

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

Accomplishment Report

2008



Photo by Todd Black

June 2009

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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 status and 2008 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 2008, 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. 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 action 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 2008, greater emphasis was placed on identifying population and habitat conditions and issues specific to each LWG conservation area.

In this report, each LWG presents 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. As of January 2008, 10 Utah LWGs have completed sage-grouse conservation plans. These plans and a summaries of LWG activities can be found on-line at www.utahcbcp.org.

Staffing

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Ann Hart, Assistant to an Executive, Department of Wildland Resources, Utah State University, Logan.

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 \$140,000 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 \$200,000 were entered into in 2008 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.

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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 by Dr. Terry A. Messmer. The group is currently facilitated by Mr. Todd A. Black. BARM is comprised of state and federal agency personnel, representatives from local government, non-profit organizations, academic institutions, private industry, and private individuals.

In 2008, BARM met formally three times to discuss strategies and actions and review research findings. Additionally, BARM members participated in two field tours. One field tour was held in conjunction with West Box Elder Soil Conservation District (SCD). The other was held with BARM members and invited guests from Utah State University (USU) and Bureau of Land Management (BLM) to tour recent fires and discuss potential management practices to protect critical sage-grouse lekking and wintering habitat in the Grouse Creek Valley.

This information below summarizes efforts made 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 is in effect until the year 2016. BARM partners reported on specific actions completed or addressed in 2008 and identified steps to be taken to implement additional actions into subsequent years of the plan. 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 in 2008 towards its completion. The “key ecological aspects (KEA)” were not changed in 2008. The BARM will reassess KAE’s in 2009 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/BARM/BARMfnl-10-06-web.pdf>

Conservation Strategies and Actions: 2008 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 partners identified Cove Canyon drainage north and south of Highway 30 east of Park Valley as a sight where P/J needs to be removed. Raft River sub unit.



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.

BLM identified Kimball Creek, Keg Springs, and Cook Canyon, North Grouse Creek area, and Pole Creek in the Grouse Creek subunit as potential area to thin and reduce encroaching P/J.

West Box Elder SCD identified Big Hollow drainage, Lynn Valley around Lynn Reservoir, Bally Mountain, George Creek Drainage (Raft River subunit), as a place to remove P/J. Raft River sub unit.

1.2. Action: Work with partners to ensure that any P/J removal projects are not detrimental to other wildlife species.

Above projects were approved by BARM partners, Utah Partners for Conservation and Development (UPCD), and Utah Division of Wildlife Resources (UDWR).

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 suggests that cheatgrass is increasing in abundance and at higher elevations.

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

Some work is being done and is in progress with Dr. Tom Monocco, USDA Forage and Range Research Lab, Utah State University.

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

BLM seeded state and private lands around the Devils fire (1588) 380 acres Curlew Valley area (Raft River subunit Scooby fire). Lynn seeding was done as a control burn (800 acres) and will be reseeded.

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.

3. Strategy: By 2011, complete an assessment and condition of available existing water/riparian sources and identify potential new water sources.

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

A mile and a half of the Fisher Creek pipe line was repaired and replaced by Park Valley Grazing Association and the Utah Grazing Improvement Project (GIP).

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

3.3. Action: Work with partners to identify projects to protect and make improvements upon existing water sources and making it more available/protected for wildlife uses.

BLM worked on restoring and fixing Mew Canyon pipeline.

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 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 research is identifying important areas.

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 UPCD and have BARM support.

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: 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

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

BLM and UDWR have been working with the Ruby River pipe line people to protect lekking areas along the proposed pipe line corridor.

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

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.

No action taken. BARM will review options once USU research is completed.

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.

No action taken. 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. (Ruby River gas line and wind turbines)

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

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

BLM and UDWR have been working with the Ruby River pipe line people to protect lekking areas along the proposed pipe line corridor. UDWR has met Wasatch Wind who has put up wind stations in Grouse Creek area and Lynn Divide Ridge to determine potential wind power generation. BARM partners will continue to monitor their efforts.

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.

No action taken in 2008 work will begin on 2009 to map these areas.

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.

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 2008.

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

Group counting efforts, involved recruiting and training dedicated hunters to search for new sage-grouse leks. These volunteers searched areas of potential lekking habitats—a report of these efforts will be summarized after searches and counts in 2009.

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, three meetings were held in 2008.

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 is currently monitoring a new fence in Grouse Creek and will summarize efforts in 2009.

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

BLM completed 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.

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

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

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.

Wildlife Services aerial gunned coyotes on several areas in the Raft River and Grouse Creek subunit early spring 08.

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

Major Needs and Concerns

Wildfire and subsequent invasive species still remains the biggest overall threat to sage-grouse in the conservation area. 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 2 years in the Grouse Creek area. It is believed similar predation rates occur on the Park Valley side of the mountain as well. A further concern the BARM group has is the new Ruby River pipeline that is proposed to go through the conservation area and the impacts it may have in certain areas.

Summary of Sage-grouse Conservation Threats

In 2007, BARM identified and ranked major threats to sage-grouse conservation in the Box Elder County (Table 1). This threat ranking is used by BARM to prioritize conservation actions. The BARM will review the threat ranking in 2009 to ensure immediacy.

Table 1. Relative importance/contribution of threats to sage-grouse populations in Box Elder County, Box Elder County Adaptive Resources Management (BARM) Sage-grouse Local Working Group Conservation Area. Rankings are as follows: L = low; M = medium; H = high; and VH = very high.

BARM							
Threat	Reduced Population Size	Population Distribution	Reduced Breeding Habitat Quality	Reduced Late Summer/Fall Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Altered Water Distribution	-	VH	VH	H	L	L	H
Drought and Weather	M	M	M	H	L	L	L
Existing and New Fences	-	M	M	M	-	M	-
Home and Cabin Development	-	M	M	M	M	M	M
Power lines and Other Tall Structures	-	M	M	M	-	M	-
Renewable and Non-renewable Energy Development	-	M	M	M	-	L	L
Roads	-	M	M	M	M	M	M
Vegetation Management	M	M	M	M	M	M	M
Hunting	M	M					
Fire	-	-	VH	VH	VH	H	M
Livestock Grazing	-	-	H	H	L	L	L
Recreation	VH	VH	H	M	VH	M	M
Invasive/Noxious Weeds	-	-	VH	VH	H	H	M
Parasites and Disease	M	M	-	-	-	-	-
Predation	VH	M	-	-	-	-	-
Pinyon-Juniper Encroachment	-	-	H	H	H	H	-
Conversion to Agriculture	-	-	L	L	-	-	-

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 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 2008, the group met formally three times to discuss strategies and actions and receive research updates. No field tour was held in 2008 due to the long prolonged spring and snow and conflicting schedules.

This 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 2008 and identified steps to be taken to implement additional actions into subsequent years of the plan.

Please note that if a strategy or an action number is missing from this report or no comments are reported under an action; it means that no action(s) were reported in 2008 towards its completion. 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: 2008 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 2008. 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.

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 2008.

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 man made) and control erosion.

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

SUFCO Mine and USFS are proposing to develop water sources in the Wildcat area. This work was scheduled for 2008 but has been delayed.

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.

SUFCO 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.

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.

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.

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.

On going 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 2008—some preliminary data should be available from USU and UDWR research late 2009.

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.

On going 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 (Nutter Ranch) areas of projects implemented in 2008.

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

On going 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.

On going 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 (2007) this information in Emma Park, Scofield, and West Tavaputs.

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

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.

On going 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.

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 2008—group will work to identify areas in 2009.

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

No action taken in 2008—group will work to identify areas in 2009.

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 2008—group will work to identify areas in 2009.

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.

Work continued in 2008 on the Horn Mtn. to search historical leks where lekking does not occur anymore that need to be evaluated.

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.

On going 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.

On going 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.

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.

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.

On going process with all partners.

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

On going process with all partners.

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

On going 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."

On going 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.

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 2008.

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

UDWR conducted an aerial lek survey on the Tavaputs.

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 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: Work with appropriate agencies to avoid placement of new and or existing roads and utilities near (0.25 miles Connelly et al.) 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 2008.

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

No tanks installed in 2008

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.

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 activates 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 activates 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 activates 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.

On going 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.

On going 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.

On going 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.

On going 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.

On going 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.

15.3. Action: Conduct vegetation treatments to improve forb diversity, (e.g., harrowing, aerating, chaining) 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.

On going 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.

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

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

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.

On going 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.

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

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.

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

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.

Summary of Sage-grouse Conservation Threats

In 2007, CoCaARM identified and ranked major threats to sage-grouse conservation in the conservation area (Table 2). This threat ranking is used by CoCaARM to prioritize conservation actions. The ranking will be reviewed in 2009 to ensure immediacy.

Table 2. Relative importance/contribution of threats to sage-grouse populations in Castle County Adaptive Resources Management (CoCaARM) Sage-grouse Local Working Group Conservation Area.(L = low; M = medium; H = high; and VH = very high).

