



United States
Department
of
Agriculture

Natural Resources
Conservation
Service

Greater Sage-Grouse Habitat Conservation Strategy

February, 2014

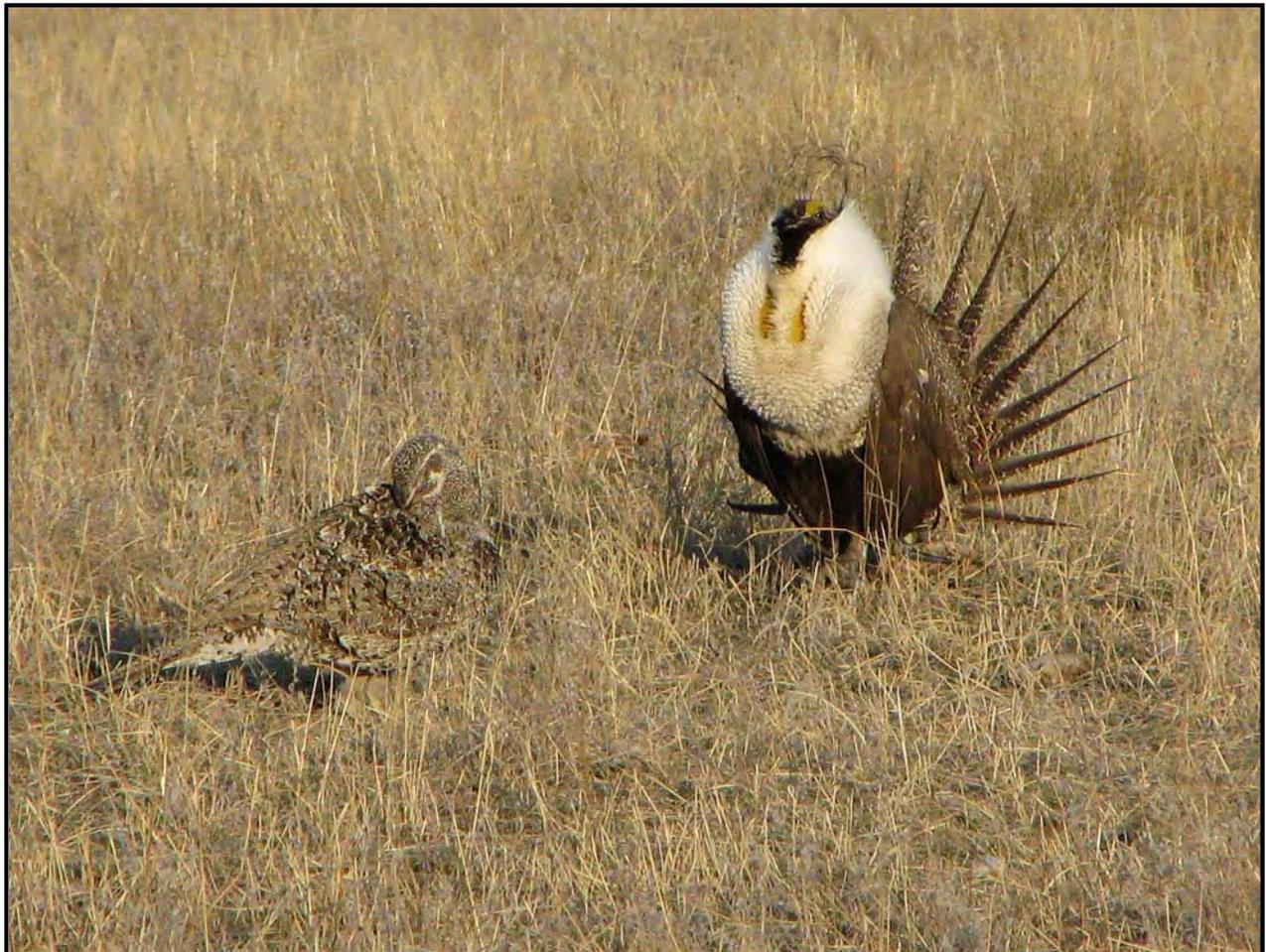


Photo courtesy of Bruce Waage, USDA-NRCS

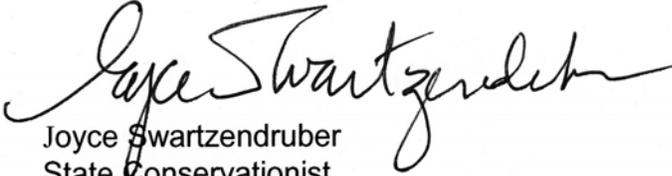
Helping People Help the Land

Montana Natural Resources Conservation Service (NRCS): An Approach to Greater Sage-Grouse Habitat Conservation

The details of the NRCS *Greater Sage-Grouse Habitat Conservation Strategy* are based largely on the management recommendations outlined in *Guidelines to Manage Sage Grouse Populations and Their Habitats* (Connelly et al. 2000) and *Management Plan and Conservation Strategies for Sage Grouse in Montana* (Montana Sage Grouse Work Group 2004).

To develop this strategy, NRCS consulted with many stakeholders and management agencies, including the U.S. Fish and Wildlife Service; Montana Fish, Wildlife and Parks; Bureau of Land Management; University of Montana; Montana State University; Montana Stockgrowers Association; Montana Department of Natural Resources and Conservation; Intertribal Agricultural Council; The Nature Conservancy; Sutton Research Center; Rio Tinto Mine; private landowners; and others. I would like to personally thank all contributors, landowners, and partners for their continued efforts and contributions and look forward to implementing cooperative conservation that will benefit the greater sage-grouse and sage-steppe communities throughout Montana.

For updated information on sage-grouse and associated obligate sage/steppe species conservation, please see the NRCS Web site and click on lower-right "Sage Grouse Initiative".



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Montana NRCS Greater Sage-grouse Conservation Strategy

A west-wide decline of greater sage-grouse (*Centrocercus urophasianus*; hereafter sage-grouse) populations has long concerned wildlife advocates (Hornaday 1916, Patterson 1952, Autenreith 1981, Connelly and Braun 1997). This decline, along with rising threats to its survival, led the U.S. Fish and Wildlife Service (FWS) to designate the sage-grouse as a Candidate Species under the Endangered Species Act (ESA) in 2010. FWS has until 2015 under a court-approved settlement agreement to decide if the grouse merits Endangered or Threatened Species status. Such a listing represents a very real threat to the ranching industry, primarily through potential AUM reductions on public grazing allotments as well as ESA – Section 9 liability on private grazing lands. Ironically, grazing reductions may not be in the best interest of sage-grouse since habitat biodiversity is usually greater on sustainably grazed land compared to long-term non-use (Huston 1994).

