

MEMORANDUM

TO: Lincoln County CRM Sage Grouse Technical Review Team Members
White Pine County CRM Sage Grouse Technical Review Team Members

FROM: Maria Ryan, Planning Area Facilitator
University of Nevada Cooperative Extension

DATE: July 15, 2003

RE: Draft Sage Grouse Conservation Plan Review

Attached is the latest draft of the Lincoln and White Pine Counties' CRM Technical Review Team (TRT) document concerning sage grouse conservation planning. A subcommittee composed of members from both counties has been created to solicit input and edits to the plan. This document is being sent to you so that you have the opportunity to provide your comments and edits for the subcommittee to take into consideration in drafting the next version of the plan. The subcommittee is requesting that you review the plan and either edit the document electronically and submit it, or write your comments and edits in red ink and send them back by postal mail. The following are the dates that the subcommittee has requested that you send back your comments and edits:

Electronic Submissions	-	July 25, 2003
Postal Mail	-	July 30, 2003

The subcommittee will collect all the input and will be meeting the first week of August.

Your assistance in getting this information to the subcommittee as soon as possible will be greatly appreciated, as the TRT's are facing rather immediate deadlines. Note, that the subcommittee will compile comments, make any changes by consensus, and bring these to the TRT's. The document will be distributed to the Steering Committee Members and to the Governor's Sage Grouse Planning Team. That version will in no way be a final document, but will be a draft, allowing for continued revisions in the future.

Please make whatever comments you feel are necessary. It has been requested that you also note which section of the plan you particularly like or think are strengths of the plan. This input is valuable in determining future direction.

Please send your input to:

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DRAFT

**LINCOLN & WHITE PINE COUNTIES
SAGE GROUSE CONSERVATION PLAN**

Submitted to Governor's Team

May 27, 2003

Updated by White Pine & Lincoln Counties'

Technical Review Teams

July 2003

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LINCOLN & WHITE PINE COUNTY SAGE GROUSE CONSERVATION PLAN

Preface:

This section will be rewritten. First, NDOW will analyze their population data for sage grouse so that a general statement can be made about status and trends for this plan area. Then, John Hiatt, Floyd Rathbun, and Rick Orr will meet to create a new preface with the following criteria: It will be only 2 paragraphs, include a statement of the problem and what this group is going to do about it (essentially following the suggestions in the Governor's Strategy of what could be included in a preface.)

~~The White Pine and Lincoln County *groups* Coordinated Resource Management (CRM) committees met on December 14, 2001 to prepare for writing *of this plan* Sage Grouse management plans. At that time *each County had an established CRM program that was fully able to meet the needs of the respective Counties, but* it was decided that the two *counties* TRT's would *form their own local planning groups* blend together their respective plans in an effort to cooperate with the Nevada State Sage Grouse management planning effort. ~~These groups would be formed as Technical Review Teams (TRT's) of each county's Coordinated Resource Management (CRM) Steering Committees. This Sage Grouse conservation plan would be a product of the TRT's, and would move through the previously established CRM process in both counties. In doing so, county commissioners from each county would be fully informed and would approve the plan. Each county would write a portion of the entire plan and the two would be blended together at a later date. The county groups have met periodically, both separately and together, since that time. Technical Review Teams (TRT's) were established in each County and have met frequently either separately or jointly since that initial meeting.~~~~

Introduction:

The Sage Grouse Technical Review Teams (TRT's) prepared a management plan that meets the needs of the bird and related sagebrush ecosystem species. The plan will be in compliance with the Governor's Conservation Strategy and local sub-plan provisions and guidelines. The TRT's mission was to:

1. Review currently available data of Sage Grouse habitat and current populations/densities in the plan area. Identify areas of high, moderate, low, and no potential or current populations in the plan area.
2. Work with all interested groups to define issues pertaining to Sage Grouse and related sagebrush ecosystem species management in the plan area, utilizing preliminary lists of issues developed by the Nevada Division of Wildlife, the Society of Range Management (winter 2001 meeting), the Nevada Sage Grouse Conservation Strategy Team, and the Northeastern Nevada Stewardship Group.

3. Based on 1 and 2 above, identify Population Management Units (PMU's).
4. Based upon information about habitats, populations, and threats, prioritize the PMU's for goal setting and strategy development.
5. Develop goals, objectives, and strategies. Strategies include:
 - A. Monitoring and research needs.
 - B. Management actions, guidelines, and methods addressing issues of vegetation, other wildlife, wild horses, livestock, predation, and human activities.
 - C. Develop schedules for implementation and monitoring
 - D. Responsibilities of groups and agencies in achieving A, B, and C.
6. Develop a timeline for revisiting and revising goals, objectives, and strategies.

The TRT's are expected to consult with the CRM Steering Committee if problems arise in developing the plan, or if interim actions are needed for short-term emergencies concerning management in the plan area. The TRT's will meet with the Steering Committee to discuss the plan when drafts are ready for review and comment. The White Pine and Lincoln County Boards of Commissioners will be fully involved in the review and will be requested to concur with the plan before final approval by the Steering Committee.

Conservation Assessment:

Plan Area: The planning area includes most of White Pine and Lincoln Counties and portions of Nye and Elko Counties, an area of approximately 10 million acres. Most of the federal lands are managed by the Bureau of Land Management Ely and Caliente Field Offices, the Humboldt-Toiyabe National Forest Ely Ranger District, Great Basin National Park, and the Bureau of Indian Affairs.

There are six population management units (PMU's) in the planning area. These include the following: ButteValley/Buck Mountain/White Pine Range PMU; SteptoeValley/Cave Valley PMU; the Schell Range/Antelope Valley PMU; Quinn PMU; Lincoln PMU; and Spring Valley/Snake Valley PMU.

Sage Grouse in the Plan Area:

According to available data in the planning area, local populations have varied during the past 25 years. Some areas that previously provided for good year-round habitat no longer do so. The expansion of pinyon and juniper trees into sagebrush plant communities; degradation of mesic habitats; changes in vegetation types due to climate; fire management; the spread of weeds and exotic plant species; and herbivory are some of the reasons the Sage Grouse is losing suitable habitat. These habitat changes have also impacted the distribution of birds.

Vegetation and Soils as Attributes of Sage Grouse Habitat

The word habitat is used throughout the text to indicate, in the general sense, those areas of rangelands that provide food, cover, and water to sage grouse. Habitat may be occupied by the birds either year round or seasonally. Food and cover, in turn, varies with location as a result of the vegetation presently or potentially supported by the soils. Following are the standards for site specific management that conform to the [WAFWA Guidelines \(see citations pages 25 and 26\)](#)? calling for range ecologists and even biologists to establish goals that are “...reasonable and ecologically defensible.”

Goals and objectives for habitat management, rehabilitation, or development are based on the “site potential” at specific locations rather than the general description of habitat. Potential of a site or the natural potential plant community is the key feature of Ecological Sites as correlated during completion of the Soil Survey. Definitions of terms and applications of this technique are those described by the US Department of Agriculture-Natural Resource Conservation Service, National Range and Pasture Handbook. Plant species composition and several other site characteristics are the basis for determining whether a plant community is at the potential for an ecological site or if the present vegetation represents a “seral” stage. Habitat management goals may specify a “Desired Plant Community” (DPC) to best provide sage grouse habitat attributes that are available from a seral plant community.

Current approaches to describing rangeland plant ecological processes builds on the description of ecological site potential by using the term “state” to describe a self sustaining vegetative community along with the associated seral successional stages. “State and Transition Modeling: An Ecological Process Approach” by Stringham, Krueger, and Shaver is an article in the March 2003 Journal of Range Management; this article provides the concepts and terminology defining state, transition, and threshold for use as goals or objectives of sage grouse habitat management. State indicates a “resistant and resilient complex of two components, the soil base and the vegetation structure”. Plant communities are constantly changing to some extent, but the seral plant composition within a given state is self-repairing through plant succession. On occasion, the change in a plant community may be so extensive that the end product of change is a new state. The process over time and direction of change is called the transition. As transition occurs it is generally reversible up to the point called the threshold; having passed the threshold the transition has become “irreversible” and a new state is formed. At this point, return to the original “state” is only possible at great cost of energy and money, or by passage of more time than is reasonable from a management perspective. Changes in soils may preclude the ability of a site to revert back to a previous state.

Examples of “state/threshold/transition” observations expected within White Pine and Lincoln Counties include areas where wildfires have occurred so frequently in sagebrush dominated plant communities (original state) they are now dominated by cheatgrass, an introduced annual grass (new state). In other locations, fires have occurred so infrequently that pinyon and juniper trees have become dominant and understory plants cannot be sustained (new state). Competition for soil moisture and nutrients effectively eliminate both the sagebrush and the associated herbaceous plant species (original state).