Threat	CaCoARM Resource Area							
	Reduced Population Size	Population Distribution	Reduced Lek Habitat Quality	Reduced Nesting/Early Brood-rearing Habitat Quality	Reduced Summer/Late Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Hindrance of ability to maintain local management	M	M	M	M	M	M	M	M
Power lines, Fences, & Other Tall Structures	M	M	H	M	M	M	M	M
Oil and Gas Development	M	M	M	M	M	M	M	M
Roads	L	M	M	M	L	M	H	H
Prolonged drought and or extreme Weather shifts	L	-	L	H	H	H	-	-
Lack of proper range management	L	L	M	M	M	M	M	M
Incompatible Fire Management Practices	-	H	H	H	H	H	H	M
Incompatible Livestock Grazing (domestic and wild ungulate)	-	L	L	H	H	L	-	-
OHV Recreation	-	M	H	M	M	L	L	L
Invasive/Noxious Weeds	-	M	M	VH	VH	H	M	L
Parasites and Disease	H	H	-	-	-	-	-	-
Predation	VH	H	-	-	-	-	-	-
Vegetation Management	-	-	H	H	H	H	H	M
Pinyon-Juniper and shrubby species Encroachment	-	M	H	M	M	H	H	H

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.

In 2008, the group met formally 6 times to discuss strategies and actions and receive research updates. One field tour was held to view and discuss management efforts designed to improve sagebrush-steppe habitat. Additionally, an open house was held in December 2008 to showcase efforts made during the year and to discuss the Alton Coal Industry LLC plans for the coming year.

This information below summarizes efforts made by individual and partners to address threats and strategic actions for the CCARM local working group during 2008. Please note that if a strategy or an action number is missing from this report; or no comments have been provide it means that no action(s) were taken in 2008 towards its completion.

Conservation Strategies and Actions: 2008 Accomplishments

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

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

Utah State University Extension concluded an undergraduate study (SUU) on predator communities. UDWR is in discussion with WS to obtain more information about the John's Valley bird depredation. USFS asked county to repair fence around landfill to reduce the trash in the area, to reduce raven densities.

1.2. Action: Avoid creating or improving raptor-nesting habitat in sage-grouse habitat. Remove raptor perches when possible.

USFS has been working on Garkane EIS to mediate power lines going through grouse lek.

1.3. Action: Determine brood-rearing success in each focus area annually.

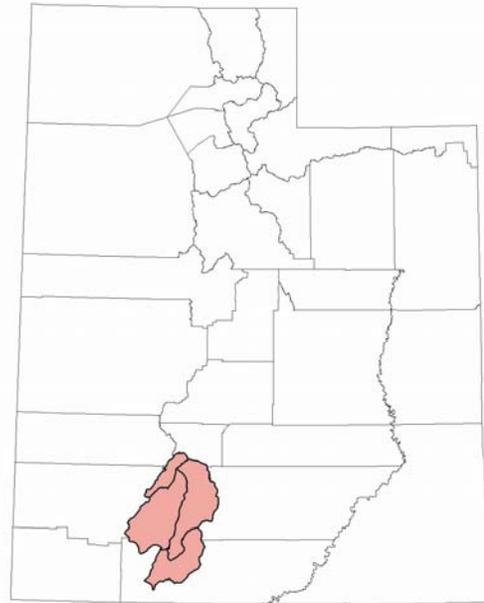


Figure 4. The Color Country Adaptive Resource Management (CoCARM) Sage-grouse Local Working Group Conservation Area consists of 4,956,258 acres located in south-central Utah.

1.4. Action: Enlist Wildlife Services to reduce population numbers of problematic predator species.

UDWR is working to re-implement the strategic predator control plan. This should enable WS to begin raven and coyote control in target areas.

1.5. Action: Support current predator management efforts by other groups or agencies in the focus areas.

2. Strategy: Improve age distribution of plants within sagebrush-steppe communities by 2016.

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

BLM has prioritized areas within the focus areas to improve habitat and connectivity. UDWR has several Dixie-harrow projects initiated this year to improve sagebrush-steppe habitat.

2.2. Action: Coordinate among agencies and landowners to fund implementation of projects and monitoring.

Private land owners have thinning trees and shrubs on 200-300 acres, creating movement corridors for sage-grouse. Several UPCD projects were proposed this year that will collaborate among agencies to improve rangeland conditions. Proposed habitat treatment with Alton Coal Company LLC as mitigation for impacting the lek.

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

Continued research project on Alton sage-grouse. Initiated the 4th year of radio-telemetry to determine movements of grouse outside of Alton/Sink Valley. Monitored the vegetation projects north of Panguitch for the second year.

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.

USFS/BLM/UDWR conducted surveys and submitted proposals to improve water sources in areas with known grouse populations.

3.2. Action: Partner with watershed specialists to identify new water sources.

UACD Upper Sevier working with local agencies to determine new water sources.

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

BLM/USFS discussing the possibility to improve water distribution in 3mile-Panguitch area. Alton Coal Company LLC may be proposing water development for grouse as mitigation.

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.

4.2. Action: Develop fact sheet to distribute to special interest groups.

Continued to work to update fact sheets and improve distribution of information

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

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

CoCARM hosted open house in December, advertising in local newspaper and with fliers in town. USU Extension conducted a field trip for Southern Utah Audubon Society to see sage-grouse leks. USU Extension and Upper Sevier Watershed conducted a field trip to see sage-grouse leks and sage-grouse habitat improvements.

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

CoCARM distributed annual reports internally to their respective agencies. CoCARM distributed annual reports and project reports to their county commissioners.

4.6. Action: Proactively seek partnerships when developing new projects.

Members of the CoCARM actively participate in UPCD/Watershed Initiative. Heaton family always involved with projects on their private lands to assist with CoCARM. UDWR and UACD met with and talked to Scott Walter to discuss project's on his land. USU Extension met with the Littles to allow us to trap sage-grouse on their property. USU Extension continuing talks with the golf course about creating an easement, with mitigation money from a possible coal mine.

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.

Retired UDWR employees, and CoCARM members, annually search for new leks, or investigate historic leks.

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

Followed up on local reports of grouse on Center Creek. We did find sage-grouse there.

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

UDWR annually searches new lek sites and reviews historic sites where people have recently reported seeing grouse. For example, UDWR has recorded activity on John's Valley site where they haven't seen them before.

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.

7. Strategy: Minimize affects of new land developments and/or recreational uses on sage-grouse populations.

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

BLM/USFS addressed these issues in their motorized travel planning. UFBF discusses these issues with their county commissioners (Garfield, Piute, Wayne, Kane) during "issue surfacing."

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

CoCARM engages in these discussions at LWG meetings.

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

USU Extension created a listserv that can be updated regularly.

7.4. 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.

BLM/USFS/NRCS/UDWR maintain awareness, but they don't feel that this is really a critical problem this year. 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.

9.3. 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.

9.4. 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 this year to utilize dedicated hunters.

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

Used spike on areas around Alton. Monitoring it to evaluate its response. Chemical treatment of noxious weeds on border of Garfield/Iron county.

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

Major Needs and Concerns

Our major concern is a scheduled coal mine to be located on the Alton lek. We've maintained communication with the mining company, and mitigation is in the planning process. Another challenge is continuing to maintain open communication among the group and landowners and community representatives.

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Summary of Sage-grouse Conservation Threats

In 2007, CoCARM identified and ranked major threats to sage-grouse conservation in the conservation area (Table 3). This threat ranking is used by CoCARM to prioritize conservation actions. The threat rankings will be reviewed in 2009 to ensure immediacy.

Table 3. Relative importance/contribution of threats to sage-grouse populations in Color Country Adaptive Resources Management (CoCARM) Sage-grouse Local Working Group Conservation Area.

Threat	Aspects of Sage-grouse population in the CoCARM Resource Area							
	Reduced Population Size	Population Distribution	Reduced Lek Habitat Quality	Reduced Nesting/Early Brood-rearing Habitat Quality	Reduced Summer/Late Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Enhanced native and domestic predators	High	Low	Low	High	High	Medium	High	High
Recreational use	Medium	Medium	Medium	High	High	High	Medium	Medium
Invasive/alien vegetation species	High	High	Medium	Very High	High	Medium	High	High
Concentrated wildlife and/or livestock use	High	Medium	Medium	High	High	Medium	Medium	Medium
Fire and Vegetation Management	High	Medium	Medium	High	High	High	High	High
Development of roads or utilities	High	Medium	Low	Very High	High	High	High	High
Lack of communication among public parties	Medium	Medium	Low	High	Medium	Medium	Medium	Medium
Diseases and parasites	Medium	Medium	Low	Medium	Medium	Medium	High	High
Alternative Land Uses (mining, wind power, water development)	High	High	Medium	High	High	High	High	High
Dramatic Weather Events	High	Medium	Medium	High	High	High	High	High

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 has been inactive for more than a year, but will begin meeting again in 2009. Meetings will include spring and fall meetings and a summer or fall field tour, depending on project timing.

