitat.

11.1. Action: Avoid new construction during important periods and re-route lines where technically and economically feasible to avoid impacts. If new power lines must be installed, route them along existing roads if possible.

No action taken in 2009-2010 due to lack of activity

11.2. Action: Schedule maintenance to minimize important periods, however, maintenance in emergency situations will be unrestricted.

No action taken in 2009-2010 due to lack of activity

11.3. Action: Install raptor deterrents when applicable.

No action taken in 2009-2010 due to lack of activity

12. Strategy: Minimize impacts of exotic, invasive, and undesirable plant species.

12.1. Action: Identify areas where undesirable vegetation is encroaching on sage-grouse habitat.

No action taken in 2009-2010 due to lack of activity

12.2. Action: Treat areas where undesirable vegetation has become or is at risk of becoming a factor in sage-grouse habitat loss or fragmentation.

No action taken in 2009-2010 due to lack of activity

12.3. Action: Work with existing weed management programs to incorporate sage-grouse habitat needs.

Ongoing process with County weed management plan and personnel.

12.4. Action: Identify large areas of introduced plant species that are not meeting sage-grouse habitat needs and reseed with native species where appropriate.

No action taken in 2009-2010 due to lack of activity

12.5. Action: Identify areas where pinyon or juniper trees are encroaching on good quality sagebrush habitat and treat as needed.

CRM and partners have identified some of these areas on BLM on private lands within the resource area see Strategy/Action 1

12.6. Action: Manage fire, transportation, and vegetation treatments to minimize undesirable vegetation where possible.

This action is being implemented where possible.

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

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

CRM partners are still working towards completing this action—ongoing.

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

No action taken in 2009-2010 as no quality sage-grouse habitat was impacted by development.

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

No action taken in 2009-2010 as slowing economy and recession has put a damper on development in core sage-grouse habitat.

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

CRM partners are still working towards completing this action—ongoing

14. Strategy: By 2016, increase population and habitat monitoring efforts in Rich County. CRM is working with UDWR and other volunteers to increase monitoring and searching efforts and identifying and searching new areas.

14.1. Action: Encourage public and private partners to use techniques from Connelly et al. (2003b) “Monitoring of Greater Sage-grouse Habitats and Populations.”

CRM encourages public and private partners to employ existing techniques and increase knowledge of new techniques.

14.2. Action: UDWR biologists will coordinate with private partners to identify sage-grouse lek sites and count birds on private lands.

CRM is working with UDWR and other volunteers to increase monitoring and searching efforts and identifying and searching new areas.

14.3. Action: UDWR to enlist and coordinate private volunteers and/or other agency biologists search for new leks and conduct lek counts on active leks.

CRM is working with UDWR and other volunteers to increase monitoring and searching efforts and identifying and searching new areas.

14.4. Action: Provide, when possible, reimbursement for volunteers for mileage, etc.

USU received a grant for about \$1000 to support efforts of various CRM volunteers and will seek matching monies in 2010 to help defray expenses for various CRM members.

14.5. Action: Test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance.

No dead grouse were found.

15. Strategy: Minimize impacts of oil and gas development on sage-grouse and their habitat.

15.1. Action: Coordinate and communicate with BLM to ensure that adequate

information/data is available for decision making process.

CRM partners are still working towards completing this action—ongoing

15.2. Action: Support recommendations that provide for temporal avoidance, minimization of tall structures, and avoid crucial habitat or use areas, where possible.

CRM partners are still working towards completing this action—ongoing

15.3. Action: Reduce fragmentation of sage-grouse habitat by oil and gas development activities.

CRM partners working with Ruby pipeline offices to reduce fragmentation of key sage-grouse habitat and identifying mitigation measures to offset any impacts.

15.4. Action: Minimize disturbance to sage-grouse associated with oil and gas development.

CRM partners are still working towards completing this action—ongoing

15.5. Action: Reduce cumulative impacts of oil and gas development.

CRM partners are still working towards completing this action—ongoing

15.6. Action: Use directional drilling where feasible to minimize surface disturbance, particularly where well density exceeds 1:160 acres.

CRM partners are still working towards completing this action—ongoing

15.7. Action: Minimize pad size and other facilities to the extent possible, consistent with safety.

CRM partners are still working towards completing this action—ongoing

15.8. Action: Plan and construct roads to minimize duplication.

CRM partners are still working towards completing this action—ongoing

15.9. Action: Cluster development of roads, pipelines, electric lines and other facilities.

CRM partners are still working towards completing this action—ongoing

15.10. Action: Use existing, combined corridors where possible.

CRM partners are still working towards completing this action—ongoing

15.11. Action: Use early and effective reclamation techniques, including interim reclamation, to speed return of disturbed areas to use by sage-grouse.

CRM partners are still working towards completing this action—ongoing

15.12. Action: Reduce long-term footprint of facilities to the smallest possible.

CRM partners are still working towards completing this action—ongoing

15.13. Action: Avoid aggressive, non-native grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome, etc) in reclamation seed mixes.

CRM partners are still working towards completing this action—ongoing

15.14. Action: Eliminate noxious weed infestations associated with oil and gas development disturbances.

CRM partners are still working towards completing this action—ongoing

15.15. Action: Minimize width of field surface roads.

CRM partners are still working towards completing this action—ongoing

15.16. Action: Avoid ridge top placement of pads and other facilities.

CRM partners are still working towards completing this action—ongoing

15.17. Action: Use low profile above ground equipment, especially where well density exceeds 1:160 acres.

CRM partners are still working towards completing this action—ongoing

15.18. Action: Avoid breeding/nesting season (March 1 – June 30) construction and drilling when possible in sage-grouse habitat.

CRM partners are still working towards completing this action—ongoing

15.19. Action: Limit breeding season (March 1 – May 1) activities near sage-grouse leks to portions of the day after 9:00 a.m. and before 4:00 p.m.

CRM partners are still working towards completing this action—ongoing

15.20. Action: Reduce daily visits to well pads and road travel to the extent possible in sage-

*CRM partners are still working towards completing this action—ongoing
grouse habitat.*

15.21. Action: Utilize well telemetry to reduce daily visits to wells, particularly where well density exceeds 1:160 acres.

CRM partners are still working towards completing this action—ongoing

15.22. Action: Locate compressor stations off ridge tops and at least 2,500 feet from active sage-grouse leks, unless topography allows for closer placement.

CRM partners are still working towards completing this action—ongoing

15.23. Action: Avoid locating facilities within a minimum of ¼ mile of active sage-grouse leks, unless topography allows for closer placement.

CRM partners are still working towards completing this action—ongoing

15.24. Action: Plan for and evaluate impacts to sage-grouse of entire field development rather than individual wells.

CRM partners are still working towards completing this action—ongoing

15.25. Action: Study, and attempt to quantify, impacts to sage-grouse from oil and gas development.

CRM partners are still working towards completing this action—ongoing

15.26. Action: Evaluate need for near-site and/or off-site mitigation to maintain sage grouse populations during oil and gas development and production, especially where well density exceeds 1:160 acres.

CRM partners are still working towards completing this action—ongoing

15.27. Action: Implement near-site and/or off-site mitigation as necessary to maintain sage-grouse populations.

CRM partners are still working towards completing this action—ongoing

15.28. Action: Share sage-grouse data with industry to allow for planning to reduce and/or mitigate for impacts.

CRM partners are still working towards completing this action—ongoing

15.29. Action: Update setbacks, mitigation requirements, and spatial and temporal avoidance recommendations as new information becomes available.

CRM partners are still working towards completing this action—ongoing

16. Strategy: Minimize impacts of utilities lines in sage-grouse habitat.

16.1. Action: Avoid new construction during important periods and re-route lines where technically and economically feasible to avoid impacts.

CRM partners are still working towards completing this action—ongoing

16.2. Action: Schedule maintenance to minimize important periods, however, maintenance in emergency situations will be unrestricted.

CRM partners are still working towards completing this action—ongoing

16.3. Action: Install raptor deterrents when applicable.

CRM partners are still working towards completing this action—ongoing

17. Strategy: Monitor and manage lek viewing opportunities to make sure they do not become harmful to sage-grouse populations.

17.1. Action: Occasionally conduct lek viewing tours to facilitate access to leks.

CRM working with UDWR and County to identify potential sites places and times. Currently DLL offers these opportunities on a user pay schedule.

17.2. Action: Provide educational materials to local birding groups on appropriate lek viewing behavior.

USU working with UDWR on viewer ethics when watching and viewing sage-grouse leks.

17.3. Action: Discourage viewing of sensitive lek areas through access restrictions, increased law enforcement patrols, and effective use of trespass laws.

CRM partners are still working towards completing this action—ongoing

18. Strategy: Initiate and/or maintain monitoring and research efforts to address information gaps identified in this Plan and in future adaptive planning efforts.

