C/025/005 Incoming
#4326

Alton Coal Development, LLC
463 North 100 West, Suite 1
Cedar City, Utah 84720
Phone (435) 867-5331 • Fax (435) 867-1192

Date: April 10, 2013

Daron R. Haddock
Coal Program Manager
Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

Subject: Addition of Annual Sage-grouse Report to the MRP; Alton Coal Development LLC, Coal Hollow Mine, C/025/0005

Dear Mr. Haddock,

Alton Coal Development, LLC is providing the 2012 Greater Sage-grouse Population Monitoring and Habitat Improvement, Progress Repot to be added to the MRP, Chapter 3, Appendix 3-6.

Please let me know if you have any questions or concerns.

Sincerely

B. Kirk Nicholes
Resident Agent

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ☒ New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

Permittee: Alton Coal Development, LLC
Mine: Coal Hollow Mine **Permit Number:** C/025/0005
Title: Addition , Chapter 3, MRP, Annual Sage-grouse Report

Description, Include reason for application and timing required to implement:
Remove reference to contract miner

Instructions: If you answer yes to any of the first eight questions, this application may require Public Notice publication.

☐ Yes ☒ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ ☐ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes ☒ No 6. Does the application require or include public notice publication?
☐ Yes ☒ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes ☒ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☐ Yes ☒ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes ☒ No 13. Does the application require or include collection and reporting of any baseline information?
☒ Yes ☐ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☐ Yes ☒ No 15. Does the application require or include soil removal, storage or placement?
☐ Yes ☒ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes ☒ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☐ Yes ☒ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☐ Yes ☒ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☐ Yes ☒ No 21. Have reclamation costs for bonding been provided?
☐ Yes ☒ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes ☒ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?
☐ Yes ☒ No 24. Does the application include confidential information and is it clearly marked and separated in the plan?

Please attach three (3) review copies of the application. If the mine is on or adjacent to Forest Service land please submit four (4) copies, thank you. (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

B. Kirk Nicholes	Environmental Specialist	04/10/2013	B. Kirk Nicholes
Print Name	Position	Date	Signature (Right-click above choose certify then have notary sign below)

Subscribed and sworn to before me this 10 day of April, 2013

Notary Public: Winston Young, state of Utah.

My commission Expires: 10/02/2013
Commission Number: 580496
Address: 444 S Main B2
City: Cedar City State: UT Zip: 84720

WINSTON YOUNG
Notary Public
State of Utah
Comm. No. 580496
My Comm. Expires Oct 2, 2013

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining
		RECEIVED APR 11 2013 DIV. OF OIL, GAS & MINING

Form DOGM- C1 (Revised December 10, 2007)

APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Alton Coal Development, LLC
Mine: Coal Hollow Mine
Permit Number: C/025/0005
Title: Addition , Chapter 3, MRP, Annual Sage-grouse Report

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED

☒ Add ☐ Replace ☐ Remove MRP, Chapter 3, Appendix 3-6, Greater Sage-grouse Population Monitoring and Habitat Impr
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.	**Received by Oil, Gas & Mining** RECEIVED APR 1 1 2013 DIV. OF OIL, GAS & MINING

Form DOGM - C2 (Revised December 10, 2007)

Greater Sage-grouse Population Monitoring and Habitat Improvement

Progress Report

For

Alton Coal Development, LLC

Initial Draft January 26, 2013
Final March 29, 2013

Prepared by
Steven L. Petersen, Ph.D.
Sage-grouse Population and Habitat Consultant

Greater Sage-grouse Population Monitoring and Habitat Improvement Progress Report

Steven L. Petersen, Ph.D., Consultant

FOR YEAR 2012

Greater sage-grouse occur throughout the western United States where they currently occupy 56% of their historic range. Significant declines in sage-grouse populations range wide have resulted in the consideration of federal protection for the species through the Endangered Species Act. In recent years, the U.S. Fish and Wildlife Service determined that the species is warranted for protection, however, current protection has been precluded due to the need for focused attention and resources for the protection of other species with more immediate extinction threats. The decision to list this species will be reconsidered in 2014 due to continued habitat loss and dwindling numbers in certain areas.

Recognizing the need to provide protection to sage-grouse, with specific responsibility for birds living in and near the Alton area, significant efforts are being made to ensure the longevity of the existing population. This comes through significant habitat and bird monitoring practices, habitat improvement efforts, and detailed planning lead by Alton Coal Development (ACD) with assistance from the Utah Division of Oil, Gas, and Mines (UDOGM), the Utah Division of Wildlife Resources (UDWR), the Color Country Adaptive Resource Management group (CCARM), and the Bureau of Land Management (BLM).

The purpose of this report is to present sage-grouse population monitoring and habitat improvement efforts that were completed by ACD within the Alton region during the 2012 calendar year. This document identifies those efforts that were implemented to protect the resident sage-grouse population and to ensure adequate habitat for sustaining the current and potentially increasing sage-grouse population. Sagebrush habitat conservation has been emphasized, in particular those areas where birds are known to frequent.

Alton Coal, Inc. has completed assignments or continued responsibilities established through formal agreements with the Department of Oil Gas and Mines and Utah Department of Wildlife Resources. They also aim to meet or exceed expectations the Bureau of Land Management standards described in Memorandum No. 2012-043. This includes short-term treatment implementation and monitoring activities and long-term habitat improvement goals.

This report will present the work that was completed throughout 2012 and include recent important activities conducted in January 2013.

Table of Contents

Sage-grouse Population Monitoring

Employee Observations and Monitoring

Each employee employed by ACD has been trained in sage-grouse identification and reporting. When employees observe birds in any location (mine spoils, along roadways, in undisturbed areas), this information is reported to the ACD environmental manager (Kirk Nicholes). This information is recorded and mapped providing an ongoing record of bird activity and population monitoring surrounding the mining area. Table 1 provides a description of each observation, the date of that observation, and the individual providing the claim.

Monthly Surveys

Each month sage-grouse surveys were conducted throughout the Alton area. The areas that were visited consistently included (Figure 1):

- Sagebrush flat, 0.5km south of the open coal pits (SF)
- Conservation area (CA)
- Mine sagebrush patch adjacent (south) to the mine (MSP)
- West sagebrush fields (WSF)
- Historic lek (HL)
- Fords pasture (FP)
- Corridor near Alton north of town (COR)

Of all sites surveyed, birds were typically observed within the sagebrush flat area or in close proximity (on or near) to the spoils pile. These data provide information regarding habitat use areas and to help pinpoint those regions that demand greatest conservation and monitoring efforts. Table 3 provides the number of birds observed during each monitoring period and the sites surveyed.