Montana NRCS developed this *Greater Sage-Grouse Habitat Conservation Strategy* to maintain and enhance sage-grouse populations and habitat and to improve rangeland health and ranching sustainability. This is part of an eleven-state national Sage-grouse Initiative (SGI) intended to conserve sage-grouse habitat and help private landowners and other entities demonstrate that an ESA listing of the grouse is not necessary. Private landowners can make a significant contribution to sage-grouse conservation since about 40% of the over 186 million acres of occupied habitat are privately owned (64% in Montana). This document outlines the specific measures that Montana NRCS is implementing for private land sage-grouse conservation.

Montana's approach to SGI implementation is based on the following concepts:

- Long-term sustainable ranching practices are fully compatible with other values, including wildlife habitat – particularly for sage-grouse.
- Sustainable grazing management is beneficial for sage-grouse. It provides residual nesting cover as well as forbs and arthropods – important sage-grouse food items.
- Sustainable ranching is crucial to maintaining large, intact blocks of sagebrush-grassland and prevents habitat fragmentation.
- Sustainable ranching is necessary for vibrant local and regional economies – which support hunting, wildlife viewing and other recreational activity.
- SGI can be a vehicle for educating the public about the value of sustainable human land use.
- Sustainable grazing practices produce quality habitat. Contracting grouse-friendly grazing practices with enough ranches, combined with habitat conservation activities on public land, has the potential to convince the FWS that an Endangered Species Act sage-grouse listing is not necessary.

Montana NRCS used the technical guidance and management recommendations from the following two publications as a basis for the *Greater Sage-Grouse Habitat Conservation Strategy*:

1. Connelly et al. 2000. Guidelines to Manage Sage Grouse Populations and Their Habitats. This document is regarded as the primary source of technical guidance for sage-grouse management.
2. Montana Sage Grouse Working Group. 2004. Management Plan and Conservation Strategies for Sage Grouse in Montana. This document provides site-specific sage-grouse management recommendations for Montana populations.

To develop this strategy, NRCS consulted with many stakeholders and management agencies, including the U.S. Fish and Wildlife Service (FWS); Montana Fish, Wildlife and Parks (FWP); Bureau of Land Management (BLM); University of Montana (UM); Montana State University

(MSU); Montana Stockgrowers Association (MSA); Montana Department of Natural Resources and Conservation (DNRC); Intertribal Agricultural Council; The Nature Conservancy; and private landowners.

This Strategy addresses the Conservation Measures in the 2010 FWS – NRCS Conference Report and Montana Fish, Wildlife and Parks (FWP) conditions on NRCS practice implementation as required by the Conference Report in Conservation Measures 1, 4, 7 and 9. Since the 2010 Conference Report was completed, the sage-grouse has been included in the Working Lands for Wildlife Program jointly developed by NRCS and the FWS. Participating SGI landowners will now be eligible for regulatory assurances for up to 30 years, including incidental take coverage, for managing their lands for sage-grouse as well as livestock production.

This Strategy has been, and is, meeting the intent of the Montana “Governor’s Greater Sage-Grouse Habitat Conservation Strategy” (Greater Sage-grouse Habitat Conservation Advisory Council, 2014) to “Create and fund voluntary and incentive-based non-regulatory conservation programs on private land.” The “Montana Stewardship and Conservation Fund” proposed in the Governor’s plan will be a valuable partner with SGI to conserve private land sage-grouse habitat.

Implementation of this Greater Sage-Grouse Conservation Strategy began in 2010. See Appendix 1 for a description of the “Core Area” approach for targeting sage-grouse conservation actions. Appendix 2 overviews our approach to training SGI field personnel. Appendix 3 summarizes progress as of September 31, 2013, by Core Area. See the following website: <http://fwp.mt.gov/fishAndWildlife/management/sageGrouse/habitatConservation/agWorkingLandsDocs.html> for a summary of progress in addressing the SGI Science Support Element in the FWS Conference Report. See the national SGI web page (Our Work – Science and Policy – Science Papers – NRCS CEAP Conservation Insight) for an example of the Conservation Effects Assessment Project (CEAP) contribution addressed in the Conference Report.

Several other sagebrush obligate wildlife species are experiencing population declines along with the sage-grouse. These include the Brewer’s sparrow, sage sparrow, sage thrasher, pygmy rabbit, and sagebrush vole. These species share similar threats as sage-grouse and implementation of this *Greater Sage-Grouse Habitat Conservation Strategy* will directly benefit them as well.

There are 12 primary issues identified by the Montana Sage Grouse Work Group that have potential to adversely affect sage-grouse populations in Montana (see Table 1). Although NRCS cannot address all of these issues, implementation of this strategy is addressing many of them, including grazing management, noxious weed management, outreach and education, power lines, predation, and vegetation.

Table 1. Issues Requiring Conservation Actions—<i>Management Plan and Conservation Strategies for Sage Grouse in Montana</i> (Montana Sage Grouse Work Group 2004)
1) Fire management
2) Grazing management*
3) Harvest management
4) Noxious weed management*
5) Mining and energy development
6) Outreach and education*
7) Power lines and generation facilities *Ranch facilities only
8) Predation*
9) Recreational disturbance
10) Roads and motorized vehicles
11) Vegetation*
12) Managing other wildlife in sagebrush habitat

* Issues that NRCS will address or partially address with this strategy

Montana NRCS is fully committed to large-scale implementation of the *Greater Sage-Grouse Habitat Conservation Strategy*. Applicable Farm Bill conservation programs to accomplish the tasks listed below include the Grassland Reserve Program (GRP), Environmental Quality Incentives Program (EQIP), Farm and Ranch Lands Protection Program (FRPP), Wildlife Habitat Incentives Program (WHIP), Conservation Stewardship Program (CSP), Conservation Cooperative Partnership Initiative (CCPI), and Conservation Technical Assistance Program (CTA).

The strategy involves five steps:

- Identifying and delineating “Core Areas” where we can attain the greatest benefit for sage-grouse conservation (this step was completed in 2010),
- Expanding NRCS’ role to provide sage-grouse conservation outreach and education to stakeholders, including private landowners, conservation districts, local sage-grouse working groups, and NRCS employees,
- Providing long-term protection, through conservation easements, of the best remaining sagebrush habitat to prevent conversion to other uses,
- Improving the health and overall habitat values associated with sagebrush communities through management and structural improvements and/or modifications, and
- Developing and executing a comprehensive monitoring plan to assess the effectiveness of the strategy on sage-grouse populations.

