

K. Synopsis of Local Working Group Conservation Plans

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

The Box Elder County Adaptive Resources Management Sage-grouse Local Working Group was organized in 2002 by Terry Messmer. The LWG is now facilitated by Mr. Todd Black. Mr. Black also served as the technical writer and compiler of LWG Plan.

a. Local Legal Authority

The Box Elder County Commission serves as the executive and legislative branches of local government. They have the authority to:

1. Protect and promote the health, welfare, and safety of the people of their County.
2. Regulate land use, land planning, and quality and protection of natural resources,
3. Adopt regulations and policies to exercise such authorities, including the review and approval or denial of proposed activities and uses of land and natural resources.

The Box Elder County Master Plan - Public Lands and Resources makes the following statements relevant to wildlife and wildlife management in the County (Box Elder County 2006)

“This code is adopted to provide for the health, safety and welfare, and promote the prosperity, improve the morals, peace and good order, comfort, convenience, and aesthetics of Box Elder County and its present and future inhabitants and businesses, to protect the tax base, secure economy in governmental expenditures, foster the state's agricultural and other industries, protect both urban and non-urban development, and to protect property values. This Code accomplishes these purposes by governing uses, density, open spaces, structures, buildings, energy-efficiency, light and air, transportation, infrastructure, public facilities, vegetation, trees and landscaping.” The purposes of providing a multiple use district is to establish areas in mountain, hillside, canyon mountain valley, desert and other open and generally undeveloped lands where human habitation should be limited in order to protect land and other open space resources; to reduce unreasonable requirements for public utility and service expenditures through uneconomic and unwise dispersal and scattering of population; to encourage use of the land, where appropriate, for forestry, grazing, agriculture, mining, wildlife habitat, and recreation; to avoid excessive damage to watersheds, water pollution, soil erosion, danger from brushland fires, damage to grazing and livestock raising, and to wildlife values; to avoid the premature development of lands by discouraging intensive development until the ultimate best use of the land can be recommended by the Planning Commission to the County Commission; and to promote the health, safety, convenience, order, prosperity, and general welfare of the inhabitants of the community.

b. Status of Local Population

Plan Area

The BARM LWG Resource Area is located in Western Box Elder County in northwestern Utah (Figure 1). The Resource Area encompasses 1,702,251 acres and is divided into 3 subunits,

Grouse Creek, Raft River and Pilot Mountain, according to sage-grouse population distribution. The Resource Area is bounded on the south and east by the high water levels of the Great Salt Lake, on the north by the Utah-Idaho and on the west by the Utah-Nevada border. The Resource Area is managed primarily by Private landowners, Bureau of Land Management, and US Forest Service. The predominant land use in the area is grazing by domestic livestock. The West Box Elder is characterized by hot summers and cold winters. According to Utah State University Climate Center records, temperatures in Grouse Creek Utah range from highs in the 90's during the summer months and lows in the teens during the winter months. West Box Elder is a dry region of the state. Park Valley receives an average of only 11.5 inches of annual precipitation. Most precipitation comes in the form of snow during January.

Landownership

Most of the Resource Area is private land or BLM with small areas managed by the state of Utah, the USFS, and UDWR (Table 3).

Table 3. Landownership in Utah's Box Elder County Adaptive Resources Sage-grouse Local Working Group Resource Area, 2006-2007.

Landowner*	Area (acres)	Area (Miles²)	% of Resource Area
Private	878,760	1,373	52
BLM	654,656	1023	38
State of Utah (SITLA)	102,726	161	6
State Wildlife Management Areas (WMA)	1,609		0.1%
USFS	64,393	550	4
* Water adds an additional 107 acres (.16 mi ²) and represents an insignificant % of the Resource Area			

Sage-grouse Population Status and Distribution

The UDWR began monitoring sage-grouse populations in the Resource Area by annually counting males on leks in 1959 when a total of 6 leks were counted totaling over 200 male grouse (Figure 2). Prior to the winter of 1982/83 a total a high of 37 leks were counted in 1981 with over 700 male grouse counted that year. The 22 year average was 392 male birds counted annually. Since intensive monitoring began in 2000, several new leks discovered and have resulted in a new all time high count in 2006 with over 1000 male birds being counted. Overall, since lek counts began the population appears to be relatively stable.