18.1. Action: Explore funding opportunities to further scientific research into information gaps identified in this Plan and in future adaptive planning efforts, as needed.

CRM partners are still working towards completing this action—ongoing

18.2. Action: Participate in the Northern Region UPCD Regional Team to develop

CRM partners are still working towards completing this action—ongoing

18.3. Action: Develop research and/or monitoring protocols to address information gaps identified in this plan and in future adaptive planning efforts.

CRM partners are still working towards completing this action—ongoing

18.4. Action: Cooperate with USU and other academic institutions to establish graduate student projects designed to investigate information gaps identified in this Plan and in future adaptive planning efforts.

CRM partners are still working towards completing this action—ongoing

Major Needs and Concerns

There are still concerns with the RICHCO and the Duck Creek allotment, lawsuits and court rulings make it difficult to maintain local control. Further concerns are heightened as the group prepares to make significant changes to the Big Spring allotments with the Grazing Improvement Program. As this project progresses, and if it is implemented, there is significant need for intensive research and monitoring.

Southwest Desert Adaptive Resource Management (SWARM) Sage-grouse Local Working Group

The SWARM Local Working Group is facilitated by Dr. Nicole Frey. SWARM is comprised of state and federal agency personnel, representatives from local government, academic institutions, private industry, and private individuals.

The following strategies and their action steps were identified by the SWARM local working as having been initiated or completed during 2009-2010.

Conservation Strategies and Actions: 2009-2010 Accomplishments

1. Strategy: Improve age distribution of sagebrush-steppe communities by 2016.

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

Each year, all projects are presented to Utah Partners for Conservation Development. Partners of SWARM present their projects to the group for approval before presenting them to UPCD. Thus all projects meet with the approval of SWARM and the southern region.

1.2. Action: Monitor the response of sage-grouse to changing habitat conditions.

The proposal to monitor greater sage-grouse in Hamlin Valley was funded by UDWR. The group is working toward a group project with BLM and USU EXT for this project in the future.

A proposal to monitor grouse habitat use in anticipation of wind energy was granted by the BLM to USU EXT. This project was initiated in Spring 2010.

1.3. Action: Implement treatments to change age class distribution of sagebrush.

Over 445 acres of private lands were treated in Hamlin Valley. 1525 acres of land around Minersville, UT were treated to restore sagebrush community; a coordinated project among NRCS, UDWR, UDAF, BLM and private landowners.

1.4. Action: Assist agencies in assessing wildfires in focus areas and restoration needs for sagebrush seed in mixes.



Figure 8. The Southwest Desert Adaptive Resource Management (SWARM) Sage-grouse Local Working Group Conservation Area consists of 5,672,052 acres located in south-western Utah.

NRCS, UDWR and BLM members of SWARM activity coordinate to address these issues each year.

2. Strategy: Improve water availability in brood-rearing habitat by 2016.

2.1. Action: Consider new water developments that are multi-use and multi-purpose.

NRCS has addressed new water developments in the EQUIP and WHIP grants it has worked on this year. This includes installing new pipeline and modifying old lines to create wet meadows for grouse during the course of other vegetation treatment projects.

2.1.1. Action step: Construct guzzlers in areas identified as needing water.

2.2. Action: Coordinate with private landowners to protect current water availability that benefits brood-rearing habitat.

NRCS has addressed new water developments in the EQUIP and WHIP grants it has worked on this year. This includes installing new pipeline and modifying old lines to create wet meadows for grouse during the course of other vegetation treatment projects.

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

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

In Hamlin Valley and Pine Valley, the NRCS and BLM both worked with landowners and permittees to improve cattle and wildlife distribution, by installing new fences, adjusting permittee allowances, and modifying existing spring and well structures.

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.

Using Dedicated Hunter support, the group was able to post 3 informational billboards at key trails and road intersection, to inform the local public about grouse and also SWARM.

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

The mailing list and listserv were updated to ensure that current county commissioners and local leaders were receiving notices and meeting invitations to SWARM.

4.2. Action: Support partnership efforts for special designations that promote sage-grouse

habitat.

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

In 2009 and 2010, SWARM hosted a field tour that highlighted habitat restoration projects focused in Minersville, as well as fire rehabilitation around the Bald Hills and Greenville Bench.

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

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

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

In 2009, SWARM created 3 displays for hiking trailheads and driving pullouts around key grouse habitat areas.

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

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

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

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

The SWARM group, through UDWR and volunteers investigates potential new leks each spring.

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

5.1. Action: Evaluate potential of translocation to supplement local populations.

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

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

5.4. Action: Identify and implement steps to reduce presence of West Nile Virus.

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

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

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

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

6.2.2. Action step: Utilize dedicated hunters to help with re-seeding and rehabilitation efforts.

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

6.4. Action: Evaluate the use of fire as a tool in areas where cheatgrass has been established or is prone to establish.

These are routine actions that are performed within each agency, and coordinated and discussed through SWARM.

7. Strategy: Minimize impacts of new land developments and/or recreational uses on sage-grouse populations during the next ten years.

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

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

7.3. Action: Identify and maintain list of contact people involved in land and recreational developments.

7.4. Action: Involve local county and city planning commissions in SWARM meetings.

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

These are routine actions that are performed within each agency, and coordinated and discussed through SWARM.

Strawberry Valley Adaptive Resource Management (SVARM) Sage-grouse Local Working Group

The Strawberry Valley Adaptive Resource Management (SVARM) sage-grouse local working group is facilitated by Ms. Lorien Belton. SVARM meets three times yearly: a spring meeting, a summer field tour, and a fall meeting. The group may meet more frequently as the need arises.

Conservation Strategies and Actions: 2009-2010 Accomplishments

- 1. Strategy:** Provide a system and the reasonable extent of domestic livestock grazing that maintains and improves both the long-term stability of Greater Sage-Grouse populations, and habitats and the livestock industry in the Resource Area.
 - 1.1. Action:** Coordinate grazing management with livestock operators to reduce resource and timing conflicts on leks and prime nesting habitat when possible.
 - 1.2. Action:** Apply grazing management practices to achieve desired conditions including maintenance of residual herbaceous vegetation appropriate for the site.
 - 1.3. 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.
 - 1.4. Action:** Manage livestock to enhance riparian conditions.

Most of area is not grazed. No new grazing projects have been implemented, but spring grazing on the UDWR land purchased from Alan Smith continues. The goal of this grazing management is to recover sagebrush in areas with crested wheat grass.

- 2. Strategy:** Maintain and, where possible, improve grass/forb component in the understory in nesting and brood-rearing areas.
 - 2.1. Action:** Reclaim and/or reseed areas disturbed by treatments when necessary, using seed mixtures with appropriate grasses and desirable forbs.
 - 2.2. Action:** Restore understory vegetation in areas lacking desirable quality and quantity of herbaceous vegetation, where economically feasible.
 - 2.3. Action:** Conduct vegetation treatments to improve forb diversity (e.g., harrowing, aerating, churning) and reclaim or reseed disturbed areas, if needed.
 - 2.4. Action:** Develop management techniques to increase forb diversity and density in sagebrush steppe, within limits of ecological sites and annual variations.



Figure 9. The Strawberry Valley Adaptive Resource Management (SVARM) Sage-grouse Local Working Group Conservation Area consists of 948,568 acres located in north-eastern Utah.

The UPCD Chicken Springs Ridge project is a sage-grouse brood-rearing habitat project, part of a multi-year effort to treat key areas of sagebrush in the Strawberry Valley. The Chicken Springs project treatment occurred in the fall of 2009.

- 3. Strategy:** Enhance existing riparian areas or create small wet areas to improve nesting and brood-rearing habitat.
 - 3.1. Action:** Identify opportunities or needs to create small wet areas, implement such projects where economically feasible.
 - 3.2. Action:** Design and implement livestock grazing management practices to benefit riparian areas.
 - 3.3. Action:** Modify or adapt pipelines or developed springs, to create small wet areas.
 - 3.4. Action:** Locate projects to minimize the potential loss of water table associated with wet meadows.
 - 3.5. Action:** Protect existing wet meadows and riparian areas where necessary.
 - 3.6. Action:** Manage vegetation and artificial structures to increase water-holding capability of areas.
 - 3.7. Action:** Install catchment structures to slow run-off, hold water, and eventually raise water tables.

As noted in the 2008 report, implementation levels of these projects were reduced because many key areas have been addressed already. Two Strawberry River restoration projects through UPCD took place in the larger sage-grouse habitat area. Water is not a major limiting factor for sage-grouse in the area as it has relatively high water availability compared to many sage-grouse areas elsewhere in Utah.

