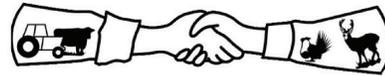


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Siting, Surface Occupancy, and Sage-grouse: What Does the Science Say?

By Terry Messmer, Utah State University

Various buffer distances have been recommended to mitigate the potential effects of human-generated activities such as oil and gas development on sage-grouse (*Centrocercus* spp.). The sage-grouse management guideline published in 2000 recommended maintaining a 3 km (1.9 mi) buffer zone between the activity and seasonal sage-grouse habitat. State and federal sage-grouse management plans contain avoidance guidelines ranging from 0.3 (0.20 mi) to 8.0 (5 mi) km (for a summary see <http://utahcbcp.org/htm/tall-structure-info>). So, what does the science say?

Matt Holloran, Wyoming Wildlife Consultants, LLC, recommended that the effective buffer distance from oil and gas disturbance sources during the breeding season in his Wyoming study area were between 3 to 5 km (3 mi). He observed that juvenile male lek attendance diminished on leks that were closer than 3 km to disturbance. He also recommended providing a 5 km buffer to protect habitat suitable for breeding sites. Brett Walker, Montana State University, studied sage-grouse responses in Wyoming and Montana to recent coal-bed natural gas (CBNG) development. After controlling for habitat, he reported negative effects of CBNG development within 0.8 km and 3.2 km of the lek. He concluded that current BLM lease stipulations that prohibit development within 0.4 km of sage-grouse leks on federal lands were inadequate to ensure lek persistence and may result in impacts to breeding populations over larger areas.

The U.S. Fish and Wildlife Service (in the 2010 decision to designate sage-grouse as a candidate species) concluded that the current regulations and stipulations guiding energy development are not adequate to ameliorate the potential impacts on sage-grouse.

They could not find any scientific support for using a 0.4 km (0.25 mi) buffer as the basic unit protecting active leks and, based on Holloran's and Walker's findings, but concluded the 0.4 km recommended buffer was inadequate to protect sage-grouse.

In September 2010, the Utah Wildlife-in-Need Foundation (UWIN) published a review of the scientific literature regarding effective buffer distances to mitigate potential effects of tall structures such as power transmission lines on sage-grouse. They concluded that although the science is available to recommend buffer distances to mitigate the effects of oil and gas development on sage-grouse, additional research was needed to develop similar guidelines for tall structures such as transmission lines. To review this information visit <http://utahcbcp.org/htm/tall-structure-info>.

HOT OFF THE PRESS

A project hot off the press is the Utah's Landowner Guide to Sage-grouse. We have hard copies to distribute to all our partners and look forward to getting it into everyone's hands. If you don't have yours within two weeks let us know. The guide is also available on the CBCP website at <http://www.utahcbcp.org/files/uploads/Landowner-GuideSageGrouse.pdf>



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TWO-DAY FIELD TOUR VISITS BOOK CLIFFS

By Lorien Belton, Utah State University



Ground after a recent (2011) bullhog treatment. The edge vegetation is representative of what the area used to look like before the treatment. In other areas, similar treatments from years before demonstrated how lush grass, forb, and sagebrush mixtures take over the sites after treatment. Photo courtesy of Lorien Belton.



A small plant grows up in the recent bullhog treatment area, sheltered from the heat by the residual scatter. Photo courtesy of Lorien Belton.

The Book Cliffs is a vast and remote area south of Vernal, Utah, with significant pinyon/juniper encroachment issues. In some places, the conifer encroachment makes it difficult to even walk through the vegetation. Biologists and fuel managers from the Bureau of Land Management (BLM) and Utah Division of Wildlife Resources (UDWR) employees have been working closely together to design and implement projects which will help improve vegetation diversity at a landscape level. Many of these projects have been funded by Utah Partners for Conservation and Development (UPCD). Several are located in areas near known sage-grouse populations, and the clearing of pinyon/juniper in summer use areas will hopefully provide additional habitat options for the sage-grouse in those areas.

This June, a two-day overnight field tour to this remote area highlighted an impressive suite of pinyon-juniper projects, several of which are in sage-grouse areas. The Uintah Basin Sage-grouse Local Working Group (UBARM) joined forces again with the Uintah Basin Regional UPCD team to tour many different projects, including bullhog work, lop-and-scatter projects, prescribed fires, and post-wildfire seedings.

Through the large variety of projects, the multi-agency teams have the opportunity to learn how different treatments work in different areas, when reseeding is or is not necessary, and how vegetation recovers after fires. Project areas the group visited included Deadman Bench, Indian Springs Ridge, Moonshine Ridge, Lone Springs Ridge, Rathole Ridge, Dick Canyon, McCook Ridge, Blackhorse Ridge, Seep Ridge, Rock Springs and Cherry Mesa (these were the closest pinyon/juniper treatments to sage-grouse habitat), Monument Ridge, and Pine Springs/Park Ridge projects. Several of the areas visited during the tour were burned or mechanically treated 10 or more years before, so it was possible to see the long-term results and encouraging regrowth of grasses, forbs, and sagebrush in areas previously dominated by pinyon/juniper stands.