The MSARM project area overlaps with the Central Region Utah Partners for Conservation and Development team. One goal of upcoming meetings will be to discuss how best the group can leverage resources through UPCD and Watershed Restoration Initiative (WRI) efforts to benefit sage-grouse, both via project funding and enhanced monitoring programs. The group will also review strategies and action with an eye to planning upcoming collaborative projects.

The following updates reflect the individual or joint efforts of MSARM partners in 2008 and the early part of 2009 outside the formal work of the MSARM group.

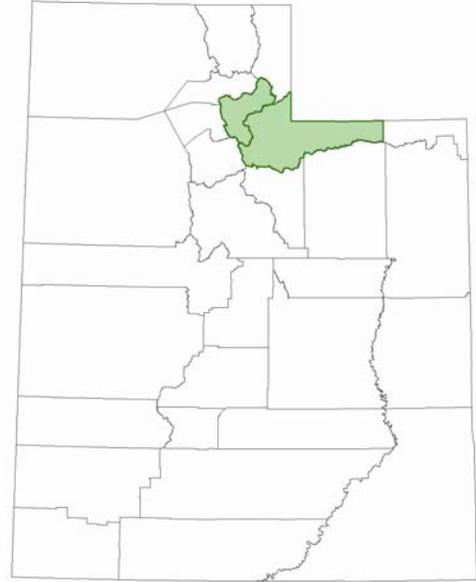


Figure 5. The Morgan-Summit Adaptive Resource Management (MSARM) Sage-grouse Local Working Group Conservation Area consists of 1,608,659 acres located in northern Utah.

Conservation Strategies and Actions: 2008 Accomplishments

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 proscribed burns and reseed with ecologically suitable seed, where appropriate, to prevent establishment of cheat grass and other invasive weed species.

Treatments of infestations are done by the county weed department, including aerial spraying of musk thistle and spot treatments for Dyer's Woad.

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.
- 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

UDWR completed a several-hundred acre project on the Henefer/Echo Wildlife Management Area to improve the cover vegetation from primarily grasses to a more sage-grouse and other wildlife friendly mix of sagebrush and forbs, which were seeded in the area. The project is part of ongoing long-term efforts to treat the area gradually. It is potential sage-grouse summer habitat, as well as longer term potential for winter habitat if sagebrush establishment is good. In addition, a Spike treatment on private land owned by Sheldon Richins was designed to reduce sagebrush cover from 35-40% to 10-15%. The treatment, done through NRCS, occurred in the fall of 2008.

- 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 not an active concern in the area currently. Water developments for grouse

were not done in 2008.

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

The UDWR conducts annual spring lek counts and did aerial surveys for new leks in the area in 2008. At least three were found by UDWR, all on private land at relatively high elevations. No West Nile has been found to date in sage-grouse in this area.

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

Coyote predation management for livestock likely benefits sage-grouse, but nothing specifically sage-grouse focused is done. No monitoring of the predation impact on grouse in this area has occurred.

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

The group has not met to discuss these actions.

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

Projects for sage-grouse are designed and then go through the Utah Partners for Conservation and Development project funding process in the winter. Various LWG participants participate in UPCD as well as on the SCD. SCD involvement will likely increase as the group focuses more on project implementation. NRCS partners meet with landowners to keep them informed of sage-grouse friendly project opportunities. Due to the large proportion of private land in the area, Farm Bill money is a key mechanism to potentially improve habitat for sage-grouse. One project was planned but later dropped by the landowner; an NRCS/DWR staff member is following up with the landowner. Also see Strategy 2.

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

See strategies 1, 2 and 7. The county weed departments conduct ongoing weed management but as the group has been inactive, extensive coordination between sage-grouse efforts and weed efforts have not occurred.

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 fire projects were done in 2008 through UDWR. The group did not meet in 2008 to discuss these actions or updates. Ongoing burns are conducted on Ensign Ranch by Jeff Young, although they have not occurred in the last two years due to dry weather conditions. These burns are ongoing cool season sagebrush burns done in mosaic patterns (between 200-2000 acres per year) in the area where they have observed sage-grouse activity. They have several leks in that area. Sage-grouse monitoring is done as an add-on to monitoring related to the commercial hunting operations. Deseret Land & Livestock Wildlife Foreman Todd Cornia has implemented 1500-2000 acres of small (50-200 acre mosaics) cool season burns in sage grouse brood habitat in Morgan county (on Deseret property) in the last five years. These burns were designed to improve breeding habitat for both sage grouse and mule deer.

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 lek vegetation projects were done specifically in 2008.

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.

Various riparian condition improvement projects were done in the area, but none specifically for sage-grouse.

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

Development is a major threat to sage-grouse in the Morgan/Summit area, particularly in Summit County. The large proportion of private lands in the area makes regulating development in the name of sage-grouse challenging. One key success in this area was an easement finalized in the Henefer Area where the remnant sage-grouse populations exist. The two-part Taylor Hollow Ranch easement includes approximately 3000 acres of actively used sage-grouse habitat, as well as an historic lek. Although both Morgan and Summit counties have open-space zoning requirements, and provisions that require developers to consider impacts to wildlife, a currently proposed large development has the potential to take out an entire lek. UWDR is working to address the issue. Work is currently underway at a statewide level to get sage-grouse information to counties to assist with planning/zoning/development efforts that can protect key areas.

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

No sage-grouse specific field tour was held in 2008; however the group will begin meeting again in 2009, possibly including a field tour to help generate renewed interest in sage-grouse conservation efforts in the area, particularly among private landowners. Monitoring related to future projects will be discussed once the group begins meeting again.

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. Also see Strategy 5.

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

NRCS/DWR biologists work with private landowners both proactively and when the opportunity arises to recommend grazing practices that will reduce the impact to sage-grouse populations. No active grazing changes specifically related to sage-grouse were implemented in 2008.

Major Needs and Challenges

MSARM's primary current need is a renewed coordination effort to re-start meeting and discussing sage-grouse focused project ideas beyond what the partners accomplish on their own outside the group. There is strong interest from several key individuals in getting the group back together soon. One key issue of immediate concern is a potential housing development which if completed could destroy a lek.

Summary of Sage-grouse Conservation Threats

In 2007, MSARM identified and ranked major threats to sage-grouse conservation in the conservation area (Table 4). This threat ranking will be used by MSARM to prioritize conservation actions. The threat rankings will be reviewed in 2009 to ensure immediacy.

Table 4. Relative importance/contribution of threats to sage-grouse populations in Morgan-Summit Adaptive Resources Management (MSARM) Sage-grouse Local Working Group Conservation Area.(L = low; M = medium; H = high; and VH = very high).

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

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 by Dr. Terry Messmer. PARM is currently 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 2 mechanical and one chemical methods 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/PARMfml-10-06-web.pdf>

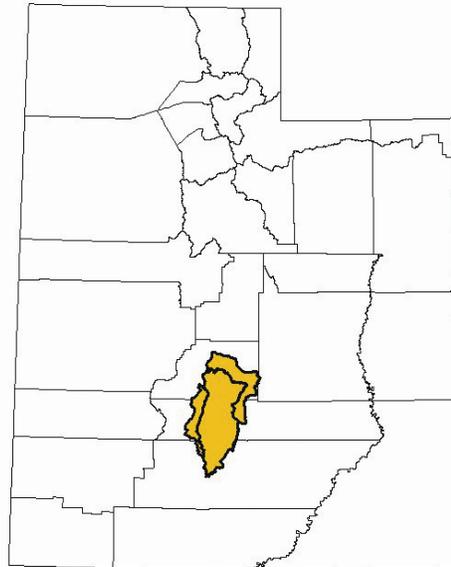


Figure 6. The Parker Mountain Adaptive Resource Management (PARM) Sage-grouse Local Working Group Conservation Area consists of 1,789,644 acres located in south-central Utah.

In 2008, 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. Please note that if a Strategy or an action number is missing from this report; or no comments have been provide under an action time it means that no action(s) were reported in 2008 towards its completion. 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/PARMfml-10-06-web.pdf>

Conservation Strategies and Actions: 2008 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 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. In 2008 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 2008

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 2008

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 2008

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 2008 these plots were assessed and read again.

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 2008.

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-clayed

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.

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.

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 2009 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.

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.

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 $\frac{3}{4}$ 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.

- 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.

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 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 took place within the resource area during 2008.

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.

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.

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

PARM partners directed UWDR/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.

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 2008 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 2008. These efforts will continue in 2009.

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.

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

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.

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 2008. These efforts will continue in 2009. In conjunction with UDWR, PARM partners conducted their annual 2 day lek counting efforts on Parker Mountain in April 2008. These efforts will continue in 2009.

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

11.1. Action: Continue with quarterly PARM meetings.

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

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 2008 newsletter.

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

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

In 2008, 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.

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.

13.2. 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.

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.

Action 14.1—14.3. 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 2008.

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 July 2010. In 2008 new graduate student Gretchen Hochnedel started in the fall to continue looking at grazing research efforts.

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?

