

Sage Grouse Habitat Requirements and Development

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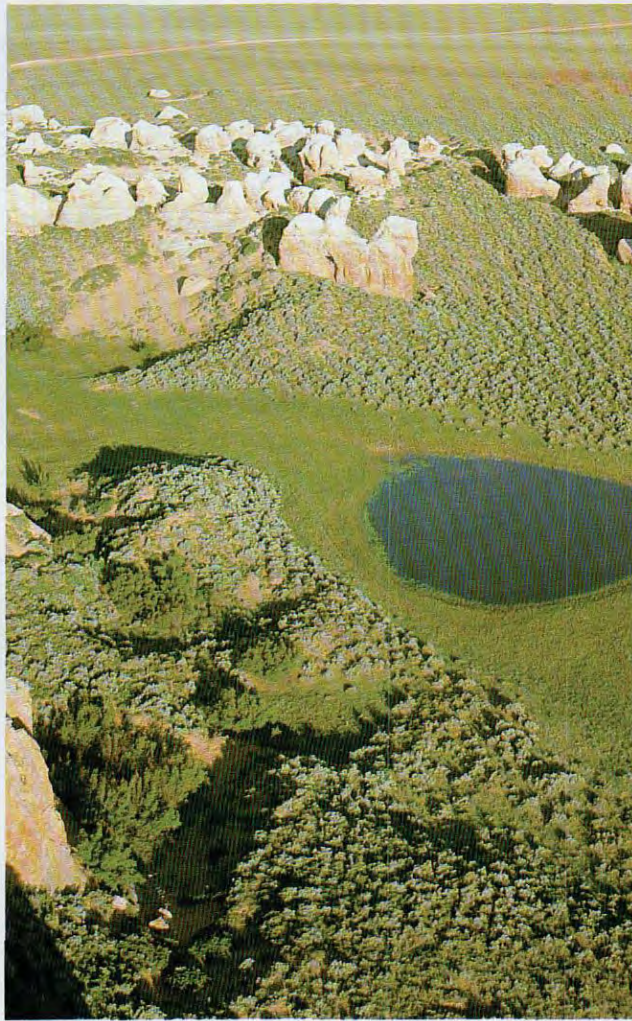


Sage grouse cock displaying.

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Due to the abundance of suitable habitat, Wyoming hosts some of the best sage grouse hunting in the world. This popular upland game bird is found in sagebrush habitat where it survives the harshest of weather conditions. The abundance of this species on its native range embodies the quality lifestyle that Wyoming residents assume will persist. However, the future of sage grouse in Wyoming depends upon our ability to maintain suitable habitat.



Water holes are a key component of summer and fall sage grouse habitat.

Leks

Although sage grouse are generally associated with sagebrush for food and cover, their specific habitat and diet varies seasonally. From late February through April, they gather on breeding grounds, or leks, which are used year after year. More than one hundred of these critical breeding areas are found statewide. Leks vary in size from a few hundred square feet to several acres. In the morning twilight, the bulky, long-tailed males perform their magnificent strutting displays by inflating their breast sacs, erecting their tails, emitting a resonant plopping sound, and occasionally fighting other males. A pecking order is established with a master cock dominating other males and performing the majority of breeding. Smaller, secretive females arrive on the leks one or two weeks after the males and appear to ignore strutting males until they are ready to be bred. Females become sexually mature at one year old, while males do not mate

until their second year. Strutting sites are generally open areas such as meadows or low sagebrush zones surrounded by denser sagebrush cover. Within ten days after breeding, females disperse to nesting areas within two to four miles of the lek. Relatively dense (20-40

percent coverage) sagebrush stands are used for nesting. The nest is a shallow depression lined with grass, twigs, and feathers generally constructed under the tallest shrub. The female lays about seven eggs. At this time, the adult diet is primarily sagebrush.

Brood Rearing

During summer, female sage grouse and their broods reside in sagebrush and meadow habitat. Sagebrush provides shade and protection from predators, while meadows provide food in the form of forbs. Although the adult diet switches to forbs and insects in addition to sagebrush, developing young depend heavily upon insects for food. During the first few weeks after hatching, chicks require grasshoppers, ants, and beetles as sources of protein for rapid growth. Forbs become important in the diets of juveniles as summer progresses. At this time, broods move to higher elevations in search of succulent vegetation or remain in sagebrush habitat if succulent forbs are readily available. Preferred forbs are found in moist areas such as foothill and mountain meadows, drainage bottoms, stream beds, and irrigated agricultural fields.



Fall and Winter

In the fall, diets shift from forbs and insects to sagebrush. Both sexes and all age groups assemble in flocks prior to migration to winter ranges close by or many miles away. From November through March, sage grouse are restricted to habitat with greater than 20 percent sagebrush cover for shelter and winter diet. During winter, sage grouse often use tall, dense stands of sagebrush which remain relatively exposed through deep snow. Low sagebrush on open windswept knolls will also be used as feeding sites. Sage grouse will widely disperse over a wintering area during mild weather, but concentrate in areas with exposed sagebrush as snow depth increases.

Habitat Management

Just as cover and forage requirements of sage grouse change with the season, so do procedures we can implement to alter and enhance their habitat. Rangeland improvement programs which reduce sagebrush habitat generally impair the welfare of sage grouse. Improving sage grouse habitat is best approached by minimally



Sagebrush (top) is a staple sage grouse food through most of the year and offers vital nesting cover in the spring. Sage grouse cocks (above) typically display in grassy openings but are seldom far from thick sagebrush cover.



reducing sagebrush cover while increasing the availability of favored forbs, thus creating a mosaic of sagebrush and openings. When sagebrush control is inevitable, the following measures may reduce impacts on sage grouse populations.

