

Appendix #1

WAFWA RECOMMENDED GUIDELINES

This appendix contains the WAFWA guidelines for sage grouse habitat protection and restoration, as described in Connelly et al. 2000. For a description of sage grouse habitat needs and rationale for the guidelines, see the paper.

Two numbering systems are used in this appendix to allow readers to locate guidelines referenced in the habitat risk assessment narratives as well as locate them in the Connelly et al. paper. Each guideline is numbered sequentially, using the lead-in "WAFWA Guideline x". This numbering system corresponds to the habitat risk assessment narratives. In addition, the section formatting and numbering system from the original paper are used as well, where guidelines are numbered sequentially within, but not between, each section (numbering starts at "1" in each section).

General habitat management

WAFWA Guideline 1

1) Monitor habitat conditions and only propose treatments if warranted by range condition (i.e., the area no longer supports habitat conditions described in the following guidelines under habitat protection). Do not base land treatments on schedules, targets, or quotas. See Risks #1, 4, 10, 11, & 12.

WAFWA Guideline 2

2) Use appropriate vegetation treatment techniques (e.g., mechanical methods, fire) to remove junipers and other conifers that have invaded sage grouse habitat (Commons et al. 1999). Whenever possible, employ vegetation control techniques that are least disruptive to the stand of sagebrush, if this stand meets the needs of sage grouse. See Risk #4.

WAFWA Guideline 3

3) Increase the visibility of fences and other structures occurring within 1 km of seasonal ranges by flagging or similar means if these structures appear hazardous to flying grouse (e.g., birds have been observed hitting or narrowly missing these structures or grouse remains have been found next to these structures). See Risk #15.

WAFWA Guideline 4

4) Avoid building powerlines and other tall structures providing perch sites for raptors within 3 km of seasonal habitats. If these structures must be built, or presently exist, the lines should be buried or poles modified to prevent their use as raptor perch sites. See Risk #15.

Breeding habitat Management

Habitat protection

WAFWA Guideline 5

1) Manage breeding habitats to support 15-25% canopy cover of sagebrush, perennial herbaceous cover averaging >18 cm in height with >15% canopy cover for grasses and >10% for forbs and a diversity of forbs during spring. Habitats meeting these conditions should have a high priority for wildfire suppression and should not be considered for sagebrush control programs. Sagebrush and herbaceous cover should provide overhead and lateral concealment from predators. If average sagebrush height is >75 cm, herbaceous cover may need to be substantially greater than 18 cm to provide this protection. The herbaceous height requirement may not be possible in habitats dominated by grasses that are relatively short when mature. In these cases, local biologists and range ecologists should develop height requirements that are reasonable and ecologically defensible. Cover on leks does not have to meet the above requirements. See Risk #1, 2, 3, 4, 9, 10, 11, & 12.

WAFWA Guideline 6

2) For non-migratory grouse occupying habitats that are uniformly distributed (i.e., habitats have the characteristics described in guideline 1 and are generally distributed around the leks), protect (i.e., do not manipulate) sagebrush and herbaceous understory within 3.2 km of all occupied leks. For non-migratory populations, consider leks the center of year-round activity and use them as focal points for management efforts. See Risk #1, 2, 3, 5, 10, 11, & 12.

WAFWA Guideline 7

3) For non-migratory populations where sagebrush is not uniformly distributed (i.e. habitats have the characteristics described in guideline 1 but irregularly distributed with respect to leks), protect suitable habitats for <5km from all occupied leks. Use radio-telemetry, repeated surveys for grouse use, or habitat mapping to identify nesting and early brood rearing habitats. See Risk #1, 2, 3, 5, 10, 11, & 12.

WAFWA Guideline 8

4) For migratory populations, identify and protect breeding habitats within 18 km of leks in a manner similar to that described for non-migratory sage grouse. For migratory sage grouse, leks generally are associated with nesting habitats but migratory birds may move >18 km from leks to nest sites. Thus, protection of habitat within 3.2 km of leks may not protect most of the important nesting areas. See Risk #1, 2, 3, 5, 10, 11 & 12.

WAFWA Guideline 9

5) In areas of large-scale habitat loss (>40% of original breeding habitat), protect all remaining habitats from additional loss or degradation. If remaining habitats are degraded, follow guidelines for habitat restoration listed below. See Risk #1, 2, 3 & 5.