- 4. Strategy:** Manage pinyon/juniper stands to reduce encroachment into sagebrush/grass communities.
 - 4.1. Action:** Remove encroaching trees and tall shrubs mechanically (chainsaws, chaining, etc.) or by other methods, to maintain visibility at lek sites and security from predation in other seasonal habitats.
 - 4.2. Action:** Brush-cut or treat with other mechanical methods specified areas and re-claim or re-seed as necessary.
 - 4.3. Action:** Coordinate with State Forester to expand defensible space programs to improve sage-grouse habitat where possible.

No P-J removal projects occurred in the area as much work has already been done. In the Northeast DWR region, plans for more lop and scatter projects are in development, to be implemented in future years.

- 5. Strategy:** Improve lek vegetation conditions to allow for predator recognition and visibility.
 - 5.1. Action:** Open lek areas that have been invaded by sagebrush and other shrubs.
 - 5.2. Action:** Map and inventory leks with potential for restoration.
 - 5.3. Action:** Maintain and enhance desired conditions for leks.
 - 5.4. Action:** Coordinate vegetation management to maintain desired conditions
 - 5.5. Action:** Evaluate/monitor treatment effects.

No lek-specific vegetation work was done in 2009-2010. The Chicken Springs treatment is nearby the lek. The area continues to be monitored for any satellite lek possibilities.

- 6. Strategy:** Maintain and improve habitat conditions in winter range.
 - 6.1. Action:** Treat decadent stands of sagebrush (harrowing, aerator, brush beating, chain, spike), where appropriate, to create uneven aged stands of sagebrush across the Resource Area.
 - 6.2. Action:** Establish easements or other land protection in crucial sage-grouse use areas.
 - 6.3. Action:** Work with county planners and county council to establish zoning ordinances for crucial winter habitat that protect those areas from inappropriate development.

Most winter habitat is in the Fruitland area, where lop-and-scatter projects have been done that will maintain sagebrush dominance in the area. Discussions with SITLA about potentially acquiring more winter habitat are ongoing.

- 7. Strategy:** Protect crucial habitat from inappropriate development.
 - 7.1. Action:** Work with county planners and county council to establish zoning ordinances for crucial habitat that protect those areas from inappropriate development.
 - 7.2. Action:** Establish easements or other land protection in crucial habitat.
 - 7.3. Action:** Work with USFS and other federal agencies to protect crucial sage-grouse habitat from renewable and non-renewable energy development.
 - 7.4. Action:** Maintain or reestablish sagebrush patches of sufficient size and appropriate shape, to support sage-grouse between agricultural fields.
 - 7.5. Action:** Work with NRCS and others to maintain and enroll important sage-grouse habitats involved in Farm Bill programs currently in agricultural production.
 - 7.6. Action:** Encourage use of sage-grouse friendly seed mixes, including bunchgrasses, forbs, and big sagebrush, in plantings.
 - 7.7. Action:** Encourage interest and enrollment of key sage-grouse habitats in the Farm Bill programs.

SVARM commented on a potential windmill construction within 2 miles of the lek related to a cabin development. SVARM members stay aware of potential development concerns and will continue to work between landowners and agencies so protect key parcels from development. No purchases or decisions occurred in 2009-2010.

- 8. Strategy:** Minimize impacts of noxious and invasive weeds.
 - 8.1. Action:** Identify areas where noxious/invasive weeds are encroaching on sage- grouse habitat
 - 8.2. Action:** Treat areas where noxious/invasive weeds and non-desirable introduced species (e.g. smooth brome) have become, or are at risk of becoming, a factor in sage-grouse habitat loss or fragmentation.
 - 8.3. Action:** Work with existing weed management programs to incorporate sage-grouse habitat needs.

- 8.4. Action:** Identify large areas of noxious/invasive weeds and non-desirable introduced species (e.g. smooth brome), that are not meeting sage-grouse habitat needs and reseed where appropriate.
- 8.5. Action:** Manage burned areas, transportation, utility, and pipeline corridors, and vegetation treatments to minimize undesirable vegetation where possible.
- 8.6. Action:** Work with County weed board to increase awareness of weed problems in sage-grouse and other important wildlife habitat.

Through UPCD, SVARM continued the second phase of the Wallsburg knapweed project, mapping and spraying approximately 920 acres, County weed management continues to spray and monitor musk thistle on the shoreline and at the Trout Creek site. In the Northeastern Region, UWDR treats their property (formally Alan Smith's land) as needed, as well as in the Currant Creek area. Additional coordination in those areas with county weed management will be explored in the future.

- 9. Strategy:** Minimize impacts of utility lines, fences, and roads in sage-grouse habitat.
 - 9.1. Action:** Avoid new construction during important periods and re-route lines where technically and economically feasible to avoid impacts.
 - 9.2. Action:** Schedule maintenance to avoid important periods, however, maintenance in emergency situations will be unrestricted.
 - 9.3. Action:** Install raptor deterrents when applicable

The possibility of power transmission lines coming through the area is in the beginning stages of development. The EIS is not available yet but group members will remain aware of possible concerns for sage-grouse related to alternative routes.

- 10. Strategy:** Minimize sage-grouse habitat loss to oil and gas activities.
 - 10.1 Action:** Increase/encourage participation by private oil/gas industry in SVARM.
 - 10.2. Action:** Encourage use of central tanks and locate those in areas with least impact to sage-grouse.
 - 10.3. Action:** Use directional drilling where feasible to minimize surface disturbance, particularly where well density exceeds 1:160 acres.
 - 10.4. Action:** Minimize pad size and other facilities to the extent possible, consistent with safety.
 - 10.5. Action:** Plan and construct roads to minimize duplication.
 - 10.6. Action:** Cluster development of roads, pipelines, electric lines and other facilities.
 - 10.7. Action:** Minimize noise disturbance (directing mufflers, glass packs, etc.) in and near lek and nesting habitat.
 - 10.8. Action:** Use existing, combined corridors where possible.
 - 10.9. Action:** Use early and effective reclamation techniques, including interim reclamation, to speed return of disturbed areas to use by sage-grouse.
 - 10.10. Action:** Reduce long-term footprint of facilities to the smallest possible.
 - 10.11. Action:** Avoid aggressive, nonnative grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome, etc) in reclamation seed mixes.
 - 10.12. Action:** Eliminate noxious weed infestations associated with oil and gas development disturbances.

- 10.13. Action:** Minimize width of field surface roads.
- 10.14. Action:** Avoid ridge top placement of pads and other facilities.
- 10.15. Action:** Use low-profile, above-ground equipment, especially where well density exceeds 1:160 acres.
- 10.16. Action:** Avoid breeding/nesting season (March 1 – June 30) construction and drilling when possible in sage grouse habitat.
- 10.17. Action:** Limit breeding season (March 1 – May 1) activities near sage grouse leks to portions of the day after 9:00 a.m. and before 4:00 p.m.
- 10.18. Action:** Reduce daily visits to well pads and road travel to the extent possible in sage-grouse habitat.
- 10.19. Action:** Utilize well telemetry to reduce daily visits to wells, particularly where well density exceeds 1:160 acres.
- 10.20. Action:** Locate compressor stations off ridge tops and at least 2,500 feet from active sage-grouse leks, unless topography allows for closer placement.
- 10.21. Action:** Avoid locating facilities within a quarter mile of active sage-grouse leks, unless topography allows for closer placement.
- 10.22. Action:** Plan for and evaluate impacts to sage-grouse of entire field development rather than individual wells.
- 10.23. Action:** Study, and attempt to quantify, impacts to sage-grouse from oil and gas development.
- 10.24. Action:** Evaluate need for near-site and/or off-site mitigation to maintain sage- grouse populations during oil and gas development and production, especially where well density exceeds 1:160 acres.
- 10.25. Action:** Implement near-site and/or off-site mitigation as necessary to maintain sage-grouse habitat quality.
- 10.26. Action:** Share sage-grouse data with industry to allow planning to reduce impacts.

As in previous years, oil and gas is of minimal concern in the SVARM area.

- 11. Strategy:** Minimize the impact of extraordinary predation.
 - 11.01. Action:** Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas, where feasible, and where predator concerns have been identified.
 - 11.02. Action:** Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.
 - 11.03. Action:** Begin site-specific predation management considering all predator species (especially common ravens and red fox) where necessary and appropriate.
 - 11.04. Action:** Work with County planners and private developers to incorporate trash minimization and domestic animal control measures in CCNRs.