Figure 1. Location of survey areas for greater sage-grouse during the 2012 monitoring season. WSF = west sagebrush fields, SF = sagebrush flat, HL = Historic lek, MSP = Mine sagebrush patch, and CA = Conservation area. Additional sites not shown above include the corridor (C) and the alfalfa fields (AF) south of Alton. Also shown is the site where rabbitbrush treatments were used to reduce rubber rabbitbrush dominance and encourage sagebrush growth and development.

Reports had been made that birds had been seen in the Fords Pasture region, approximately 10 miles south of the Alton area (Figure 2). Dustin Schiable had reported previous bird activity in the area and during October, environmental consultants working on an unrelated project observed both birds and bird sign in the Fords Pasture area. Using this information to establish general areas to survey, ACD conducted a ground survey on January 22, 2013 where 3 roosting sites were located (Figure 3). The following week on January 25th, a spotlight survey was conducted in that specific area to locate roosting birds. Five groups were flushed totaling 56 birds. Birds were grouped into 5 flocks consisting of 14, 14, 12, 12, and 2 birds. One single bird was also flushed.

Based on these surveys, it can be assumed that Fords Pasture supports a population during at least some portion of the year and is subsequently the southern-most population of the species.

Figure 2. General area where 56 birds were flushed on January 25, 2013. This site is located 1-2 miles southeast of the Fords Pasture lek, approximately 9.3 miles south of the Alton Coal mine site.

Figure 3. Sign of sage-grouse in Fords Pasture. Subsequent to these observations, night surveys were conducted 3 days later during which 56 birds were flushed and counted. Photos were taken by Kirk Nicholes on January 22, 2013.

Table 1. Observations of sage-grouse recorded in 2012 within the Alton region. Observations were made by employees of Alton Coal Development (ACD) or other reliable sources.

Date	Time of observation	Number of birds	Location	UTM Coordinates
January 19	9:50 am	19	Flew from south spoil pile to topsoil stockpile 4	352549 E 1766489 N
January 19	10:40 am	6	Observed birds on haul road berm near stockpile 4 (likely additional to birds seen at 9:50	354222 E 1767998 N
January 28	6:00 am	4	Flushed near the front gate	355554 E 1768041 N
February 2	9:45 am	5	Observed at the junction of the county road and the haul road	354377 E 1767988 N
February 16	7:00 am	4	Observed near mine ("ready line")	353366 E 1767256 N
February 16	2:45 pm	2	Observed near the junction of the county road and the haul road	354372 E 1767960 N
February 17	9:50 am	7	Observed near Swapp Ranch	351349 E 1768331 N
February 21	8:30 am	5	Observed on backfill area of pit 2	352984 E 1766852 N
February 22	8:30 am	3	Observed on topsoil stockpile #3	354052 E 1768141 N
February 27	10:50 am	35-40	Flushed near the traditional lek (by cattle guard)	351238 E 1768348 N
March 5	Unknown	10	Observed in the center of the haul road on the NW corner of pit #3	355073 E 1766896 N
March 12	7:10 am	10	Observed on topsoil stockpile #3	353553 E 1766655 N
March 13	7:20 am	7	Observed at the south entrance to pit #5	352784 E 1767166 N
March 22	Unknown	11	Birds seen displaying on the traditional lek (3 strutting males) that flush to the west. Later seen displaying in the sagebrush flat along the bypass county road (reported by Harry Barber, BLM)	351430 E 1768406 N
March 23	8:30 am	1	Hen flushes at sagebrush flat along country road bypass	350441 E 1766389 N
March 28	Morning	3	Males observed displaying on small flat south of the spoils pile	353088 E 1766435 N
March 30	9:30 am	9	Flushed 9 birds. Consisted of cocks and hens in the small flat south of the spoils pile	352353 E 1766422 N
April 17	7:15 am	3	Observed on east side of spoils pile	352821 E 1766379 N
May 22	7:30 am	3	Observed at summit of south coal ramp, pit #5	352788 E 1767033 N
July 3	Unknown	6	Observed near the orchard	354056 E 1771101 N

Table 1 (*continued*).

Date	Time of observation	Number of birds	Location	UTM Coordinates
July 17	5:30 am	3	Observed near pond 2 (1 hen, 2 chicks)	355321 E 1766888 N
July 17	2:45 pm	5	Observed on the well road near the well (3 hens, 2 chicks)	353780 E 1770274 N
July 18	5:30 am	3	Observed near pond 2 (1 hen, 2 chicks)	355328 E 1768530 N
August 6	9:20 am	6	Hens flushed at the water well	356780 E 1770246 N
September 19	7:05 am	15	Observed on north side of topsoil stockpile #4	354388 E 1768400 N
September 20	Morning	15	Observed on north side of topsoil stockpile #4	354285 E 1768409 N
September 29	Morning	14	Observed on north side of topsoil stockpile #4	354324 E 1768498 N
October 10	7:10 am	2	Observed at the berm above the R.C. diversion (others flushed to the west)	354759 E 1766874 N
October 10	8:57 am	7	Observed at the berm above the R.C. diversion, flushing into the sagebrush area to the west	354814 E 1766864 N
October 17	6:45 pm	2	Birds flew over operators dozer near pit #6. Birds seen remaining in the pit	354098 E 1767775 N
October 20	8:30 am	11	Flushed from pond 3, flying north to Robinson's	353257 E 1765588 N
October 23	9:00 am	7	Observed on the bench of pit #7	352854 E 1768038 N
October 24	8:00 am	7	Observed on the bench of pit #7	352736 E 1768057 N
October 26	8:00 am	13	Flushed from pit #7	352878 E 1767866 N
October 27	8:30 am	40	30 birds observed in pit #6, 10 flew from overburden	354667 E 1767857 N
October 27	Unknown	10	Birds flew over spoils pile reclamation project and land near pond #3 (reported by Kevin Heaton)	352925 E 1766329 N
November 5	8:00 am	30	Observed in pit #6 (likely there to drink)	354596 E 1767867 N
November 7	8:15 am	30	Observed in pit #7	353788 E 1767861 N
November 8	8:30 am	38	Observed in pit #7	354552 E 1767831 N
November 19	9:30 am	9	Observed in pit #7	354535 E 1767943 N

Table 1 (*continued*).