The tour provided an excellent opportunity to understand how pinyon/juniper management projects are being conducted at a landscape level to improve entire areas for a variety of wildlife species. For more information about other projects to restore sage-grouse habitats encroached by pinyon/juniper, visit utah.cbcp.org/html/group/uintah.



Vegetation response years after a bullhog treatment. Photo courtesy of Lorien Belton.

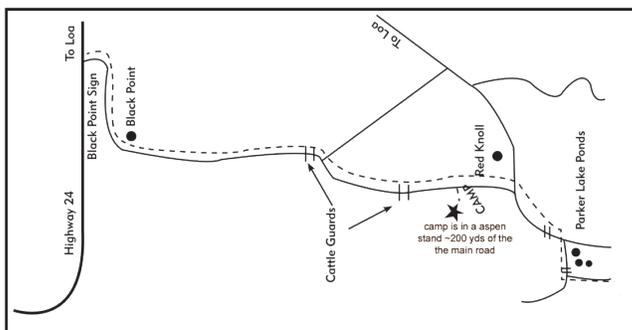


Field tour participants look over an old burn at Moonshine Ridge, where grass and forbs dominate the understory. Pinyon/juniper areas visible in the background show what the area looked like before the burn. Photo courtesy of Lorien Belton.



Across the road from the burn area at Moonshine Ridge, site of proposed mechanical treatment. Photo courtesy of Lorien Belton.

PARKER MOUNTAIN ANNUAL BROOD SURVEYS



We will be conducting our annual brood surveys of treated and non-treated sites August 4th and 5th. If you have a good bird dog and would like to participate (or if you would just like to come and watch), please contact Todd Black for more information (see map). Todd can be contacted at 435-770-9302 or todd.black@usu.edu.

In the last issue of the Communicator (April 2011), Todd Black had an article entitled "New Modeling Approach Seeks to Identify and Map Essential Utah Sage-grouse Habitat." These models were developed with assistance from the RS/GIS laboratory at USU and Anadarko petroleum, the report can be found at <http://www.utahcbcp.org/files/uploads/uintah/anadarko-report-April6.pdf>. A big thanks to Chris McGinty and Ben Crabb for their assistance in their effort, we couldn't have done it without them.

REDUCING RAVENS BY REDUCING SUBSIDIZED RESOURCES

By Casey Burns, Utah State Biologist, USDA – Natural Resources Conservation Service (NRCS)

The common raven (*Corvus corax*), is a highly intelligent and adaptable species, and has shown the ability to move into new areas and expand populations when additional resources are available. Most wildlife professionals agree that ravens are having a detrimental effect on sage-grouse (*Centrocercus* spp.). Potential negative effects include predation on eggs and/or chicks, and/or through altered behavior patterns.

The January 2011 issue of *The Communicator* focused on the potential role of ravens in sage-grouse conservation. One article also discussed what is being done to reduce raven impacts on sage-grouse using lethal control. However, lethal control alone may not be enough if measures are not implemented to reduce the attractiveness of the site to ravens. If the resources are still available, ravens will find ways to access and exploit them. Even if a large-scale lethal control program reduced raven numbers, the available resources may be utilized by other subsidized predators, such as black-billed magpies (*Pica hudsonia*), red foxes (*Vulpes vulpes*), or coyotes (*Canis latrans*).

Sage-grouse local working groups in Utah identified predation as a high threat to local populations. According to a panel of experts convened by the US Fish and Wildlife Service (FWS) prior to the 2005 listing decision, predation was the 12th greatest threat rangewide of the 19 total threats identified. Other threats identified include invasive plant species, habitat loss, altered fire regimes, improper grazing management, and energy development.

Breeding bird survey data in Utah shows a 320% increase in raven populations in Utah from 1968 to 2009. A study in the Mojave Desert found raven numbers 18 times higher at a landfill than at a site with lesser resources, and 225 times higher than sites in the open desert. In the Mojave, unnaturally high raven densities are impacting the desert tortoise (*Gopherus agassizii*). Ravens are a well documented and studied predator of tortoises. One nest, over a four year period, had 250 juvenile tortoise carcasses beneath it, while in another area, 70% of the juvenile tortoise predation was attributed to ravens. The situation approximates what may be occurring across the range of the sage-grouse. A recent study on the relationship between raven populations and sage-grouse in western Wyoming concluded that towns provided ravens with supplemental food, water, and nest sites, leading to locally increased densities. In sagebrush with little human activity, raven density near incubating and brooding sage-grouse was also elevated suggesting increased risk of raven predation on sage-grouse nests.