Biological Overview:

Taxonomy and Description

Sage Grouse (*Centrocercus urophasianus*) is a member of the family *Phasianidae* (grouse and ptarmigan) and is one of seven species of grouse found in North America. They are also known as the sage hen, sage chicken, or sage cock. The Sage Grouse has been held in special reverence by Native American tribes as a magical bird with healing restorative powers. The Washoe word for Sage Grouse is “*Ci uk*”; in Paiute, the bird is known as “*Sekege’s*” (pronounced “hoot-ze”); The Shoshone know the bird as “*Gogozha*” (pronounced “wi-cha”). Lewis and Clark provided the first written accounts of this species during their 1805 expedition. The species was formally described as *Tetrao urophasianus* by C.L. Bonaparte (1872) and later placed in a monotypic genus *Centrocercus*, meaning “spiny-tailed pheasant,” by Swainson and Richardson (1832). Recent DNA work has identified a small population with distinct genetic and behavioral difference that exists in southwest Colorado. The American Ornithologists’ Union (AOU) has recognized the birds from this population as a separate species of grouse, *Centrocercus minimus*, now called the Gunnison Sage Grouse. *Centrocercus urophasianus* is now referred to by the AOU as the Greater Sage Grouse. (In this document, all name references involve the Greater Sage Grouse, but for purposes of simplicity, the document uses the name “Sage Grouse.”)

The Sage Grouse is the largest of the North American grouse. Males range from 27-34 inches in length and weigh five to seven pounds, while females are 18-24 inches in length and weigh from two to three pounds. They are a grayish-brown bird with a dark belly, and long, pointed tail feathers. The male is equipped with two air sacs (esophageal pouches); covered with short, stiff, scale-like white feathers, one on each side of the lower neck and upper breast. When the pouches are distended, two yellow, pear-shaped patches of bare skin are exposed. A yellow fleshy comb occurs above the eye, and long filoplumes extend from the back of the neck and head. The female has the same general appearance but lacks the air sacs and filoplumes. The feet are feathered to the toes on both sexes.

Life History and Habitat Requirements

Breeding/Nesting – Sage Grouse engage in a lek mating system. The males perform a strutting display (Bond 1900, Scott 1942, Gullion 1957, Schroeder et al. 1999) that includes fanning the tail feathers in an upright fashion that exposes white-tipped under tail feathers, expanding the esophageal pouches that expose the yellow skin patches, and erection of the yellow eye-combs and filoplumes. The expansion of the pouches also produces a series of “plops.” The display is part of an active defense of the breeding territory by each male (Hartzler 1972). Only a few males on a lek or strutting ground do the majority of the mating (Gibson et al. 1991, Scott 1942, Lumsden 1968, Wiley 1937b, Hartzler and Jennie 1988). Males have no incubation or parental care responsibilities, and do not exhibit territorial behavior away from the leks. Male flocks are commonly encountered during the rest of the year.

Generally, the lek sites are used year after year (Simon, 1940, Scott 1942, Batterson and Morse 1948, Wiley 1978, Autenrieth 1981). Leks are established in open areas, 0.2 to 12 acres in size, adjacent to large areas of sagebrush, which are used for nesting, while at the same time affording escape and protection from predators (Patterson 1952, Gill 1965). As populations decline, the number of males attending leks may decline or the use of some leks may be discontinued. Likewise, as populations increase, male attendance on leks increases, new leks may be established, or old leks may be re-occupied.

The lek is considered to be the center of year-round activity for resident populations (Eng and Schladweiler 1972, Wallestad and Pyrah 1974, Wallestad and Schladweiler 1974). However, habitats that are located long distances from the leks are used by migratory populations of Sage Grouse and are essential to their survival (Connelly et al. 1988, Wakkinen et al. 1992). On the average, most nests are located within 4 miles (6.2 km) of the lek; however, some females or hens may nest more than 12 miles (20 km) away from the lek (Autenrieth 1981, Wakkinen et al. 1992, Fisher 1994, Hanf et al. 1994).

Nesting and early brood-rearing in Nevada generally occur from April through June. The nest consists of a shallow depression on the ground. Nest lining is sparse, consisting of dry grasses, sagebrush leaves, and a few feathers (Batterson and Morse 1948, Autenrieth 1981). Heights of shrubs at nesting sites vary, but studies indicate that there is some preference for shrubs that are taller than the average shrub height for the given site (Keller et al. 1941, Trueblood 1954, Klebenow 1969, Wallestad and Pyrah 1974, Autenrieth 1981, Kerster and Willis 1986).

Nesting habitat is characterized primarily by sagebrush communities that have 15 to 38 percent canopy cover and a grass and forb understory (Connelly et al. 1991, Terres 1991, Gregg et al. 1994, Sveum et al. 1998a). Residual cover of grasses is likely important (Klebenow 1969, Connelly et al. 1991, Sveum et al. 1998a), for its contribution to vertical cover structure that serves to hide the nest. Clutch size of Sage Grouse normally ranges from seven to ten eggs (Connelly unpublished data, Schroeder 1997, Wakkinen 1990). Incubation by the female takes 25-28 days.

Brood Rearing – The area in proximity to the nest is used for several weeks by hens for brood rearing. Chicks are able to fly weakly at approximately 10 days, and are relatively strong fliers by five weeks (Girard 1937). At six to eight weeks, chicks acquire full juvenile plumage and resemble adult hens. Hens will usually move the chicks from the early brood habitat/nest area to summer habitat, where the majority of brood rearing occurs, when they are about six weeks of age. This movement occurs about two weeks after males and females without broods have moved to summer range (Connelly et al. 1988).

The habitats used during the first few weeks after hatching need to provide cover to conceal the chicks, but more importantly, to provide the nutritional requirements of this period of rapid development. Brood-rearing habitats that have a wide variety of plant species tend to provide a variety of insects that are important chick foods.

Summer habitat consists of sagebrush mixed with areas of wet meadows, riparian, or irrigated agricultural fields (Connelly et al. 2000). As habitat begins to dry up, broods move to more mesic areas where succulent forbs and insects are still available (Savage 1968, Schlatterer and Pyrah 1970, Oakleaf 1971, Neel 1980, Autenrieth 1981, Klebenow 1985). This can be especially important in drier years and during long drought periods. Klebenow (1982) found that Sage Grouse would stay on the uplands through late July in years when precipitation was sufficient to maintain forage. During drought years, grouse switched to using meadows earlier in the summer. In addition, Nevada Sage Grouse have a greater reliance on wet areas for their survival since Nevada normally receives less precipitation than other states supporting Sage Grouse populations (Klebenow 1985).

Fall and Winter – Sage Grouse form flocks as brood groups break up in early fall. As fall progresses, Sage Grouse move toward their winter ranges. Exact timing of this movement varies depending on the

population, geographic area, overall weather condition, and snow depth. Sagebrush is essential for Sage Grouse survival during the fall, winter and early spring months.

Seasonal movements are related to severity of winter weather, topography, and vegetative cover (Beck 1977). The amount of snow, rather than an affinity for a particular site (Beck 1977, Barrington and Back 1984) determines winter use areas. It is crucial that sagebrush be exposed at least 10 to 12 inches above snow levels as this provides both food and cover for wintering Sage Grouse (Barrington and Back 1984, Hupp and Braun 1989). Wallstad (1975) found that in Montana less than 10 percent of the range was available when snow depth exceeded 12 inches. If snow covers the sagebrush, the birds will move to areas where sagebrush is exposed.

Food Habits – Adult Sage Grouse feed primarily on various species of sagebrush. Chick diets include forbs and invertebrates (Klebenow and Gray 1968, Drut et al. 1994) Insects, especially ants and beetles, are an important component of early brood-rearing habitat (Drut et al. 1994, Fischer et al. 1996). Forbs increase in the diet after the first week and remain the major food item for juveniles throughout the summer. Some of the forbs found in quantity in the diets of juvenile Sage Grouse include: common dandelion (*Taxaxacum officinale*), common salsify (*Tragopogon dubius*), prickly lettuce (*Lactuca serriola*), pepperweed (*Lepidium densiflorum*), Harkness gilia (*Linanthus harknessii*), tapertip hawksbeard (*Crepis acuminata*), loco (*Astragalus convallarius*), phlox (*Phlox longifolia*), and common yarrow (*Achillea millifolium*) (Klebenow and Gray 1968, Peterson 1970). Sagebrush (*Artemisia* spp.) occurs in only trace amounts until chicks are about five weeks old (Klebenow and Gray 1968, Peterson 1970). Summer food habits of adult grouse are similar to juvenile food habits with some differences in proportion of foods consumed. As the meadows dry and frost leads to the drying and killing of the forbs, Sage Grouse shift their diet primarily to sagebrush leaves (Patterson 1952, Connelly and Markham 1983, Connelly et al. 1988, Wallestad 1975), and sagebrush continues to be a major food source until spring (Girard 1937, Rasmussen and Griner 1938, Patterson 1952, Leach and Hensley 1954, Klebenow and Gray 1968, Peterson 1970, Wallestad et al. 1975).

Movement/Migration Patterns – Sage Grouse populations display a wide variety of seasonal movement/migration patterns between winter, breeding and summer ranges (Connelly et al. 2000). Some populations exhibit limited (<10 km) movements between seasonal habitats and are considered nonmigratory (Dalke et al. 1963, Wallestad 1975, Connelly et al. 1988, Wakkinen 1990). Migratory Sage Grouse can travel in excess of 75 km between distinct seasonal ranges (Dalke et al. 1963, Connelly et al. 1988). Limited telemetry data from Lincoln County indicate that birds moved approximately 24 km between breeding and summer habitats, crossing many km of non-habitat pinyon/juniper woodland. Throughout much of the planning area the summer distribution of Sage Grouse tends to occur in higher elevation habitats while documented winter ranges are mostly associated with valley and bench areas. In some areas, summer, breeding and winter ranges appear to occur in close proximity, especially where Sage Grouse summer in association with agriculture. These observations suggest that both migratory and nonmigratory populations exist in the planning area.