Date	Time of observation	Number of birds	Location	UTM Coordinates
November 26	7:30 am	17	Observed in pit #7	354617 E 1767978 N
November 27	6:00 am	3	Observed in pit #7	354466 E 1767891 N
December 5	7:00 am	53	Observed in the SE corner of pit #7 near the pump	352849 E 1767819 N
December 6	7:15 am	16	Observed in southeast corner of pit #7	352777 E 1767859 N
December 7	7:00 am	3	Observed at the intersection of the permanent haul road and the EW haul road	355713 E 1768890 N
December 7	7:00 am	25	Observed in topsoil cleared area of pits #7 and #8	353865 E 1768139 N
December 8	7:10 am	10	Groups of 2 to 3 flew in to water at daylight	353358 E 1767808 N
December 10	7:00 am	50	Observed while dozers pushing in pit #7	354134 E 1767936 N
December 11	4:45 pm	4	Observed at the north end of pit #7	354022 E 1767916 N

Table 2. Observations from monthly surveys conducted by Petersen and Nicholes.

Date	Time of observation	Number of birds	Location
July 13	7 to noon	12	Surveyed SF, MSP, HL, AF, WSF, CA. Observed 8 birds in SF and 1 hen with 3 chicks along the ridge between SMF and SF
August 18	8 to noon	24	Surveyed SF, MSP, HL, AF, WSF, C, CA. Observed 3 adults in SF and 17 adults with 4 chicks along the ridge between SMF and SF.
September 26	11-2 pm	14	Surveyed SF, MSP, HL, AF, CA. Flushed all birds in SF (2 flocks)
November 3	10-2 pm	48	Surveyed SF, MSP, HL, AF. Flushed all birds in SF, in flocks of 8-10 roosting throughout the area.
December 17	10-2 pm	9 (19)	Surveyed SF, MSP, HL, FP. Flushed 8 birds in one flock at SF. Flushed a single bird from a site that had evidence of 9-10 birds. They were likely flushed before we arrived.
January 22 (2013)	9 to noon	0	Surveyed SF, MSP, HL, FP. Located tracks and roost fecal piles in FP.
January 25 (2013)	11-2 pm	70	Flushed 56 birds at FP in the same area where previous tracks and fecal piles had been found. Birds were grouped into flocks of 14, 14, 12, 12, 2, 1. Flushed 14 birds at SF, grouped into flocks of 7, 6,1

SF = sagebrush flat located along the haul road south of the mine, **MSP** = mine sagebrush patch located adjacent to (south) of the reclaimed area of pit #1, **HL** = historic lek located in Sink Valley, **FP** = Fords pasture located 10 miles south of the mine site, **AF** = Alfalfa field, located immediately south of the town of Alton, **WSF** = West sagebrush fields located .5 to 1 mile west of SF, **C** = corridor between Alton and Hoyts Ranch, **CA** = conservation area.

Lek Monitoring and Aerial Flights

Lekking activities were monitored between late February and early May. The historic lek was initially visited with 3 males who were observed strutting on March 22. Harry Barber, an office manager with the Kanab Field Office of the BLM, observed the 3 males on display with 8 other birds nearby. These birds all flushed and flew to the hillside adjacent to the sagebrush flat located just south of the mine area.

On March 31, Petersen and Nicholes set up on the spoils pile prior to daylight. One bird was observed flushing into the juniper trees. Observers followed the flushed bird to find three 3 males strutting on the same sagebrush flat hillside reported by Barber. These birds were displaying in an area that had scattered juniper trees and bullhogged mounds. Birds were seen displaying on this hillside several times during the breeding season by ACD and UDWR (Dustin Schaible and Nicholes observed 2 strutting birds on April 5). At this point, bird lekking behavior is observed shifting to the mine spoils pile.

On March 15, an aerial survey was conducted beginning at first light and extending through 10am. During this helicopter flight, primary habitat areas were surveyed extending between Skutumpah to the south and Hoyts Ranch to the North (Figure 4). UDWR biologist Dustin Schiable directed the flight path and all four surveyors onboard (Pilot, Schiable, Nicholes, Petersen) searched for flushed or non-flushed birds. While flying over the mine site, 4 strutting males were observed directly on the flattened spoils pile. Birds remained on display in spite of the helicopter flyby and significant mining activities, including a drive-by of a Begee, a large tractor that was within 50 yards of the birds and at times within eyesight.