Identification and Delineation of Core Areas. Sage grouse currently occupy about 27 million acres of sagebrush steppe in Montana but are not uniformly distributed throughout this habitat. To focus conservation efforts, NRCS tapped the principles outlined by Kevin Doherty, PhD, in his dissertation, *Sage-Grouse and Energy Development: Integrating Science with Conservation Planning to Reduce Impacts* (Doherty 2008), in which he suggested a “Core Area” approach (see Appendix 1). Montana FWP identified 13 separate “Core Areas” (go to USDA NRCS web site, click on lower-right Sage Grouse Initiative > Greater Sage Grouse Habitat Conservation Strategy to view individual core area maps), totaling 8.9 million acres which provide habitat for 75% of all known breeding sage-grouse in Montana. Each Core Area was analyzed for energy development potential (wind, gas, or oil) as energy development has well-documented negative effects on the

survival of sage-grouse populations. To the extent possible, NRCS conservation actions for sage-grouse will be targeted to these refined Core Areas where high quality habitat and low-energy development potential coincide.

Outreach and Education. Currently there is widespread concern about sage-grouse habitat management. Educating stakeholders (i.e., private landowners and land managers, conservation districts, sage-grouse working groups, and NRCS employees) about habitat management needs is essential to the success of the *Greater Sage-Grouse Habitat Conservation Strategy*. To address this subject, NRCS will:

- Continue to provide a Montana SGI Coordinator to act as a single contact point for all SGI activity in the state, including assistance to the seven SGI-targeted field staff and all affected field offices, assisting with outreach activity, developing necessary technical materials and protocols for SGI implementation, training, etc.
- Maintain the Montana NRCS web site dedicated to sage-grouse and associated obligate sage-steppe species conservation. This site will be updated with information relating to sage-grouse conservation efforts.
- Continue to provide information to Deborah Richie, SGI Communications Coordinator, about Montana's SGI progress and rancher success stories.
- Continually update our comprehensive sage-grouse (and associated obligate sage-steppe species) life history and habitat conservation training course that targets NRCS field staff, conservation district employees, and partner organizations (see Appendix 2). This course can be given at one or more locations throughout the state, as needed.
- Increase participation in all sage-grouse local working groups with an emphasis on improving both NRCS and private landowner involvement.

Currently, there are three sage-grouse local working groups in Montana (Glasgow, Miles City, Dillon); additional ones may be needed. The *Greater Sage-Grouse Habitat Conservation Strategy* aims to empower these working groups with a set of technical and financial tools that will allow them to identify and implement sage-grouse conservation.

Habitat Protection. Unlike many states and Canadian provinces, Montana still has large blocks of intact habitat that support sustainable sage-grouse populations. Long-term protection of these sites from conversion to cropland and urbanization is the highest priority for NRCS sage-grouse conservation action.



Conversion of sagebrush-grassland is an ongoing threat to Montana's sage-grouse populations. Photo courtesy of Brendan Moynahan

NRCS administers several conservation easement programs that have the flexibility to focus on long-term protection of sagebrush habitat. Targeted outreach and increased funding for protecting high-value sagebrush-grassland through conservation easements and other long-term agreements is NRCS's highest priority.

- NRCS will continue seeking additional GRP and FRPP funding for targeted protection of important sagebrush-grassland habitat. Funding easements located in sage-grouse "Core Areas" will be a priority.

As of August, 2013, NRCS has perfected three conservation easements associated with SGI totaling 12,320 acres. One of these, funded under the Farm and Ranchland Protection Program (FRPP), is located in a recently discovered migration corridor in Valley County. Sage-grouse nesting in northern Valley County and Saskatchewan silver sagebrush habitat migrate south through Valley County to winter in Wyoming big sagebrush south of the Milk River. Protecting this migration corridor from sodbusting and other habitat fragmentation and loss is a high priority. The remaining two conservation easements, funded by the Grassland Reserve Program (GRP), are located in Core Areas; 2 and 4 near Roundup and Malta. These easements protect Wyoming big sagebrush year-round habitat from fragmentation and loss. Perfection of an additional, 14,827 acres in Core Areas 3, 4, and 10 through conservation easements to protect sage-grouse habitat is in progress.

Habitat Management, Restoration, and Enhancement. The amount, distribution, and quality of sagebrush habitat are vital for sage-grouse survival. Within blocks of sagebrush-grassland, sage-grouse select different habitat attributes depending on the time of year and the associated life-cycle requirements. Sage-grouse habitat is generally classified as A) breeding/nesting, B) brood, and C) winter. Because sage-grouse use a large home range, habitat management must be conducted on a landscape scale to ensure that healthy, diverse, well-connected sagebrush-grasslands persist. To maintain and improve habitat for sage-grouse and other associated sage/steppe obligates all management practices will be aimed at improving rangeland health, diversity, and sustainability.

- 1. Grazing Management.** Ranching has prevented sodbusting on expansive tracts of sagebrush-grassland to the benefit of sage-grouse. But livestock grazing has the potential to positively or negatively affect the quality of sage-grouse habitat depending on management. To assure a positive effect, NRCS will continue to use the conservation practice "Prescribed Grazing" as the

primary tool for sage-grouse habitat management. The Prescribed Grazing (Code 528) Standard and Specification, along with a detailed inventory of known sage-grouse lek sites, roads, and associated infrastructure (i.e., fences, watering tanks, etc.) is being used to develop site-specific grazing plans. All prescribed grazing plans will be designed to: A) improve overall rangeland health (e.g., cover the soil surface with litter, increase soil organic matter), B) be sustainable on the landscape (i.e., proper stocking rate, relatively short grazing periods and adequate rest periods for forage plants), C) assure adequate sage-grouse nesting cover and a drought reserve for the ranch, and D) be monitored so informed adjustments can be made, when necessary. Site-specific management plans will be developed with each landowner; these plans will detail the animal numbers, rotations, timing, and duration of use in each field. All grazing plans will contain a drought contingency that adjusts grazing use commensurate with lower precipitation and plant growth. Required facilitating practices (i.e., fence, well, spring development, pipeline, etc.) will be planned and designed to minimize disturbance and, where possible, enhance sage-grouse habitat. Additional payments will be provided for implementing planned grazing systems under Prescribed Grazing (Code 528) and Upland Wildlife Habitat Management (Code 645) Standards and Specifications. Payment rates will be set to encourage implementation of the prescribed grazing system. Financial assistance for the facilitating practices will also be included. As of September, 2013, SGI has contracted 448,354 acres of Prescribed Grazing to meet the habitat needs of sage-grouse and to improve the ecological sustainability of the participating ranches.