Status and Distribution:

Status: No long-term (>25 year) population trend data exist for any portions of the planning area. Limited NDOW trend data exist for White Pine County. These data are weaker (fewer leks studied) for years in the late 1970s than they are for the period since that time (increasing number of leks studied). This relatively short-term data set provides an approximation of population fluctuations in White Pine County and indicates a series of increases and declines with a recent (since 2000) downward trend. Grouse numbers vary significantly over both time and area, increasing in some areas

and declining in others. Sage Grouse harvest data also provide a measure of population trends. Although hunting season opening dates and season lengths have changed over the period, harvest trends for White Pine County roughly follow the trends indicated by the population data. *According to NDOW data, White Pine County Sage Grouse populations have increased over the past 25 years. In the short-term, the populations seem to be relatively stable.*

Distribution – NDOW data indicate that Sage Grouse are/were found throughout acceptable sagebrush habitats in the plan area. Leaks are associated with open areas in the valleys, and are found on higher elevation benches as well. Sage Grouse are widely distributed and can be found in the valley bottoms associated with agriculture (alfalfa production), wet meadows, and riparian areas, but are commonly observed at the higher elevations in mountain brush communities especially during the late summer and fall. New leaks are discovered each breeding season.

Factors Affecting Sage Grouse Populations and Their Habitats:

Habitat Quantity:

- The quantity of suitable sage grouse habitat in the plan area is decreasing due to the expansion of Pinyon-Juniper into sagebrush communities.
- Large areas of stagnant sagebrush exist with little or no understory vegetation.
- Lack of water (quantity, quality, and yield) in otherwise suitable habitat is adversely affecting populations.
- Some areas of sagebrush were cleared for crested wheatgrass seedings. Sagebrush has become reestablished in many of these old seedings and the areas now appear to provide suitable habitat although the forb component is often limited.
- Replacement of native vegetation by exotic weeds has a detrimental effect.
- Areas of Sage Grouse habitat have been altered or converted.

Habitat Quality/Nutrition:

- Rangeland uses (livestock, wild horse, and wildlife grazing) resulting in decreases of perennial grass cover, forb composition, and diversity has reduced habitat condition in some areas.
- Sagebrush is a very aggressive and competitive plant that has caused decreases in perennial grass cover and forb composition that in turn has reduced habitat diversity and condition in some areas.
- Expansion of Pinyon-Juniper into sagebrush communities has degraded the quality of sagegrouse habitat, and has reduced the productivity of water sources. Gully formation and abandonment of irrigation systems have reduced the availability of riparian habitat available for Sage Grouse brood foraging.
- Some spring outflows have been piped to other locations for various uses, sometimes eliminating the water found at the source. Although water may be available in other locations, which should be noted in the inventory portion of the plan, this may or may not benefit Sage Grouse.
- Changes in management and/or regulations have resulted in disruptions of available water sources, particularly of wells, for Sage Grouse.
- As a result of improved grazing management practices that include planned grazing systems, changes in season of use, livestock numbers, etc., some habitats have improved.

Habitat Fragmentation:

- Human activities such as construction, development, agriculture, and recreation, have reduced habitat for Sage Grouse in some parts of the plan area.
- Fences, roads, and powerlines in Sage Grouse habitat are indirect and direct sources of mortality to the birds.
- Lack of natural fire frequency has led to a predominance of pinyon-juniper, decadent sage, and overall loss of habitat.
- Lack of post-fire management may or may not lead to fragmentation and loss of habitat

Changing Land Uses:

- Wilderness Study Areas/Wilderness Management needs to be addressed to allow habitat projects to restore healthy sagebrush ecosystems in these areas.
- Recreation, especially inappropriate use of off-road vehicles may be negatively impacting Sage Grouse populations.
- Conversion of sagebrush habitat to agricultural crops such as alfalfa may affect Sage Grouse populations.

Predation:

- Nest predation by many species of animals impacts survival and recruitment of Sage Grouse.
- Predation by raptors and carnivores results in lower bird numbers.
- Power lines, which are perches for raptors and other avian predators, have been installed in Sage Grouse habitat.
- Pinyon-juniper establishment into sagebrush communities has provided additional perches for avian species creating the potential for predation.
- Some species of predators may occur in artificially high numbers due to alternative food sources (e.g., dumps, road kills).
- Federal and state laws, rules, and regulations have protected certain predators.
- Reduced trapping pressure may have allowed predator populations to increase.

Ungulate Grazing:

- Grazing by ungulates in nesting areas could be reducing nesting success of Sage Grouse.
- In some instances, natural water sources and surrounding habitats are being negatively impacted by grazing and may be decreasing the success of Sage Grouse.
- Properly planned livestock grazing can improve or increase Sage Grouse habitat.

Fire Ecology:

- Wildfires have burned important areas of habitat and historic fire management practices have resulted in vegetation-type conversions away from those used by sage grouse.
- Current fire management practices inhibit using wildfire as a habitat management tool.

Disturbance: (See threat table)

- Non human-caused: wildfire, drought
- Human-caused: wildfire suppression, antler hunting, photography, development
- Biological observations and surveys from aircraft, military over-flights, and other aircraft uses may disturb birds to some extent.

Disease:

- Long-time White Pine County residents reported suspected disease outbreaks that killed many of the Sage Grouse in the 1960s and 1970s. These reports are anecdotal, but do serve to indicate that disease can affect Sage Grouse.

Hunting:

- While hunting has resulted in some mortality, it has also provided valuable biological data on Sage Grouse in White Pine County, through collection of wings from hunter-harvested birds.

Poaching:

- Poaching could be an additive mortality to Sage Grouse populations.

Politics:

- We are going to be faced with the fact that some of our laws (e.g., NEPA, ESA, Migratory Bird Treaty Act, Wilderness Act, Wild Horse and Burro Act) may pose conflicts and challenges to the Sage Grouse Conservation Plan and implementation.
- The actions of special interest groups may protest our conservation plan and may delay its implementation for years.
- Lack of agency commitment and cooperation to implement the Plan.

draft

GOALS, OBJECTIVES AND STRATEGIES

Goal 1: Manage for viable, healthy populations of Sage Grouse in all of the PMUs in the planning area.

Objective:

1.1 Maintain or increase present populations for the short term (i.e., trend over ten years).

Benefit: Populations will persist and thrive in areas of present occupation, so the Sage Grouse will be able to pioneer new areas as habitat becomes suitable for occupation.

Success Standard: No extirpation of breeding sub-populations occurs. Lek counts and brood surveys indicate stable or growing populations throughout the PMU.

Strategies:

- 1.1.1 Examine population viability and identify high priority sub-populations for protection in each PMU.
- 1.1.2 Reduce the detrimental effects of human disturbance and structures (powerlines, fences, etc.)
- 1.1.3 Inventory road and other recreational accesses that contribute to disturbance of sagebrush plant communities.
- 1.1.4 To augment recovery or management efforts, use predator control in Sage Grouse habitats where appropriate, i.e. where high numbers of predators are found, congregate, or where high predation rates are known ,
- 1.1.5 Identify high priority areas for fire protection/suppression activities
- 1.1.6 Take action to maintain currently occupied habitats.

Objective 1.2: Provide favorable conditions for expansion of Sage Grouse populations into historic range in healthy and sustainable numbers.

Benefit: Bird populations occupying a large geographic area will be more resilient to threats.

Success Standard: Increased number of active leks or birds observed over a wide area.

Strategies:

- 1.2.1 Design and implement habitat research projects that identify adaptive management strategies beneficial to Sage Grouse.
- 1.2.2 Develop alternative grazing areas to draw grazing animals away from Sage Grouse leks and nesting habitats.
- 1.2.3 Identify all sagebrush communities that are now dominated by pinyon-juniper or where pinyon-juniper are becoming established and prioritize for projects.
- 1.2.4 Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups.
- 1.2.5 Use fire (prescribed burning) to treat areas of decadent sagebrush or pinyon-juniper dominated sagebrush communities where appropriate.
- 1.2.6 Declare Full-Suppression and managed prescribed fire areas for fire management activities.

- 1.2.7 Use prescribed fire to reduce heavy fuel loads in seral stage P-J and sagebrush communities.
- 1.2.8 Achieve better water distribution throughout suitable Sage Grouse habitat in each PMU.
- 1.2.9 Identify sagebrush plant communities where there is a uniform age stand of decadent sagebrush that could provide better quality habitat, and investigate methods for remedy.

Goal 2: Develop a more complete understanding of Sage Grouse and sagebrush dominated plant communities through research in the plan area.

Objective 2.1: Increase knowledge of existing Sage Grouse populations, distribution, and use patterns.

Benefit: Assists in the conservation of the species by developing a more complete understanding of local populations (movements, habitat requirements, preferences, etc.), which will be used to guide the application of management practices and strategies.

Success Standard: Achieve a more complete and comprehensive knowledge of each population group and its' dynamics.