Summary of Sage-grouse Conservation Threats

In 2006, PARM identified and ranked major threats to sage-grouse conservation in the conservation area (Table 5). This threat ranking is used by PRM to prioritize conservation actions. The PRM will review the threat ranking in 2009 to ensure immediacy.

Table 5. Relative importance/contribution of threats to sage-grouse populations in Parker Mountain Adaptive Resources Management (PARM) Sage-grouse Local Working Group Conservation Area. (L=low; M=medium; H=high; and VH=very high).

Threat	Aspects of Sage-grouse population in the PARM Resource Area						
	Reduced Population Size	Population Distribution	Reduced Lek Habitat Quality	Reduced Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Powerlines, Fences, & Other Tall Structures	M	M	M	L	M	H	H
Natural resource exploration and development	H	H	M	H	H	VH	VH
Grazing practices the are detrimental to the habitat (domestic/wild)	H	H	L	H	H	M	M
Drought & Weather	H	H	L	H	M	M	M
Lack of proper range management	L	M	L	H	M	M	M
Hunting Pressure	L	L	L	L	L	L	L
Altered Fire Regimes	L	L	M	M	L	H	M
Livestock Grazing	L	L	L	H	L	L	L
Incompatible OHV Recreation	L	M	L	L	L	M	M
Invasive/Noxious Weeds	M	M	M	VH	H	M	L
Parasites & Disease	VH	VH	L	L	L	L	H
Extraordinary Predation	VH	H	L	L	L	L	M
Vegetation Management	H	M	H	H	H	H	M
Pinyon-Juniper Encroachment	M	M	M	M	M	M	M
Inability to maintain local control and input	H	H	H	H	H	H	H

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 2008, 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 2008 but also identified steps to be taken to implement additional actions into subsequent years of the plan. Please note that if a strategy or an action number is missing from this report; or no comments have been provided it means that no action(s) were taken in 2008 towards its completion. 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/parm/PARMfml-10-06-web.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: 2008 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 2008—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 2008 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.

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

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

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

No action taken in 2008 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.

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.

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

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.

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 2-300 acres. Forest Service did controlled burns in the Saddle Creek area.

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, chaining) and reclaim or reseed disturbed area, if needed.

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.

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.

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.

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.

No action taken in 2008—Duck Creek is scheduled for 2009 with the BLM.

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.

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

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

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.

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

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.

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 2008.

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.

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

11.3. Action: Install raptor deterrents when applicable.

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.

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.

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

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.

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 and private lands within the resource area.

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—on going.

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

No action taken in 2007 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.

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.

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 1k to support efforts of various CRM volunteers and will seek matching monies in 2009 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.

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

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

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

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

- 15.6. Action:** Use directional drilling where feasible to minimize surface disturbance, particularly where well density exceeds 1:160 acres.
- 15.7. Action:** Minimize pad size and other facilities to the extent possible, consistent with safety.
- 15.8. Action:** Plan and construct roads to minimize duplication.
- 15.9. Action:** Cluster development of roads, pipelines, electric lines and other facilities.
- 15.10. Action:** Use existing, combined corridors where possible.
- 15.11. Action:** Use early and effective reclamation techniques, including interim reclamation, to speed return of disturbed areas to use by sage-grouse.
- 15.12. Action:** Reduce long-term footprint of facilities to the smallest possible.
- 15.13. Action:** Avoid aggressive, non-native grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome, etc) in reclamation seed mixes.
- 15.14. Action:** Eliminate noxious weed infestations associated with oil and gas development disturbances.
- 15.15. Action:** Minimize width of field surface roads.
- 15.16. Action:** Avoid ridge top placement of pads and other facilities.
- 15.17. Action:** Use low profile above ground equipment, especially where well density exceeds 1:160 acres.
- 15.18. Action:** Avoid breeding/nesting season (March 1 – June 30) construction and drilling when possible in sage-grouse habitat.
- 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.
- 15.20. Action:** Reduce daily visits to well pads and road travel to the extent possible in sage-grouse habitat.
- 15.21. Action:** Utilize well telemetry to reduce daily visits to wells, particularly where well density exceeds 1:160 acres.
- 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.

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

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

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

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.

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

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

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

No action taken in 2008.

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.

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

16.3. Action: Install raptor deterrents when applicable.

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.

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

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

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.

On going.

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

On going.

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

On going.

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.

On going.

Major Needs and Concerns

There are still concerns with the Rich group 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.

Summary of Sage-grouse Conservation Threats

In 2007, RICHCO identified and ranked major threats to sage-grouse conservation in Rich County (Table 6). This threat ranking is used by RICHCO to prioritize conservation actions. The RICHCO will review the threat ranking in 2009 to ensure immediacy.

Table 6. Relative importance/contribution of threats to sage-grouse populations in Rich County Coordinated Resources Management Sage-grouse Local Working Group Conservation Area. (L=low; M=medium; H=high; and VH=very high).

Threat	Reduced Population Size	Population Distribution	Reduced Breeding Habitat Quality	Reduced Summer/Late Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Home & Cabin Development	M	M	M	M	L	M	M
Powerlines, Fences, & Other Tall Structures	H	L	M	L	L	M	M
Renewable & Non-renewable Energy Development	M	M	H	H	M	L	L
Roads	H	L	M	L	L	M	M
Drought & Weather	H	H	M	H	L	H	H
Hunting Pressure	L	M	-	-	-	-	H
Incompatible Fire Management Practices	H	H	H	H	H	H	H
Incompatible Livestock Grazing	H	H	H	H	M	H	H
Incompatible OHV Recreation	H	M	M	M	M	H	H
Invasive/Noxious Weeds	M	H	M	L	L	M	M
Parasites & Disease	M	M	-	-	-	-	H
Predation	M	M	L	-	-	-	M

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.

In 2008, the group met formally 5 times to discuss strategies and actions and receive research updates. Additionally, one field tour was held to view and discuss management efforts designed to improve sagebrush-steppe habitat.

This information below summarizes efforts made by individual and partners to address threats and strategic actions for the SWARM local working group during 2008. Please note that if a strategy or an action number is missing from this report; or no comments were provide it means that no action(s) were reported in 2008 towards its completion.

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

Conservation Strategies and Actions: 2008 Accomplishments

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

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

We have identified areas in Hamlin Valley and the Greenville Bench as our focus for the next few years. We have also actively used UPCD focus areas to guide activities

1.2. **Action:** Coordinate associations among agencies and landowners to fund implementation of projects and monitoring.

UPCD coordinates among agencies and associations. NRCS coordinates among landowners. UDWR coordinates with landowners.

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

SWARM continues to do lek counts each spring. We have 2 studies, in Hamlin and Pine Valley, to measure the response to spike and Dixie harrow. We coordinated among agencies



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.

to make sure that the historic names were accurate. This effort ensured that our measurements of leks were accurate.

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

UDWR/BLM/FS/NRCS have proposed and implemented several projects to improve age classes of sagebrush including mechanical, chemical, and fire.

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

BLM/ FFSL/UDWR/FS work together to manage wildfires, wildfire rehab, and coordinate prescribed fires that would benefit grouse habitat and sagebrush steppe in general.

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

2.1. Action: Survey and evaluate current water sources and needs.

This has previously been conducted on an individual basis throughout the development of projects with landowners and other agencies.

2.2. Action: Partner with watershed specialists to identify new water sources.

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

BLM identified Basket Springs as a potential development. Water will be available to grouse, other wildlife and cattle. All the guzzlers on the Bald Hills have been reconstructed within the last 2 years.

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

Halls, Flinspach, have water developments ongoing on their private land. BLM/UDWR/NRCS coordinating with them to make the accessible to wildlife

2.5. Action: Conduct vegetation treatments to improve water yield.

Greenville Bench/South Beaver treatments were conducted to remove invasive trees that would improve water yield on this habitat. UDWR/NRCS bull hog project to remove pinions/juniper to improve water yield

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

Guzzlers on the Mineral Range (5) were reconstructed last fall. Not necessarily to help grouse, but could be use by them if they were to move there. Sewing Machine Pass guzzlers, to help deer, elk, chukars. Beaver Dam slope deer and bighorn sheep guzzlers. All the

guzzlers on the Bald Hills have been reconstructed within the last 2 years. South WahWah multipurpose guzzler proposed for this summer.

2.7. Action: Improve riparian conditions.

Basket Springs, a project on BLM land, initiated to improve the springs condition, boxing out large herbivores, improving access to water and vegetation condition. Atchison Creek work proposed to open up the corridor, remove trees, and restore functioning conditions

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

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

This is done within each group as projects are proposed. UPCD project ranking procedure helps rank the project in the southern region

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

EQIP projects have this worked into their plan. Fence completed at Halls, to divide land into pastures to improve distribution of cattle. New guzzlers will assist in re-distributing wildlife. Antlerless harvests to maintain elk objectives. BLM removed approximately 400 wild horses to decrease their negative impacts.

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.

Coordination between local working groups and agencies throughout the state. Discussed grouse in local soil conservation meetings

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

This has been done. Distribute flyers for each agency.