Raven control continues in the area but may be reduced in future years to better understand the effects of predation on the local population. In 2009 and 2010, DRC 1339 egg efforts were moved to earlier in the season to target more concentrated raven populations. Raven populations appear to be down considerably in the last two years, suggesting that there may be a residual effect lasting longer than previous later (spring) treatments. These treatment changes occurred in both the Strawberry area and in Fruitland, where raven control was

recently expanded. Focusing on distributing poisoned eggs earlier in the season, if the observed effectiveness is accurate, is much more effective than pre-baiting since it takes advantage of naturally occurring raven concentrations rather than a requiring a labor-intensive artificial process (pre-baiting) to concentrate the predators. For red fox, this predator was targeted in both spring of 2009 and spring of 2010 at gradually reduced rates. There have not been flights to look for red fox as in the past, but den work and trapping has been ongoing. Formal control efforts for red fox will be ended in 2011 to observe the impact on sage-grouse populations.

12. Strategy: Improve knowledge of diseases and parasites in sage-grouse populations.

12.1. Action: Collect sage-grouse parasite and disease organism samples while handling birds for other research, when possible.

12.2. Action: Monitor radio-collared and other sage-grouse for West Nile Virus and other disease outbreaks.

As in previous years, researchers from BYU take blood samples of every radio collared bird. During high West Nile times, they also take fresh-killed birds in for necropsy.

13. Strategy: Improve knowledge of genetics in sage-grouse in minimum viable populations.

13.1. Action: Collect samples for genetic research from all known breeding complexes (including hunted and un-hunted areas) when possible.

See Strategy 12. BYU does this when doing other blood tests. Feathers are taken from chicks when possible to augment this effort.

14. Strategy: Increase size of sage-grouse population in the Resource Area.

14.1. Action: Continue translocation efforts as called for by UDWR, BYU, and other participating agencies and organizations.

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

The translocation project has been completed. No translocations were done in 2009 in order to determine the effect of other influences on population survival.

15. Strategy: Maintain and increase long-term habitat and population monitoring and research.

15.1. Action: Maintain long-term habitat monitoring sites on the Resource Area (as monitored by the Utah Big Game Range Trend Studies program).

15.2. Action: Maintain and increase radio-monitoring of translocated sage-grouse.

15.3. Action: Work with agency partners to maintain and increase funding for research and monitoring.

15.4. Action: Continue to monitor sage-grouse populations through use of lek counts.

15.5. Action: Increase lek search activities to find new lek sites in the Resource Area.

15.6. Action: Work with USDA-WS to monitor populations of sage-grouse predators.

As in past years, monitoring efforts continue as a joint effort between BYU and UDWR. No new leks have been found in the area. Big Game Range Trend Studies are ongoing in the

area. Predator reduction monitoring is anecdotal but communication continues between UDWR, SVARM, and APHIS. Future monitoring plans for impact to ravens is under discussion. Three UPCD projects in the Fruitland area were monitored for sage-grouse activity and pellets in late summer 2009: East Santaquin Draw 2006 chaining, the Santaquin 2009 sagebrush chaining, and the 2-Bar chaining from 2007. All monitoring occurred post-treatment so effects of treatments on sage-grouse will be difficult to determine. Final results will be available in the late 2010.

16. Strategy: Increase public education about sage-grouse ecology, conservation, and management.

16.1. Action: Work with Audubon Society to increase educational opportunities regarding sage-grouse in the Resource Area.

16.2. Action: Develop educational materials (brochures, presentations, etc.) and deliver to Friends of Strawberry Valley, Strawberry Anglers Association, Daniels Summit Lodge, Strawberry Water Users and other potential stakeholders to increase awareness

16.2. Action: Encourage use of signage in appropriate areas to increase awareness of crucial sage-grouse habitats.

16.3. Action: Develop sage-grouse identification materials for distribution to recreationists, bird watchers, and other stakeholders

Summer field tours continue regularly, including a 2009 summer tour and a 2010 tour which included Central Region UPCD. Tours continue to be an excellent way to share information about projects and engage other partners in SVARM's work. In addition, SVARM designed and installed (in June 2010) an informational kiosk at Trout Creek highlighting information on sage-grouse biology and populations, recreation impacts to sage-grouse, and habitat treatment projects. A second kiosk will be installed at a nearby location soon.

17. Strategy: Minimize negative impacts of incompatible OHV (ATVs, snowmobiles, 4WD trucks, etc.) recreation and other recreation on sage-grouse populations and habitats.

17.1. Actions: Work with County planners and other agencies to restrict seasonal OHV access to crucial sage-grouse use areas

17.2. Actions: Coordinate with enforcement agencies (Sheriff, parks, USFS, COs) to increase awareness of negative impacts to sage-grouse

17.3. Action: Create opportunities and use existing avenues to increase awareness in participating public about negative impacts of OHV use in crucial sage-grouse areas

17.4. Action: Coordinate with enforcement agencies to increase awareness of poaching and to minimize sage-grouse poaching opportunities

17.5. Action: Encourage use of signage to identify areas closed to hunting; language in proclamation that specifies closed area

The new kiosk prominently displays a message that recreationists should take care in sage-grouse areas by staying on trails, not harassing the birds, etc. The Trout Creek kiosk targets summer ATV riders, whereas the future second kiosk will be placed to attract the attention of snowmobilers in the winter.

18. Strategy: Maintain and increase coordination and communication between state and federal agencies and private partners.

18.1. Action: When possible, present all brush management projects at regional UPCD meetings in advance, to facilitate information sharing and coordination

18.2. Action: Annually provide maps of crucial sage-grouse habitat to SVARM partners

18.3. Action: Meet annually to visit habitat projects in the field

18.4. Action: Hold annual coordination meeting prior to the start of spring field season

18.5. Action: SVARM representative to report on UDWR-USFS coordination meetings

18.6. Action: Coordinate with the County through public lands coordinator and committee

18.7. Action: When possible, comment, as a group, on proposed actions that may impact sage-grouse or their habitats.

Numerous coordination meetings occur throughout the region. The Central Region UPCD takes a very active role in promoting projects appropriate to wildlife. Brush management projects are reviewed for their impact to grouse. Field tours to the area usually highlight sage-grouse habitat projects, even beyond the official work of SVARM. The public land committee has a representative who is active in the SVARM group.

Uintah Basin Adaptive Resource Management Local Working Group

The Uintah Basin Adaptive Resource Management (UBARM) sage-grouse local working group is facilitated by Ms. Lorien Belton. UBARM meets three times yearly: a spring meeting, a summer field tour, and a fall meeting. The group may meet more frequently as the need arises.

Beginning in 2009, the group has an informal agreement to coordinate meeting times and field tour dates with the Uintah Basin (northeast region) Utah Partners for Conservation and Development (UBPCD), which meets approximately monthly. This allows for better coordination of projects and issues, in addition to facilitating higher attendance from partners who might otherwise be forced to choose between the two meetings for budgetary purposes. The UBPCD group also passed a resolution in December 2008 to support implementation of the UBARM Sage-grouse Conservation Plan.



Figure 10. The Uintah Basin Adaptive Resource Management (UBARM) Sage-grouse Local Working Group Conservation Area consists of 5,375,423 acres located in eastern Utah.

Conservation Strategies and Actions: 2009-2010 Accomplishments

1. **Strategy:** Increase cooperation and coordination between UBARM and public and private partners.
 - 1.1. **Action:** By 2007, meet with the Ute Tribe Fish and Game Department to update them on UBARM activities and encourage participation.
 - 1.2. **Action:** Work with the NRCS to review and potentially endorse NRCS WHIP and EQIP projects that would benefit sage-grouse on private land.
 - 1.3. **Action:** Encourage use of UBARM defined desired conditions for state and federal lands and influence management actions in order to move toward those conditions.

DWR continues to coordinate with the Tribe on wildlife issues and related topics such as fire. Miles Hanberg met with BIA to discuss how to conduct Towanta Flats fire management in a way beneficial (or at least not harmful) to sage-grouse, but those projects have likely been postponed due to the departure of that BIA employee. NRCS has increased its communication with DWR about sage-grouse issues and involvement in projects, particularly with the March 2010 announcement of sage-grouse specific funding for sage-grouse projects through NRCS. The agency has led several projects on Diamond Mountain and gotten approximately a dozen signups. In addition, NRCS employees were trained on sage-grouse habitat needs in May 2010. BLM had a new IM come out in 2010 that emphasized sage-grouse, but its impact on conservation efforts in the area has yet to be determined.

2. **Strategy:** Increase information/education opportunities with local community and UBARM partners.

- 2.1. Action:** By 2008, develop informational handout about sage-grouse ecology and UBARM activities.
- 2.2. Action:** Through 2016, include information about UBARM activities in County Extension newsletter.
- 2.3. Action:** Schedule spring field tour of habitat management projects.
- 2.4. Action:** Coordinate workshops for private partners to share information about habitat enhancement, funding opportunities, and other relevant topics to be identified as needed.