Strategies:

- 2.1.1 Draft proposals for research on population/habitat dynamics and acquire funds to implement the proposals with academic institutions.
- 2.1.2 Expand and evaluate program to monitor populations of Sage Grouse in order to make recommendations for management through lek counts, brood surveys, trapping and marking, and wing collection in hunting areas.
- 2.1.3 Use radiotelemetry to identify seasonal use areas and migratory/non-migratory birds.
- 2.1.4 Initiate research projects which will benefit management and provide additional needed information on population/habitat dynamics.
- 2.1.5 Design and coordinate a survey program for leks and late brooding areas, which will provide scientifically sound data tailored for each PMU.
- 2.1.6 Explore the potential for augmenting populations through trapping and transplanting.
- 2.1.7 Monitor disturbed sites for occupation by Sage Grouse.

Objective 2.2: Develop an ecological understanding of sagebrush dominated plant communities and the role of disturbances or disturbance regimes in the dynamics of those systems.

Benefit: To have a sound scientific basis for land management decisions.

Success Standard: Achieve a more complete understanding of the various sagebrush ecosystems and how disturbance affects them.

Strategies:

- 2.2.1 Conduct a retrospective study of the effects of past fires and other disturbances such as seedings and chainings and describe vegetative succession in these areas.
- 2.2.2 Design and implement habitat research projects to identify adaptive management strategies beneficial to Sage Grouse.
- 2.2.3 Create a land management database that includes up-to-date research.
- 2.2.4 Explore the role of herbivores in affecting sagebrush ecosystem health.
- 2.2.5 Complete and digitize ecological status inventory within each PMU.
- 2.2.6 Carefully identify each sagebrush species and associated plant species, soils, and position on the landscape.

Goal 3: Manage for diverse, healthy, sagebrush plant communities within each PMU.

Objective 3.1: Maintain and improve existing sagebrush plant communities.

Benefit: Suitable habitat for Sage Grouse will be increased.

Success Standard: Habitat inventories are completed in each PMU and priority areas are categorized for projects. Approximately 42,000 acres per year are treated and/or modified with the goal of habitat improvement.

Strategies:

- 3.1.1 Inventory and map all habitats by vegetative cover and R-values periodically and/or as more data become available.
- 3.1.2 Identify and reduce the detrimental effects of inappropriate grazing on Sage Grouse habitats.
- 3.1.3 Develop new grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats at critical times.
- 3.1.4 Identify undesirable weed infestations and aggressively treat them to prevent spread.
- 3.1.5 Examine permitted grazing areas to determine if season of use may need to be altered.
- 3.1.6 Address impacts of insect infestations and/or lack of insects.
- 3.1.7 Identify decadent sagebrush stands and apply management treatments to replace the decadent sagebrush with young, healthy, robust plants.
- 3.1.8 Support the implementation of the Great Basin Restoration Initiative through the Eastern Nevada Landscape Restoration Project.

Objective 3.2: Where appropriate restore dynamic sagebrush plant communities throughout each PMU.

Benefit: Increases in habitat for sagebrush obligate species resulting in future population expansion of these species.

Success Standard: Treat approximately 42,000 acres of potential habitat per year.

Strategies:

- 3.2.1 Identify all sagebrush sites that have become dominated by P-J and prioritize for projects.
- 3.2.2 Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups.
- 3.2.3 Use all appropriate means (e.g., fire, mechanical or chemical methods) to treat degraded sagebrush communities to restore age class diversity.

Objective 3.3: Restore disturbance regimes, especially fire.

Benefit: Restores naturally functioning system processes to degraded sagebrush ecosystems.

Success Standard: Fire-caused disturbances result in plant community mosaics consistent with Goal #3.

Strategies:

- 3.3.1 Properly implement the Ely BLM District Managed Natural and Prescribed Fire Plan to benefit the ecological processes and systems associated with healthy sagebrush communities.
- 3.3.2 Identify and recommend full-suppression, managed natural, and prescribed fire areas for fire management activities in the plan area as relates to Sage Grouse habitat (across all jurisdictions).
- 3.3.3 Use prescribed fire to reduce heavy fuel loads in identified areas.

Objective 3.4: Assure that the availability of water is not a limiting factor in otherwise suitable habitat.

Benefit: Allows for increased numbers and widely distributed populations of Sage Grouse throughout the plan area.

Success Standard: The availability of water allows occupation of habitat previously unoccupied due to lack of water.

Strategies:

- 3.4.1 Install water developments in areas of otherwise suitable habitat.
- 3.4.2 Work with permittees and water rights owners to ensure availability of water on a perennial basis where applicable.
- 3.4.3 Cooperate with water rights owners to leave water at all spring sources for wildlife use.
- 3.4.4 Explore the possibility of using infrequently used wells as water sources for Sage Grouse.
- 3.4.5 Restore and maintain previously available water sources where feasible.

Goal 4: Address the biological, social, political, and economic ramifications of the plan.

Objective 4.1: Encourage landowners and permittees to modify land use practices that are detrimental to Sage Grouse.

Benefit: Higher quality and quantity of brood-rearing habitats. Local landowners appreciate importance of agricultural land in relation to Sage Grouse seasonal needs.

Success Standard: Less mortality associated with agricultural practices and more uniform and better quality brood-rearing habitat in agricultural fields and riparian/wet meadows throughout the plan area.

Strategies:

- 4.1.1 Identify landowners within the plan area who have Sage Grouse associated with their property.
- 4.1.2 Evaluate, with landowners, current land use practices that may be detrimental, neutral, or beneficial to Sage Grouse.

Objective 4.2: Ensure all land management agencies address Sage Grouse needs in future plans and actions.

Benefit: A unified and consistent approach to Sage Grouse/sagebrush management. A cooperative and uniform approach in all land use and management actions in the plan area in relation to Sage Grouse/sagebrush management.

Success Standard: Compatibility between federal, state, and county planning documents and management actions. Planning documents/ contents are to be fully acceptable to respective boards of County Commissioners.

Strategies:

- 4.2.1 CRM Steering Committees and associated Technical Review Teams actively monitor progress of plan implementation.
- 4.2.2 Ensure that TRT members are involved in the planning process for land management decisions.
- 4.2.3 TRT members make recommendations of management actions and projects to benefit Sage Grouse in the plan area.
- 4.2.4 Encourage the implementation of the Great Basin Restoration Initiative and the Eastern Nevada Landscape Restoration Project.
- 4.2.5 Consultation with Native Americans.

Objective 4.3: Implement a public education program that increases awareness of sagebrush ecosystems, Sage Grouse conservation efforts, and the role of fire.

Benefit: An informed public will be able to make educated decisions with respect to sagebrush and Sage Grouse conservation management in the future.

Success Standard: An informed public with opportunities for involvement.

Strategy:

- 4.3.1 Initiate a public education campaign that encourages input from local landowners and public lands users.

Objective 4.4: Complete a formalized, workable local plan, accepted by the local county commissions, which will be incorporated into a statewide plan, and will be acceptable to USFWS under the PECE policy.

Benefit: Completion of an effective and implementable Sage Grouse conservation plan will give guidance and direction to complete projects beneficial to the sagebrush ecosystem, ensure sustainable Sage Grouse populations, and keep control of Sage Grouse management in local hands.

Success Standard: Preclude Threatened and Endangered listing of Sage Grouse. Completion of a formal local plan and acceptance by County Commissions.

Strategy:

- 4.4.1 Draft a local plan that conforms to the effective and implementable criteria of the USFWS PECE policy.
- 4.4.2 Use a broadly represented consensus based planning group.

HABITAT ASSESSMENT CRITERIA

A required element for each local Nevada Sage Grouse Conservation Planning effort is to assess and evaluate habitat conditions and population risks within all PMU's. We have produced Habitat Planning Maps at varying spatial scales in order to achieve these objectives. In addition, the assessment criteria will be tied to the Ely BLM's Watershed Assessment Process wherever possible. The maps were first designed at the mid-level scale and later refined at the fine-level scale of analysis using the best information available. They will ultimately provide an overall spatial portrayal of Sage Grouse sub-populations and habitat conditions in each PMU. To compliment this effort in the future, an objective and scientifically based project-level scale Habitat Assessment Criteria was developed. The pressing timeline of the Sage Grouse Conservation Plan makes it impractical to wait for newly remotely mapped vegetation data, comprehensive soil survey completion, or ecological site inventories in order to generate the habitat maps. Initial mapping efforts have been produced at a mid-scale (sub-basin) level and will be used in conjunction with data gathered at the fine-scale (watershed) level, consisting of population, habitat, and land-use data, to generate a refined fine-scale level Habitat Planning Map which will focus the planning efforts in identifying and prioritizing areas for future application of site specific Project-level Habitat Assessments and develop and implement specific on-the-ground projects and habitat restorations.

Tasks Needed to Achieve Objective 2 and 3 of the Nevada Sage Grouse Conservation Strategy:

- 1) Utilize the best available information to create a relatively simple, widely applicable Mid-level Landscape Scale Habitat Planning Map of each PMU showing Sage Grouse distributions and general habitat conditions.
- 2) Produce a Fine-Scale Habitat Planning Map, which considers habitat availability and fragmentation patterns in relation to the breeding, late brood-rearing, and winter habitats. This map is not composed of detailed vegetation mapping, but broad delineations based on readily available information and "quick-and-dirty" habitat assessments of R-values in prioritized areas of concern.
- 3) Develop Project- Scale Habitat Assessment Criteria relative to seasonal Sage Grouse habitat needs, to be used at a later time to develop comprehensive habitat evaluations.