Livestock grazing is an important tool for managing sage-grouse habitat.
Photo courtesy of Tim Griffiths, USDA-NRCS

- 2. Rangeland Restoration/Enhancement Practices.** Some of Montana’s rangeland has crossed a threshold to a community state that will not improve through grazing management or total rest in a reasonable time if at all. These degraded areas often have significant clubmoss and blue grama cover that competes with more desirable and productive native vegetation and limits the potential for adequate residual nest cover development.



Mechanical Treatment of Clubmoss Cover.
Photo courtesy of Phil Gonzales, USDA-NRCS

After identification of sites having significant clubmoss and blue grama cover, NRCS may prescribe the practice Grazing Lands Mechanical Treatment (Code 548) Standard and Specification to improve desirable plant composition. Practice specifications will be designed to stimulate new sagebrush growth and minimize removal of established sagebrush plants. Treatments will involve chiseling to improve moisture penetration and reduce clubmoss/blue grama competition with desirable vegetation. These mechanical treatments have often improved range and habitat conditions in Montana and Wyoming by stimulating growth of grasses, forbs, and sagebrush. Treatments will be implemented in a mosaic pattern; not applied to large blocks of habitat. **Prescribed grazing and a minimum grazing deferment of two growing seasons will be mandatory where mechanical treatments are implemented.**

- 3. Brood Habitat.** Several researchers have suggested that the quality and availability of brood habitat may be limiting sage-grouse populations through reductions in the recruitment of young (Drut et al. 1994*a, b*; Connelly and Braun 1997; Sveum et al. 1998). Previous studies showing correlations between forb abundance and brood productivity have indicated that forbs are an important resource for chicks. Studies have also suggested that forbs play a key role in brood habitat selection, movements, distribution, and home range size. Sage-grouse chick diets are dominated by invertebrates and forbs for the first 12 weeks of life. In laboratory studies, Johnson and Boyce (1990) have shown that chick growth and survival rates increase with the quantity of invertebrates in the diet and that sufficient invertebrate forage is required for survival until the chicks are at least 21 days old. Forbs contribute directly to the protein intake of chicks as food items and, more importantly, indirectly by attracting the invertebrates required for survival and growth (Blenden et al. 1986, Brush and Stiles 1986). West Nile Virus may be a significant mortality factor in moist brood habitat. For this reason, NRCS will not promote enhancement practices that would result in artificial saturation of soils or enhancing or creating ponded water features even though doing so would likely have positive effects on the amount and quality of brood habitat. Instead, NRCS will utilize Prescribed Grazing to improve forb, and associated invertebrate production, restore natural wetland seeps near spring developments, and establish upland brood strips.
- 4. Establishing Upland Brood Strips.** Upland brood strips are areas established to maximize insect and forb production for young gallinaceous birds. These areas are planted to preferred

legumes and other forbs (introduced and native) in linear or sinuous strips. Appropriate sites for brood strips include the edges of existing cropland, hayland, and pastureland. Brood strips will not be considered on native rangeland. The practice Field Border (Code 386) Standard and Specification will be used. The Deseret Land and Livestock (DLL) Ranch, located in northern Utah, has used brood strips successfully to improve the quality of brood habitat as well as habitat for other wildlife species, including mule deer and pronghorn (Danvir 2002).

- 5. Spring Development Modifications.** Spring developments are a common practice throughout Montana and may threaten sage-grouse by drying seep areas and reducing forb and insect abundance. When springs are developed, the degree of impact is highly variable depending on the amount of water produced in the spring, the success of capturing water and the overall design of the development. Although Montana NRCS policy currently requires that seeps be recreated below all new spring developments, many existing spring developments do not meet this specification. Applying design modifications to existing spring developments will recreate seeps near the source. NRCS will ensure that all new and existing troughs are equipped with wildlife escape ramps. Fences around springs or tanks will be modified to prevent avian predators from using the posts as hunting perches. The appropriate standards and specifications to address these concerns include Spring Development (Code 574), Livestock Pipeline (Code 516), and Fence (Code 382).



Golden eagles and other raptors often use wooden fence posts as hunting perches. Photo courtesy of Wendy Williams, USDA-NRCS

- 6. Predation and Accidental Mortality.** Predation is a significant mortality factor for sage-grouse populations. “The composition and abundance of various avian and mammalian predator species has changed, and continues to change, since the termination of widespread predator control activities in the early 1970’s. Changes in predator population composition and numbers may hold grouse numbers below their biological potential in some locations, even in areas characterized by largely un-fragmented habitats” (Montana Sage Grouse Work Group 2004). Common predators of sage-grouse and their nests in Montana include mammalian (i.e., coyote, red fox, raccoon, and skunks), avian (i.e., golden eagles, other raptors, ravens, and magpies), and reptiles (i.e., bull snakes). Most researchers agree, however, that predation is rarely population-limiting as common nest-success rates are reported at >40%, and high survival rates are reported for chicks >10 weeks old.

The impact of predation is, however, site-specific and a topic of much debate. Predation on adult and juvenile birds is highest in areas where they are most vulnerable: males displaying on leks, juveniles foraging actively in brood habitat, hens incubating nests, and all ages and sexes on winter range sites where snow often limits sagebrush cover.

Accidental mortality from collisions with fence wires and drowning in livestock water tanks are preventable mortality factors. The DLL (Danvir 2002) reported that 18% of all sage-grouse mortality resulted from collisions with fences, and the Sutton Research Center (Wolfe 2007) reported that 40% of all prairie chicken losses resulted from fence collisions. Both of these preventable mortality factors are easily reduced through implementation of specific conservation actions.



Sage-grouse mortality resulting from a fence collision. Photo courtesy of Stan Harter, WGF

The publication *Guidelines to Manage Sage Grouse Populations and Their Habitats* (Connelly et al. 2000) and *Management Plan and Conservation Strategies for Sage Grouse in Montana* (Montana Sage Grouse Work Group 2004) includes management recommendations for decreasing both predation and accidental mortality of sage-grouse. The following factors will be addressed or partially addressed by the NRCS' *Greater Sage-Grouse Habitat Conservation Strategy*.

