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Implementing Utah's Greater Sage-grouse Conservation Plan

By Alan Clark, State of Utah Department of Natural Resources

Photo courtesey of Todd Black.

In April 2013, Utah Governor Gary Herbert approved Utah's Conservation Plan for Greater Sage-grouse. It is a detailed, scientifically based plan that establishes a goal and measurable objectives for Greater Sage-grouse in Utah and identifies how Utah will manage their habitat and populations to meet these targets. The plan is now being implemented in the Sage-grouse Management Areas (SGMAs) where conservation is planned.

Utah had a head start in implementing its conservation plan. For nearly 20 years, biologists, university researchers at Utah State University and Brigham Young University, public and private land managers, and our sage-grouse local working groups have taken a proactive approach to protecting the Greater Sage-grouse. Project partners are already working together in the following areas:

- Monitoring populations – Counts of males on leks have been conducted for over 40 years.

- Protecting, restoring and establishing habitat – More than 380,000 acres of sage-grouse habitat have been improved since 2006 through the Watershed Restoration Initiative.

- Securing the assistance and partnership of private landowners — Private landowners have always played a pivotal role in sage-grouse conservation and many more acres of sage-grouse habitat have been restored and protected on private land in cooperation with the NRCS.

- Protecting sage-grouse habitat on federally managed lands – BLM and USFS are in the process of amending their management plans to add reasonable protection for Greater Sage-grouse habitat and hopefully reflecting the approach of the Utah Conservation Plan.

- Controlling predation – USDA-APHIS Wildlife Services has a contract with the Division of Wildlife Resources to remove predators that pose the greatest risk to sage-grouse populations.

- Performing and reviewing essential research – More than 45 research projects have been conducted in Utah since 2000 and all of the data from these projects is now in a centralized database allowing further analysis to learn more about Utah's sage-grouse.

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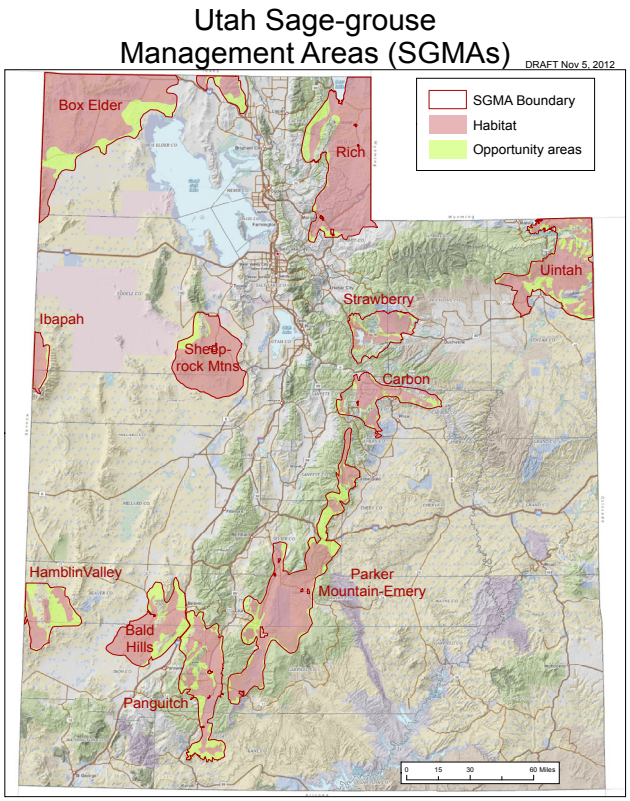

The Governor has charged the Public Lands Planning and Coordination Office (PLPCO) with implementing the conservation plan with assistance from the Department of Natural Resources, Division of Wildlife Resources, and Department of Agriculture and Food. Some aspects of Utah's conservation plan require additional discussion and definition before implementation can occur so one of the first actions after the plan was adopted was to establish a diverse group of stakeholders to provide advice. This advisory group, the Greater Sage-grouse Conservation Implementation Council, includes representatives from federal, state and local government, energy industry, agricultural interests, environmental and conservation groups, and others. As it meets, the council will assess and discuss some of the more complex – and currently undefined – elements of the plan and provide advice to the PLPCO. As more is learned, an adaptive management approach will need to be employed in implementing our plan.

Although many of Utah's sage-grouse conservation efforts have been underway for years, the plan identifies other actions that need to be taken to protect sage-grouse and their habitat within the SGMAs. These actions include:

• Establishing a baseline and then assessing and tracking new permanent disturbance within the 11 SGMAs – The Utah plan establishes a target of limiting new permanent disturbance to less than 5% of the habitat within a SGMA.

• Communicating the approach to permanent disturbance of avoid, minimize, and mitigate on all land ownership types – One of the most important messages in the Conservation Plan is to 1) avoid permanent disturbance within sage-grouse habitat whenever possible, 2) if avoidance is not possible, minimize that disturbance and 3) when disturbance occurs, mitigate that disturbance at a level that will provide lift to the population by using a mitigation ratio of 4:1 for in the most critical habitat types.