The Sage Grouse Habitat Planning Map when used with fine-level population, habitat, and land-use data and project-level Habitat Assessment Criteria, will serve several purposes including:

- 1) Identifying general Sage Grouse habitat areas and aid in quickly assessing areas where Sage Grouse will be a primary concern, and those areas where Sage Grouse are not an issue.
- 2) Evaluate and document existing general Sage Grouse habitat condition, suitability, and habitat restoration needs in respect to habitat quality.
- 3) Assist in evaluating land uses on public lands that may affect Sage Grouse habitat conditions or habitat restoration efforts.
- 4) Graphically portray the degree of Sage Grouse habitat fragmentation on the landscape.

- 5) Serve as a tool for planning and prioritizing fire suppression, fuels management, and prescription activities.
- 6) Serve as an educational tool for explaining current Sage Grouse habitat conditions to resource users, cooperators, and interested parties.

This assessment process is designed to work as a hierarchical step-down analysis of Sage Grouse habitats for the Sage Grouse TRT. Many sources of national and local information were used to amass this protocol. Two documents, A Framework to Assist in Making Sensitive Species Habitat Assessments for the BLM-Administered Public Lands in Idaho (Idaho-BLM, 2000) and Guidelines to Manage Sage Grouse Populations and their Habitats (Connelly et al., 2000), provided the basis for these procedures. The local work and insight of Dr. Sherm Swanson, Floyd Rathburn, and Dr. Gary Back, have also served as building blocks for this protocol.

The overriding emphasis in this effort is to 1) keep it simple, 2) utilize combinations of available existing data to our best advantage, 3) identify missing data gaps and needs, and 4) produce a quality map and analysis of PMU habitat conditions and threats to Sage Grouse to be used as a planning tool by the TRT.

HABITAT ASSESSMENT PROCESS

A. Mid-Scale Information and Assessment Use

Sub-basin reviews are intended to provide an understanding of how management activities in sub-basins fit in with ecosystem and public land management approaches. Broad habitat and population status and condition data are appropriate for this scale.

Products:

1. General Habitat Planning Map

In most of the planning area suitable soils, vegetative data, and imagery are lacking to delineate existing and potential habitats to a fine-scale level. Until new vegetation mapping data and products are available that can discern important vegetation community differences, we will rely on current GAP data, and qualitative information to generate the Habitat Planning Map at the Mid-level sub-basin scale. More systematic and detailed vegetation mapping will occur at the fine-scale and then again at the project-level scale.

2. Watershed Assessments Schedule

Because of the large area comprised of public lands in the planning area that are administered by the BLM, Sage Grouse habitat assessments on a watershed basis will occur over many years. Therefore it is essential that these evaluations be systematically planned and designed to address areas where habitats are most important, most susceptible to change or have the greatest restoration potential.

B. Fine-Scale Information and Assessment Use

Generally, fine-scale information is processed at the watershed level, but in some cases, it may be more appropriately collected at the allotment level. When fine-scale data (land use applications and

locations, Sage Grouse population status and seasonal habitat dispersals, and more detailed vegetation delineations), is used in conjunction with mid-scale data (Habitat Planning Maps), areas of concern can be documented and a prioritized approach to population and habitat protection and restoration can be developed.

Products:

1. Synthesized Sage Grouse Population Data

These data will assist in defining areas of management and evaluation emphasis and be used to focus attention at the sub-population level. These data include:

- Lek Attendance/Monitoring Surveys
- Lek Status
- Brood surveys
- Random Sightings/Observations
- Season of Use Areas (Nesting/Early Brood-rearing, Brood Rearing, and Wintering)
- Population Viability Assessments

2. General Land Use Information

At this scale, gathering general public land use information will be very helpful and includes, but is not limited to:

- Watershed boundaries
- Grazing allotment and use area boundaries
- Range improvement projects (chainings, seedings, water pipelines, etc)
- Waters (Developed and Undeveloped)
- WSA Boundaries
- HMA Boundaries
- Utility Corridors
- Land Ownership
- Roads

3. Refined Vegetation and Habitat Planning Map of Sage Grouse Sub-Populations

Working in the fine-scale we begin to consider habitat availability and fragmentation patterns in relation to the breeding, late brood-rearing, and winter habitat on specific sites of Sage Grouse sub-populations within the PMU. Refining the Habitat Planning Map is important at this stage, but is still not composed of detailed vegetation mapping, but broad delineations based on readily available information and “quick-and-dirty” habitat assessments of R-values in prioritized areas of concern.

- a. Breeding and Winter Habitats: Delineating R-values on sagebrush vegetation on breeding and winter habitats at the fine-scale level can be accomplished by utilizing the following existing GIS data layers and information:

- Ecological Site Inventory (ESI) Maps and Data
- Soil Maps
- Historic Fire Information
- Fire Emergency Rehabilitation Files/Maps
- Fuels Management Files/Maps

Range Project/Allotment Files/Maps
Aerial and Satellite Imagery
Elevation Models

- b. Late Brood-rearing Habitats: At this scale it is important to delineate the extent of brood-rearing areas that are potentially significant. GAP data is extremely lacking in this attribute and consistently confuses agriculture with wet-meadows/riparian habitats. Areas with wet meadow complexes, sagebrush areas adjacent to agricultural fields, perennial streams, and lakes, ponds or lakebeds with sagebrush in close proximity are typical late brood-rearing habitats for consideration. Several information sources are important to use at this scale:

National Wetland Inventory (NWI) Maps
State Water Right Files/Claims
Riparian Proper Functioning Condition (PFC) assessments and maps
Infra-red Aerial Photography

C. Project-level Information and Site Assessments

Project-level or site-specific assessments will involve qualitative and quantitative on-the-ground data collection depending on management needs. Site-specific project-level procedures are to be used for a variety of purposes including detailed habitat assessments to characterize current habitat conditions, rangeland health evaluations through watershed analysis, proposed land exchanges, or to evaluate/monitor proposed habitat restoration projects.

Products:

1. Habitat Assessment Criteria

Tables 1-4 represent the criteria of quantitative data to be evaluated during Habitat Assessments by Sage Grouse seasons of use (breeding, late brood-rearing, and winter). Datasheets can be filled out without quantified data collection, but field workers should initially quantify all measurements to calibrate their visual estimation abilities. While the assessment framework allows for considerable flexibility in data type and detail, in complex or controversial areas, only qualitative evaluations should be used.

2. Detailed Habitat Assessments on Prioritized Site Selections

Priority and refined habitat areas of sub-populations identified at the fine-scale should be used to select restoration project sites for evaluation using the above Habitat Assessment Criteria.

It is important to note that not all indicators need to be in the “suitable habitat” category for a site to be considered as suitable. For example, if a site had suitable breeding habitat conditions for all indicators except sagebrush canopy cover (site had 30% canopy) then a site rating of suitable would be appropriate. However, if a site had suitable habitat conditions for all indicators except that sagebrush canopy cover was only 5%, then the site would be unsuitable since Sage Grouse must have sagebrush for nesting. Overall site evaluations will be based on best professional judgment with interdisciplinary involvement.

There are some general rules that will be followed for each seasonal habitat assessment involving site selection and timing (See General Directions at the bottom of Tables 1-3).

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HABITAT AND R-VALUES:

- **Key Habitat:** All naturally large-scale habitats currently, historically, or potentially capable of supporting Sage Grouse populations. These habitats provide one or more of the seasonal requirements of the species in its life cycle. This does not imply critical, crucial, or high value/quality habitat, but only that the areas can, did, or could support Sage Grouse populations.
 - **Quality Habitats (R0):** Areas of intact sagebrush dominated habitats with *good* understory components. Meets the acceptable criteria for both sagebrush canopy and grass/forb understory. High priority habitats for protection.
 - **Restoration Habitats:** Areas that currently are, historically were, or potentially could be Sage Grouse habitat, and that *if restored*, would provide better habitat at sometime in the future.
 - **R1:** Areas with limited sagebrush, *with* acceptable grass and forb understory composition. May include native and seeded perennial grass rangelands.
 - **R2:** Areas with inadequate grass/forb understory composition, *with or without* adequate sagebrush cover. Expensive management treatments are needed for restoration.
 - **R2a:** Decadent Sagebrush; cover exceeds the recommended levels.
 - **R2b:** Areas where perennial or annual invasive species are present and *will likely* establish and dominate after a disturbance event. The site is at risk, but the threshold has yet to be crossed.
 - **R2c:** Perennial or annual invasive *dominated* due to disturbance event. The threshold has been crossed.
 - **R2d:** Excessive or inappropriate disturbance on the understory grass/forb component.
 - **R3:** Areas where *natural sagebrush rangeland* sites that have been encroached upon by Pinyon/Juniper. These *are* sagebrush rangelands, *not* natural woodland sites that predominately favor trees.
 - **R3a:** Phase II of tree take over. Small trees of low density, with intact sagebrush/grass/forb understory. High management priority for alteration/maintenance.
 - **R3b:** Areas where tree density has eliminated sagebrush, grass/forb understory. Where this threshold has been crossed, management options are expensive and limited.
 - **R4:** Areas where *natural sagebrush* rangeland sites have been type converted for private alternative use to agricultural annual grasslands/forbs (could be bare and fallow ground). Potential sagebrush habitats for restoration, but only at the discretion of the landowner.