Population estimates based on lek counts should be treated cautiously due to variance in the methods used to collect lek count data, the assumptions built into the estimate, and other factors. However, as no other population estimation technique is currently available, BARM used this method. The number of males observed per lek is another index used to evaluate sage-grouse population trends (Figure 3). Because this index accounts for the number of leks counted it may more useful illustration of the population trend.

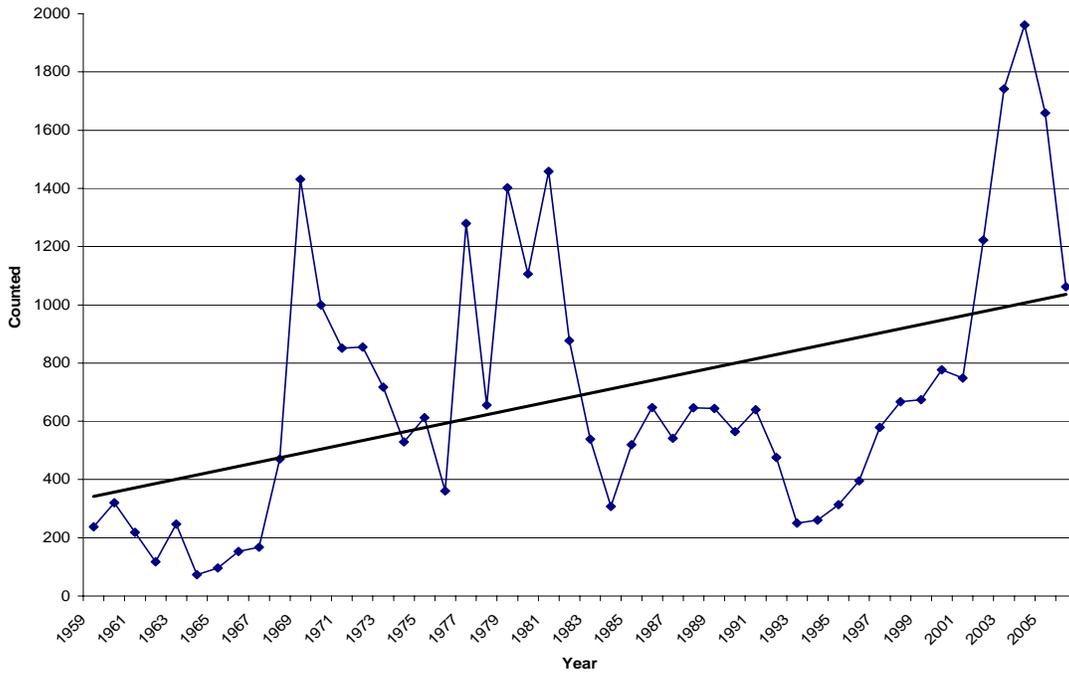


Figure 2. Maximum total number of males counted on all leks in the Box Elder County Adaptive Resources Sage-grouse Local Working Group Resource Area, 1959-2006.