UDWR/Alton Coal Sage Grouse Flight 3-15-2012

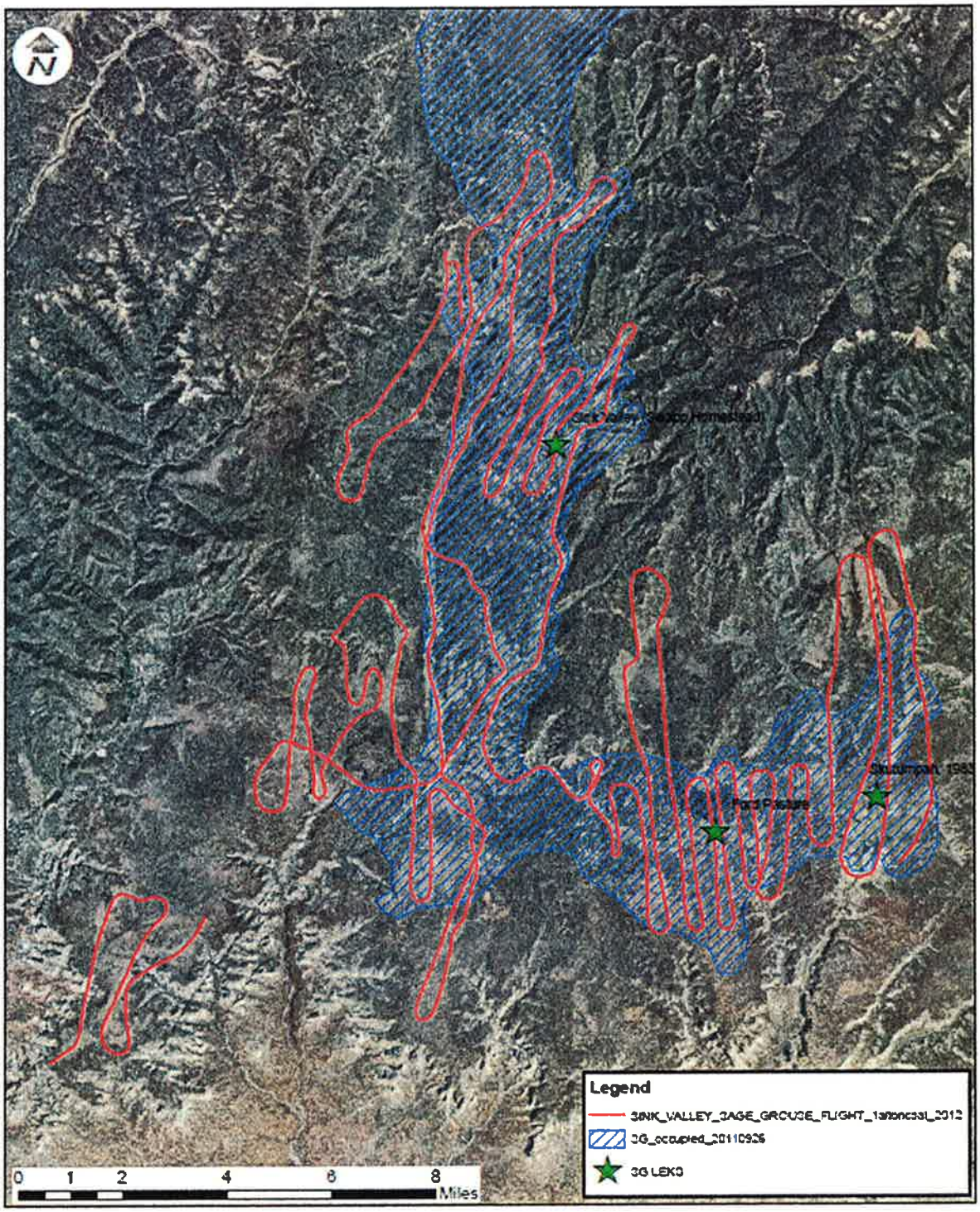

Figure 4. Flight path of the helicopter sage-grouse survey conducted on March 15, 2012. Birds were observed in the Alton and Hoyts Ranch areas.

During the helicopter flight, several other sage-grouse were flushed within the sagebrush bench located between Alton and Hoyts Ranch. At approximately 9:00 am, we flew directly over the Hoyts Ranch lek and observed 9 strutting males. Within the area, several coyotes were seen running away which led to a discussion regarding coyote control for sage-grouse conservation.

Decoying at Actual and Alternative Leks

To encourage breeding activities, decoys were displayed in an alternate lek site (pasture between the well and Sorensen's property to the south). A loudspeaker was used to broadcast strutting sage-grouse sounds between 5am to 8am. Decoying was attempted on March 3, March 4, March 10-13, and March 25. Observers (Nicholes, Petersen) parked near the alternate lek site and watched for participating birds. No birds were observed during any of the decoying attempts. As a final effort, decoys were placed directly at the historic lek site (Figure 5) to attract birds to an area that was once used by as many as 15-20 males (2006). No birds responded to the decoys or calls at the historic lek.

Although no birds were observed on the alternate lek or the historic lek during decoying, It was during this time that breeding behavior began within the area. It may be possible that the decoying efforts instigated actual breeding behavior within the Sink Valley area as a result of calls being heard.

Figure 5. Locations of 2012-13 lekking activities within the Sink Valley area. Red/pink circles identify those sites where birds were observed displaying in 2013. The blue/white circle is the location of the alternate lek site where decoys were displayed and the sounds of strutting birds were broadcast over a loudspeaker placed in the middle of the simulated lekking area. The blue/pink circle is the historic lek where one male was observed strutting (in mid February by Harry Barber) and later decoys were displayed and sounds broadcast (in mid March) with no sign of strutting male activity.

During the lekking season, the level of noise produced by the mine was determined using a device that detects average sound levels (dosemeter). On windy days, the sound level would reach 58-80 decibels. Aircraft flying high over the area recorded 50db. While decoying, dbs were between 36 and 38db. The mine was not in full operation during that time, therefore calls could be heard from long distances from the alternate lek site. It was not considered that noise could be impairing breeding activity during the lekking season. This was particularly apparent as birds were displaying directly on the mine site.

Vegetation Monitoring of Key Habitat Areas

Vegetation data was collected from the following sites

1. Sagebrush flat
2. Rabbitbrush treatment site
3. Conservation area (treatment patches)
4. Alton – Hoyts ranch corridor
5. Fords pasture

Density

At each location, density was determined by counting all plants within 20-1m quadrats placed along randomized 20m transects. Density provides a measure of plant establishment following seeding and plant community structure in already established plots. It can also provide an indication of plant community change, ecological successional patterns, and competition.

Cover

Plant cover was determined by measuring the total number of hits along a 20m transect using the point intercept method. The first feature contacted by a falling pin (fine gauge metal soldering rod) was recorded. The number of hits for each feature was divided by the total number of hits along the tape (~100 hits) to provide a measure of percent cover for that feature type. This value is an important indicator of plant community structure, hiding cover, competition, and ecological succession.

Sagebrush Flat

The sagebrush flat is dominated by black sagebrush (*Artemesia nova*). Plant height is on average 50cm tall. The predominate grass species are squirreltail (*Elymus elymoides*) and bluebunch wheatgrass (*Pseudoroegnaria spicata*). Important forbs include showy goldeneye (*Viguera multiflora*) and to a lesser extent scarlet globemallow (*Sphaeralcea coccinea*). This area supports the majority of sage-grouse in the region (Figure 6). Sagegrouse scat was found in 3 of the 5 transects.