USU Extension newsletter included advance notices about the March 2010 dinner meeting to discuss the USFWS listing decision, which brought in landowners with no previous relationship with UBARM. An informational flyer was created in 2009 and distributed in March 2010 with basic sage-grouse life history information and locally relevant threats. Additional work is needed to expand the audience. The 2009 summer field tour, held in conjunction with the Uintah Basin (Northeast Region) Partners for Conservation and Development (UBPCD) group, was well attended. NRCS money for sage-grouse project announced in March 2010 provided an opportunity to encourage wider participation in sage-grouse conservation efforts. The UBARM meeting in March 2010 provided ranchers an opportunity to ask questions of the FWS about the warranted but precluded decision.

3. Strategy: By 2016, **increase brood-rearing habitat quality** in the Resource Area.

- 3.1. Action:** Work with agency partners to develop projects that would increase brood-rearing habitat quality in the Resource Area.
- 3.2. Action:** Work with private and public partners to monitor effects of habitat improvement projects on vegetation and sage-grouse habitat use.
- 3.3. Action:** Conduct vegetation treatments to improve forb diversity in the understory (e.g., harrowing, aerating, chaining) and reclaim or reseed disturbed/treated areas, when necessary, using seed mixtures high in native bunch grasses and desirable forbs.

Several ongoing projects, including the lop-and-scatter on Anthro mountain and grazing work on Deadman Bench being done through the USU/CSI/WRI work is in brood-rearing habitat.

The Yellowstone River riparian fencing, an NRCS project about 115 acres on the west side of the river, was a pasture improvement project which fenced riparian areas and worked on implementation of a grazing plan. Those areas have now improved with respect to sage-grouse habitat. Troughs with escape ramps went into the new pastures. Nearby, on the other side of the river, a UPCD project provided additional fence but probably did not directly benefit sage-grouse.

The Jackson Draw project in Diamond Mountain involved pasture fences (completed) and water pipelines (occurring July 2010) for better cattle distribution, and has improved the forb content in the area. A sagebrush treatment done in 2008 still needs a final seeding and

will be done once it is clear which areas actually need reseeding. This will likely be about 200 acres of seeding, down from the initial 600 acre estimate. This project may have additional future benefits to grouse as well, since additional sage-grouse NRCS money will likely be applied in the future. Also on Diamond Mountain, a 195-acre Dixie Harrow project in the Ruble cabin area off Jones Hole Road should improve sage-grouse habitat.

In addition, the UPCD Cedar Camp project was 2000 acres of lop and scatter finished June 2010. The area is one where birds are still occasionally seen in summertime.

4. Strategy: By 2016, increase population and habitat monitoring efforts in the Resource Area.

4.1. Action: Encourage public and private partners to use techniques from Connelly et al. (2003) “Monitoring of Greater Sage-grouse Habitats and Populations”

4.2. Action: In 2007, UDWR biologists will coordinate with Ute Tribe biologists to identify sage-grouse lek sites and count birds on Tribal lands.

4.3. Action: UDWR to enlist and coordinate private volunteers and/or other agency biologists search for new leks and conduct lek counts on active leks.

DWR continues to do standard spring lek monitoring. Several research projects have finished, including Seep Ridge/East Bench (Leah Smith, looking at energy development) and Anthro Mountain (Eric Thacker, looking at fire), as the graduate students conducting that research have moved on. Both final documents from those students are available online. In addition to these studies, three collared birds on Deadman Bench died but provided some additional information about local population movements in the area. The USU study on Anthro Mountain trapped another 30 on Parker Mountain this spring and translocated them to Anthro. Movements and chick survival are being monitored. The DWR will continue this monitoring once the graduate student working on the project finishes. Currently, BYU is monitoring sage-grouse on Blue Mountain and Diamond Mountain and will be doing nesting and habitat modeling with 30 collared birds. DWR and the Tribe coordinate to monitor some leks. The tribe may also monitor some additional leks not monitored by DWR. With all USFS projects, the Forest Service monitors change in vegetation type.

5. Strategy: By 2016, work with public and private partners to reduce invasive/noxious plant species, especially in areas used for nesting and brood-rearing.

5.1. Action: Identify areas where undesirable vegetation is encroaching on sage-grouse habitat.

5.2. Action: Coordinate with county weed control department to control invasive/noxious weeds in areas used by sage-grouse.

5.3. Action: Treat and/or reseed areas where undesirable vegetation has become or is at risk of becoming a factor in sage-grouse habitat loss or fragmentation.

5.4. Action: Avoid controlled burns and fight wildfires in areas dominated by cheat-grass.

5.5. Action: Encourage and support use of chemical and mechanical treatments to control cheat-grass and invasive/noxious weeds.

5.6. Action: Manage fire, transportation and vegetation treatments to minimize undesirable vegetation where possible.

Near Matt Worner Lake, there is ongoing spotted knapweed and musk thistle control on DWR land on Diamond Mtn. The knapweed is currently under control but if a major disturbance happened it would be a problem. Various partners, though the local weed board, assist UWDR staff. Forest Service and the BLM reclamation team also work on weed management issues locally.

6. Strategy: By 2016, minimize effects of roads and utilities in areas used by sage-grouse.

6.1. Action: Re-vegetate utility corridors with sage-grouse seed mixes.

6.2. Action: Avoid placement of new roads and utilities near lek sites (specific distances should be site specific).

6.3. Action: Where possible, install perch deterrents on tall structures located in areas used by sage-grouse.

6.4. Action: Avoid new construction during important periods and re-route lines where technically and economically feasible to avoid impacts.

6.5. Action: Schedule maintenance to minimize important periods, however, maintenance in emergency situations will be unrestricted.

6.6. Action: Where practicable, install low-profile tanks in areas used by sage-grouse.

Work continued this year to mitigate the effects of the compressor station on Diamond Mountain, including relates roads and power lines. There was concern that the road to the new location still goes right by the lek. Timing and travel restrictions for contractors traveling the road during lekking season were put into effect to reduce impacts on lekking grouse. WIC's final implementation plan states: "WIC has agreed to monitor and reduce construction traffic to the station site on the public road. WIC will limit the number of construction vehicles in this area during the sage grouse lekking season and will enforce this provision contractually with the contractor. WIC has also agreed to require the installation of raptor perch excluders on all new power poles associated with the Project. Finally, WIC has agreed to monitor the Diamond Mountain Compressor Station buildings and structures for future raptor perch sites." Power lines related to the compressor station were also rerouted following discussions with the Division of Wildlife Resources and the Fish and Wildlife Service.

In addition to power lines related to the compressor station, several very large regional power transmission lines from Wyoming to Nevada (TransWest and South Gate) have proposed routes through Uintah Basin, including possible routes over Diamond Mountain. DWR and the EIS preparer have been identifying sage-grouse issues. Public comment times have not yet begun.

In general, the Uintah County Public Lands Implementation Plan (Uintah County Board of Commissioners 2005a) has regulations in place to follow the state sage-grouse plan and ensure buffer zones between known leks and new road, utility, fence, etc. developments.

7. Strategy: Monitor impacts of hunting on sage-grouse population in Resource Area.

7.1. Action: Review and advise UDWR on sage-grouse harvest plans.

As in previous years, sage-grouse limits are re-evaluated each year based on spring lek counts. UDWR uses wing barrel collections in the UBARM area where hunts are allowed.

8. 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.

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

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

8.3. 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.

8.4. Action: Manage livestock to enhance riparian conditions.

USU's Anthro cattle-grazing study in brood-rearing habitat went through its first season of data collection (pre-treatment) in 2009, and the cattle have grazed the study plots. A sheep-grazing project on Deadman Bench is in the NEPA process. NRCS, GIP, and federal partners who manage private grazing leases all work with grazers (including the Uintah Basin Grazing Association) to plan and implement strategic grazing management on Blue Mountain, Diamond Mountain, and Anthro Mountain. Also see other comments in the brood-rearing area.

Planning has begun for seven private projects to be funded with the new NRCS sage-grouse money. They range from water development and fencing to brush management and wells. In general many are focused on making grazing rotation more intensive and doing mosaics of brush control to open up sagebrush. Another project is planned adjacent to the Rim Ranch CRP that will cut pastures into smaller areas and put in troughs. That producer has also agreed to come off the mountain September 1 instead of staying to November, which should benefit sage-grouse in the area.

9. Strategy: By 2016, key public and private lands in the UBARM Resource Area (specific locations to be selected) are protected and/or managed so as to conserve/improve sage-grouse nesting and breeding habitat.

9.1. Action: Pursue private land protection on a few key parcels (TBD).

UBARM partners remain open to all opportunity to conserve key sage-grouse areas more permanently, although the group has not worked on any projects this year.

10. Strategy: **Manage pinyon/juniper stands** to reduce encroachment into sagebrush/grass communities.

- 10.1. Action:** Remove encroaching trees and tall shrubs mechanically (chainsaws, chaining, etc.) or by other methods, where needed to maintain visibility at lek sites and security from predation in other seasonal habitats.
- 10.2. Action:** Identify areas where pinyon or juniper trees are encroaching on good quality sagebrush habitat and treat and re-seed as needed.
- 10.3. Action:** Revisit and retreat as needed pinyon/juniper removal sites to prevent reestablishment in previously treated areas.