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

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

Action step: Write letters of support for new partnerships.

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

We conduct a field tour annually. We went to look at vegetation on the Greenville Bench.

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

We distributed annual reports and project reports internally through our agencies. We distribute reports to the county commissioners each year.

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

NRCS/UDWR/UACD/FSA/FFSL helpful in finding financial incentives to help fund landowner projects

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

Our field trips are open to the public. We advertised individually this year.

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

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

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

We do this each spring on an individual level

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

A retired UDWR biologist coordinates with the UDWR each spring to search for new leks

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

5.5. Action: Maintain and improve current lek site habitat.

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

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

This is an action we are discussing about Pine Valley; however we are still in the talking phase.

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

Conservation officers do this routinely with our focus areas.

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

The DWR is monitoring presences of WNV. As part of the mosquito abatement program, mosquitoes are sent in for testing.

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

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

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

Southern region active in several projects throughout the focus area to remove trees from brood-rearing habitat. Mechanical treatment most common.

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

Use dedicated hunters to remove scotch thistle.

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

This is routine, coordinated interagency effort.

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

Dedicated hunters used for many of the chaining and other tree removal projects. Beaver Watershed Annual Watershed day May 8. High school students' project to remove junipers on state lands.

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

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

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

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

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

At each meeting, we discuss new development and possible action issues that need to be addressed.

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

8.4. Action: Involve local county and city planning commissions in SWARM meetings.
County commissioner meetings each spring

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

We do this as at the individual level at each respective group

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

9.1. Action: Survey habitat after short-term dramatic weather events for damage to habitat.

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

Most projects are conducted to increase diversity and age-classes to withstand most weather events.

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

10.1. Action: Remove current and avoid creating new raptor nesting in sage-grouse habitat.

10.2. Action: Enlist Wildlife Services to reduce population numbers of problematic predator species.

UDWR has active predator management plan with WS in the southwest desert

10.3. Action: Support current predator management efforts by other groups or agencies in the focus areas.

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

Proposed Hamlin Valley project would look into this. USU undergrad study to look at predator community concluded.

10.5. Action: Identify threatening predator species.

Major Needs and Concerns

Very little is known about grouse in the Southwest Desert region. We consider Hamlin Valley our stronghold for grouse populations; yet are in need of a long-term monitoring project to determine exactly where the grouse are in Hamlin Valley when not at the lek. Additionally, grouse have been sighted in several burned areas, prompting the need to investigate these areas for grouse and their seasonal use. The need for information about grouse in the Southwest Desert is critical; gas, wind and solar energy companies are increasing their interest throughout the Southwest Desert region.

Summary of Sage-grouse Conservation Threats

In 2007, SWARM identified and ranked major threats to sage-grouse conservation in the conservation area (Table 7). This threat ranking is used by SWARM to prioritize conservation actions. SWARM will review the threat ranking in 2009 to ensure immediacy.

Table 7. Relative importance/contribution of individual threats to sage-grouse populations in the Southwest Desert Adaptive Resources Management (SWARM) Sage-grouse Local Working Group Conservation Area.

Threat	Aspects of Sage-grouse population in the SWARM Resource Area							
	Lack of any habitat type connectivity	Poor Condition of Surrounding Communities	Degradation of Winter Habitat Quality	Loss of Breeding Quality (Leak and nesting) Habitat	Loss of Breeding-quality Habitat	Loss of Riparian Area Quality	Reduction of Population Size	Reduction of Population Viability
Stray and domestic predators	Medium	Low	Low	High	High	Medium	High	High
Recreational use	Medium	Medium	Medium	High	High	High	Medium	Medium
Invasives vegetation species	High	High	High	Very High	High	Medium	High	High
Concentrated wildlife and/or livestock use	High	Medium	Medium	High	High	Medium	Medium	Medium
Fire and Vegetation Management	High	Medium	Medium	High	High	High	High	High
Development of roads or utilities	High	Medium	Low	Very High	High	Medium	Medium	High
Lack of communication among public parties	Medium	Medium	Low	High	Medium	Medium	Medium	Medium
Diseases and parasites	Medium	Medium	Low	High	Medium	Medium	High	High
Alternative Land Uses (mining, wind power, water development)	High	High	Medium	High	High	High	High	High
Domestic Wildlife Species	High	Medium	Medium	Very High	High	High	High	High

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. In late spring 2008, a new facilitator from USU Extension took over the position left open in December 2007 by the departure of the previous facilitator. Only two meetings, therefore (summer and fall) were held in 2008. Two new co-chairs were named to the group in 2008, Michael Bornstein of the USFS and Alicia Moulton of USU Extension in Heber City.

Key progress this year includes increased interaction between SVARM and the Wasatch County planning department, which has resulted in increased communication about potential development threats to grouse, and an increased likelihood that timely, locally relevant comments will be received from sage-grouse interests on relevant projects. In addition, several habitat projects to improve brood-rearing areas are either in progress or planned for future years. Land purchases focused on protecting key winter habitat from development also bode well for sage-grouse in the SVARM project area. Key areas planned for future work include development of information materials to help reduce the threat of recreation – particularly winter recreation—to sage-grouse, and upcoming habitat treatment projects.



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.

Conservation Strategy and Actions: 2008 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 the conservation area is not grazed and grazing in the rest of the area is carefully controlled. Spring grazing on UDWR land is ongoing in an effort to increase sagebrush cover in areas with too much crested wheatgrass. Partners continue to work with grazers in discussions about where grazing would be beneficial or detrimental to wildlife.

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, chaining) 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.

The Trout Creek and Badger Hollow mowing projects are being monitored as the seeded forbs and grasses continue to grow. Vegetation response has been very favorable. The areas are also being monitored for noxious weeds, particularly musk thistle. Additional treatments, with associated seeding, are planned for future years, such as those in Chicken Springs. If needed, projects will be seeded with UDWR-approved seed mixes. The many lop and scatter projects done over the last several years, particularly in the Fruitland area, also helped move toward this goal.

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.

NRCS worked on a project on Joyce Bailey's private land. Considerable past projects addressed many of these actions, so implementation levels of these actions was reduced in 2008. No new ponds, pipelines, or guzzler projects occurred this year for specific grouse benefit. However, several additional pond clean-ups are being discussed (silt removal to create deeper ponds reduces evaporation and provides water later in the season). UDWR meets annually with grazers to help develop wildlife-friendly projects and grazing plans that address riparian areas, water for wildlife, and other areas.

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.

Substantial work done in previous years with Watershed Restoration Initiative funding treated most of the key areas, so further work toward this objective was not a focus in 2008. Defensible space projects occur primarily near residences where grouse are unlikely to be. Plans to mow tall shrubs in 2009 are part of the proposed Chicken Springs project.

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 2008. Active leks are on private property with unresolved access concerns so focus has been on monitoring birds. The Chicken Springs project has the potential to open up satellite leks for possible bird use and improvement of

brood-rearing habitat conditions. BYU coordinates lek searching in the area. Additional lek searching was done in the spring of 2009 by helicopter by UWDR. No new leks were found.

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.

UDWR is purchasing areas of critical winter habitat in the area, which will eliminate the threat of development in those areas. DWR now owns or will own much of the crucial winter habitat and will work to acquire more as possible. Maintenance of current conditions is the primary current need as birds currently use the area in the winter.

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.

Efforts are ongoing to get useful sage-grouse data to county planners. UDWR and NRCS meets with landowners to keep landowners involved and encourage sage-grouse friendly efforts on private land. As noted in Section 6, UDWR has also purchased some key habitat in the area. Sagebrush treatment projects are approved by biologists and UDWR seed-mixes are used. Non-renewable energy development threat on USFS land has abated slightly for the time being due to economic considerations. Any immediate new drilling threats would still

need to do through USFS comment on seismic and drilling proposals, making any new proposed impacts several years away. The USFS may have little say on leases that have been sold, but can work to mitigate impacts.

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.

There is a strong interest from all parties in the ongoing positive coordination between UDWR and CMWAs. CMWA representatives attended the SVARM summer 2008 field tour to view projects and discuss needs and options. UDWR is also aware of the ongoing need to ensure coordination with the Desert Hollow and Wasatch County CWMA to manage weeds in all project sites. For example, musk thistle issues in the Trout Creek area are being addressed as follow-up for that habitat enhancement project. Spot treatments for weeds are continually ongoing as needed on DWR properties. The CMWA actively works to address toadflax and salt cedar issues around the reservoir. In addition, the Wallsberg knapweed project is being identified and will involve mapping areas, dealing with infestations, and also attempting to determine if sage-grouse are using the area, information which is currently unknown.

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

SVARM and other entities comment on proposed new projects that might be detrimental to grouse and make suggestions for mitigation options. This is part of efforts to coordinate with county officials. Perch deterrents are not planned for use due to results of a study in San Juan County indicating that they may not be sufficiently effective.

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.

