

# **Appendix H**

## **Habitat Descriptions**

### **for**

## **Management Indicator Species**

### **PLAINS SHARP-TAILED GROUSE**

(MIXED-GRASS PRAIRIE)

Hens tend to select undisturbed (no livestock present) areas with the tallest and densest cover available for their nests. Most nest-site selection and initiation occurs in April and early May, and turn-on dates for livestock should be delayed until late May or early June to provide undisturbed cover, assuming management objectives call for enhancing sharp-tailed grouse production. Because spring green-up has not started or is just beginning, most of the available cover at that time is residual cover from previous growing seasons. In addition to being the primary cover available at the onset of nesting, residual cover also helps to offset the negative effects of a lack of current year nesting cover during drought years when new vegetative cover is reduced or unavailable.

Height and density of cover at nest sites frequently exceeds average visual obstruction readings (VORs) of 6 inches. Average VORs of 11 inches have been reported at nest sites in some study areas so it is unlikely that native herbaceous cover on mixed grasslands gets too rank as nesting cover. Also, the very best nesting cover on mixed grasslands is probably equal to the maximum levels that can be produced (based on local site potential) and maintained on a long-term basis. On more productive grasslands (17 or more inches of average annual precipitation), hens commonly find quality cover on productive upland sites. Average VORs of 5 inches and more across the more productive sites in the fall or early winter typically provide quality cover for nest sites the following spring, assuming no winter livestock grazing occurs. On less productive grasslands, upland cover is sometimes unsuitable or marginal regardless of the grazing intensity, and hens commonly use taller and denser cover patches in run-in sites or in lower-lying areas along drainages. On the less productive grasslands, 4 inch average VORs in the fall or early winter may be all that can be produced, even in the absence of livestock grazing. However, 4 inch average VORs in the fall or early winter across the more productive sites in the pastures can still and frequently do provide some of the taller patches of cover that are selected as nest sites the following spring. However, if livestock grazing is highly uniform across a pasture, cover levels greater than the minimum 4 or 5 inch VORs may be needed to insure quality nest-site vegetation in the spring. The importance of having diverse grassland structure, including substantial areas of the taller and denser cover, within pastures or grazing allotments cannot be underestimated.

The taller and denser nesting cover is most easily provided in areas where mid and/or tall grass species are the dominate plant species and where livestock grazing intensity is light or where pastures have received periodic annual rest from livestock grazing. If livestock grazing management practices have reduced plant species composition to primarily shortgrass species, quality nesting cover will be limited or unavailable, regardless of the livestock grazing intensity or system. In these cases, it may take years and possibly decades, to restore the composition of the taller mid and tall grass species.

Another important consideration in the management of nesting cover for this species is the size of area providing quality nesting cover. If quality nesting habitat occurs as small islands in a sea of moderately to heavily grazed habitat with relatively low and uniform cover levels, nest success in the quality habitat may be reduced due to higher predation rates. Because empirical data are not available to support a recommended minimum area or percent area for quality nesting cover, the only recommendation that can be made at this time is that more and bigger areas of quality nesting habitat across the landscape are likely to enhance sharp-tailed grouse production.

A diversity of plant species composition and cover levels across the landscape provides quality brooding habitat. This diversity should include conditions that favor forb production and a full range of cover levels within pastures or grazing allotments, including substantial areas with relatively high vertical grassland structure remaining through August as escape cover from predators, especially raptors.

Preferred winter habitats include shrublands associated with wooded draws, thickets and wetlands and areas with heavy grassland cover for roosting. Fruits of buffaloberry, rose, snowberry and juniper are common winter food items. Small grains on intermingled private croplands are also heavily utilized when available.

#### (SAND HILLS PRAIRIE)

Much of the information presented above can be applied to managing sharp-tailed grouse in Sand Hills habitat. However, some adjustments are needed in the recommended minimum VORs for quality nesting cover. Because Sand Hill grasslands are more characteristic of a bunchgrass community with patchy vegetation and frequent bare ground, even in areas ungrazed by livestock, VORs are typically less than those from sod-forming grasslands with more continuous vegetative cover.

Height and density of residual cover at nest sites in the Sand Hills frequently exceed average VORs of 3 inches, and average VORs of 4 and 5 inches at nest sites are not uncommon. Suitable residual cover for nest sites in the spring are usually provided by maintaining average VORs of 2.7 to 3.0 inches across pastures or portions of pastures in the fall or early winter. Both hills and valleys should be considered potential nesting habitat since there is a lack of conclusive evidence that suggests a strong preference for either site as nesting habitat.

Preferred winter habitats include grasslands with moderate and heavy amounts of herbaceous cover interspersed with shrub and forb patches (disturbed sites) for foraging. Fruits of snow-berry, rose, juniper, and poison ivy are common winter foods.