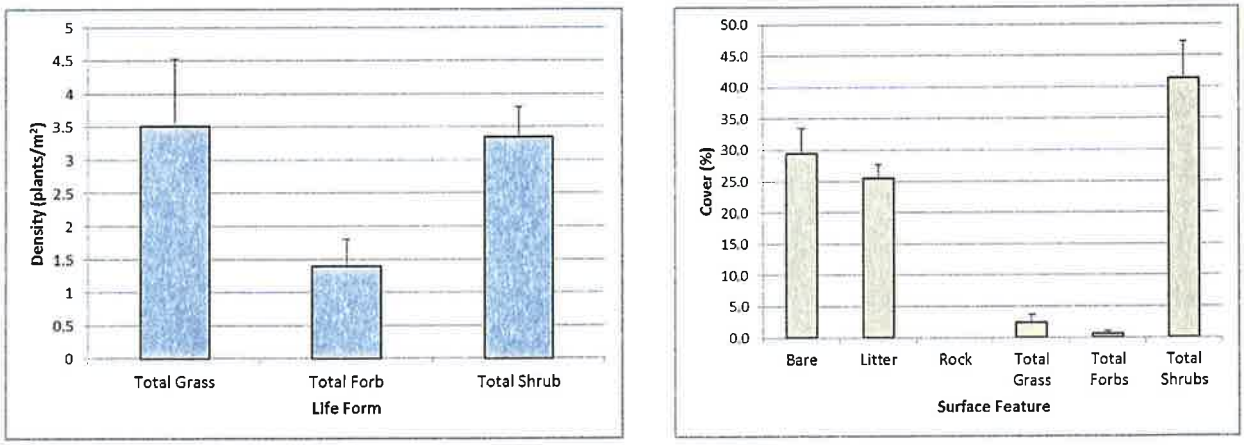

Figure 6. Density and cover of grasses, forbs and shrubs in the sagebrush flat area located south of the mine site.

Rabbitbrush Treatment Area

The rabbitbrush treated site has high rabbitbrush establishment with over 2 plants/m^2 and an average of 19.3% cover. Sagebrush cover has been greatly reduced in this area (1.6 plants/m^2 and 13.3% cover). Squirreltail and slender wheagrass are important perennial species in this area with 1.8 and 1.6 plants/m^2, respectively. Cheatgrass (*Bromus tectorum*) has also established at this site with an average of 6.6 plants/m2 and 2.3% cover (Figure 7). The average height of shrubs throughout this area is 90cm. This height exceeds desirable sagegrouse habitat height levels.

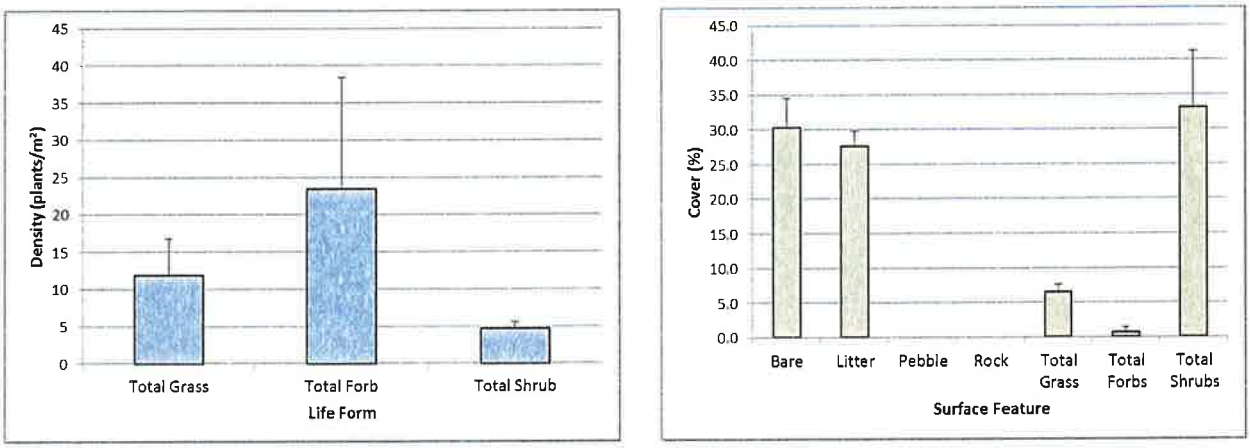

Figure 7. Density and cover of grasses, forbs and shrubs in the rabbitbrush treated site located east of the mine site.

Conservation Area

Plants seeded into the conservation area are shown in table 3. The most common plants establishing in this area are mountain brome (*Bromus carinatus*) and slender wheatgrass (approximately 1 plant/m^2 each). Kentucky bluegrass (*Poa pratensis*) and Cheatgrass have also spread in the area with an average of 8.8 and 2.8% cover, respectively. The forbs that have highest cover are arrowleaf balsamroot (*Balsamhorizza sagitatta*) and mullen (*Vebascum thapsus*). Neither of these plants were seeded.

Table 3. List of plant species included in the seed mix applied to treated patches in the conservation area. Sites were seeded in fall 2010.

Scientific Name	Common Name	Form	Origin
Bromus carinatus	mountain brome	Grass	Native
Elymus elymoides	bottlebrush squirreltail	Grass	Native
Elymus trachycaulus	slender wheatgrass	Grass	Native
Stipa hymendoides	Indian ricegrass	Grass	Native
Achillea millefolium	western yarrow	Forb	Native
Astragalus cicer	*Cicer milkvetch*	*Forb*	*Introduced*
Balsamorhiza sagittata	*arrowleaf balsam root*	*Forb*	*Native*
Cleome serrulata	*Rocky Mountain beeplant*	*Forb*	*Native*
Lactuca serriola	*prickly lettuce*	*Forb*	*Introduced*
Linus lewisii	*blue flax*	*Forb*	*Native*
Lupinus argenteus	*silvery lupine*	*Forb*	*Native*
Medicago sativa	*alfalfa*	*Forb*	*Introduced*
Melilotus officinalis	*yellow sweet clover*	*Forb*	*Introduced*
Onobrychis viciifolia	*sainfoin*	*Forb*	*Introduced*
Penstemon palmerii	*Palmer penstemon*	*Forb*	*Native*
Sanguisorba minor	*small burnett*	*Forb*	*Introduced*
Sphaeralcea coccinea	*scarlet globemallow*	*Forb*	*Native*
Trifolium repens	white Dutch clover	Forb	Introduced

The most highly established seeded species are western yarrow (0.7% cover), blue flax (0.2% cover), Palmer penstemon (0.3% cover), and small burnett (0.3% cover).