No oil and gas exploration concerns currently exist in the SVARM area. One company that had expressed interest pulled out due to economic concerns. For future projects, SVARM will comment on EIS's for proposed development.

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.

No specific perch removal projects have taken place; however, UDWR makes recommendations regarding fence removal and other perches as per Strategy 9. Raven and red fox control by APHIS continue. Improvements to the timing of raven control are being implemented in order to increase the effectiveness of current measures. Red fox control has encountered some budget issues but is continuing. APHIS hopes to expand efforts to the Fruitland area in the near future. Starting this year, the county has required trash pickup from summer homes, which will hopefully reduce the amount of trash available to scavengers.

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.

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. Only one bird (in the UBARM area, not in SVARM) has tested positive for West Nile.

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.

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

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

2009 is the first year of not translocating birds to the area, which will provide initial data on survival. Predator control is ongoing as per Strategy 11.

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

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

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

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

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

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

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

Monitoring efforts continue as a joint effort between BYU and UDWR. Big Game Range Trend Studies are ongoing in the area. Starting soon, UPCD/Watershed Restoration Initiative Projects may be monitored for sage-grouse by a UDWR wildlife monitoring team, which will focus on the Fruitland area as well as other areas of the state. Lek searching did not locate new leks in spring 2009. Predator reduction monitoring is anecdotal but communication continues between UDWR, SVARM, and APHIS.

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

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

16.02. 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.

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

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

SVARM is in the process of designing one or more kiosks and a brochure to target winter and summer recreationists in the Strawberry Valley. Rick Baxter (BYU) gives presentations to professional societies. Two field tours in the summer of 2008 highlighted SVARM's activities and visited habitat improvement projects. One field tour was for USFS staff from several regions. Additional avenues for communication to the public are under discussion.

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

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

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

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

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

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

Outreach efforts to recreationists will be focused on kiosk and brochure development as discussed in Strategy 16. The brochure will be distributed at snowmobile rental areas and other key locations. There is also increased spring-time enforcement on UDWR properties to decrease the impact to sage-grouse on those properties. Discussions are underway regarding possible modifications to the USFS travel management plan.

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

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

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

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

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

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

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

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

Habitat improvement projects are currently taken through the Central Region UPCD's process. Current maps are not currently distributed among partners yearly; however, GIS shape files are available for download from the UWDR website and are updated with new data as soon as possible. The SVARM facilitator will send annual reminders to the group regarding the location of these files. Field tours occur at least annually, in addition to two SVARM other meetings scheduled in spring and fall. County communications are channeled through the group chairs and facilitator.

Major Needs and Concerns

A topic of increased focus this year was renewable energy impacts, specifically spurred by a local landowner's interest in developing a small private wind turbine near high-quality sage-grouse winter habitat. Although the project was cancelled for unrelated reasons, the issue is likely to become a greater one for SVARM in the future. The group did not formally alter the threat assessment matrix in the plan, but future iterations of the adaptive plan will include such changes.

Summary of Sage-grouse Conservation Threats

In 2007, SVARM identified and ranked major threats to sage-grouse conservation in Strawberry Valley (Table 8). This threat ranking is used by SVARM and its partners to prioritize conservation actions. SVARM will review the threat ranking in 2009 to ensure immediacy.

Table 8. Relative importance/contribution of threats to sage-grouse populations in Strawberry Valley Adaptive Resources Management (SVARM) Sage-grouse Local Working Group Conservation Area. (L=low; M=medium; H=high; and VH=very high).

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

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. In late spring 2008, a new facilitator from USU Extension took over the position left open in December 2007 by the departure of the previous facilitator. Only two meetings, therefore (summer and fall) were held in 2008. The summer field tour was very well attended and visited many project locations during the day.

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: 2008 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:** In 2007, UDWR biologists will coordinate with Ute Tribe biologists to identify sage-grouse lek sites and count birds on Tribal lands.
 - 1.3. **Action:** Work with the NRCS to review and potentially endorse NRCS WHIP and EQIP projects that would benefit sage-grouse in the Resource Area.

The UDWR (Brian Maxfield) meets with the Tribe at an annual coordination meeting. Among other items, the UDWR updates the Ute Tribe on several grouse and habitat projects in the Basin. NRCS and Grazing Improvement Program (GIP, Jim Brown) also meet with the Tribe. UBARM coordinated with NRCS contact Mark Ewell to continue to support project on private land.

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.

The group decided that until a sufficiently specific target audience for a brochure could be determined, outreach efforts for the next year will focus on newspaper articles (press releases) to reach general audiences, and other activities (such as coordinating with the PAWS program) to inform local school-aged children and various resource user groups about sage-grouse issues. The County Extension Office provides updates and notice of LWG activities in county newsletters and through periodic correspondence. Utah Partners (UBPCD) meetings include discussion of LWG activities and opportunities as relevant. UBARM representatives attend energy industry safety training meetings to present sage-grouse information and training on how to be sensitive to sage-grouse needs.

A field tour was conducted in the summer of 2008. Nearly 40 individuals attended, including private landowners and representatives from many different federal and state agencies. The group will hold a yearly field tour in conjunction with the Uintah Basin (Northeast region) Partners for Conservation and Development (UBPCD) group.

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 NRCS WHIP and EQIP 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.

Many recent UPCD/WRI projects in the area have provided improved habitat opportunities. A key need now is for ongoing monitoring to determine grouse response, which may be assisted by UPCD/WRI wildlife monitoring teams currently in formation. Prescribed burns on Anthro Mountain were designed to improve late brood rearing habitat; Utah State University graduate student Eric Thacker is monitoring grouse response.

4. Strategy: Increase the amount of mesic sites available to sage-grouse during the late summer and early fall.

4.1. Action: Work with public and private partners to maintain or create mesic sites in areas used by sage-grouse during late summer and fall.

4.2. 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.

GIP, USFS, and others have been involved with water projects in Cottonwood Canyon in 2008 that added a tank and installed a new apron on a guzzler. Another project (not funded by UPCD) is planned for Sowers Canyon.

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

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

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

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

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

Sage-grouse population status and response to management actions are being conducted on Anthro Mountain, Seep Ridge, Blue Mountain, and Deadman Bench using standard radio telemetry protocols. UDWR continues to do lek counts and also obtained funding to conduct aerial surveys for new leks by helicopter and conducted them in spring 2009. West Nile tests are done on birds whenever dead birds are found soon enough after death to be testable.

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

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

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

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

Rehabilitation efforts continue on the Neola North Fire on tribal lands. Several related projects were completed, including re-seeding areas where previous seedings were less successful, new treatments (Plateau sprayed) and re-seeding on for fire breaks, and additional projects where cheatgrass occurred in the fire area. Total acreage affected is close to 3000 acres. Plateau is an element of many projects where cheatgrass may be an issue. NRCS cost-shares on many types of weed projects. Communication between the weed board and UBARM continues.

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

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

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

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

7.4. Action: Where practicable, install low-profile tanks in areas used by sage-grouse.

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. Members of the UBARM group are involved with negotiations with energy developers on siting a compressor station and associated roads on Diamond Mountain in a way that reduces or mitigates potential impacts. Compliance in many such efforts is largely voluntary on the part of the companies involved. Corridor re-vegetation efforts are coordinated through Utah Partners Regional Team – Utilities contact the UDWR, BLM, USFS, and NRCS to coordinate re-vegetation. The agencies provide seed recommendations and approve mixtures. Perch deterrents are not part of ongoing plans due to the results of a study in San Juan County indicating a high level of ineffectiveness.

8. Strategy: Through 2016, **avoid locating homes/cabins within important sage-grouse use areas**, while ensuring private property rights. If development does occur, the work will minimize impacts to biodiversity.

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

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

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

8.4. Action: Work with county planners and county commissioners to establish zoning

ordinances for crucial habitat that protect those areas from inappropriate development.

County planning offices have been provided with general maps, and discussions of more specific data needs are currently under discussion. Current ordinances provide the framework but further work remains to be done to potentially zone areas of critical sage-grouse use. Housing developments are not currently impacting sage-grouse areas. UBARM partners are available to discuss easements with any interested landowners.

9. Strategy: Through 2016, avoid **locating oil and gas roads or pads near lek sites**. Where impacts do occur, implement interim reclamation to well site(s) as soon as practicable.

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

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

The BLM's Resource Management Plan was signed with new language about sage-grouse protection measures. Companies generally try hard to minimize impacts. See additional information under Strategy 7 and Strategy 21.

10. Strategy: Through 2016, **prevent reestablishment of pinyon/juniper** through annual monitoring and maintenance level control efforts.

10.1. Action: Revisit and retreat as needed pinyon/juniper removal site.

Many BLM-led lop and scatter and brush hog projects occur in the area, many of which are vetted through the UPCD project ranking process. Miles Hanberg is very active on this type of project.

11. Strategy: **Monitor impacts of hunting** on sage-grouse population in Resource Area.

11.1. Action: Review and advise UDWR on sage-grouse harvest plans.

Sage-grouse limits are re-evaluated each year based on lek counts. UDWR recently changed systems for allocating permits. UDWR also conducted a phone survey of 25% of upland game hunter to better understand the hunting constituency and why they hunt sage-grouse, among other questions.