UPCD projects at Cedar Camp in 2010 and Terry Mesa in the Book Cliffs may both benefit sage-grouse populations by improving habitat. The USFS is in the fifth year of re-treating old chainings on Anthro Mountain. The Nuttars and Jeep Trail Ridge phase happened in summer 2009 (1500 acres). Contracting is ongoing for the 2010 phase Gilsonite phase project The lop-and-scatter habitat evaluation project being done by Terry Messmer of USU is part of that work. Treatment for the USU project occurred in fall of 2009. A project near Bonita involves habitat improvement in a grouse migration route: in 2009, a PJ removal project (about 200 acres) was done and reseeded; the seeding has taken very well.

- 11. Strategy:** Enhance existing riparian areas or create small wet areas to improve nesting, brood-rearing, late summer, and fall habitat.
 - 11.1. Action:** Identify opportunities or needs to create small wet areas in areas used by sage-grouse, implement such projects where economically feasible.
 - 11.2. Action:** Modify or adapt pipelines or developed springs to create small wet areas.
 - 11.3. Action:** Locate projects to minimize potential loss of water table associated with wet meadows.
 - 11.4. Action:** Protect existing wet meadows and riparian areas where necessary.
 - 11.5. Action:** Manage vegetation and artificial structures to increase water-holding capability of areas.
 - 11.6. Action:** Install catchment structures to slow run-off, hold water, and eventually raise water tables.
 - 11.7. Action:** During times of drought, coordinate with public and private partners to maintain water available for sage-grouse during late summer and early fall in areas used during this time

See the brood rearing section on NRCS and UP CD projects that included riparian work. Planning continues for tribal trough installment in an area near two leks on Towanta Flats, although the project has been delayed due to staff turnover and other reasons.

- 12. Strategy:** Improve lek vegetation conditions to allow for predator recognition and visibility.
 - Action:** Open lek areas that have been invaded by sagebrush and other shrubs.
 - Action:** Map and inventory leks with potential for restoration.
 - Action:** Maintain and enhance desired conditions for leks.

No lek vegetation projects were undertaken this year. One lop-and-scatter on Anthro Mountain is close to a lek, so may peripherally reduce nearby predation issues, although this is anecdotal. On tribal land, mowing to increase lek visibility has been delayed but is still planned for the future. NRCS (Mark Chamberlain) and UDWR (Miles Hanberg) have been working with the tribe on this project.

13. Strategy: Maintain Conservation Reserve Program (CRP) lands for sage-grouse.

13.1. Action: Work with NRCS and others to maintain the CRP program and improve its benefit to wildlife by altering seed mixes to be more sage-grouse friendly, including bunchgrasses, forbs and big sagebrush

13.2. Action: Maintain or reestablish sagebrush patches of sufficient size and appropriate shape to support sage-grouse between agricultural fields.

13.3. Action: Rehabilitate old low diversity, sod bound CRP fields with sage-grouse friendly seed mixes including bunchgrasses, forbs, and big sagebrush.

13.4. Action: Encourage interest and enrollment of key sage-grouse habitats, including those in grain production, in relevant Farm Bill programs (CRP and GRP).

No new CRP was added in 2009. On Rim Ranch on Diamond Mountain, the CRP there was seeded several years ago with seed-mix recommendations from the DWR. That land is mostly still in CRP, except for about 160 acres that came out. Hopefully the small portion will be re-signed up in August 2010.

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

14.1. Action: Participate with County land use decision makers in identifying key sage-grouse habitats and establishing zoning ordinances that protect those areas from inappropriate development

14.2. Action: Educate County planning departments about where important sage-grouse use areas are located.

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

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

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

14.6. Action: If development does occur, work to minimize impacts to biodiversity.

Development issues are not currently an issue for sage-grouse in the area. The DWR continues to seek a way to share critical information on sage-grouse habitat and lek locations in a way that complies with current state law.

15. Strategy: Minimize sage-grouse habitat loss to oil and gas activities while ensuring continued development.

- 15.1. Action:** Reduce fragmentation of sage-grouse habitat by oil and gas development activities.
- 15.2. Action:** Minimize disturbance to sage-grouse associated with oil and gas development.
- 15.3. Action:** Reduce cumulative impacts of oil and gas development.
- 15.4. Action:** Use directional drilling where feasible to minimize surface disturbance, particularly where well density exceeds 1:160 acres.
- 15.5. Action:** Minimize pad size and other facilities to the extent possible, consistent with safety.
- 15.6. Action:** Plan and construct roads to minimize duplication.
- 15.7. Action:** Cluster development of roads, pipelines, electric lines and other facilities.
- 15.8. Action:** Use existing, combined corridors where possible.
- 15.9. Action:** Use early and effective reclamation techniques, including interim reclamation, to speed return of disturbed areas to use by sage-grouse.
- 15.10. Action:** Reduce long-term footprint of facilities to the smallest possible.
- 15.11. Action:** Avoid aggressive, non-native grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome, etc) in reclamation seed mixes.
- 15.12. Action:** Eliminate noxious weed infestations associated with oil and gas development disturbances.
- 15.13. Action:** Minimize width of field surface roads.
- 15.14. Action:** Avoid ridge top placement of pads and other facilities.
- 15.15. Action:** Use low profile above ground equipment, especially where well density exceeds 1:160 acres.
- 15.16. Action:** Avoid breeding/nesting season (March 1 – June 30) construction and drilling when possible in sage-grouse habitat.
- 15.17. Action:** Limit breeding season (March 1 – May 1) activities near sage-grouse leks to portions of the day after 9:00 a.m. and before 4:00 p.m.
- 15.18. Action:** Reduce daily visits to well pads and road travel to the extent possible in sage-grouse habitat.
- 15.19. Action:** Utilize well telemetry to reduce daily visits to wells, particularly where well density exceeds 1:160 acres.
- 15.20. Action:** Locate compressor stations off ridge tops and at least 2,500 feet from active sage-grouse leks, unless topography allows for closer placement.
- 15.21. Action:** Avoid locating facilities within ¼ mile of active sage-grouse leks, unless topography allows for closer placement.
- 15.22. Action:** Plan for and evaluate impacts to sage-grouse of entire field development rather than individual wells.
- 15.23. Action:** Study, and attempt to quantify, impacts to sage-grouse from oil and gas development.
- 15.24. Action:** Evaluate need for near-site and/or off-site mitigation to maintain sage-grouse populations during oil and gas development and production, especially where well density exceeds 1:160 acres.
- 15.25. Action:** Implement near-site and/or off-site mitigation as necessary to maintain sage-grouse populations.
- 15.26. Action:** Share sage-grouse data with industry to allow planning to reduce impacts.
- 15.27. Action:** Participate in county planning efforts for oil and gas exploration and

development to ensure that sage-grouse impacts are minimized.

Questar and The Nature Conservancy have begun an “Energy by Design” collaboration in the UBARM area to look at high priority species and look at mitigation strategies. This is likely to be relevant to sage-grouse as it develops.

Appendix 5 of the state sage-grouse plan, which addresses energy issues, has not been formalized yet.

Leah Smith’s thesis work on the East Bench found that sage-grouse avoided well pads and other specific sites as much as possible, but do not necessarily leave the general area due to site fidelity. The population in that area has recently experienced severe declines although it is unclear exactly what has caused them.

The compressor station proposed to be very close to a lek on Diamond Mountain has been relocated to private ground. There will be less sound mitigation on the alternative site but as it is much farther from the lek, this will be less of a problem. Construction is nearly complete on the compressor station as of July 2010.

The BLM is working to decrease the impact to sage-grouse from energy development. However, several new energy development proposals may have significant impacts to sage-grouse. A new energy field has been proposed for the East Bench area. The draft EIS by Anadarko for the Greater Natural Buttes area was released July 14, 2010. On Anthro Mountain, 400 wells have been proposed, of which 20 are in the lek area. One proposed well on Nuttar’s would actually go through a lek. The EIS was released for comment in spring of 2010 and several working groups partners, particularly the FWS, commented extensively, and participate in ongoing conversations with the company (Berry Petroleum). As of July 2010, the final EIS is in development. A separate 20-well proposal by Vantage Petroleum has 2 test wells drilled and a third proposed which may be of concern to sage-grouse.

16. Strategy: Minimize the impact of excessive predation.

16.1. Action: Plan and conduct research to determine the population-level effects of predation on sage-grouse.

16.2. Action: Where sage-grouse population-level effects of predation (especially common ravens and red fox) are clearly identified, plan and implement site-specific predation management as necessary. Incorporate a monitoring plan to determine success.