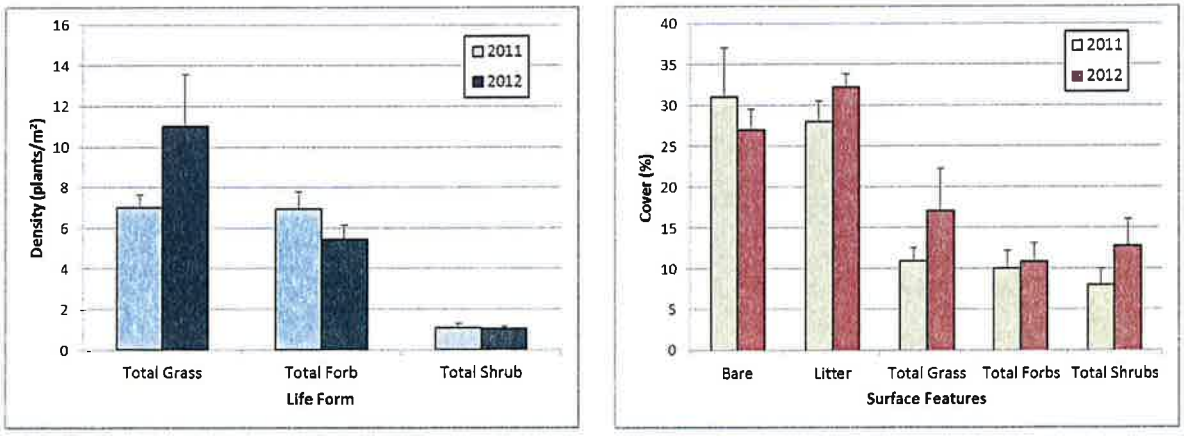

Figure 8. Density and cover of grasses, forbs and shrubs in the conservation area located east of the mine site. Years are compared representing 1 and 2 years following initial treatment, respectively.

Alton – Hoyts ranch corridor

The corridor consists mostly of grasses and forbs. Little sagebrush has reestablished within the area. Gambels oak has experienced relatively high regrowth since these plants were removed over the past 5 years with nearly 5% cover. The most successful grass is slender wheatgrass with 15.2% cover. Mountain brome is also common throughout the treated area (4 plants/m^2). Greater growth of sagebrush is anticipated since a number of small sagebrush plants are establishing throughout the area (0.2 plants/m^2). Sweet yellow clover and small burnett occur throughout the area with approximately 2 and 1 plants/m^2, respectively.

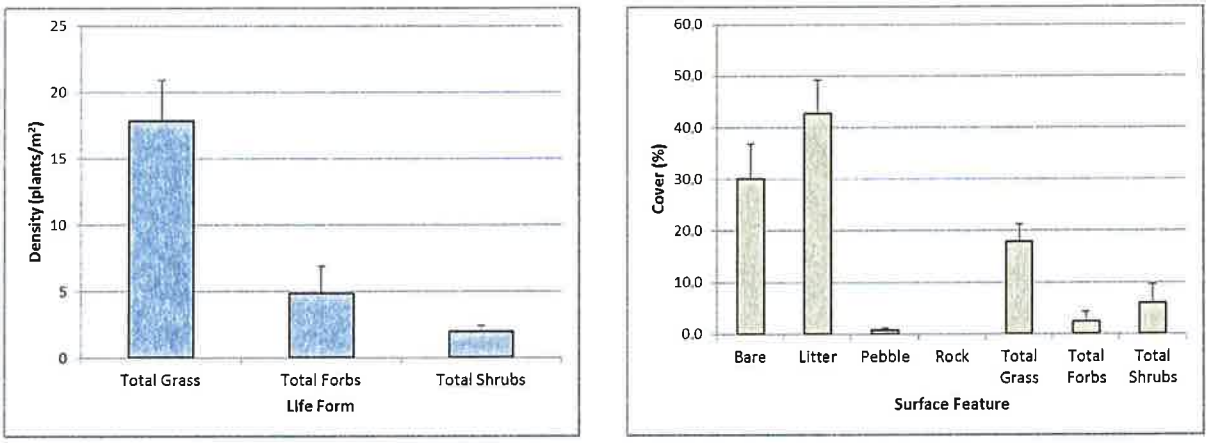

Figure 9. Density and cover of grasses, forbs and shrubs in the Hoyts Ranch – Alton corridor located north of the mine site.

Fords Pasture

This area is an open sagebrush valley with high variability in sagebrush structure. Plant communities have similar qualities and characteristics as optimal sagegrouse habitat located within southern and central Utah. Sagebrush cover ranges between 17% and 44%, averaging almost 30% across the area. The most common grass is crested wheatgrass (*Agropyon cristatum*) and Sandbergs bluegrass (*Poa secunda*) with 1.8 and 4.3 plants/m^2 and 4.1 and 2.4% cover, respectively. Lactuca and pussytoes are sage-grouse food forbs that occur frequently throughout the area.

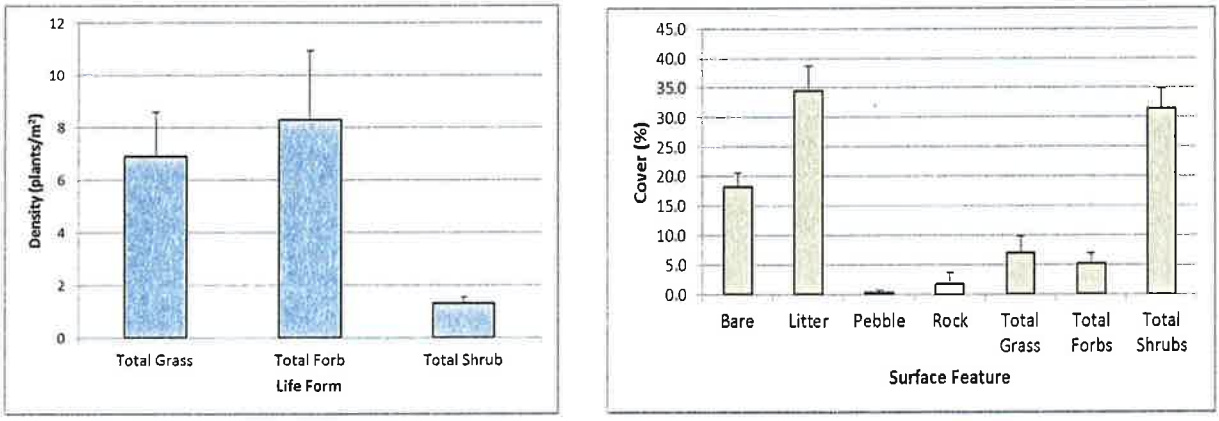

Figure 10. Density and cover of grasses, forbs and shrubs in the Fords Pasture area located 10 miles south of the mine site.

Sagebrush density and cover vary widely between each of these sites, representing different levels of sage-grouse habitat potential (Figure 11).