12. 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.

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

12.2. Action: Support partner efforts that protect sage-grouse and sage-grouse habitat on public lands.

12.3. Action: Pursue private land protection on a few key parcels (TBD).

12.4. Action: Pursue habitat improvement projects or land management strategies on private lands in areas used by sage-grouse for nesting and brood-rearing.

The UBARM plan defines current and desired conditions and provides management actions frameworks, as well as ongoing discussion of goals and projects at local working group meetings. Multiple partners attend meetings and work to follow the guidelines in the plan. As per Strategy 8, any landowners interested in conservation work or easements have a variety of agencies willing to work together to implement projects or discuss conservation options on private land.

13. 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.

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

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

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.

13.4. Action: Manage livestock to enhance riparian conditions.

See Strategies 3, 4, 14, and 19. NRCS and Grazing Improvement Program partners – as well as federal partners who manage private grazing leases – work with grazers (including the Uintah Basin Grazing Association) to plan and implement strategic grazing management on Blue Mountain, Diamond Mountain, and Anthro Mountain. Their work includes water projects mentioned in Strategy 4.

14. Strategy: Maintain and where possible, **improve forb component in the understory**.

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

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

14.3. Action: Conduct vegetation treatments to improve forb diversity (e.g., harrowing,

aerating, chaining) and reclaim or reseed disturbed area, if needed.

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

Seedings are associated with sagebrush and pinyon-juniper treatments. Treatment areas are reseeded with UDWR-recommended seed mixes when needed to restore forbs in the understory. New management techniques were not developed this year, although continued learning on effectiveness of certain treatments inherently occurs as past projects succeed to varying degrees.

15. Strategy: Manage pinyon/juniper stands to reduce encroachment into sagebrush/grass communities.

15.1. 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.

15.2. Action: Brush-cut or treat with other mechanical methods on specified areas and reclaim or re-seed as necessary.

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

See Strategy 10.

16. Strategy: Enhance existing riparian areas or create small wet areas to improve nesting and brood-rearing habitat.

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

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

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

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

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

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

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

tables.

See Strategy 4.

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

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

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

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

No new leks with potential for restoration were identified during the year.

18. Strategy: Minimize impacts of exotic and invasive/noxious plant species.

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

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

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

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

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

See Strategy 6.

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

19.1. Action: Maintain the CRP program and improve its benefit to wildlife by altering seed mixes.

19.2. Action: Expand Grassland Reserve Program (GRP) opportunities in sage-grouse habitats.

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

19.4. Action: Work with NRCS and others to maintain the CRP program and enroll

important sage-grouse habitats currently in grain production

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

19.6. Action: Rehabilitate old low diversity, sod bound CRP fields with sage-grouse friendly seed mixes including bunchgrasses, forbs, and big sagebrush.

19.7. Action: Encourage interest and enrollment of key sage-grouse habitats in relevant Farm Bill programs.

NRCS works with UBARM partners to identify opportunities and promote wildlife conservation on private agricultural land. The “Farm Bill” biologists, a joint hire between UDWR and NRCS, is available as a resource for landowners planning wildlife-related projects and wildlife friendly projects with other primary goals.

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

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

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

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

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

See Strategies 8, 12, and 19.

21. Strategy: Minimize sage-grouse habitat loss to **oil and gas activities** while ensuring continued development.

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

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

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

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

- 21.5. Action:** Minimize pad size and other facilities to the extent possible, consistent with safety.
- 21.6. Action:** Plan and construct roads to minimize duplication.
- 21.7. Action:** Cluster development of roads, pipelines, electric lines and other facilities.
- 21.8. Action:** Use existing, combined corridors where possible.
- 21.9. Action:** Use early and effective reclamation techniques, including interim reclamation, to speed return of disturbed areas to use by sage-grouse.
- 21.10. Action:** Reduce long-term footprint of facilities to the smallest possible.
- 21.11. Action:** Avoid aggressive, non-native grasses (e.g. intermediate wheatgrass, pubescent wheatgrass, crested wheatgrass, smooth brome, etc) in reclamation seed mixes.
- 21.12. Action:** Eliminate noxious weed infestations associated with oil and gas development disturbances.
- 21.13. Action:** Minimize width of field surface roads.
- 21.14. Action:** Avoid ridge top placement of pads and other facilities.
- 21.15. Action:** Use low profile above ground equipment, especially where well density exceeds 1:160 acres.
- 21.16. Action:** Avoid breeding/nesting season (March 1 – June 30) construction and drilling when possible in sage-grouse habitat.
- 21.17. 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.
- 21.18. Action:** Reduce daily visits to well pads and road travel to the extent possible in sage-grouse habitat.
- 21.19. Action:** Utilize well telemetry to reduce daily visits to wells, particularly where well density exceeds 1:160 acres.
- 21.20. Action:** Locate compressor stations off ridge tops and at least 2,500 feet from active sage-grouse leks, unless topography allows for closer placement.
- 21.21. Action:** Avoid locating facilities within ¼ mile of active sage-grouse leks, unless topography allows for closer placement.
- 21.22. Action:** Plan for and evaluate impacts to sage-grouse of entire field development

rather than individual wells.

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

21.24. 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.

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

21.26. Action: Share sage-grouse data with industry to allow planning to reduce impacts.

UBARM partners provide recommendations to operators. Voluntary compliance has been good to date, in some cases with companies more than contractors. Updated guidelines for Utah will be coming out as part of statewide sage-grouse plan. The relevant energy-related appendix still has to go to Resource Advisory Council and Wildlife Board approval processes. Also see Strategy 9 above.

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

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

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

22.3. Action: Install raptor deterrents when applicable.

See Strategy 7 and 23.

23. Strategy: Minimize the impact of excessive predation.

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

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

23.3. Action: Plan and conduct research to determine if man-made raptor perches increase predator effectiveness in sage-grouse use areas.

23.4. 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

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

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

Predation impacts are addressed on an ongoing and as-needed basis, although no population level impacts are specifically under active research. USDA Wildlife Services and UDWR coordinate to manage predators. Wildlife Services places DRC-1339 egg baits in key areas to reduce the risk of raven predation on sage-grouse nests during nesting season. No specific perch removal actions were taken in the area this year. Perch deterrents will not be used based on results of a study in San Juan County.

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

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

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

See Strategy 5.

25. Strategy: Increase subpopulation numbers and genetic distribution in Resource Area subunits (TBD).

25.1. Action: Use translocation from within the Resource Area to supplement subpopulations.

25.2. Action: Use translocation from areas outside the Resource Area to supplement subpopulations.

25.3. Action: Use translocation techniques developed by Baxter et al. in Strawberry Valley

The Anthro Mountain translocation project began in 2009. The work is being done by a USU graduate student. Thirty hens were moved from Parker Mountain to Anthro Mountain in April 2009. Future translocations are planned for 30 more birds in 2010. The UDWR is also planning a future translocation project involving late summer releases of juvenile birds.

26. Strategy: Increase knowledge base regarding the positive and negative effects of sagebrush habitat improvement projects on other shrubsteppe species.

26.1. 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.

Wildlife monitoring crew currently collecting data on wildlife response to various UPCD-funded treatment projects in the state.

Major Needs and Challenges

Many excellent projects have been done in the area, but increased monitoring is needed to determine the impact these projects may have had on sage-grouse habitat use. UBARM is interested in streamlining the text of the plan to make it more workable. This will be one focus for the upcoming year.

Summary of Sage-grouse Conservation Threats

In 2007, UBARM identified and ranked major threats to sage-grouse conservation in the conservation area (Table 9). This threat ranking is used by UBARM to prioritize conservation actions. The UBARM will review the threat ranking in 2009 to ensure immediacy.

Table 9. Relative importance/contribution of threats to sage-grouse populations in Uintah Basin Adaptive Resources Management (UBARM) Sage-grouse Local Working Group Conservation Area. (L=low; M=medium; H=high; and VH=very high).

Threat	Aspects of Sage-grouse population in the UBARM Resource Area							
	Reduced Population Size	Population Distribution	Reduced Lek Habitat Quality	Reduced Nesting/Early Brood-rearing Habitat Quality	Reduced Summer/Late Brood-rearing Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Home and Cabin Development	L	M	L	L	L	L	L	L
Power lines, Fences, & Other Tall Structures	-	M	H	M	M	M	M	M
Oil and Gas Development	M	M	M	M	M	M	M	M
Roads	L	M	M	M	L	M	H	H
Drought and Weather	L	-	L	H	H	H	-	-
Hunting Pressure	L	L	-	-	-	-	-	-
Incompatible Fire Management Practices	-	H	H	H	H	H	H	M
Incompatible Livestock Grazing	-	L	L	H	H	L	-	-
OHV Recreation	-	M	H	M	M	L	L	L
Invasive/Noxious Weeds	-	M	M	VH	VH	H	M	L
Parasites and Disease	H	H	-	-	-	-	-	-
Predation	VH	H	-	-	-	-	-	-
Vegetation Management	-	-	H	H	H	H	H	M
Pinyon-Juniper Encroachment	-	M	H	M	M	H	H	H

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. In late spring 2008, a new facilitator from USU Extension took over the position left open in December 2007 by the departure of the previous facilitator. No meetings were held until spring of 2009.