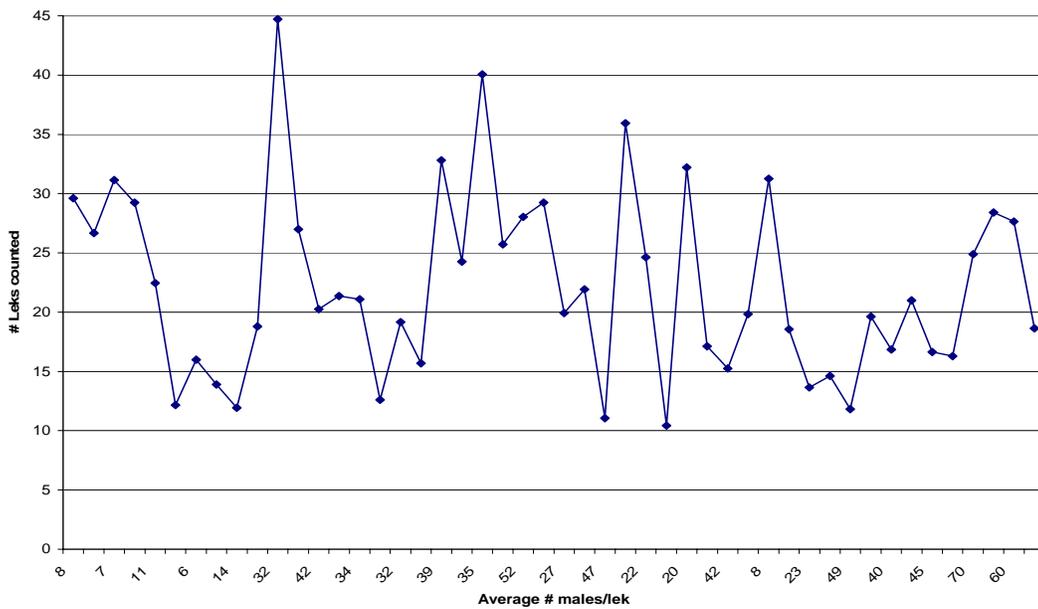


Figure 3. Number of leks counted and average number of males per lek, Box Elder County Adaptive Resources Sage-grouse Local Working Group Resource Area, 1959-2006.

c. Key Ecological Indicators and Threats

BARM participants identified key ecological aspects (KEAs) of sage-grouse ecology and biology and associated indicators (to measure KEAs), determined and ranked the range of variation for each KEA, and assessed the current and desired conditions for each KEA (Table 4). They then identified and ranked potential threats (Table 5).

Table 4. Greater sage-grouse key ecological aspects identified in Utah's Box Elder County, Box Elder County Adaptive Resources Management Sage-grouse Local Working Group, 2007. The 'Key Attribute' and 'Indicator' cells' are those defined by Greater Sage-grouse guidelines (Connelly et al 2000). The shaded cells represent the current condition as recorded by local working group members of a particular attribute and indicator as it relates to sage-grouse habitat and life history requirements.