## **GREATER PRAIRIE CHICKEN**

### (TALLGRASS PRAIRIE AND SAND HILL INCLUSIONS)

A small sample of prairie chicken nests on the Sheyenne National Grassland demonstrated that hens select undisturbed (no livestock present) and relatively tall and dense cover at nest sites. VORs at nest sites averaged approximately 10 inches, but these measurements probably included both current and residual cover. A minimum average VOR of 6 inches across potential nesting habitat was suggested as the minimum in the spring to provide suitable nest-site vegetation. This recommendation would likely require an average VOR of 9 or more inches in the fall or early winter after livestock grazing to provide the recommended spring standard. The increased fall standard of 9 inches or more would generally compensate for the natural loss of residual cover over winter due to natural causes such as wind and snow-pack. Nesting cover for early nests was provided by residual grasses and sedges.

Prairie chicken hens select midland sites within the hummocky sandhills habitat type for nesting. The midland sites provide the tallest and densest cover that's not subject to regular flooding. The amount of use of upland sites and other habitat types for nesting that might occur if quality cover was available on those sites is unknown.

The taller and denser nesting cover is most easily provided in areas where mid and/or tall grass species are the dominate plant species and where livestock grazing intensity is light or where pastures have received periodic annual rest from livestock grazing. If livestock grazing management practices have reduced plant species composition to primarily shortgrass species, quality nesting cover will be limited or not available, regardless of the livestock grazing intensity or system.

Another important consideration in the management of nesting cover for this species is the size of area providing quality nesting cover. If quality nesting habitat occurs as small islands in a sea of moderately to heavily grazed habitat with relatively low and uniform cover levels, nest success in the quality habitat may be reduced due to higher predation rates. Because empirical data are not available to support a recommended minimum area or percent area for quality nesting cover, the only recommendation that can be made at this time is that more and bigger areas of quality nesting habitat across the landscape are likely to enhance prairie chicken production.

Midland and lowland sites that were grazed or burned the previous year but idled during the current year and that have average VORs exceeding 10 inches through the summer brooding season provide preferred brooding habitat.

High-structure grasslands near croplands are preferred winter habitats during winter on the Sheyenne National Grassland. Winter foods of prairie chickens in this area were high-energy crops like corn, sunflower and soybean supplemented with some grass and forb seeds. Shrubs (fruit) and tree buds were of little significance as food items on the National Grassland.

#### (MIXED-GRASS PRAIRIE)

Hens tend to select undisturbed (no livestock present) areas with the tallest and densest cover available for their nests. Most nest-site selection and initiation occurs in April and early May, and turn-on dates for livestock should be delayed until mid May or June 1 to provide undisturbed cover, assuming management objectives call for enhancing prairie chicken production. Because spring green-up has not started or is just beginning at the time of nest site selection and initiation, most of the available cover at that time is residual cover from previous growing seasons. In addition to being the primary cover available at the onset of nesting, residual cover also helps to offset the negative effects of a lack of current year nesting cover during drought years when new growth to serve as cover is reduced or unavailable.

Average VORs at a small sample of prairie chicken nests on the Fort Pierre National Grassland generally exceeded 6 inches and several exceeded 10 inches at the nest sites. These nests were located on rolling to flat upland sites, and the measurements included both residual and current year cover. This strongly suggests that, like sharp-tailed grouse, prairie chickens occurring in mixed grass prairie select for the tallest and densest nesting cover available and that native mixed grass cover seldom becomes too rank for nesting chickens. Average VORs of 5 inches and more across the more productive sites in the fall or early winter typically provide quality cover for nest sites the following spring, assuming no winter livestock grazing occurs. However, if livestock grazing is highly uniform across a pasture, cover levels greater than the recommended minimum may be needed to insure quality nest-site vegetation the following spring. The importance of having diverse grassland structure, including substantial areas of the taller and denser cover, within pastures or grazing allotments cannot be underestimated.

The taller and denser nesting cover is most easily provided in areas where mid and/or tall grass species are the dominate plant species and where livestock grazing intensity is light or where pastures have received periodic annual rest from livestock grazing. If livestock grazing management practices have reduced plant species composition to primarily shortgrass species, quality nesting cover will be limited or not available, regardless of the livestock grazing intensity or system.

Another important consideration in the management of nesting cover for this species is the size of area providing quality nesting cover. If quality nesting habitat occurs as small islands in a sea of moderately to heavily grazed habitat with relatively low and uniform cover levels, nest success in the quality habitat may be reduced due to higher predation rates. Because empirical data are not available to support a recommended minimum area or percent area for quality nesting cover, the only recommendation that can be made at this time is that more

and bigger areas of quality nesting habitat across the landscape are likely to enhance prairie chicken production.

A diversity of plant species composition and cover levels across the landscape provides quality brooding habitat. This diversity should include conditions that favor forb production and a full range of cover levels within pastures or grazing allotments, including substantial areas with relatively high vertical grassland structure remaining through August as escape cover from predators, especially raptors.