- A. Encroached Conifers.** Over the past 30 to 40 years, Montana has experienced significant conifer expansion from forested habitats into native meadows and sagebrush grasslands. Spread of conifers into rangeland is a result of wildland fire suppression and livestock grazing management (annually removing the fine fuels required to carry wildfire). Conifer encroachment into sagebrush-steppe communities adversely affects many native wildlife species, including sage-grouse. Negative effects from increased competition by encroached conifers with the shrub/grass/forb understory as well as increasing availability of perch sites for avian predators often reduces sage-grouse use. Removing encroached conifers from rangeland units will limit avian predation on sage-grouse. Conifer removal will be performed using the least destructive and most reasonable mechanical treatments

available. All standing encroached conifers >3 feet in height will be mechanically removed, chipped, or piled/burned. Prescribed fire will not be used as a control method because it will also destroy sagebrush. Herbicidal treatment will be considered as a treatment option on conifers <3 feet tall. In areas where understory herbaceous vegetation is limited, reclamation of the site will be required (i.e., seeding of native and/or introduced grasses, legumes, and forbs) if grazing management alone is not effective. Conservation practices Brush Management (Code 314) and Range Planting (Code 550) Standards and Specifications will be used to address this issue.

To date, NRCS has implemented one 212-acre conifer removal project under SGI in the Decker area and have documented a positive response by sage-grouse.

B. Transmission Lines. Transmission lines have well-documented negative effects on sage-grouse populations because they provide raptor perch sites. Opportunities exist to remove many of the smaller lines that supply power to livestock watering facilities. This issue will be addressed by one or more of the following:

- The pump will be replaced with a solar-powered, variable speed pump.
- The transmission line will be buried and poles removed.
- Standing poles will be retrofitted with raptor-deterrent tops.

Conservation practice Pumping Plant (Code 533) Standard and Specification will be used to address this issue.



Avian predators often use transmission lines as hunting perches.

C. Fence Modifications and/or Relocations. Fence location and design (wood or steel post) can enhance the ability of predators to take sage-grouse. Avian predators often use flat-topped wooden fence posts as hunting perches. Fences near leks and winter habitat may aid predators in killing sage-grouse when they are most vulnerable. Mammalian predators often hunt along fence lines, especially woven wire fences, where sage-grouse are forced to travel as they look for a crossing. Additionally, as noted above, accidental mortality occurs when sage-grouse collide with fences. NRCS will remove, relocate, or modify

fences using the “Sage-grouse Fence Collision Risk Tool” and local knowledge of high use winter habitat, or other problem areas to ensure the following:

- The fences are visible to sage-grouse in low-light conditions and placed to minimize accidental collision (i.e., mark wires to make them visible to sage-grouse, locate fences out of flight lines, etc.).
- The fences do not provide perches for raptors (i.e., install spikes or cone tops to wood posts, replace with metal t-posts, or use wire top deterrents).
- Woven wire fences do not impede wildlife movement (i.e., remove or provide passages).

Conservation practices Fence (Code 382) and Obstruction Removal (Code 500) Standards and Specifications will be used to address this issue.

As of May, 2013, the Montana SGI partnership has marked at least 170 miles of fence to prevent sage-grouse collisions.

Montana NRCS has entered a formal agreement with four other entities (FWP, MACD, BLM, and IWJV) to form a fence marking partnership. The purpose is to develop a large supply of fence markers that are available at no cost to landowners and any other entity able to get this sage-grouse conservation tool on the ground. Volunteers will be available to assist landowners with marker installation. The fence marking partnership has \$12,000 available for marker construction as of fall, 2013. Installation will begin during fall, 2013.



Fence markers can dramatically reduce accidental sage-grouse mortality.
Photos courtesy of Bruce Waage, USDA-NRCS



Spikes in the top of wood posts are effective means to prevent raptor perches.

D. Livestock Watering Tanks. Livestock watering tanks may cause wildlife mortality, including sage-grouse, when properly designed wildlife escape ramps are not installed. NRCS will address this issue by installing wildlife escape ramps in all planned and existing livestock watering tanks. Conservation practice Watering Facility (Code 614) Standard and Specification will be used to address this issue.



Typical stockwater tank with wildlife escape ramp installed. Photo courtesy of Phil Gonzales, USDA-NRCS

- E. Invasive and Noxious Weeds.** Invasive and noxious weeds pose a serious threat to sage-grouse survival because they compete with native rangeland vegetation. These weeds and annual grasses displace desirable native plant species and cause significant adverse biological and economic consequences by reducing rangeland productivity. NRCS will address this issue by mapping invasive and noxious weed infestations and through development of a cost-shared Integrated Pest Management (IPM) plan to control weeds. When developing the IPM plan, damage to native forbs will be minimized. The conservation practice Herbaceous Weed Control (Code 315) Standard and Specification will be used to address this issue.
- F. Expiring CRP and Go-Back Lands.** Recent upswings in commodity crop prices may cause Montana to lose a significant acreage of CRP lands. Although most CRP lands do not contain sagebrush habitat, conversion to cropland is undesirable for sage-grouse and associated obligate sage-steppe wildlife species. Expiring CRP acres can be effectively used to meet a rancher's feed and forage requirements and grazed in the spring to allow deferment of native range grazing until later in the year. Additional incentives can be established to promote the restoration of these sites to sagebrush-grassland. Key areas will first be identified where sagebrush-grassland is limited and those areas will be strategically targeted for restoration. Conservation practices Forage and Biomass Planting (Code 512), Range Planting (Code 550), Fence (Code 382), Livestock Pipeline (Code 516), Water Well (Code 642), Watering Facility (Code 614), and Prescribed Grazing (Code 528) Standards and Specifications will be used to address this issue.



Photo courtesy of Bruce Waage, USDA-NRCS

7. **Research and Monitoring.** The primary goal of the *Greater Sage-Grouse Habitat Conservation Strategy* is to maintain large blocks of diverse, intact sagebrush-grassland where sage-grouse and other sagebrush obligates can persist. To evaluate this objective, scientific monitoring of project results is critical. Annual monitoring and recordkeeping will be required of individual producers and will be used to adjust management practices. The evaluation of “Core Area” habitat and sage-grouse population responses will be conducted through partnership efforts with the NRCS, leading universities, and other interested parties.