Table 1. Nesting and early brood rearing habitat features and indicators*

Habitat Feature	Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Nesting Cover	Big sagebrush canopy cover	15-25%	10-14% or 26-35%	<10% or >35%
Nesting Cover Mesic Site Arid Site	Big sagebrush height	15-30 inches 12-30 inches	10-14 or 31-40 inches 10-11 or 31-40 inches	<10 or >40 inches <10 or >40 inches
Nesting Cover	Big sagebrush growth form	Spreading form, few if any dead branches	Mix of spreading and columnar growth forms	Tall, columnar growth form with dead branches
Nesting Cover	Herbaceous perennial grass/forb height	>=7 inches	5- <7 inches	< 5 Inches
Nesting Cover/Food Mesic Site ^a Arid Site ^b	Perennial grass canopy cover	>= 15% >= 10%	5-14% 5- <10%	<5% <5%
Nesting Cover/Food Mesic Site ^a Arid Site ^b	Forb canopy cover	>= 10% >= 5%	5- <10% 3- <5%	<5% <3%
Food	Forb Diversity	Forbs common, with at least a few preferred species present	Forbs common but only 1 or 2 preferred species present	Forbs rare to sparsely present

* Source: USDI BLM-Idaho. 2000. A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Lands in Idaho.

^a Mesic Site= Sites are generally in a >12" precipitation zone and *Artemisia tridentata vaseyana* is the common big sagebrush sub-species in the area.

^b Arid Site= Sites are generally in the 10-12" precipitation zone and *Artemisia tridentata wyomingensis* is the common big sagebrush sub-species in the area.

General Directions

- 1) Sites should be located on flat to slightly sloping lands. Slopes greater than 40% are unsuitable nesting habitat
- 2) Breeding habitat must be evaluated as close to the end of nesting as possible (Late May). For low elevation areas this will be May, or higher elevation areas it will be June.
- 3) Evaluation sites will be located at least ¼ mile from livestock water.
- 4) Where possible, utilize key areas for rangeland trend monitoring only if they are representative.
- 5) Precipitation can effect annual forb growth-if precipitation is a interpretation factor then this should be noted in the comment section.
- 6) Good nesting habitat may be provided disproportionately in small inclusions of big sagebrush surrounded by low sagebrush. In these situations nesting conditions should be measured in the big sagebrush patches. However, the low sagebrush community likely provides important pre-nesting and early brood-rearing habitat and should be evaluated for the forb composition indicators.
- 7) Where present, representative evaluation sites will be selected from major cover types of sagebrush/perennial grass, sagebrush/annual grass, perennial grasslands, annual grasslands, and sagebrush types becoming dominated by pinyon and juniper.

Table 2. Late brood-rearing habitat features and indicators.*

Habitat Feature	Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Food	Riparian and wet meadow plants	Mesic or wetland plant species dominate wet meadow or riparian area	Xeric plant species invading wet meadow or riparian area	Xeric plant species along waters edge or near center of wet meadow
Cover and Food	Riparian and wet meadow stability	No erosion evident: some bare ground may be evident but vegetative cover dominates the site	Minor erosion occurring and bare ground may be evident but vegetative cover dominates the site	Major erosion evident large patches of bare ground
Food	Forb availability in uplands and wetland areas ^a	Succulent forbs are readily available in terms of distribution and plant structure	Succulent forbs are available though distribution is spotty or plant structure limits effective use	Succulent forbs are scarce or not available due to site conditions or plant structure, despite favorable growing conditions
Cover	Proximity of sagebrush cover	Sagebrush cover is adjacent (<100 yards) to brood-rearing area	Sagebrush cover is in close proximity (100-300 yards) of brood-rearing areas	Sagebrush cover is unavailable (> 300 yards)

* Source: USDI BLM-Idaho. 2000. A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Lands in Idaho.

^a Forb availability and plant structure:

- a. In some cases forbs may be present on the site but trampling or grazing intensity may affect availability.
- b. Upland sites should only be evaluated if green, succulent forbs are present at the time of the site visit. Evaluating an area after forbs have desiccated is not advised even if the site may provide late brood-rearing habitat.

General Directions

- 1) Conducted in areas identified as important late brood-rearing habitats during fine-scale review.
- 2) Riparian areas and wet meadows located in deep canyons should not be considered brood-rearing habitat.
- 3) Evaluation sites should not be located in designated livestock stream crossings or water gaps.
- 4) Evaluations must be done in July-October, unless an adequate assessment can be done with existing data.

Table 3. Winter habitat features and indicators.*

Habitat Feature	Indicator	Suitable Habitat	Marginal Habitat	Unsuitable Habitat
Cover and Food	Sagebrush canopy cover	10-30%	5-9% or >30%	<5%
Cover and Food	Sagebrush height ^a	Generally normal tall or a diversity of sagebrush heights relative to species and site potential	Hedged shrubs, with some tall shrubs but generally more moderate to slightly shorter shrubs relative to site potential	Severely hedged, with poor height diversity and generally short shrubs relative to species and site potential

* Source: USDI BLM-Idaho. 2000. A Framework to Assist in Making Sensitive Species Habitat Assessments for BLM-Administered Lands in Idaho.

^a Sagebrush height: Measuring sagebrush heights above snow during the winter would be difficult for many areas. Since the evaluation sites are located in known or suspected wintering areas, sagebrush heights in the area relative to sagebrush species and ecological site is an important habitat indicator.

General Directions

- 1) Conducted in areas that were identified as winter areas during the fine-scale review.
- 2) Low elevation, fragmented sagebrush areas may provide important winter habitat.
- 3) Winter and breeding habitat will overlap in many areas although low sagebrush areas associated with wind swept ridges are often used.
- 4) Evaluations can be done at any time since sagebrush distribution, cover, and height are the only factors of concern.

Table 4. Characteristics of sagebrush rangeland needed for productive Sage Grouse habitats*.

	Breeding		Brood-rearing		Winter ^c	
	Height (inches)	Canopy (%)	Height (inches)	Canopy (%)	Height (inches)	Canopy (%)
<u>Mesic Sites^a</u>						
Sagebrush	15-30	15-25	15-30	10-25	10-15	10-30
Grass/Forb	>7^c	>= 25^d	Variable	>15	N/A	N/A
<u>Arid Sites^a</u>						
Sagebrush	12-30	15-25	15-30	10-25	25-35	10-30
Grass/Forb	>= 7^c	>= 15	Variable	>15	N/A	N/A
<u>Area^b</u>	>80		>40		>80	

* Source: Connelly, J.W., M.A Schroeder, A.R Sands, and C.E Braun. 2000. Guidelines to manage Sage Grouse populations and their habitats. Wildlife Society Bulletin 28(4): 967-985.

^a Mesic and Arid sites should be defined on a local basis: annual precipitation, herbaceous understory, and soils should be considered

^b Percentage of seasonal habitat needed with indicated conditions

^c Measured as “droop height”; the highest naturally growing portion of the plant

^d Coverage should exceed 15% for perennial grasses and 10% for forbs: values should be substantially greater if most sagebrush has growth form that provides little lateral cover

^e Values for height and canopy coverage are for shrubs exposed above snow

QUALITATIVE HABITAT ASSESSEMENT CRITERIA FOR THREAT TABLES:

Areas within the Population Management Units (PMU) are separated by plant community type for the purpose of evaluating threats to Sage Grouse. Additionally, lands that are considered riparian areas and private lands are addressed separately. Each plant community type has a different general priority level for implementing projects to alleviate threats to Sage Grouse. The communities designated as high priority for projects are sagebrush steppe and riparian because they are the plant communities that Sage Grouse predominantly use. The plant communities with a moderate priority for projects are mountain brush and pinyon-juniper woodland. Some mountain brush communities are used by Sage Grouse. Pinyon-juniper woodlands receive little use by Sage Grouse, but lie between mountain brush and sagebrush steppe plant communities and are dissected by riparian systems. Therefore, improved management of pinyon-juniper woodland, especially the restoration of fire disturbance regimes, will have a positive impact on adjacent sagebrush steppe, mountain brush, and riparian areas. Some private lands are used by Sage Grouse, but the implementation of projects will depend on cooperation of the landowners. Salt desert shrub has a low priority for projects because use by Sage Grouse is limited and because of the arid environment.

Each threat table lists threats that influence, or are perceived to influence, Sage Grouse populations during stages of their annual life cycle. The threats tend to be general in nature (e.g., human disturbance could be ATV recreation, utility corridors, or mining). When specific projects are planned in watersheds of the PMU's, the specific threats will be addressed. For each threat, one or more strategies are identified to alleviate the threat. Every strategy in the threat table comes from the goals and objectives portion of the plan (see number after each strategy).