16.3. Action: Modify power lines and wood fence posts and remove trees (to remove raptor perches) in important sage-grouse areas, where feasible and where predator concerns have been identified

Raven control is ongoing in the area. Wildlife Services places approximately 1200 DRC-1339 egg baits each year in key areas to reduce the risk of raven predation on sage-grouse nests during nesting season. The poisoned eggs are placed within at least five miles of leks and sometimes immediately next to the leks.

17. Strategy: Improve knowledge of disease in sage-grouse populations.

17.1. Action: Collect grouse parasite and disease organism samples while handling birds for other research.

17.2. Action: Monitor radio collared and other grouse for West Nile Virus and other disease outbreaks.

West Nile tests are done on birds whenever dead birds are found soon enough after death to be testable. Several projects in the area (Leah's Smith's work on the East Bench and collared birds on Deadman Bench) have observed unusual sage-grouse declines that could be related to West Nile, although the cause is currently undetermined.

18. Strategy: Increase subpopulation numbers and genetic distribution in Resource Area subunits (TBD).

18.1. Action: Use translocation from within the Resource Area to supplement subpopulations.

18.2. Action: Use translocation from areas outside the Resource Area to supplement subpopulations.

18.3. Action: Use translocation techniques developed by Baxter et al. in Strawberry Valley

Of the 30 birds translocated from Parker Mountain to Anthro Mountain in 2009, two thirds had died by November, in addition to a large portion of the collared resident birds as well—an unexpectedly high adult mortality. 30 additional birds were moved in 2010 and have thus far had better survival rates. As part of this project, Natasha Gruber with USU takes blood samples to look at paternity of collared sage-grouse. This will help determine where the genetic pools are and where diversification might be valuable. Collaring studies on Diamond Mountain by BYU were begun as well. Their work will involve trapping and collaring as well as some modeling.

19. Strategy: Increase knowledge base regarding the positive and negative effects of sagebrush habitat improvement projects on other shrubsteppe species.

19.1. Action: Identify and/or develop research and monitoring protocol to address impacts to other shrubsteppe species of management practices targeted at improving or enhancing sage-grouse populations and/or habitats.

No WRI sage-grouse (wildlife) monitoring was done in 2009 on projects in this area as the sage-grouse monitoring technician was unable to reach all WRI sites this year. Blue Mountain, Bruch Creek Bench, and McCook Ridge were on the list for possible monitoring, which will be revisited in future years.

Several habitat manipulation projects on Anthro (lop-and-scatter and a cattle-grazing project) and Deadman Bench (sheep-grazing) are moving forward that will be monitored by USU for sage-grouse pellets and vegetation change, but not for other species. The projects are being managed by USU and are partially funded by the Watershed Restoration Initiative funds as well as an NRCS Conservation Innovation Grant provided to the Cooperative

Sagebrush Initiative. In each case, data is being gathered to provide data for eventual mitigation credit calculations, to determine how effective each treatment is at improving sage-grouse habitat.

West Desert Adaptive Resource Management Local Working Group

The West Desert Basin Adaptive Resource Management (WDARM) sage-grouse local working group is facilitated by Ms. Lorien Belton. WDARM meets three times yearly: a spring meeting, a summer field tour, and a fall meeting. The group may meet more frequently as the need arises. The following updates reflect the combined efforts of the group and individual agencies, landowners, and others on behalf of sage-grouse conservation in the West Desert.



Figure 11. The West Desert Adaptive Resource Management (WDARM) Sage-grouse Local Working Group Conservation Area consists of 5,137,991 acres located in western Utah.

Conservation Strategies and Actions: 2009-2010 Accomplishments

1. Strategy: Maintain and increase coordination and communication with agency and private partners.

1.1. Action: Participate with and coordinate with the Central Region UPCD, Tooele County Natural Resource Group, Deep Creek Watershed partnership, Goshute Tribe, Tooele and Juab County Commissioners, SCDs, UFBF, and any other groups, as necessary.

1.2. Action: Hold annual field tours to review projects, evaluate on-the-ground progress on the Plan, and share ideas.

1.3. Action: Develop educational material appropriate for a broad recreationist audience to develop sensitivity to issues identified in the Plan.

WDARM continues to meet regularly. A summer field tour in 2009 was well attended. In 2010, a spring field tour and lek visit was followed by a regular spring meeting. Instead of a summer field tour for 2010, WDARM members will try to attend other groups' tours to view other projects and coordinate outside the WDARM boundaries. County Commissioners attended a meeting in 2009 and discussed key road-to-trail conversion issues as well as other items. NRCS funding for sage-grouse projects will be increasing rangewide, and will provide additional resources for future private land projects in the area.

2. Strategy: By 2010, reduce pinyon/juniper stands from sage-grouse use areas.

2.1. Action: Remove pinyon/juniper trees from priority areas where action is warranted.

2.2. Action: Revisit and retreat pinyon/juniper removal sites, as needed.

The Sharps Valley lop and scatter, a UPCD project through the Forest Service, was proposed and approved for funding in 2010. NRCS participated in planning for 15 acres of juniper

removal and seeding on the south slope of the Sheeprocks (Juab county), and 120 acres of juniper removal in the Vernon area.

- 3. Strategy:** By 2016, increase brood-rearing habitat quality in the Resource Area.
- 3.1. Action:** Work with the NRCS and private partners to develop projects that would increase brood-rearing habitat quality in the Resource Area.
 - 3.2. Action:** Work with agency partners to develop projects that would increase brood-rearing habitat quality in the Resource Area.
 - 3.3. Action:** Work with private and public partners to monitor effects of habitat improvement projects on vegetation and sage-grouse habitat use.
 - 3.4. Action:** Where appropriate, reduce sagebrush canopy cover with mechanical or chemical treatments and reseed with ecologically appropriate seed mixes.

The Benmore Pastures project was completed in 2009, which created diversity in sagebrush cover, and reseeded for an improved understory.

- 4. Strategy:** Thru 2016, maintain and protect winter habitat distribution and quality in the Resource Area.
- 4.1. Action:** Promote protection of winter habitat from fire.
 - 4.2. Action:** Promote protection of winter habitat from OHV trail development and activities.
 - 4.3. Action:** Update maps of crucial winter habitat areas and monitor winter habitat use areas for presence of sage-grouse.
 - 4.4. Action:** In the event of fire, aggressively rehabilitate sites to prevent domination of invasive/noxious weed communities.

Considerable work has already been done to improve winter habitat, particularly P-J removal. The Sharps Valley project planned for 2010 will contribute to this effort.

- 5. Strategy:** Reduce the threat of conversion of sagebrush stands to invasive/noxious weed communities.
- 5.1. Action:** Seed green-strips and/or fire breaks in crucial areas (to be identified).
- Status:** WDARM partners treated sagebrush Ibapah west and east slopes, Rush Valley, (see table and Map)
- 5.2. Action:** Identify areas where fire suppression should be promoted to protect crucial habitat.
 - 5.3. Action:** Maintain and/or increase fuels reduction projects in crucial areas (to be identified)
 - 5.4. Action:** Work with agency and private partners to conduct vegetation treatments that restore functional plant groups to sagebrush communities.
 - 5.5. Action:** Coordinate with noxious/invasive weed Coordinated Weed Management Area (CWMA) personnel.

A subgroup of the Central region UPCD has been working to develop fuels reduction and other project plans (green stripping, etc) for the Sheeprocks area, which has the potential to improve sage-grouse habitat. WDARM provided comments to that subgroup in order to ensure that recommended projects are beneficial or at least neutral for sage-grouse. Knapweed treatments in the Tintic Junction area were completed in 2009 through UPCD. In addition, there are multiple other efforts in the area to combat weeds: the USFS has an ongoing program in Vernon; BLM and UDWR coordinate on weed issues, NRCS works with private landowners to address issues on private land, and USU Extension (Linden Greenhalgh) has recently obtained a grant to work with the Goshute Tribe on weed issues as well.

6. Strategy: Minimize the impact of excessive predation.

- 6.1. Action:** Modify power lines and wood fence posts (to remove raptor perches) in important sage-grouse areas, where feasible and where predator concerns have been identified.
- 6.2. Action:** Remove trees, remove/modify raptor perches, and maintain quality sagebrush habitat, where predation concerns on sage-grouse have been identified.
- 6.3. Action:** Maintain or increase site-specific predation management to consider all predator species (especially common ravens and red fox) where necessary and appropriate.
- 6.4. Action:** Initiate research on direct and indirect impacts of predation during each sage-grouse life history phase.
- 6.5. Action:** Coordinate management and research with USDA-WS.