No treatment should be considered where sagebrush cover is less than 20 percent or within two miles of breeding, nesting, or brood areas. In addition, sagebrush should not be controlled in important wintering areas. Along streams, meadows, or secondary drainages, tall dense stands of sagebrush may be partially controlled and reseeded with grasses and forbs to promote feeding habitat. However, a 200 yard buffer strip of sagebrush should generally be reserved along these wetland edges.

In areas with old, decadent sagebrush or continuous expanses of dense sagebrush, limited treatment may be beneficial. Sagebrush should be managed using an irregular treatment pattern of localized patches or narrow strips. Total kill or removal of sagebrush should be avoided. Treatment of localized patches or narrow strips over a period

of several years promotes uneven aged stands of sagebrush, thus increasing habitat diversity. These irregular mosaic treatment patterns provide more edge-effect (and thus more benefits to sage grouse) and are much more natural looking and aesthetically pleasing than stripped or rectangular treatment blocks. The widths of treated areas should be no wider than 30 yards, and untreated areas should remain at least as wide as treated areas. Treated patches may be used as feeding areas following forb recovery while untreated patches may be used for shelter.

The timing and extent of chemical, mechanical, or controlled burn treatments to decrease sagebrush cover should be considered. Herbicides such as 2,4-D should be sprayed as early in spring as possible or prior to the emergence of forbs. Spray rates of 1 to 1.5 pounds of active ingredient per 3 gallons of water per acre are suggested. By spraying the chemical Roundup (Monsanto Chemical) during winter, only vegetation above the snow is killed, while nontarget forbs below the snow surface are not affected. Chaining is preferred over spraying for sagebrush control



Mixed stands of sagebrush of different ages along with grassy openings and water make ideal sage grouse habitat (above). Traditional spring mating grounds (right) also need to be protected.

Large sagebrush plants offer winter cover and food for sage grouse even after heavy snow.



since forbs are not killed and all sagebrush is not uprooted. Chaining patterns should be in random strips, while block chaining of large areas should be avoided. When sagebrush cover is too low for chaining or burning, plowing with a crawler tractor may be used to reduce sagebrush. After plowing, forb reseeding is necessary due to high vegetative mortality.

Controlled burns of a few acres may be beneficial along meadow edges of sagebrush encroachment. Burning small patches during late fall or early spring in brood rearing areas will create a mosaic of sagebrush and openings. However, burning in wintering or nesting habitat is undesirable.

With all rehabilitation techniques where soil remains suitable, reseeding with the following forbs will enhance sage grouse habitat: alfalfa, yellow sweet clover, western yarrow, sainfoin, small burnett, vetch, goatsbeard, chinese lettuce, and dandelion. To stimulate and maintain grass, forb, and shrub cover, apply nitrogen fertilizer at rates up to 120 pounds active ingredient per acre.

Wetlands that provide water, forage, and cover for both sage grouse and domestic livestock can

be managed for both uses. Stream meadows and the adjacent sagebrush buffer zone can be fenced, with 50 yard wide fenced corridors inserted to provide water access for cattle. Meadow grazing should be delayed until mid-August to promote sage grouse chick survival and growth. During livestock drives, nesting areas within two miles of breeding grounds should be avoided from mid-April through mid-June. High intensity grazing or trampling should be avoided in nesting and brood rearing areas.

Water resources can be developed to improve habitat for sage grouse. Springs and reservoirs can be fenced in brood rearing areas with water piped to stock tanks or troughs. In areas with limited free water, small pits or open trough guzzlers at ground level can provide water during summer. At livestock water troughs, bird ramps or hardware cloth should be installed. Brood habitat in the form of seep meadows can also be developed by building catch ponds associated with snowdrift fences. Small dams with water control structures and spreader ditches may also be used to promote succulent forbs into late summer.

Female sage grouse.



Travel lanes of continuous sagebrush should be provided for hen and brood summer migration to moister ranges at higher elevations as lower areas dry up. Hens and broods are strongly attracted to lush hay meadows and alfalfa fields during late summer. To enhance their survival in these areas, mowing should be delayed until after mid-July and/or a "flushing bar" should be installed on the mower's front end to disperse sage grouse from the cutting path. This device is a two inch pipe extending above and in front of the sickle-bar with chain that is one half inch or heavier and 24 inches in length set at twelve inch intervals along the pipe.

To enhance brood survival, insecticides such as malathion to control grasshoppers should be applied carefully. Malathion kills nearly all rangeland insects. Since insects are a critical component of chick diets, especially during the first three weeks of life, insecticides should not be applied until mid-July. Insecticides should not be sprayed within 500 feet of lakes or rivers

due to the importance of these areas as brood rearing habitat, and should be applied conservatively to permit movement of broods into untreated areas.

With proper maintenance of suitable habitat, sage grouse populations will remain abundant in Wyoming providing fascination for future generations.

Further information regarding sage grouse is available in the 1982 publication "Sage Grouse Management Practices" edited by Robert Autenrieth, Idaho Department of Fish and Game; William Molini, Nevada Department of Wildlife; and Clait Braun, Colorado Division of Wildlife.

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This publication is one in a series of habitat extension bulletins produced by the Wyoming Game and Fish Department. Call 1-800-842-1934 for additional information or assistance.

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