Resource Area	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good	Current Indicator Status	Current Rating	Desired Rating	Date of Current Rating	Date for re-evaluation
West Box Elder County	Landscape Context	Connectivity of key habitat types	Condition of surrounding natural vegetation	Used habitat patches are sparse and dispersed creating barriers between used habitat patches.	Used habitat patches are isolated and narrowly connected.	Habitat patches are of generally good quality and close proximity, but with some fragmenting features.	<i>All habitat patches are within a similar matrix and functionally connected.</i>	Sage-grouse year round habitat in the BARM AREA is generally well connected but has some fragmentation. Sage-grouse are able to move between seasonal habitats within the Resource Area	Very Good	Very Good	Dec-05	Dec-10
West Box Elder County	Landscape Context	Connectivity of Populations & Sub-populations	Distance to other occupied or potential habitat	Population does not interact with any other population(s).	Next adjacent population more than 20 miles away with few habitat patches exist in-between.	Next adjacent population 5-20 mi away with large habitat patches connecting the two; a few birds/generations known to move between populations.	<i>Next adjacent population less than 5 mi away with occasional to regular mixing of individuals through large patches with short separation distances between patches.</i>	Connectivity to other populations seems good based on radio-telemetry studies in the area. Lack knowledge of sage-grouse movement in the Pilot Mtns.	Very Good	Very Good	Dec-05	Dec-10
West Box Elder County	Condition	Lek habitat quality.	Proximity to sagebrush (or other cover) and openness on lek.	No appropriate cover w/in 300 m of most leks; significant encroachment of tall vegetation on leks.	Dispersed patches of sagebrush cover and little grass w/in 300 m of lek; density of tall vegetation on leks increasing.	Large patches of sagebrush or other cover w/in 300 m of lek with some encroachment of tall vegetation.	<i>Large patches of sagebrush or other cover w/in 300 m of lek with no encroachment of tall vegetation.</i>	There is variability across the entire Resource Area. Most leks are in good condition.	Good	Very Good	Dec-05	Oct-08
West Box Elder County	Condition	Nesting/early brood-rearing habitat quality.	Sagebrush canopy cover and density; understory composition; proximity to open patches dominated by herbaceous vegetation.	Inadequate sagebrush cover/density; little perennial grasses or forbs in dense sagebrush with no openings.	Inadequate or high sagebrush cover/density; poor perennial grass/forb cover in sagebrush with limited openings.	Adequate sagebrush cover/density; some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings.	<i>High stature grasses in shrublands; dense cover in riparian zone; high species richness; a matrix of open patches that includes mesic sites.</i>	Most areas are in good condition during a "normal" year and look better in wet years.	Good	Very Good	Jan-06	Oct-08
West Box Elder County	Condition	Winter Habitat Quality	Sagebrush canopy cover and height.	Majority sparse sagebrush cover or very small patches or majority very dense and tall (i.e. "decadent"); sagebrush frequently covered by snow.	Low stature and/or sparse sagebrush cover on westerly and southerly slopes and drainages or majority very dense and tall (i.e. "decadent"); sagebrush often covered by snow.	Less than 15% canopy cover of sagebrush on southerly and westerly aspects and few dense patches available; sagebrush rarely covered by snow.	Widely distributed winter habitat throughout the Resource Area; canopy cover >15% sagebrush on southerly and westerly aspects w/avg. of 10" above snow depth on >5% slopes; dense sagebrush cover in drainages.	Winter habitat in good condition	Good	Good	Jan-06	Oct-08

West Box Elder County	Condition	Summer/Late Brood-rearing Habitat Quality	Sagebrush canopy cover and density; understory composition; proximity to open patches and mesic sites dominated by herbaceous vegetation.	Little or no shrub land cover/density; little perennial grasses or forbs in dense sagebrush with no open patches or mesic sites.	Little or high shrub land cover/density; poor perennial grass/forb cover in sagebrush with limited openings and mesic sites or alfalfa fields.	Open shrub land (5-10%) with moderate stature grasses; some perennial grasses/forbs in sagebrush with good perennial grass/forb content in openings; some mesic sites.	<i>High stature grasses in open shrub lands (5-10%); dense cover in mesic sites; high species richness; a matrix of open patches and many mesic sites.</i>	In the high end of fair--most sites look pretty good.	Good	Very Good	Jan-06	Oct-08
West Box Elder County	Size	Population Distribution	Distribution and number of leks	Less than 30	31-59	60-80	<i>81-100</i>	100+	Good	Very Good	Nov-05	Jun-09
West Box Elder County	Population Size	3-year running average number of males counted on leks		< 350 total males counted and averaged on all active leks during a 3 year period	351-800 total males counted and averaged on all active leks during a 3 year period	801-1100 total males counted and averaged on all active leks during a 3 year period	<i>1100-1300 total males counted and averaged on all active leks during a 3 year period</i>	1300+	Good	Very Good	Nov-05	Jun-09

Table 5. 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, 2007. Threats are described in the “Threat Analysis” section of this Plan. Rankings are as follows: L = low; M = medium; H = high; and VH = very high. Ranks are defined according to TNC (2005).