Currently, Montana FWP is conducting long-term research to evaluate the effects of NRCS/SGI-contracted grazing management on sage-grouse habitat and population dynamics. Over 100 sage-grouse hens and numerous chicks have been radio-marked to determine the response to increased residual nest cover available on ranches participating in SGI as well as the effects of grazing management on brood habitat selection (see Appendix 4).

Addressing the conservation objectives required to prevent an ESA listing of the Greater Sage-grouse: “The COT Report.”

In February, 2013, the FWS released a document called “Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report.” This “COT Report” (Conservation Objectives Team Report) was developed in response to pressure from the Western Governor’s Association and others for the FWS to “set the bar” for the level of conservation activity required to prevent an ESA listing of the sage-grouse. The highest level objective of the report is to minimize threats to the species so as to meet the objective of the 2006 Western Association of Fish and Wildlife Agencies (WAFWA) Greater Sage-grouse Comprehensive Conservation Strategy: “reversing negative population trends and achieving a neutral or positive population trend.” The report identifies conservation objectives and measures for each of the habitat threats assessed as well as examples of actions that could be used to help attain the conservation objectives – “conservation options.” Table 2 summarizes the sage-grouse risk assessment and primary threats by Montana SGI Core Area from the “COT Report.”

Table 2. COT Report Sage-grouse Risk Assessment and Primary Threats by Montana Sage-grouse Initiative Core Areas.

WAFWA Sage-grouse Population (Montana SGI Core Area)	Risk Assessment	Primary Threats
Northern Montana (1, 2)	Low	Energy, infrastructure, grazing
Dakotas (7)	High	Isolated, fire, energy, mining, infrastructure
Powder River Basin (12)	At Risk	Weeds/annual grasses, energy, mining, infrastructure, grazing, recreation
Yellowstone Watershed (3-6, 13)	Potentially At Risk	Agricultural conversion, weeds/annual grasses, energy, infrastructure, grazing
Southwest Montana (8-10)	Low	Weeds/annual grasses, grazing
Wyoming Basin (11)	Low	Energy, infrastructure, grazing, recreation

Montana SGI activities in relation to the COT Report – General Conservation Objectives

1. Stop population declines and habitat loss (eliminate negative activities – avoidance first strategy).

- Conservation easements to prevent loss of habitat (27,147 acres in eight easements as of August, 2013)
- Prescribed Grazing to provide healthy, intact habitat (439,905 acres as of September, 2013)
- Prioritize sage-grouse conservation in Core Areas
- Marking high risk fence segments to prevent sage-grouse collisions
- Mitigating brood habitat losses associated with stockwater development
- Installing escape ramps in stock tanks to prevent sage-grouse drowning
- Planting sagebrush and native herbaceous species on expiring CRP and other sites
- Noxious weed control to reverse habitat loss
- Removal of conifers on historic sagebrush-grassland habitat
- Removal of junk piles, abandoned buildings, etc., that provide habitat for skunks, raccoons and other ground-nesting bird predators.

2. Implement targeted habitat management and restoration – active management.

- Demonstrate effectiveness of management – Core 4 research with marked birds, annual monitoring with SGI participants.
- Prescribed Grazing, Conifer removal – monitoring for effectiveness in progress.
- On-going research to target critical areas outside of Core Areas.

3. Develop and implement state and federal sage-grouse conservation strategies and associated incentive-based conservation actions and regulatory mechanisms. NRCS has in place:

- Management Plan and Conservation Strategies for Sage Grouse in Montana-Final
- Montana Sage-grouse Initiative Strategy (this Strategy)
- BLM - RMP, etc., revisions to accommodate sage-grouse conservation
- Governor’s Greater Sage-Grouse Habitat Conservation Strategy – to be completed January, 2014.

4. Develop and implement proactive conservation actions.

- Montana’s SGI provides technical assistance and financial incentives for voluntary landowner participation in sage-grouse conservation.

5. Develop and implement monitoring plans to track the success of state and federal conservation strategies and voluntary conservation actions.

- Core 4 research to document sage-grouse response to SGI-Prescribed Grazing.
- Annual monitoring and follow-up with SGI participants.

- 6. Prioritize, fund, and implement research to address existing un-certainties.**
 - Core 4 research using radio-marked sage-grouse to document response to grazing treatments.
 - On-going research to identify key habitat outside of Core Areas required for genetic connectivity, etc.

Montana SGI activities in relation to COT Report – Specific Conservation Objectives

General Objectives

- 1. Retain sage-grouse habitats within Core Areas.**
 - Landowner incentives for application of Prescribed Grazing to provide residual nest cover and forbs/insects and maintain economically viable ranches and associated sagebrush habitat
 - Develop conservation easements to conserve sage-grouse habitat
- 2. If Core Areas are lost to catastrophic events, implement appropriate restoration efforts.**
 - Prescribed Grazing and seeding of sagebrush and herbaceous species will be used if this situation occurs
- 3. Restore and rehabilitate degraded sage-grouse habitats in Core Areas.**
 - Prescribed Grazing is the focus practice to provide rangeland-ranch sustainability and residual nesting cover and forbs for sage-grouse
 - Brood strips and spring development modifications are being use to restore brood habitat
 - Technical and financial assistance to landowners for removal of conifers in sage-grouse habitat
 - Research in progress to document the effects of Prescribed Grazing on nest/brood success
- 4. Identify areas and habitats outside of Core Areas which may be necessary to maintain the viability of sage-grouse.**
 - NRCS has research in progress to identify such areas
- 5. Re-evaluate the status of Core Areas and adjacent sage-grouse habitat at least once every five years, or when important new information becomes available.**
 - On-going partnership effort including research to identify key areas for genetic connectivity between Core Areas
- 6. Actively pursue opportunities to increase occupancy and connectivity between Core Areas.**
 - Sage-grouse habitat outside of Core Areas is eligible for participation in SGI
 - On-going research is being done to identify key areas outside of Core Areas
- 7. Maintain or improve existing habitat conditions in areas adjacent to burned habitat.**
 - Prescribed Grazing to assure adequate rest for burned vegetation and build up litter cover and residual nest cover is the primary tool to address this objective
 - Seeding of severely burned habitat may be done if and when necessary

Specific Objectives – Threat Reduction

- 1. Fire: Retain and restore healthy native sagebrush plant communities within the range of sage-grouse.**
 - Sagebrush burning is not allowed on participating SGI ranches
 - Prescribed Grazing specifications require two growing seasons of rest for burned rangeland
 - Monitoring of SGI management and practices is on-going
 - SGI Prescribed Grazing rotations will help stop fire by removing fuel in grazed pastures
 - Re-seeding (including sagebrush) of severely burned areas will be done when necessary