The numbering of the threats does not indicate any priority for alleviating the threat. The threats will be alleviated according to their occurrence within the PMU's. Threats that occur around current lek locations will have the highest priority. Additionally, the location of communities of different R-values in relation to current leks or quality habitat will influence priorities for alleviating threats.

Table 5: Salt Desert Shrub

Salt Desert Shrub occurs at the lower elevations. It generally has higher alkaline soils and lower precipitation. Common plants include Winterfat, Greasewood, Four-wing Saltbush, Shadscale, and Black Sage. Although Sage Grouse are found in these areas, their use is somewhat limited.

Priority for projects in this ecotype: *LOW*

Breeding	Dependant Species	Sage Grouse, other sagebrush obligates
	Threats	A. Poor range condition. B. Predation. C. Human disturbance.** D. Noxious weeds E. Weather
	Strategies to Alleviate Threats	A1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). A2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3). A3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). B1: Use predator control, where appropriate, to negate high predation losses (1.1.3). C1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). D1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4). E1: Water development (3.4.1-3.4.4).
Nesting/Early Brood Rearing	Dependant Species	Sage Grouse, other sagebrush obligates
	Threat	A. Poor range condition. B. Weather. C. Predation. D. Human disturbance**. E. Season of use. F. Fragmentation of habitat. G. Lack of insects/forage. H. Insect infestation. I. Lack of water or mesic areas. J. Noxious weeds.
	Strategies to Alleviate Threats	A1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). A2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) A3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). C1: Use predator control, where appropriate, to negate high predation losses (1.1.3). D1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). D2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). E1: Examine grazing areas to determine if season of use may need to be altered (3.1.5). G/H1: Address impacts of insect infestations and/of lack of insects (3.1.6). I1: Water development (3.4.1-3.4.4) J1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).
Summer/Late Brood Rearing	Dependant Species	Sage Grouse, other sagebrush obligates
	Threats	A. Lack of water/competition for water. B. Fire. C. Predation. D. Human disturbance. E. Poor condition of range. F. Season of use. G. Weather. H. Noxious weeds.
	Strategies to Alleviate Threats	A1: Water development (3.4.1-3.4.4). B1: Identify high priority areas for fire protection/suppression activities (1.1.4). C1: Use predator control, where appropriate, to negate high predation losses (1.1.3). D1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). D2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). E1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). E2: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). F1: Examine grazing areas to determine if season of use may need to be altered (3.1.5). H1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).
Winter	Dependant Species	Sage Grouse, other sagebrush obligates
	Threats	A. Predation. B. Poor condition of range. C. Weather. D. Human disturbance. E. Fire. F. Nutritional value of forage. G. Season of use. H. Noxious weeds.
	Strategies to Alleviate Threats	A1: Use predator control, where appropriate, to negate high predation losses (1.1.3). B1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). B2: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). D1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). D2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). E1: Identify high priority areas for fire protection/suppression activities (1.1.4). G1: Examine grazing areas to determine if season of use may need to be altered (3.1.5). I1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).

**Habitat Disturbance includes, but is not limited to, fences, roads, transmission lines, development, OHV events, mining, etc.

Table 6: Sagebrush Steppe

Sagebrush Steppe occurs at the mid elevations. (Soils) Moderate precipitation levels. Common plants include Wyoming sagebrush and low sagebrush.

Priority for projects: High

Breeding	Dependant Species	Sage Grouse, other sagebrush obligates.
	Threats	A. Alteration of natural disturbance regimes. B. Poor condition of range. C. Predation. D. Human disturbance**. E. Weather. F. Fragmentation of habitat from Pinion/Juniper encroachment . G. Noxious weeds.
	Strategies to Alleviate Threats	A1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). A2: Use prescribed fire to reduce heavy fuel loads in seral stage PJ and sagebrush communities (3.3.2). B1: Reduce detrimental effects of inappropriate grazing on Sage Grouse leks and nesting habitats (3.1.2). B2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) B3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). C1: Use predator control, where appropriate, to negate high predation losses (1.1.3). D1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). D2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). E1: Water development (3.4.1-3.4.4). F1: Design and implement habitat research projects to determine what adaptive strategies are beneficial to Sage Grouse (2.2.2). F2: Identify all sagebrush sites that have been encroached upon by PJ and prioritize for projects (3.2.1). F3: Use various methods (mechanical, chemical, prescribed burns) to treat decadent or PJ encroached sagebrush habitats (3.2.3). G1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).
Nesting/Early Brood Rearing	Dependant Species	Sage Grouse, other sagebrush obligates.
	Threats	A. Alteration of natural disturbance regimes. B. Poor condition of range. C. Weather. D. Predation. E. Human disturbance**. F. Season of use. G. Fragmentation of habitat from Pinion/Juniper encroachment . H. Lack of insects/forage. I. Insect infestation. J. Lack of water or mesic areas. K. Noxious weeds.
	Strategies to Alleviate Threats	A1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). A2: Use prescribed fire to reduce heavy fuel loads in seral stage PJ and sagebrush communities (3.3.2). B1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). B2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) B3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). C1: Water development (3.4.1-3.4.4). D1: Use predator control, where appropriate, to negate high predation losses (1.1.3). E1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). E2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). F1: Examine grazing areas to determine if season of use may need to be altered (3.1.5). G1: Design and implement habitat research projects to determine what adaptive strategies are beneficial to Sage Grouse (2.2.2). G2: Identify all sagebrush sites that have been encroached upon by PJ and prioritize for projects (3.2.1). G3: Use various methods (mechanical, chemical, prescribed burns) to treat decadent or PJ encroached sagebrush habitats (3.2.3). J1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).
Summer/Late Brood Rearing	Dependant Species	Sage Grouse, other sagebrush obligates.
	Threats	A. Lack of water/competition for water. B. Fire. C. Predation. D. Human disturbance**. E. Poor condition of range. F. Season of use. G. Weather. H. Poor condition of riparian areas. J. Noxious weeds.
	Strategies to Alleviate Threats	A1: Water development (3.4.1-3.4.4). B1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). C1: Use predator control, where appropriate, to negate high predation losses (1.1.3). E1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). D1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). D2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). E1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). E2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3). E3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). F1: Examine grazing areas to determine if season of use may need to be altered (3.1.5). G1: Water development (3.4.1-3.4.4). H1: Need to address riparian areas in Goals and Objectives. I1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).
Winter	Dependant Species	Sage Grouse, other sagebrush obligates.
	Threats	A. Predation. B. Poor condition of range. C. Weather. D. Human disturbance**. E. Fire. F. Pinion/Juniper encroachment . G. Season of use. H. Noxious weeds.
	Strategies to Alleviate Threats	A1: Use predator control, where appropriate, to negate high predation losses (1.1.3). B1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). B2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) B3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). D1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). D2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). E1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). F3: Use various methods (mechanical, chemical, prescribed burns) to treat decadent or PJ encroached sagebrush habitats (3.2.3). G1: Examine grazing areas to determine if season of use may need to be altered (3.1.5). H1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).

**Human disturbance includes, but is not limited to, fences, roads, transmission lines, development, OHV events, mining, etc.

Table 7: Pinyon-Juniper Woodlands

“Real P-J” is not suitable habitat, but P-J with some large openings could be. Marginal use depends on thickness and surrounding type of habitat. Sage Grouse rarely, if ever, were observed using pinyon-juniper habitat. Areas that include historic Sage Grouse habitat that are now **encroached** upon by pinyon/juniper would be considered suitable for projects.

Priority for Projects: *Moderate*

Breeding	Dependant Species	Sage Grouse
	Threats	A. Alteration of Natural Disturbance Regime.
	Strategies to Alleviate Threats	A1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). A2: Use prescribed fire to reduce heavy fuel loads in seral stage PJ and sagebrush communities (3.3.2). A3: Design and implement habitat research projects to determine what adaptive strategies are beneficial to Sage Grouse (2.2.2). A4: Identify all sagebrush sites that have been encroached upon by PJ and prioritize for projects (3.2.1). A5: Use various methods (mechanical, chemical, prescribed burns) to treat decadent or PJ encroached sagebrush habitats (3.2.3).
Nesting/Early Brood Rearing	Dependant Species	Sage Grouse
	Threats	A. Alteration of Natural Disturbance Regime.
	Strategies to Alleviate Threats	A1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). A2: Use prescribed fire to reduce heavy fuel loads in seral stage PJ and sagebrush communities (3.3.2). A3: Design and implement habitat research projects to determine what adaptive strategies are beneficial to Sage Grouse (2.2.2). A4: Identify all sagebrush sites that have been encroached upon by PJ and prioritize for projects (3.2.1). A5: Use various methods (mechanical, chemical, prescribed burns) to treat decadent or PJ encroached sagebrush habitats (3.2.3).
Summer/Late Brood Rearing	Dependant Species	Sage Grouse
	Threats	A. Alteration of Natural Disturbance Regime.
	Strategies to Alleviate Threats	A1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). A2: Use prescribed fire to reduce heavy fuel loads in seral stage PJ and sagebrush communities (3.3.2). A3: Design and implement habitat research projects to determine what adaptive strategies are beneficial to Sage Grouse (2.2.2). A4: Identify all sagebrush sites that have been encroached upon by PJ and prioritize for projects (3.2.1). A5: Use various methods (mechanical, chemical, prescribed burns) to treat decadent or PJ encroached sagebrush habitats (3.2.3).
Winter	Dependant Species	Sage Grouse
	Threats	A. Alteration of Natural Disturbance Regime.
	Strategies to Alleviate Threats	A1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). A2: Use prescribed fire to reduce heavy fuel loads in seral stage PJ and sagebrush communities (3.3.2). A3: Design and implement habitat research projects to determine what adaptive strategies are beneficial to Sage Grouse (2.2.2). A4: Identify all sagebrush sites that have been encroached upon by PJ and prioritize for projects (3.2.1). A5: Use various methods (mechanical, chemical, prescribed burns) to treat decadent or PJ encroached sagebrush habitats (3.2.3).