• Assessing and tracking successful mitigation to offset new permanent disturbance – Mitigation rates are set in the plan and can occur through several mechanisms including on-site for small disturbances, off-site for larger or more intense permanent disturbance, and habitat credit trading through a conservation bank where appropriate.

• Assessing and tracking the three major habitat objectives – The plan lays out specific objectives for habitat restoration, habitat establishment and habitat protection within SGMAs. Several agencies have programs to aid in meeting these objectives including NRCS Sage Grouse Initiative, UDAF Grazing Improvement, Invasive Species Management, and Catastrophic Wildfire Programs, UPCD Watershed Restoration Initiative, TNC conservation easements, and many others.

• Coordinating with the Sage-grouse Local Area Working Groups (LAWGs) – Local Area Working Groups have plans for their areas that were developed before the State Conservation Plan was completed and, although largely compatible with the State Plan, need amendments to be consistent, including aligning with the 11 SGMA's. Also, Local Area Working Groups play a key role in promoting the plan to private landowners and identifying and completing projects for their SGMA.

• Preventing, containing and restoring catastrophic wildfires – Wildfire, with the accompanying invasion from non-native species, is the major risk to Sage-grouse in the Great Basin. SGMA's need to be incorporated as a high priority in planning for wildfire.

• Identifying and securing long-term funding for some implementation actions – A number of agencies are making significant expenditures to benefit sage-grouse but more on-going funding will be needed to completely implement the plan, including investments in permanent protection of sage-grouse habitat through conservation easements on private and SITLA lands.

• Reviewing new research results and prioritizing additional needs – Although we know a great deal about sage-grouse, more is learned every month from the many research efforts underway. This information needs to be assessed for its applicability to Utah and incorporated into our management efforts. In addition, we need to identify gaps in the information for Utah and plan and fund research to fill those gaps.

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Implementing Utah's Greater Sage-grouse Conservation Plan, cont.

Completion of the plan was a great accomplishment. The even harder task of implementing the plan faces us. Please get involved, particularly at your local level, to accomplish these actions so we can conserve sage-grouse and their habitat and prevent the need to list them under the ESA.

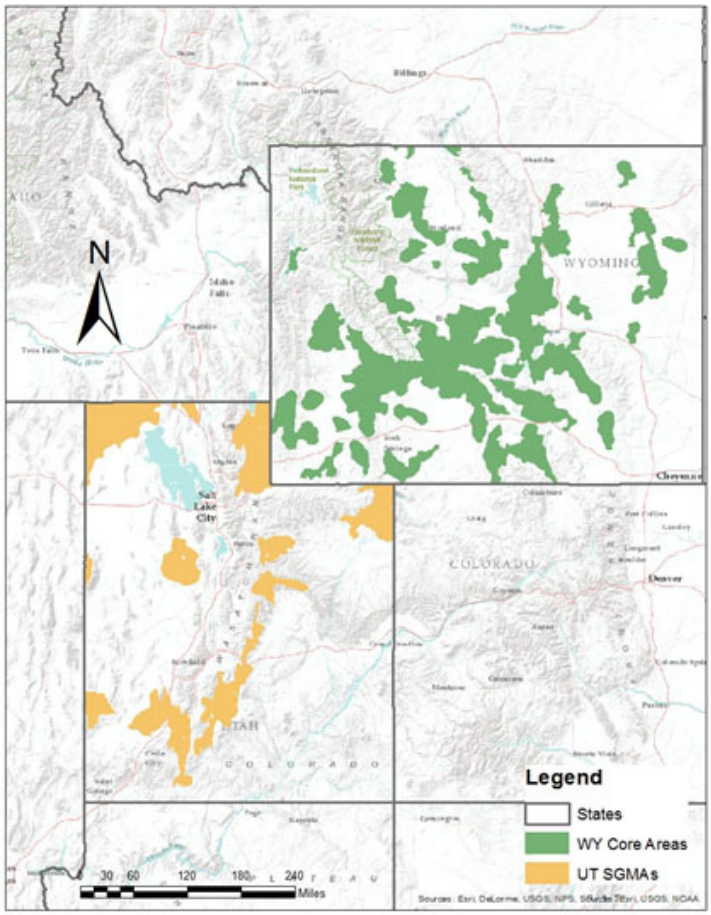
New Research: Do Core Area Management Strategies Conserve Sage-grouse:? Lessons Learned from Wyoming and Implications for Utah

By David Dahlgren, Utah State University

In 2008 the state of Wyoming implemented a "core area management strategy" for the purpose of conserving sage-grouse populations and their habitats. Under this strategy, management areas were delineated around known lek locations to both identify and protect important sage-grouse habitats (see map). One criticism of this approach was that because it focused on breeding areas (i.e. leks) it may have failed to protect other important seasonal habitats. The evaluation of this core area approach may have implications for Utah because a similar strategy has been undertaken and Sage-grouse Management Areas (SGMAs) have been set up within the recently completed Conservation Plan for Greater Sage-grouse in Utah (see map). Utah's SGMAs were delineated based on local biological knowledge and marked sage-grouse locations from multiple university studies.