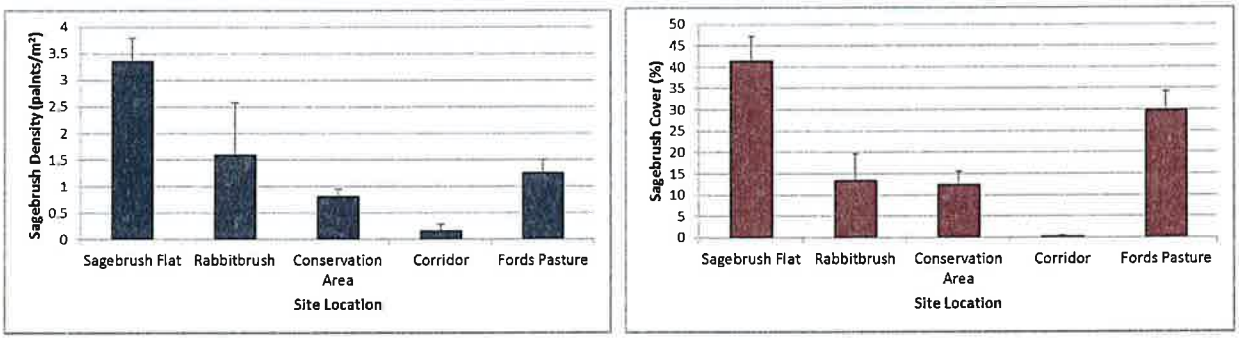

Figure 11. Density and cover of grasses, forbs and shrubs in the Fords Pasture area located 10 miles south of the mine site.

Vegetation Enhancement and Revegetation

Rabbitbrush Treatment

In the valley east of the conservation area, historic sage-grouse use had been recorded. This valley is dominated by large shrubs, including big sagebrush and rubber rabbitbrush. To improve sagebrush conditions and optimal sage-grouse habitat in this valley, rabbitbrush was treated with Tordon 22k to kill individual plants in strips using a truck borne sprayer (operated by Kevin Heaton) (Figure 12; Table 4). Much of the area was treated, and the immediate reduction in rabbitbrush cover and density within this area is expected over the next few years. A total of 53 acres of rabbitbrush invaded sites were treated.

Juniper Removal

Juniper trees were cut and in some cases piled for expanding potential sagebrush habitat and sage-grouse habitat use. The area east of the conservation area (adjacent to and including the rabbitbrush region) was the focus site for tree removal. Trees were cut with chainsaw by employees of ACD. The combined area for both rabbitbrush treatment and juniper removed resulted in a continuous area of 146 acres of usable habitat.

Figure 12. Treating rubber rabbitbrush using a truck-mounted sprayer in the valley east of the conservation area.

Spoils Pile Reclamation

Reclamation efforts were conducted on the initial spoils pile created during the mining of pit #1. This area was contoured to mimic natural landscape topography and seeded with a mix of native and introduced grasses and native forbs and shrubs. After seeding, the soils was covered with a weed free straw mulch and then crimped to keep the hay in place (Figure 13). This site is the location of the lek used last year during the breeding season. This site will be monitored in 2013 for establishment of desirable plants. All treatments are summarized in table 3 and the area treated displayed in figure 14.

Figure 13. Reclaimed spoils pile located at the west end of the mining area. The site was seeded with native and introduced grasses, native forbs, and native shrubs. The seedbed was protected with a covering of weed free straw and crimped to prevent movement by wind and water.

Table 4. Summary of all habitat improvement projects completed in 2012. To see boundaries of each habitat improvement project, refer to figure 8.

Site	Date Treated	Acres Treated (Acres)	Comments
Rabbitbrush Community	Oct 5th & 6th	53	Sprayed with Tordon 22k, using a truck sprayer operated by Kevin Heaton.
Juniper Removal	Aug. 14th – Oct.14th	93	Cut juniper in areas east of the mine and north of the rabbitbrush community. The goal was to open sagebrush habitats and remove trees that deter use. Also included area overlapped with the rabbitbrush community, both totaling 146 acres combined.
Spoils Pile Reclamation	Oct. 26th & 27th	7	Seeded and harrowed, crimped hay to prevent soil loss and provide microsites for seed establishment
Total 2012 Reclamation		**151.5**	

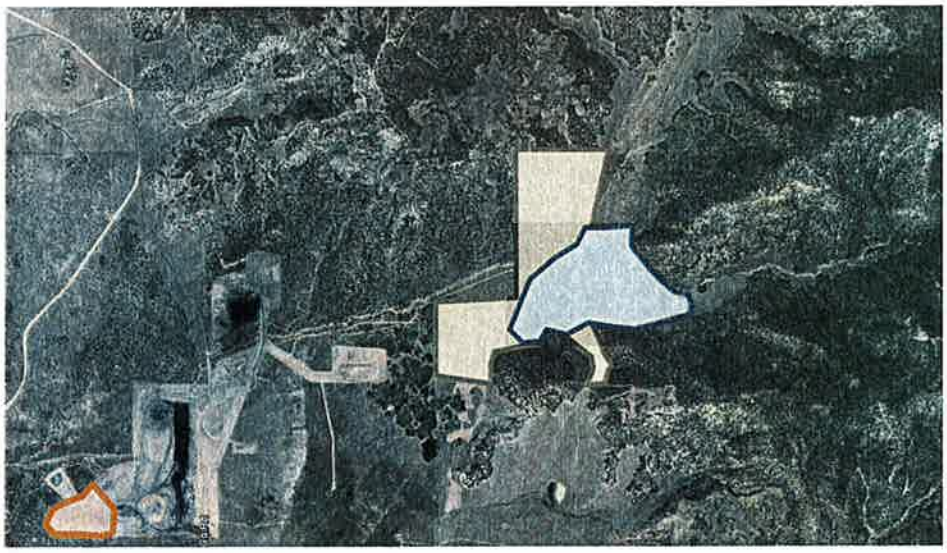

Figure 14. Location of areas treated in 2012. This includes the rabbitbrush chemical treatment project (blue), the juniper removal project (brown), and the spoils pile reclamation area (orange). Some of the area of rabbitbrush treatment and juniper removal overlap. For acreages treated and the type of work completed, refer to table 3.