- 2. Non-native, invasive plant species: Maintain and restore healthy, native sagebrush plant communities.**
 - Grazing management to favor vigorous, weed-resistant perennial grass understory is the focus conservation practice of SGI
 - Conservation easements to preserve large blocks of native sagebrush-grassland are a priority practice under SGI
 - SGI cost-share is available for noxious weed control
 - All SGI conservation practices are being monitored for effectiveness
- 3. Energy development: Energy development should be designed to ensure that it will not impinge upon stable or increasing sage-grouse population trends.**
 - The newly-formed Governor's Sage-grouse Habitat Advisory Council will have this objective as a priority
- 4. Sagebrush removal: Avoid sagebrush removal or manipulation in sage-grouse breeding or wintering habitats.**
 - Under SGI, sagebrush manipulation would only occur in very limited circumstances and amounts in mountain big sagebrush where brood habitat has been documented to be limiting for sage-grouse
- 5. Grazing: Conduct grazing management for all ungulates in a manner consistent with local ecological conditions that maintains and conserves the essential habitat components for sage-grouse (i.e., shrub cover, nesting cover).**
 - SGI Prescribed Grazing is being implemented to meet ecological potential and sage-grouse habitat requirements. SGI grazing plans are designed to ensure that the health and diversity of the native perennial grass community is consistent with the ecological sites present on the planning units. Providing residual grass cover within sage-grouse nesting habitat is a priority. Grazed portions of the planning units help break up the risk of sagebrush loss from fire. A long-term research project in progress to document sage-grouse response to SGI grazing treatments
 - Priority is being given to implementing practice Prescribed Grazing within Core Areas first and then sage-grouse habitats adjacent to Core Areas
- 6. Free-roaming equid management: Protect sage-grouse from the negative influences of grazing by free-roaming equids.**
 - This is generally not an issue within the SGI area of Montana
 - If wild horses are an issue on a planning unit, Prescribed Grazing will be used to improve sage-grouse habitat
- 7. Pinyon-juniper expansion (including ponderosa pine, Douglas fir, lodgepole pine): Remove pinyon-juniper from areas of sagebrush that are most likely to support sage-grouse (post-removal) at a rate that is at least equal to the rate of pinyon-juniper incursion.**
 - One 212-acre Rocky Mountain juniper removal project has been completed under SGI; there is evidence of a positive response by sage-grouse (no sage-grouse sign before removal, sage-grouse sign present after juniper removal)
 - Conifer removal from sage-grouse habitat through SGI will receive increasing emphasis from 2013 forward
- 8. Agricultural conversion: Avoid further loss of sagebrush habitat for agricultural activities (both plant and animal production) and prioritize restoration.**
 - SGI has included use of CRP-State Acres For Wildlife Enhancement (SAFE) to improve sage-grouse habitat on CRP acres
 - SGI has used the Working Lands for Wildlife (WLFW) program with Wildlife Habitat Incentives Program (WHIP) funds to assist producers wishing to use expiring CRP land for livestock grazing instead of converting the land back to commodity crop production

- SGI continues to provide landowner incentives for grazing management and discourages sodbusting
 - The emerging Governor's Sage-grouse Habitat Advisory Council will be involved in efforts to revise Farm Bill policies to discourage conversion of native sagebrush-grassland to crop production
- 9. Mining: Maintain stable to increasing sage-grouse populations and no net loss of sage-grouse habitats in areas affected by mining.**
- This conservation objective will be addressed by the Governor's Sage-grouse Plan
- 10. Recreation: In areas subjected to recreational activities, maintain healthy native sagebrush communities based on local ecological conditions and with consideration of drought conditions, and manage direct and indirect human disturbances (including noise) to avoid interruption of normal sage-grouse behavior.**
- This conservation objective will be addressed by the BLM, FS and the Governor's Sage-grouse Plan
- 11. Ex-urban development: Limit urban and ex-urban development in sage-grouse habitats and maintain intact native sagebrush plant communities.**
- This conservation objective will be addressed by the Governor's Sage-grouse Task Force
- 12. Infrastructure: Avoid development of infrastructure within Core Areas**
- Infrastructure associated with grazing management for SGI planning will be designed to avoid/minimize adverse effects to sage-grouse and habitat; stockwater tanks will have wildlife escape ramps installed; solar pumps or buried power lines will be used to power pumps for water lines
 - Removal of junk piles, old dumps and buildings that provide meso-predator habitat is an SGI priority on private lands
 - Disturbed ground associated with SGI activities will be seeded to native vegetation appropriate for the ecological site(s)
- 13. Fences: Minimize the impact of fences on sage-grouse populations.**
- All SGI conservation plans use the Fence Collision Risk Model along with local knowledge of high-risk winter habitat for location of fences installed to facilitate sage-grouse friendly grazing management; all high risk fence segments are marked to increase visibility to sage-grouse; fences located in level to gently rolling topography are a priority for marking and monitoring efforts
 - Monitoring efforts are on-going to document the effects of SGI fences; modifications will be made as necessary
 - Un-necessary fences will be removed from SGI contracted lands

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Greater Sage-grouse Core Areas Designation for Montana Version 1.0

Definition, Methods, and Numerical Results

Montana Fish, Wildlife and Parks

January 13, 2009

Objective: Designate sage-grouse core areas in Montana that support the greatest sage-grouse abundance or are important for maintaining sage-grouse distribution.

Definition: Sage-grouse core areas are habitats associated with 1) Montana's highest densities of sage-grouse (25% quartile), based on male counts and/or 2) sage-grouse lek complexes and associated habitat important to sage-grouse distribution.