Juvenile desert tortoise shell with classic puncture marks from a common raven's beak. Photo: Courtesy of USFWS.

Achieving a long-term reduction in raven populations will also require efforts to make the sites less attractive to ravens. High densities of ravens occur due to the availability of resources, such as unnaturally high concentrations of food, water, and perching/nesting sites. As these studies reported, subsidized food comes from many sources, such as road kill, garbage, afterbirth, dead livestock, and pet food. Subsidized water can be from livestock troughs and ponds, guzzlers, water treatment ponds, canals, and leaky pipes. Subsidized perches and nesting sites may include power poles, non-native trees, oil and gas developments, and windmills. Efforts near high value sage-grouse habitat to cover/contain garbage, reduce/remove road kill and dead animals, cover/remove excess water, and limit perching and nesting structures may increase the effectiveness of lethal control. The negative effects of subsidized predators on sage-grouse can be counteracted by ensuring there is sufficient vegetative cover, especially sagebrush (*Artemisia* spp.) in nesting and wintering habitats. One study in Nevada demonstrated that for every 1% decrease in shrub cover, odds of raven predation increased by 7.5%. Site specific analysis and effects to other species should be considered when planning any of these actions.

There may be a role for active raven control around high value sage-grouse habitat, but it should be combined with efforts to reduce the attractiveness of the area to ravens. If lethal control is necessary, targeting the individual offending birds that are predating sage-grouse nests by baiting artificial nests has demonstrated merit. Feeding habits in ravens seems to be at least partially a learned behavior, so eliminating that knowledge in the population may be the first place to target lethal control. Note that coordination is needed with USDA Wildlife Services prior to initiating lethal control.

It is not possible to get back to pre-settlement raven populations, but focusing on reducing subsidized resources in high priority areas across the sage-grouse range needs to be considered. Site attractiveness to ravens should be addressed to the fullest extent possible prior to initiating any raven control programs. In the long run, this would save time and money, and likely be more effective in helping sage-grouse populations range-wide.

NRCS can help private landowners improve sage-grouse habitat and reduce the attractiveness of sites to ravens with planning and funding through our Sage-grouse Initiative, and through many other Farm Bill programs. Contact your local NRCS field office or visit www.ut.nrcs.usda.gov for more information.



Ravens at the dump. Photo by William I. Boarman, United States Geological Survey

If it's not good for communities, it's not good for wildlife.

Utah's Community-Based Conservation Program Mission

Utah's Community-Based Conservation Program is dedicated to promoting natural resource management education and facilitating cooperation between local communities and natural resource management organizations and agencies.

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PARKER MOUNTAIN TREATMENT SITES REVISITED

By Todd Black, Utah State University

This past month the Parker Mountain Sage-grouse Local Working Group (PARM) group conducted its annual field tour to re-visit many of the treatment sites where work was done 3-5 years ago. Additionally, we reviewed two sites where sheep were used to treat (reduce canopy cover) sagebrush in brood-rearing and leking areas. We first started by looking at sheep grazing areas near Black Point. This was an area identified by PARM members as a site where some lek maintenance was needed. "I think the sheep did a great job given the storms we had. We would have liked to have left them here longer but with the snows, we had to get them out early," said Jim Lamb, Utah Division of Wildlife Resources (UDWR). This type of management practice has been used in several areas across the state on brood rearing habitat, but this is the first time sheep have been used to maintain lek habitat. Andy Taft (PARM co-Chair) indicated that many of the leks on Parker are in areas where guys used to salt and bed the sheep. "All we are doing is what was done in the past, using sheep to create a lek." The group visited several other sites higher up on the plateau where sheep were concentrated and supplemented to create small openings in the sagebrush. These areas responded very well from a vegetation standpoint and the grouse and other wildlife used them heavily for several years post treatment. The group pointed out though that these areas have quite a bit of new brush coming in and the longevity of these sites may not be much past 10 years especially in higher precipitation zones. "We continue to use 'SPIKE' (Tebthiuron—a herbicide designed to kill brush at the roots) to reduce the canopy of sagebrush in several areas each year on Parker, it seems to be a bit longer lasting but our rate isn't designed to kill all sagebrush just reduce the canopy percentage back to around 15-20%. I think it speaks to the importance of making the effort to continue to do something somewhere every year or every few years," said Ron Torgerson with Utah Trustlands. The tour finished with sites where 'SPIKE' had been used or is scheduled to have treatments later this summer. "It works for the grouse and wildlife and it seems to work well for us," said Jim Lamb, UDWR. The PARM group has discussions each year on whether or not we have done enough, if we are doing too much, and if we need to continue to do more. We are still learning and will continue to learn what works best for this part of Utah's sage-grouse country.