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	-	-	-

d. Status of Conservation Strategies and Actions

BARM participants identified several conservation strategies and actions that could be implemented to enhance greater sage-grouse populations. Here BARM partners report on specific actions completed or addressed in 2006/2007 but also identified steps to be taken to implement additional actions into subsequent years of the plan. If a strategy or an action number is missing from this report; it means that no action(s) were taken during the reporting period towards completion. To access a copy of the BARM conservation plan visit the following web site address: <http://utahbcpc.org/files/uploads/BARM/BARMfnl-10-06-web.pdf>. The BARM LWG will review and update their Plan in early 2009.

1. **Strategy:** By 2016, identify pinyon/juniper (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.
Status: BARM partners identified Cove Canyon drainage north and south of Highway 30 east of Park Valley as a sight where P/J will be removed. This is part of the Raft River subunit 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 Soil Conservation District (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 subunit.
 - 1.2. **Action:** Work with partners to ensure that any P/J removal projects are not detrimental to other wildlife species.
Status: 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
Status: Range trend crew is conducting vegetation monitoring.
 - 2.2. **Action:** Avoid using fire in sage-grouse habitats prone to invasion by cheatgrass or other invasive weed species.
Status: 10 mile area (Raft River subunit—Mike Olsen’s place) was burned but then sprayed with Plateau and reseeded with seed mix (Kochia) that competes with cheatgrass.
 - 2.3. **Action:** Evaluate all wildfires and prescribed burns and reseed with appropriate species to prevent establishment of cheat grass and other invasive weed species.
Status: BLM seeded state and private lands around the Dairy valley fire with approximately 11500 acres with UDWR approved seed mix.
 - 2.4. **Action:** Work with and identify other partners (County UDOT Private Industry) to establish fire breaks in key areas to protect important sage-grouse habitat.
Status: BARM partners identified the 10 mile area (Raft River subunit—Mike Olsen’s place). Other areas where work is or will be completed to address encroaching cheat grass include Lower Dove Creek area, Russian Knoll, and Baker place.
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.
Status: Solar pumps were put on existing wells on Cove Canyon drainage (private land). Dove Creek allotment area and developed a spring/well in the Dove Creek allotment.
- 3.2 **Action:** Identify key elements of various water projects by developing partnerships to work cooperatively to develop new water sources.
Status: A new trough, pond and Warms springs wash (private land). Two new ponds were put in above fisher canyon (private)
- 3.2 **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.
Status: BLM dry canyon pipeline with water troughs and spill over pipelines (Grouse Creek subunit).
4. **Strategy:** By 2011, identify key public, private, and SITLA lands in the Resource 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 (Connelly et al) for state, private, and federal lands and influence management actions in order to move toward those conditions.
Status: No action taken.
- 4.2. **Action:** Support partner efforts for special designations that protect sage-grouse nesting habitat on public, private, and SITLA lands.
Status: No action taken.
- 4.3. **Action:** Use available grouse and brood telemetry data to identify key nesting/brooding habitat areas within the Grouse Creek sub unit.
Status: Ongoing USU research more areas are being identified.
- 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.
Status: 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 Resource Area (specific locations to be selected) are protected and/or managed so as to conserve/improve sage-grouse leking areas/habitat.
- 5.1. **Action:** Seed Encourage use of defined desired conditions (Connelly et al) for state, private, and federal lands and influence management actions in order to move toward those conditions.
Status: No action taken.
- 5.2. **Action:** Support partner efforts for special designations that protect sage-grouse leking habitat on public, private, and SITLA lands.
Status: No action taken.
- 5.3. **Action:** Pursue habitat improvement projects (to meet Desired Conditions) on public, private, and SITLA lands in areas used by sage-grouse for nesting and brood-rearing.
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.
Status: No action taken.

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.

Status: No action taken.

7. **Strategy:** Through 2016, avoid natural resource development within important sage-grouse use areas. If development does occur, work with industry to minimize impacts. (El Paso gas line)

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

Status: No action taken.