Table 8: Mountain Brush

Priority for Projects: *Moderate*

Breeding	Dependant Species	Sage Grouse, other sagebrush obligates.
	Threats	A. Predation. B. Weather. C. Human disturbance. D. Lack of diversity/monoculture. E. P-J encroachment . F. Fire. G. Poor range condition. H. Noxious weeds.
	Strategies to Alleviate Threats	A1: Use predator control, where appropriate, to negate high predation losses (1.1.3). C1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C2: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C3: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). D1: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). F1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). G1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). G2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) G4: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). H1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).
Nesting/Early Brood Rearing	Dependant Species	Sage Grouse, other sagebrush obligates.
	Threats	A. Predation. B. Weather. C. Human disturbance. D. Lack of diversity. E. P-J Encroachment . F. Fire. G. Poor range condition. H. Lack of water. I. Insects (lack of or infestation). J. Noxious weeds.
	Strategies to Alleviate Threats	A1: Use predator control, where appropriate, to negate high predation losses (1.1.3). B1: Reduce the effects of weather by providing water developments for dry conditions and vigorous stands of sagebrush for winter food/cover. C1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C2: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C3: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). D1: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). F1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). G1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). G2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) G4: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). H1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).
Summer/Late Brood Rearing	Dependant Species	Sage Grouse, other sagebrush obligates.
	Threats	1. Predation. 2. Weather. 3. Human disturbance. 4. Lack of diversity. 5. P-J Encroachment . 6. Fire. 7. Poor range condition. 8. Lack of water. 9. Insects (lack of or infestation). 10. Noxious weeds.
	Strategies to Alleviate Threats	A1: Use predator control, where appropriate, to negate high predation losses (1.1.3). B1: Reduce the effects of weather by providing water developments for dry conditions and vigorous stands of sagebrush for winter food/cover. C1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C2: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C3: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). D1: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). F1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). G1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). G2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) G4: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). H1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).
Winter	Dependant Species	Sage Grouse, other sagebrush obligates.
	Threats	1. Predation. 2. Weather. 3. Human disturbance. 4. Lack of diversity. 5. P-J Encroachment . 6. Fire. 7. Poor range condition. 8. Noxious weeds.
	Strategies to Alleviate Threats	A1: Use predator control, where appropriate, to negate high predation losses (1.1.3). B1: Reduce the effects of weather by providing water developments for dry conditions and vigorous stands of sagebrush for winter food/cover. C1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C2: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C3: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). D1: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). F1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). G1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). G2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) G4: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). H1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).

Table 9: Private Lands

Breeding	Dependant Species	Sage Grouse.
	Threats	1. Conversion of sagebrush and wet meadows. 2. Mortality/disturbance due to field preparation. 3. Fences, power lines, other structures. 4. Predation, including domestic animals. 5. Fragmentation. 6. Weather. 7. Noxious weeds/herbicides. 8. Poor range condition. 9. Urbanization. 10. Fire.
	Strategies to Alleviate Threats	1. Identify landowners within White Pine and Lincoln Counties who have Sage Grouse associated with their operations (4.1.1). 2. Evaluate, with landowner, current practices that may be detrimental, neutral, or beneficial to Sage Grouse.
Nesting/Early Brood Rearing	Dependant Species	Sage Grouse.
	Threats	1. Conversion of sagebrush and wet meadows. 2. Mortality/disturbance due to harvest. 3. Fences, power lines, other structures. 4. Predation, including dogs and cats. 5. Fragmentation. 6. Weather. 7. Noxious weeds/herbicides. 8. Poor range condition. 9. Pesticides. 10. Urbanization. 11. Fire.
	Strategies to Alleviate Threats	1. Identify landowners who have Sage Grouse associated with their operations (4.1.1). 2. Evaluate, with landowner, current practices that may be detrimental, neutral, or beneficial to Sage Grouse.
Summer/Late Brood Rearing	Dependant Species	Sage Grouse.
	Threats	1. Conversion of sagebrush and wet meadows. 2. Mortality/disturbance due to harvest. 3. Fences, power lines, other structures. 4. Predation, including dogs and cats. 5. Fragmentation. 6. Weather. 7. Noxious weeds/herbicides. 8. Poor range condition. 9. Pesticides. 10. Urbanization. 11. Fire.
	Strategies to Alleviate Threats	1. Identify landowners who have Sage Grouse associated with their operations (4.1.1). 2. Evaluate, with landowner, current practices that may be detrimental, neutral, or beneficial to Sage Grouse.
Winter	Dependant Species	Sage Grouse.
	Threats	1. Conversion of sagebrush. 2. Fences, power lines, other structures. 3. Predation, including domestic pets. 4. Fragmentation. 5. Weather. 6. Noxious weeds/herbicides. 7. Poor range condition. 8. Urbanization. 9. Fire.
	Strategies to Alleviate Threats	1. Identify landowners who have Sage Grouse associated with their operations (4.1.1). 2. Evaluate, with landowner, current practices that may be detrimental, neutral, or beneficial to Sage Grouse.

Table 10: Riparian

Priority for projects: High

****Human disturbance includes, but is not limited to, fences, roads, transmission lines, development, OHV events, mining, etc.**

Breeding	Dependant Species	Sage Grouse.
	Threats	A. Predation. B. Human disturbance. C. Encroachment of sagebrush and other woody species, resulting in canopy closure. D. Poor range condition. E. Noxious weeds. F. Non-functioning or poorly functioning condition. G. Weather. H. Previous fires.
	Strategies to Alleviate Threats	A1: Use predator control, where appropriate, to negate high predation losses (1.1.3). B1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). B2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). D1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). D2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) D3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). E1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4). H1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1).
Nesting/Early Brood Rearing	Dependant Species	Sage Grouse.
	Threats	A. Predation. B. Human disturbance. C. Encroachment of sagebrush and other woody species, resulting in canopy closure. D. Poor range condition. E. Noxious weeds. F. Non-functioning or poorly functioning condition. G. Weather. H. Previous fires. I. Insects—lack of or infestation.
	Strategies to Alleviate Threats	A1: Use predator control, where appropriate, to negate high predation losses (1.1.3). B1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). B2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). D1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). D2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3) D3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). E1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4). H1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1)..
Summer/Late Brood Rearing	Dependant Species	Sage Grouse.
	Threats	A. Lack of water. B. Predation. C. Human disturbance. D. Weather. E. Previous fires. F. Poor range condition. G. Insects—lack of or infestation. H. Non-functioning condition. I. Encroachment of undesirable woody species. J. Noxious weeds.
	Strategies to Alleviate Threats	A1: Water development (3.4.1-3.4.4). B1: Use predator control, where appropriate, to negate high predation losses (1.1.3). C1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). C2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). E1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). F1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). F2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3). F3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). H1/I1. J1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).
Winter	Dependant Species	Sage Grouse.
	Threats	A. Predation. B. Human disturbance**. C. Weather. D. Previous fires. E. Poor range condition. F. Encroachment of undesirable woody species. G. Noxious weeds.
	Strategies to Alleviate Threats	A1: Use predator control, where appropriate, to negate high predation losses (1.1.3). B1: Reduce the detrimental effects of disturbance on Sage Grouse (1.1.2). B2: Lessen the effects of fences and over-head transmission lines on Sage Grouse, where possible (1.1.5). E1: Declare Full-Suppression and Let Burn areas for fire management activities (3.3.1). F1: Reduce detrimental effects of inappropriate grazing on Sage Grouse habitats (3.1.2). F2: Develop alternative grazing areas to draw grazing ungulates away from Sage Grouse leks and nesting habitats (3.1.3). F3: Increase the amount and improve condition of sagebrush habitats by implementing projects suggested by and agreed to by local planning groups (3.2.2). G1: Identify noxious weeds and aggressively treat them to prevent spread (3.1.4).

AMBIGUOUS HABITAT TERMINOLOGY DEFINED:

“Good” Understory: **Preferred: ≥ 7 inches height, $\geq 10\%$ grass and $\geq 5\%$ forb canopy.
Acceptable: 5- <7 inches height, and 5- $<10\%$ grass, and 3- $<5\%$ forb canopy.**

“Poor” Understory: **<5 inches height, or $<5\%$ grass, or $<3\%$ forb canopy.**

“Limited” Sagebrush: **$<10\%$ canopy or <10 inches height.**

“Decedent” Sagebrush: **$>35\%$ canopy and/or >40 inches in height.**

“Inappropriate” or “Excessive” Grazing: **<5 inches height, or $<5\%$ grass, or $<3\%$ forb canopy.**