Methods and criteria for #1 in the Definition:

- 1) Identifying Highest Density: Two different point density estimation methods (noted below) were used to identify the highest densities of displaying male sage-grouse based upon lek locations. Both techniques identified the same lek complexes as having the highest densities at the 25% quartile.
 - a. Audubon (K. Doherty) used a 6440m circular neighborhood analysis (Spatial Analyst Tools ArcGIS 9.2) at 1km grid cell size. The maximum male count available between 2005-2007 was used to evaluate male density. The resulting surface was randomly sampled using 50,000 points to determine the quartile breakpoints.
 - b. Montana Fish, Wildlife and Parks used a Fixed Kernel Density Estimator (Hawths Tools – ArcGIS 9.2) with a bivariate normal kernel and a smoothing factor of 10, 000 at a 500m cell size. The kernel was weighted based upon the average of the highest male count for each year from 1998-2008. The quartile boundaries are provided by the program.
- 2) Focus Area: Lek complexes and associated habitats, typically within a 10 km search radius of leks in the complex, defined the outside boundaries of this analysis. In some instances, habitat associated with a core lek complex may have extended beyond 10 km. Overlaying documented seasonal habitats connected to and extending beyond these areas and manual editing were necessary to incorporate these exceptions.
- 3) Habitat Suitability Analysis: For the purposes of this analysis, unsuitable habitats and suitable habitats within or adjacent to core areas were generally defined as follows:
 - a. Un-suitable Habitat
 - Cultivated row-crop parcels >600 acres
 - Areas where 75% or more of the surrounding 1,000 acres are cultivated land*
 - Areas where 20% or more of the surrounding 1,000 acres are forested habitat*
 - Areas where 75% or more of the surrounding 1,000 acres exceeded a terrain ruggedness threshold of 13.**

Note: This criteria was not included for intermountain valleys of southwestern Montana because of the unique topographic features and demonstrated habitat use by sage-grouse.

* Land cover values were obtained from the National Land Cover Dataset (NLCD).

Analyses were based upon a 30m grid cell. Percentages are based on a 2 km X 2 km search window (1,000 acres).

** Terrain ruggedness is the standard deviation of elevation surrounding an area based upon a 30m grid cell. The threshold was chosen based on 95% of leks having a value of 13 or lower.

b. Suitable Habitat

- Areas where 75% or more of the surrounding 1000 acres had a 10% or greater probability of supporting a sage-grouse lek.
 1. The majority of core area boundaries were based upon this delineation.
 2. The probability used is based upon a habitat suitability model that used lek locations to identify suitable habitat. This model was produced by the MT Natural Heritage Program and is documented at (http://mtnhp.org/reports/MaltaFO_2007.pdf).

Methods and criteria for #2 in the Definition:

- 1) Key areas for maintaining sage-grouse distribution in Montana are among the highest 50% density (50% quartile, using methods described above) occurring in the outer boundaries of the sage-grouse's range in Montana.
- 2) Key habitat corridors important for conductivity and sage-grouse distribution beyond Montana are also included under this definition (e.g., portions of northern Valley County).
- 3) Non-habitats and habitat boundaries within or adjacent to core areas follow the same criteria as under #3 above.

Refinement Process:

- 1) Field biologists from Montana FWP and BLM reviewed printed maps showing the habitat parameters described above to identify outer boundaries of core areas and determined general accuracy of designated non-habitats. Printed maps were at a scale of 1:200,000.
- 2) Based upon those biologists expert opinion, refinements were made to the core area boundaries. This allowed for inclusion of nesting and brood rearing areas not captured by the lek driven model.
- 3) Telemetry data was utilized to refine core area boundaries in southwestern Powder River and southeastern Bighorn counties and Beaverhead and Madison Counties to help refine mapping of Core habitats in these areas. Data from Powder River and Bighorn counties was obtained from research done by Dr. Dave Naugle, University of Montana. Data from Beaverhead and Madison counties was obtained from research done by the BLM.
- 4) The mapped habitat, refinements based upon biological expert opinion and integration of existing research data were incorporated to develop Version 1.0.
- 5) As additional information becomes available, Core Area designations will be refined.

Numerical Results:

Core Areas mapped as Version 1.0 include 56% of the state's sage-grouse leks (953 of 1693 leks) and 71% of displaying males based on average male counts over the last 10 years (13,439 of 18,910 sum of average males).

The following is a 2-day draft “Training Template” designed to increase the knowledge and understanding of the targeted audience regarding Sage-grouse and associated sage-brush obligates conservation.

Targeted audience: NRCS – all technical NRCS field and area employees located in counties that have sage-grouse present. Conservation Districts – all CD staff located in counties that have sage-grouse present. Private landowners – all interested landowners that own or manage property where sage-grouse occur. Partner agencies and organizations – any partner that would like to increase their knowledge regarding sage-grouse habitat and applicable management.

Montana sage-grouse and sage-brush obligates habitat conservation course

Date(s)
Location(s)

Day 1

Welcome and introductions
Presenter

Sage-grouse ecology, history, and current status
Presenter

Sage-brush obligates ecology, history, and current status
Presenter

Large-scale threats to sage-grouse and sage-brush obligates in Montana
Conversion of sagebrush to cropland and subdivision
Presenter

Energy development
Presenter

Grazing
Presenter

West Nile
Presenter

Core Area development and strategic focus philosophy
Presenter

Technology (explaining what the typical rancher can do)

Various presenters

Fences and roads

Water, spring developments, and wetlands

Upland Brood Strips

Accelerating practices

(chiseling) Grazing

Montana Sage-grouse Habitat Conservation Strategy (overview)

Presenter

Programs and sage-grouse (putting it all together)

Presenter

Monitoring progress

Various Presenters

Habitat based Population based

Day 2

Active sage-grouse lek viewing (early morning group activity)

Inventory process for sage-grouse conservation

Presenter

Inventory ranch areas near lek site (group activity)

Development of ranch alternatives to address sage-grouse concerns (group activity)

Group discussion

Conclusion

Presenter

Appendix 3. Summary of Montana SGI Contracts by Core Area

Core Area	Number of Contracts	Number of Acres	Contract Dollars	Counties
Not in Core Areas (in occupied sage-grouse habitat)	8	22,429	\$823,634	Blaine, Rosebud, Fallon, Carbon, Powder River
2	7	2915	\$257,767	Phillips
3	12	132,931	\$2,276,923	Fergus, Petroleum
4	10	97,737	\$3,256,265	Musselshell, Golden Valley
5	5	35,781	\$886,541	Musselshell, Petroleum
6	6	116,309	1,750,537	Garfield, Rosebud
10	3	30,976	\$564,451	Beaverhead, Madison
13	1	9277	\$266,403	Carter
Total	52	448,354	\$10,082,520	14 Counties

Estimated Acres to be Planned and Contracted during FY 2014

Core Area	Estimated FY 2014 SGI Contracted Acres
Outside of Core Areas (w/in occupied s.g. habitat)	11,400
1-2	103,873
3	
4	
5	
6	32,215
7	
8-10	31,000
10	
11	
12	
13	40,000
Total	218,488