As noted in last year's report, poisoned eggs were placed for ravens early in the year to increase effectiveness. The BLM and others continue to try to understand the impact of new powerlines on sage-grouse, particularly with respect to the increased predation risk for sage-grouse, so that appropriate mitigation measures can be recommended. Wildlife services also does fox and coyote control in the area.

7. Strategy: Work with public and private partners to implement livestock management plans that address seasonal needs of sage-grouse and livestock operations.

- 7.1. Action:** Incorporate appropriate livestock management in vegetation/habitat treatment projects.
- 7.2. Action:** Initiate research on the direct and indirect effects of livestock grazing on various aspects of sage-grouse life history.
- 7.3. Action:** Work with public and private partners to evaluate livestock management in crucial sage-grouse use areas.

NRCS (Steve Wilcox) continues to work with the Goshute Tribe to develop grazing management plans that are sensitive to sage-grouse. NRCS also incorporates sage-grouse information into local grazing management plans, including the plan for the McIntyre Ranch. The Forest Service incorporates sage-grouse criteria on allotments in sage-grouse habitat. More generally, habitat treatments with soil disturbance in areas that are normally grazed

are planned to ensure that reseedings are allowed to recover before being grazed again. One concern to be addressed in 2010 is a new landowner who may be grazing on a satellite lek.

- 8. Strategy:** By 2016, increase population and habitat monitoring efforts in the Resource Area.
- 8.1. Action:** Encourage public and private partners to use techniques from Connelly et al. (2003) “Monitoring of Greater Sage-grouse Habitats and Populations”
- 8.2. Action:** In 2007, UDWR biologists will coordinate with Goshute Tribe biologists to identify sage-grouse lek sites and count birds on Tribal lands.
- 8.3. Action:** UDWR to enlist and coordinate private volunteers and/or other agency biologists search for new leks and conduct lek counts on active leks.
- 8.4. Action:** Through 2016, test dead sage-grouse for West Nile Virus and any other parasites/pathogens of importance.
- 8.5. Action:** Secure funding to support additional research and monitoring on issue as identified in the Plan.
- 8.6. Action:** Increase outreach with private landowners to facilitate greater communication about sage-grouse distribution, ecology, and management.

UDWR continues to conduct the majority of monitoring in the area. In addition, the WDARM chairman also visits leks in the area periodically and assists with identifying potential concerns with populations. One area landowner is particularly active in the area with regard to sage-grouse habitat. Other landowners were educated about sage-grouse at Shambip Conservation District events in both 2009 and 2010. Additional population monitoring data may exist through BLM in association with monitoring for the Mona Pipeline, but the group has not been made aware of any new findings. A new DWR study near Tintic Junction collared and tracked several birds in the area in an effort to better understand migrations and track nesting success. That research has determined that birds are spending time in the Ferner Valley area. In spring of 2010, a potential new lek was identified but will need to be confirmed.

- 9. Strategy:** Encourage use of this Plan in local, county, state, and federal natural resources planning efforts.
- 9.1. Action:** Provide the Plan to all appropriate local, county, state, and federal natural resource agencies, departments, and personal.
- 9.2. Action:** Review local, county, state, and federal plans and projects with the potential to impact sage-grouse and/or sagebrush habitats in the Resource Area.
- 9.3. Action:** Participate in local, county, state, and federal natural resource planning efforts, committees, and working groups.

WDARM partners continue to promote the use of the Plan during UPCD Central Region meetings, particularly with regard to understanding how habitat manipulations may impact grouse. In addition, discussion between County Commissioners and biologists on ATV trail conversions, and the possible impacts to sage-grouse, began in 2009. Several members of the group also monitor proposed projects, such as powerlines, to determine whether grouse may be impacted.

- 10. Strategy:** Minimize impacts of oil and gas development on sage-grouse and their habitat.
- 10.1. Action:** Coordinate and communicate with BLM and USFS to ensure that adequate information/data is available for decision making process.
 - 10.2. Action:** Support recommendations that provide for temporal avoidance, minimization of tall structures, and avoid crucial habitat or use areas, where possible.
 - 10.3. Action:** Reduce fragmentation of sage-grouse habitat by oil and gas development activities.
 - 10.4. Action:** Minimize disturbance to sage-grouse associated with oil and gas development.
 - 10.5. Action:** Reduce cumulative impacts of oil and gas development.
 - 10.6. Action:** Share sage-grouse data with industry and encourage planning to reduce and/or mitigate for impacts.

Energy corridors continue to be the primary source of concern in the area, with regard to habitat disturbance and placement of tall structures. The group would like to have information on the impacts of tall structures on sage-grouse in order to provide appropriate recommendations, but peer-reviewed science on the subject is scarce. As of June 2010, the powerline is likely to be approved, and the LWG members will continue to offer comments on how best to decrease the impact to sage-grouse. UDWR, the BLM, and the company proposing the Mona powerline coordinate to monitor populations.

- 11. Strategy:** Minimize the amount of quality sage-grouse habitat eliminated by residential and commercial land development consistent with private property rights.
- 11.1. Action:** Participate with County land use decision makers in identifying key sage-grouse habitats.
 - 11.2. Action:** Maintain sagebrush environments of sufficient size and shape around developments in sage-grouse habitat.
 - 11.3. Action:** Encourage the voluntary use of conservation easements and other land protection vehicles with willing sellers in sage-grouse habitats.
 - 11.4. Action:** Educate rural residents about the importance of good grazing management in keeping small tracts weed free and capable of providing wildlife habitat.
 - 11.5. Action:** Work with public and private partners to maintain rural economies and viable ranching and agricultural enterprises.

No specific actions were taken by the group in 2009.

- 12. Strategy:** By 2016, maintain or increase distribution and quality of mesic sites available to sage-grouse during summer months.
- 12.1. Action:** Work with public and private partners to develop mesic sites for sage-grouse associated with existing or new water developments.
 - 12.2. Action:** Develop project planning tools (both printed material and on-the-ground examples) to illustrate successful, wildlife-friendly, water developments.

Planning is ongoing for several projects. Alan Mitchell, working with GIP, the Rush Valley

Conservation District, NRCS, and the USFS, has planned projects to bring additional water to the Vernon area. NRCS is also helping to develop springs on the west side of the Simpsons. Partners include the Richins family, NRCS, GIP, and UWDR. Although it is in somewhat marginal sage-grouse habitat, this project may help move pronghorn and other native ungulates up the bench, providing longer-term benefits for sage-grouse habitat in the area.

13. Strategy: Maintain or improve breeding habitat quality in the Resource Area.

13.1. Action: Where appropriate, conduct vegetation manipulation to maintain open areas on lek sites.

13.2. Action: Work with public and private partners to maintain nesting cover in crucial breeding areas.

13.3. Action: Work with public and private partners to minimize disturbance to crucial areas during lek and nesting seasons.

Spike treatments planned for McIntyre's land will assist with this goal. In addition, BLM is planning for brood-rearing habitat improvements on BLM land. Also, NRCS funded 100 acres of chaining and 50 acres of sagebrush mowing in the Lofgren area. The mowing was done in consultation with DWR/NRCS biologist.

14. Strategy: Minimize the negative impacts of recreation on sage-grouse populations and their habitats.

14.1. Action: Work with local, county, state, and federal planners and managers to minimize impacts of OHV trails and undeveloped roads on crucial sage-grouse habitat.

14.2. Action: Work with law enforcement agencies to enforce existing and new laws, ordinances, and regulations specific to hunting/poaching, OHV recreation, and trespassing.

14.3. Action: Work with OHV recreation groups to develop greater sensitivity and awareness to issues identified in this Plan.

14.4. Action: If appropriate, work with public and private partners to restrict lek viewing opportunities during crucial time-periods and in crucial areas.

14.5. Action: In a GIS system, evaluate where existing and proposed trails intersect crucial sage-grouse habitat.

DWR employees began conversations with Tooele County to discuss the impacts of road conversion to ATV trails, and determine if there are locations where roads should not be formally converted in order to protect sage-grouse from recreation traffic. The DWR tracks times when OHV or motor-cross races will occur in order to try to minimize impact to sage-grouse and provide recommendations for avoiding critical habitat. In spring 2010, unpermitted dog trials were held very close to a lek on Forest Service land. It is unclear who the offenders were and they claimed to have a permit which was not in fact granted to them. BLM is currently working on a Resource Area Management Plan, although progress may be slowed due to staff turnover.

Major Needs and Challenges

As in past years, habitat and other work continues to work toward the goals in the WDARM plan. Powerlines and other utility or energy rights-of-way will likely become a larger issue in the future, creating a need for more research on impacts to sage-grouse populations.

Literature Cited

Utah Division of Wildlife Resources (UDWR). 2009. Utah Greater Sage-Grouse Management Plan. Utah Department of Natural Resources, Division of Wildlife Resources, Publication 09-, Salt Lake City, Utah, USA.