WDARM has an excellent relationship with the Central Region Utah Partners for Conservation and Development (UPCD). Summer field tours are planned in conjunction with UPCD and the local weed management district tours when appropriate; in 2009 the May field tour visited numerous sites in the West Desert in conjunction with the Squarrose Knapweed CMWA and the UPCD. Over 70 individuals attended the tour. WDARM has a strong presence on the Central Region UPCD team and is actively involved in project ranking.

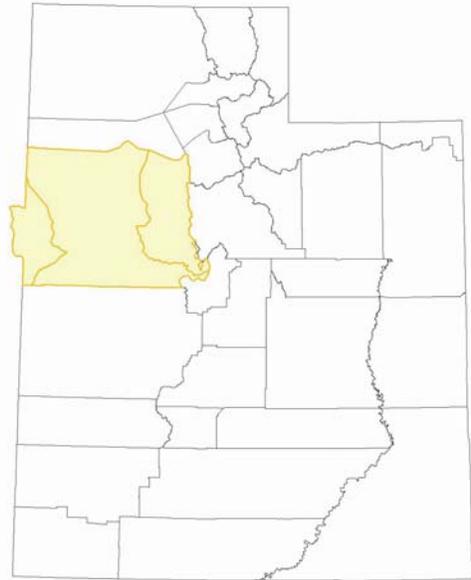


Figure 11. The West Desert Adaptive Resource Management (WDARM) Sage-grouse Local Working Group Conservation Area consists of 5,137,991 acres located in western Utah.

Conservation Strategies and Actions: 2008 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 members regularly attend (Utah Partners for Conservation and Development) UPCD meetings to coordinate and discuss projects. A field tour was held in May 2009. The UPCD partnered on these tours and invited constituents from ID and NM to participate.

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.

WDARM partners treated encroaching P/J on Forest Service grazing allotments in Vernon, private lands and BLM lands in Rush Valley. Also see Strategies 4 and 5.

3. Strategy: By 2016, increase brood-rearing habitat quality in the Conservation 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.

Sagebrush treatments were done to improve the vegetation structure of the McIntyre Lek (brush mowing) and spike treatments to thin sagebrush and release more forbs and grasses near the lek. Seeding and sagebrush/PJ treatments were done in Davenport Canyon and Tooele Valley. WDARM partners treated sagebrush around Frank Vincent Ranch, Forest Service grazing allotments, and Diagonal Electric pastures. Benmore Pastures treatments are planned for fall 2009. UDWR and BLM collect range trend data on some sites.

4. Strategy: Thru 2016, maintain and protect winter habitat distribution and quality in the Conservation 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.

See Strategy 14: UDWR has recommended to the BLM to key OHV users travel be restricted in brooding and nesting areas north of the Little Sahara recreation area. See

Strategy 5: Numerous bushhog projects for PJ removal have dual wildlife habitat and fuels reduction benefits.

- 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).

WDARM partners treated sagebrush Ibapah west and east slopes, Rush Valley.

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.

WDARM partners participate in the Squarrose Knapweed CWMA, which is active in the area. UPCD and BLM fire management bushhog and Dixie harrow projects occurred in West Government Creek and other areas in or near sage-grouse habitat. South Sheeprocks sage-grouse areas are targeted for future PJ treatments to reduce fire and open up sage-grouse habitat. BLM fuels reductions efforts are closely coordinated with UDWR needs to ensure that habitat projects serve both fuel reduction and wildlife needs.

- 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.

In 2008, raven control on Forest Service land involved placement of 100 poisoned eggs weekly in key areas. In 2009, more strategic placement of DRC-1339 eggs on private land lambing and calving grounds, earlier in the season, allowed for a reduction in eggs placed on USFS ground but a similar impact to the raven population. Other predators (coyotes, fox, etc.) are removed (and funded) through other programs such as deer or livestock benefit programs, but likely have a secondary benefit to grouse due to the proximity of those control efforts to sage-grouse habitat. Several WDARM partners also voiced opposition to construction of high voltage power lines structures planned near sage-grouse habitat, which would provide additional perches for avian predators.

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.

No active grouse-related grazing changes are underway; however, treatment areas with soil disturbance and that are normally grazed are planned to ensure that reseedings are allowed to recover before being grazed again.

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 does the majority of the monitoring. Monitoring of projects can be done by partners but is generally done by UDWR. New lek searches were done by helicopter in 2009. In 2008, lek searching (coordinated by USU/EXT and UDWR) was done by various partners on the ground. UDWR talks to the Tribe and have coordinated lek counting, but communication is currently limited and no sage-grouse related projects are currently underway. No dead grouse found 2008 but would be tested if likely specimens were found. WNV is present in Tooele County. Private landowner outreach is done through the conservation district, USU Extension, WDARM meetings, and field tours. Several private landowners in the area are actively involved in sage-grouse habitat projects.

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 represent the Plan at other meetings, particularly UPCD meetings during discussion of habitat projects.

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.

Current natural resource development concerns are primarily in regard to pipeline and transmission power line placement through the area. Group members review proposed

projects when possible and provide comments to reduce or avoid impact on sage-grouse. Partners in 2009 submitted public comments regarding the high voltage power line construction near sage-grouse use areas from Tintic Junction to Tooele Valley.

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 2008.

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.

No actions taken in 2008, though some planning on private land is ongoing. See Strategy 13.

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.

See Strategies 2, 3, 10, and 14. Kendall Bagley with UDWR/NRCS work on McIntyre's private land was done to open up lek area with mowing. A long-term plan for the next ten years is in development for water, fencing, upcoming treatments, etc.

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.

Lek locations are not advertised to protect them from illegal hunting or other over-use impacts USFS through the NEPA process works to eliminate non-system roads and trails. Due to facilitator personnel changes, limited coordination with the county trails committee occurred in 2008. WDARM partners do work with the trails committee. UDWR works to coordinate with the Fillmore BLM to restrict recreation in sensitive sage-grouse areas where substantial long-term motor-cross use occurs in areas where new leks have been found. A field trip with these groups in early 2009 occurred to identify sensitive areas that are likely winter habitat.

Major Needs and Challenges

As in other sage-grouse groups' project areas, numerous projects with potential to improve sage-grouse habitat have been completed over the last several years. Improved monitoring, either using the newly formed Watershed Restoration Initiative wildlife monitoring teams or another mechanism, is critically needed to determine the actual impact these projects have for sage-grouse and other wildlife species.

We currently have two major construction projects that will impact Sage grouse use areas with the Mona to Herrimann power line project and the water development of snake valley for the city of Las Vegas. The powerline will construct 200 ft tall steel power line structures and the water development may dry up some perennial water sources used by sage-grouse, eliminating continuity between lek nesting and brood rearing habitat and the higher elevation habitat needed as summer heats the valley habitats.

Summary of Sage-grouse Conservation Threats

In 2007, WDARM identified and ranked major threats to sage-grouse conservation in the conservation area. (Table 10). This threat ranking is used by WDARM to prioritize conservation actions. WDARM will review the threat ranking in 2009 to ensure immediacy.

Table 10. Relative importance/contribution of threats to sage-grouse populations in West Desert Adaptive Resources Management (WDARM) Sage-grouse Local Working Group Conservation Area. (L = low; M = medium; H = high; and VH = very high).

WDARM							
Threat	Reduced Population Size	Reduced Population Distribution	Reduced Breeding Habitat Quality	Reduced Late Summer/Fall Habitat Quality	Reduced Winter Habitat Quality	Reduced Connectivity of Seasonal Habitat Types	Reduced Connectivity of Populations & Sub-populations
Altered Water Distribution	-	VH	VH	H	L	L	H
Drought and Weather	M	H	M	M	L	L	-
Existing and New Fences	-	M	M	M	-	M	-
Home and Cabin Development	-	M	M	M	M	M	M
Power lines and Other Tall Structures	-	M	M	M	-	M	-
Renewable and Non-renewable Energy Development	-	M	M	M	-	L	L
Roads	-	M	M	M	M	M	M
Incompatible Vegetation Management	H	M	H	L	M	M	M
Poaching	H	L	-	-	-	-	-
Fire	-	-	VH	VH	VH	H	M
Incompatible Livestock Grazing	-	-	H	H	L	L	L
Recreation	VH	VH	H	M	VH	M	M
Invasive/Noxious Weeds	-	-	VH	VH	H	H	M
Parasites and Disease	M	M	-	-	-	-	-
Predation	VH	M	-	-	-	-	-
Pinyon-Juniper Encroachment	-	-	H	H	H	H	-
Conversion to Agriculture	-	-	L	L	-	-	-

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.