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

Status: No action taken.

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.

Status: Ongoing USU research more areas are being identified.

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

Status: Ongoing USU research more areas are being identified.

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

Status: Ongoing USU research more areas are being identified.

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

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

Status: Ongoing

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

Status: BARM group supported translocation of 35 hens from Dry Basin to support translocation efforts to Strawberry Valley area.

9.3. **Action:** Work with UDWR to explore other methods (Selected lek or lek complexes counts and statistical inferences, Group counting efforts, use of dedicated hunters) of counting sage-grouse leks.

Status: On-going. Dedicated hunters were trained to search for new leks. The UDWR is reviewing research needs with LWGs to determine highest priorities.

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

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

Status: On-going

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.

Status: Pending per results of study being conducted in San Juan County to evaluate perch deterrents.

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

Status: No action taken.

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.

Status: No action taken.

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

Status: No action taken.

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

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.

Status: USDA WS aerial gunned several areas in the Raft River and Grouse Creek subunit early spring 06 and 07.

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

Status: No action taken.

e. Habitat Improvements and Completed Conservation Actions.

Several habitat improvement projects in the Resource Area have been implemented by BARM partners and were targeted at restoring or enhancing sage-grouse habitat (Table 6, Figure 4). Treatments were designed to improve native grass/forb understory diversity while sustaining a sagebrush canopy cover. BARM members actively participate on UPCD state and regional teams to identify projects that focuses on the protection, management, and/or restoration of important sagebrush-steppe habitats. The UPCD is made up of a variety of partners including state and federal land management agencies, private landowners, universities and extension services, soil conservation districts, and county and local entities. The Northern Region UPCD team has delineated focus areas within the Resource Area based upon critical sage grouse habitats and are currently working on identifying projects and acquiring funding to implement restoration activities. Several Big Game Range Trend sites were established to monitor treatments. Most of these projects have been a combination of fence, water development, fuels reduction projects, and brush management.

Table 6. Habitat improvement projects completed to mitigate sage-grouse threats identified by the Box Elder County Adaptive Resources Management Sage-grouse Local Working Group, 2005-2007.

ID	Region	FY start	FY complete	Project Title	Treatment type	Threat code	Acres
995	NR	2007	0	Clear Creek burn rehab	re-seed drills	1,2,9,18,21	4841
992	NR	2007	0	Dairy Valley fire rehab	re-seed chain drill	1,2,9,18,21	0.000
745	NR	2007	2007	Hogup burn rehab	burn spray with plateau	2,9,18	2700
613	NR	2006	2006	Rose Ranch	sage thinning and re-seed	2,9,15	350
566	NR	2006	2006	SITLA burn seeding	aerial seed burn area	2,9,15	457
348	NR	2005	2005	Park Valley burn rehab	aerial seed burn area smooth chain	2,9,15	3151
276	NR	2005	2006	Lazy 8 land and livestock	sage thinning and re-seed	2,9,15	345
249	NR	2005	2007	Grouse Creek Grazing Association	Spike and aerator treatment of sagebrush	1,2,15	1986
205	NR	2005	2006	Basque Cross Ranch	Grass forb planting w/drill	1,2,15	552
162	NR	2005	2005	Arimo water project	rip in pipeline and trough system for livestock and w	1,2,3,22	2341
162	NR	2005	2005	Arimo water project	re-seed disturbed area	1,2,18	82
157	NR	2005	2005	Etna Mechum Canyon	bullhog p/j aerial re-seed	2,15,18,21	568
155	NR	2005	2005	Choke Cherry spring	bullhog p/j aerial re-seed	2,15,18,21	570