Predator Control Activities

USDA Wildlife Services were contracted to control both coyote and raven predators. These two species are thought to contribute to sage-grouse predation, in particular ravens and their feeding on eggs and chicks. To control ravens, Wildlife Services dispersed poisoned eggs throughout the Alton area. From February 1, 2011 to June 31, 2012, a total of 1270 eggs were distributed. The equation to generate an estimate of raven mortality is 4 ravens killed for every 100eggs distributed. This suggests that approximately 318 ravens were killed within the period.

Between December 1, 2011 to December 1, 2012, a total of 17 coyotes were taken by fixed wing aircraft, 12 were taken by trapping at den sites, and 2 dens were removed from the mine area. The benefit of coyote removal is less clear, however, until further evidence suggests that coyotes are not killing sage-grouse, this effort will continue to be used to protect surviving birds.

Participation and Involvement with Local Working Groups

ACD continues to attend CCARM meetings to collaborate with committee members plan sage-grouse conservation strategies. The expertise of the working group members are able to provide useful input and feedback for ACD mitigation planning and to identify the most relevant needs and direction for future management and habitat improvements.

Goals, Plans, and Proposals for 2013

SUMMARY

In conjunction with DWR and CCARM, ACD has been conducting sage-grouse surveys in the Alton area since 2006. Additionally, ACD has participated in sage-grouse population and habitat assessment and monitoring in Hoyts Ranch and Fords Pasture areas. Based on the data collected to date a number of observations have been made:

1. Sage-grouse have displayed significant migration patterns between these three areas throughout the year.
2. Lekking behavior in Sink Valley has fluctuated, starting with 14 males on display in 2006 to 0 males on display in 2009, and back to 12 males in 2013.
3. Lekking activities have varied in location, both pre and post-mining. The historic lek was the only location where lekking was observed between 2006-2008, whereas the sagebrush flat and mine sites (spoils pile) have supported lekking in 2012-2013.
4. The numbers of birds observed in the valley has ranged widely. Surveys have reported 0 birds during some surveys to as high as 70 birds during others. The highest numbers of birds observed have typically occurred from late summer and through the winter. Between 2008-2011, the lowest numbers were observed during the breeding and brood rearing periods.
5. The recent increase in bird numbers, including observations of chicks during the brooding period, suggest that sage-grouse are completing nesting and brood rearing activities near the mine (Table 2, Petersen & Nicholes)
6. There is a general increase in bird observations in the Alton area since mining activities have begun. This would suggest that sage-grouse have either habituated to human-related activities in the Sink Valley area or are not being impacted by surface mining activities to the degree predicted. This may also indicate that connectivity (via corridor improvements) between Hoyts Ranch and Sage hen Hollow have improved.

CONCLUSIONS AND RECOMMENDATIONS

Sage-grouse population monitoring

Bird surveys will be conducted using the same procedures established for 2012. Key areas that support intact sagebrush communities have been identified and will be surveyed once every month starting in July and ending in February to March when breeding activity resumes. The leks at Sink Valley, the sagebrush flat, the spoils pile, and Fords Pasture will all be surveyed during the breeding season (late February through early April). The number of strutting males will be recorded during each visit.

In addition to the presence/absence data that is being collected during sage-grouse surveys, additional monitoring data is necessary to identify bird movements and actual impacts on the birds from mining activities as required by the Surface Mining Control and Reclamation Act (SMCRA). In order to accomplish these objectives and meet the regulatory requirements, Alton Coal Development will provide the funding for one aerial survey in 2013 to be scheduled by The Division of Wildlife Resources (DWR). In addition, one GPS and several VHF tracking devices will be provided to DWR in a collaborative effort with DOGM to monitor the bird's movements. ACD will assist DWR in collaring and tracking the birds. Responsibilities for tracking and collecting data and will be determined by the collaborating entities. This monitoring regimen will provide key data in assessing productivity, connectivity, migratory patterns, vegetation treatment areas and impacts from mining during Lekking, brood rearing and wintering activities.

Sage-grouse Decoying

Birds have been observed strutting near the sagebrush flat area and on the spoils piles at the mine. Due to its proximity to key roosting and nesting habitat, decoying in these areas will be limited. The historic lek and alternate lek sites located in the east end of Sink Valley are not being used and are closer to proposed future mining activity. Subsequently, decoying will not be conducted at either of these sites.

Since birds have been observed this year roosting in the Fords pasture area (January 2013), we will place decoys at the historic lek and attempt to initiate strutting and breeding activities in that region. Methods for decoying at this area will be similar to those used in 2012.

Vegetation Improvements and Monitoring

Vegetgation improvements will continue using the same criteria described in the current mitigation plan. The sites to be treated will be based on previous recommendations as well as additional input provided by state and federal consulting entities (NRCS, DWR, DOGM, BLM, and FWS). ACD will treat approximately 230 acres of landscape within the Alton/Sink Valley area.

Vegetation Monitoring will be conducted using the same protocol established in the current mitigation plan. Sites that will be monitored will include those sites listed in the management plan as well as from recommendations provided by state and federal organizations. The data

collected will be consistent from previous years, consisting of species composition, percent cover, density, and bird use (noted by feathers, tracks, fecal piles, or bird sightings).

Predator Control

Predator control activities will continue to focus on ravens and coyotes (Figure 15). Eggs will be distributed by USDA Wildlife Services to reduce raven densities throughout the Alton area. Similar numbers of eggs will be spread out as in 2013. Coyotes control will be extended to include Fords Pasture. ACD will continue to fund predator control activities, but the ultimate method and procedure for predator removal will decided by Wildlife Services. A map of the areas treated with poison eggs is provided in figure 16.

Figure 15. Ravens and coyotes are the focus of predator control in Alton and Sink Valley. Both are controlled from predator control specialists employed by USDA Wildlife Services.

Figure 16. Sites where poison eggs are distributed by USDA Wildlife Services for raven control.

ACKNOWLEDGEMENTS

Tremendous effort and time has been invested by numerous people involved in this project. Each of these individuals are greatly appreciated. Kirk Nicholes and Larry Johnson from ACD have been active in monitoring the project, ensuring the work is done, and that sage-grouse are conserved in this area. Joe Helfrich has contributed insight and provided support to help develop these plans and to make the Alton sage-grouse and their conservation a priority in the state of Utah. Dustin Schaible and Rhett Boswell have provided helpful insight and support as well as many members of CCARM. Wildlife Services (Roger and Teresa) has maintained an active predator control effort to help reduce their impacts.