Fedy, et al. (2012) evaluated Wyoming core area management strategy using telemetry-based data. They analyzed sage-grouse location data obtained through radio-telemetry from eight different studies across Wyoming to determine if the Wyoming core areas also included non-breeding seasonal habitats. To do their analysis, they measured the distance that radio-marked hens moved between seasonal habitats.

For example, they considered the maximum distance between nest and summer brood locations, as well as the distance between nest and winter, and summer and winter habitats. They found that on average hen sage-grouse moved 5 miles (36 mile max) from nest to summer areas, 11 miles (52 miles maximum) from summer to winter areas, and 9 miles (56 miles max) from nest to winter areas. Movements by study area showed considerable variation in distance, showing the uniqueness of individual populations. The authors point out that just conserving breeding habitats (lekking, nesting, and early brood-rearing) will not be enough to conserve sage-grouse into the future. However, when they overlaid seasonal locations with designated core areas, they found that for many of the populations the core area strategy was working well. For a couple of populations, the majority of the locations were outside the core area boundaries. Overall, the authors believed the core area strategy was providing a reasonable surrogate for non-breeding habitats, especially when other specific local information may not be available. However, density of leks across the state could matter in Wyoming's case. Just by having more leks the chances of incorporating non-breeding habitat into core areas would increase. Therefore, if lek densities were limited across a landscape the chances of incorporating non-breeding habitat would have decreased with a core area strategy like Wyoming's.



Based on this study the core management area concept has withstood a rigorous test of available telemetry-based information, potentially providing a conservation strategy that can sustain sage-grouse populations in the future while allowing needed and mandated energy development. These results have supportive implications for the strategy taken within the Conservation Plan for Greater Sage-grouse in Utah, and we look forward to similar scientific assessments of Utah's SGMAs.

Literature cited: Fedy, et al. 2012. Interseasonal movements of greater sage-grouse, migratory behavior, and an assessment of the core regions concept in Wyoming. The Journal of Wildlife Management 76:1062-1071.

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

New Research: Nails, shoes, horses, riders, kingdoms, greenness, weather, and sage-grouse chick survival

By David Dahlgren, Utah State University

For want of a nail the shoe was lost.
For want of a shoe the horse was lost.
For want of a horse the rider was lost.
For want of a rider the message was lost.
For want of a message the battle was lost.
For want of a battle the kingdom was lost.
And all for the want of a horseshoe nail.

Photo courtesy of Les Flake.

"For Want of a Nail" is a proverb that describes a situation where permitting some small undesirable situation will allow gradual and inexorable worsening. In the case of sage-grouse conservation, the undesirable situation may just be sage-grouse chick mortality as affected by seasonal weather variation.

Researchers from Utah and Idaho collaborated to look at factors that influenced sage-grouse chick survival across two large study areas: Utah's Parker Mountain (2005-2009) and Idaho's Upper Snake River Plain (1999-2002). Hens were captured and radio-marked, then followed to their nest sites. Once a successful nest hatched, the chicks were radio-marked (usually 1 or 2-day old) and chick survival was monitored using telemetry. Other research has shown that chick survival is one of the most important life stages for future populations of sage-grouse. This effort used data combined from both areas to assess large landscape scale environmental factors that might influence sage-grouse chick survival, rather than consider each unique population alone.

In the 9 years of the study 518 chicks from 142 broods were radio-marked. This kind of large scale analysis for sage-grouse chicks has never been done, especially with such large numbers of marked individuals. Chick survival at both study sites was approximately 50% survival the first 7 weeks after hatch.

The researchers were particularly interested in how vegetation greenness (grasses and forbs) and related weather conditions might impact chick survival. To examine vegetation influences they used Normalized Difference Vegetation Index (NDVI) which measures the changes in "greenness" using satellite imagery. They also used historical weather data to associate drought and other precipitation data to measure the influence on chick survival over time. The researchers were surprised the NDVI did not have a large influence on chick survival. They believed this may have been the result of sagebrush canopy masking the "greenness" changes of the grass and forb component within brooding habitats.

However, three important weather factors influenced chick survival. When winter drought (reduced precipitation as snowfall) was more severe, lower chick survival rates resulted the following summer. Even more significant was the effect of minimum May temperature and rainfall in July. When minimum May temperatures were colder chick survival tended to increase and when more rain occurred in July chick survival tended to decrease. These last two results may seem a little counter intuitive. The researchers suggested that in years with lower May temperatures snow pack lasted longer possibly improving brooding habitat conditions. They also suggested that with more July precipitation there could have been more exposure deaths (chicks get cold and fail to thermo-regulate) or exposure to predators when leaving security cover to dry off after rain events.

This research is the first attempt to look at sage-grouse chick survival at larger scales and shows how seasonal variations in weather may influence survival. These factors are particularly important when we look at future weather pattern models that predict increased winter droughts, changing precipitation patterns, as well as changes in overall temperature. While this research could not specifically tie chick survival to habitat characteristics such as increased forb and grass cover, it is likely that climatic conditions also influenced important habitat conditions for these two sage-grouse populations.

This research has been published: Guttery, et al. 2013. Effects of landscape-scale environmental variation on greater sage-grouse chick survival. PLOS One 8:e65582.

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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