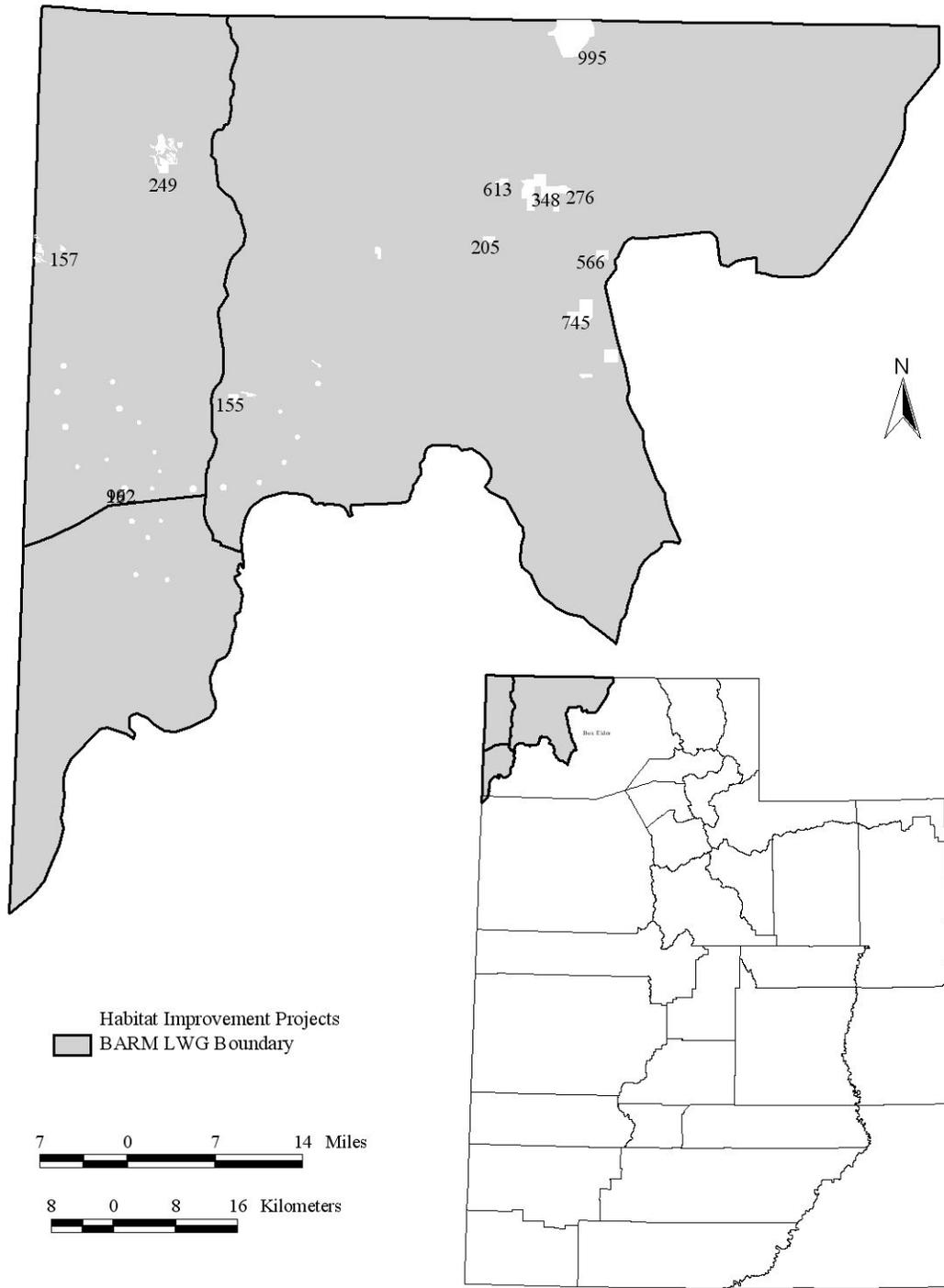


Figure 4. Location of habitat projects completed to mitigate sage-grouse threats identified by the Box Elder County Adaptive Resources Management Sage-grouse Local Working Group, 2005-2007.