Preferred winter habitats include grasslands with heavy cover for roosting and interspersed-shrub patches for winter foraging. Fruits of buffaloberry, rose, snowberry and juniper are common winter food items. Small grains on intermingled private croplands are also heavily utilized, and appear to be a requirement in some areas.

#### (SAND HILLS PRAIRIE)

The nesting seasons for greater prairie chicken in the Sand Hills coincides with that of the sharp-tailed grouse with most nest-site initiation beginning in mid April. Residual cover provides most of the nest concealment for the first part of the nesting season. The importance of residual cover is further emphasized during drought years when current year cover is reduced or unavailable.

Greater prairie chicken nests have been observed in the hills, valleys and meadows. There is no empirical data suggesting a preference for a particular topographic site, but the fact that chicken nests are commonly found in the tall and dense subirrigated meadow vegetation on the Valentine National Wildlife Refuge suggests that in areas without subirrigated meadows, sites with the tallest and densest cover available in the hills or interdunal valleys would be preferred for nesting. Potential average VORs in the valleys can be expected to exceed 4 or 5 inches in the fall or early winter while the potential VORs in the hills can be expected to average 3 or more inches, given light livestock grazing intensity or periodic annual rest from livestock grazing. Because more cover can be produced in the valleys than in the hills, maintaining suitable nesting cover in the valleys may be more important than the steeper hills as potential nesting habitat for prairie chickens. The higher VORs are most easily provided in areas where mid and/or tall grass species are the dominant plant species. If livestock grazing management practices have reduced plant species composition to primarily shortgrass species, quality nesting cover will be limited or not available, regardless of the livestock grazing intensity or system.

Another important consideration in the management of nesting cover for this species is the size of area providing quality nesting cover. If quality nesting habitat occurs as small islands in a sea of moderately to heavily grazed habitat with relatively low and uniform cover levels, nest success in the quality habitat may be reduced due to higher predation rates. Because empirical data are not available to support a recommended minimum area or percent area for quality nesting cover, the only recommendation that can be made at this time is that more

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Preferred winter habitats include grasslands with moderate and heavy amounts of herbaceous cover interspersed with shrub and forb patches (disturbed sites) for foraging. Fruits of snow-berry, rose, juniper, and poison ivy are common winter foods.

## **SAGE GROUSE**

Sagebrush communities with relatively tall and dense sagebrush and an abundance of residual herbaceous cover are preferred for nesting. Nest success and sage grouse productivity have been reported to increase with increased sagebrush height and residual cover levels. Once again, the importance of residual cover is noted, and its importance undoubtedly increases during drought years when current year herbaceous cover is reduced or unavailable.

Most nesting in Wyoming occurred in sagebrush cover of 20 to 40% which is comparable to what is reported in other states. Other investigators suggested that sage cover over 30% may be getting too thick and nesting suitability for sage grouse may begin declining beyond that level. The tallest sagebrush available on Wyoming sites is reported as being preferred for nesting. Tall (>7 inch height) and dense residual herbaceous cover provides important horizontal concealment. These recommendations, especially those for residual cover, suggest that a light livestock grazing intensity is desirable for trying to enhance sage grouse productivity.

Brooding habitat is found in sagebrush communities of 10 to 30% sagebrush cover with small openings that produce an abundance of bugs and forbs like dandelions and yarrow for foraging by young grouse.

## **BLACK-TAILED PRAIRIE DOG**

Black-tailed prairie dogs occupy prairies (shortgrass and mixed grass) and shrublands dominated by sagebrush on the northern plains. Most soils on the NFS lands in the planning area are suitable for prairie dog burrowing. Even some of the sandy soils in the valleys of the Nebraska sandhills can support burrowing activities. Even soils with shallow bedrock are

known to support prairie dog colonies. Some soils may be preferred by prairie dogs but few preclude prairie dog burrowing.

Forested and wetlands vegetation types are considered unsuitable for prairie dogs. Grassland vegetation types including those with minor shrub components are considered preferred habitat. Since black-tailed prairie dogs also occur in shrublands and modify shrublands by removing shrubs in and around their colonies, shrublands are considered secondary or suitable habitat.

Slopes with suitable soils and vegetation that are less than 10% slope are considered preferred habitat. Slopes ranging from 10 to 30% are classified as secondary or suitable habitat. Areas with average slopes exceeding 30% are identified as unsuitable.

All water and wetlands are classified as unsuitable for prairie dog colonization. Areas with shallow water tables are also classified as unsuitable.

On mixed grass prairie and to a lesser extent on shortgrass prairie, colonies frequently originate on sites that have been disturbed from previous farming or other soil disturbances and on areas grazed by livestock. Sites that are heavily grazed where livestock concentrate are more likely to be colonized by prairie dogs. Soil disturbances in the form of water developments, pipelines, range ripping and furrowing, and past cultivation are also good predictors of suitable prairie dog habitat and potential sites likely to be colonized by prairie dogs.

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