WAFWA Guideline 10

6) During drought periods (>2 consecutive years), reduce stocking rates or change management practices for livestock, wild horses and wild ungulates if cover requirements during the nesting and brood rearing periods are not met. Grazing pressure from domestic livestock and wild ungulates should be managed in a manner that, at all times, addresses the possibility of drought. See Risk #9, 10, 11, & 12.

WAFWA Guideline 11

7) Suppress wildfires in all breeding habitats. In the event of multiple fires, land management agencies should have all breeding habitats identified and prioritized for suppression, giving the highest priority to breeding habitats that have become fragmented or reduced by >40% in the last 30 years. See Risk #1, 2, 3, 10, 11 & 12.

WAFWA Guideline 12

8) Adjust timing of energy exploration, development, and construction activity to minimize disturbance of sage grouse breeding activities. Energy-related facilities should be located >3.2 km from active leks whenever possible. Human activities within view of or <0.5 km from leks should be minimized during the early morning and late evening when birds are near or on leks. See Risk #14.

Habitat restoration

WAFWA Guideline 13

1) Before initiating vegetation treatments, quantitatively evaluate the area proposed for treatment to ensure that it does not have sagebrush and herbaceous cover suitable for breeding habitat. Treatments should not be undertaken within sage grouse habitats until the limiting vegetation factor(s) has been identified, the proposed treatment is known to provide the desired vegetation response, and land use activities can be managed after treatment to ensure that vegetation objectives are met. See Risk #1, 2, 4, 10, 11, & 12.

WAFWA Guideline 14

2) Restore degraded rangelands to a condition that again provides suitable breeding habitat for sage grouse by including sagebrush, native forbs (especially legumes), and native grasses in reseeding efforts. If native forbs and grasses are unavailable, use species that are functional equivalents and provide habitat characteristics similar to those of native species. See Risk # 1, 3, 10, 11 & 12.

WAFWA Guideline 15

3) Where the sagebrush overstory is intact but the understory has been severely degraded and quality of nesting habitat has declined, use appropriate techniques (e.g., brush beating in strips or patches and interseed with native grasses and forbs) that retain some sagebrush but open shrub canopy to encourage forb and grass growth. See Risk #10, 11 & 12.

WAFWA Guideline 16

4) Do not use fire in sage grouse habitats prone to invasion by cheatgrass and other invasive weed species unless adequate measures are included in restoration plans to replace the cheatgrass understory with perennial species using approved reseeding strategies. These strategies could include, but are not limited to use of pre-emergent herbicides (e.g., Oust®, Plateau®) to retard cheatgrass germination until perennial herbaceous species become established. See Risk #3, 10, 11 & 12.

WAFWA Guideline 17

5) When restoring habitats dominated by Wyoming big sagebrush, regardless of the techniques used (e.g., prescribed fire, herbicides), do not treat >20% of the breeding habitat (including areas burned by wildfire) within a 30-year period. The 30-year period represents the approximate recovery time for a stand of Wyoming big sagebrush. Additional treatments should be deferred until the previously treated area again provides suitable breeding habitat. In some cases, this may take <30 years and in other cases >30 years. If 2,4-D or similar herbicides are used, they should be applied in strips in a manner that minimizes their effect on forbs. Because fire generally burns the best remaining sage grouse habitats (i.e., those with the best understory) and leaves areas with sparse understory, use fire for habitat restoration only when it can be convincingly demonstrated to be in the best interest of sage grouse. See Risk #2, 11 & 12.

WAFWA Guideline 18

6) When restoring habitats dominated by mountain big sagebrush, regardless of the techniques used (e.g., fire, herbicides), treat <20% of the breeding habitat (including areas burned by wildfire) within a 20-year period (Bunting et al. 1987). The 20-year period represents the approximate recovery time for a stand of mountain big sagebrush. Additional treatments should be

deferred until the previously treated area again provides suitable breeding habitat. In some cases, this may take <20 years and in other cases >20 years. If 2,4-D or similar herbicides are used, they should be applied in strips in a manner that minimizes their effect on forbs. See Risk #1, 4 & 10.

WAFWA Guideline 19

7) All wildfires and prescribed burns should be evaluated as soon as possible to determine if reseeding is necessary to achieve habitat management objectives. If needed, reseed with sagebrush, native bunchgrasses, and forbs whenever possible. See Risk #1, 2, 3, 10, & 11, 12 & 17.

WAFWA Guideline 20

8) Until research unequivocally demonstrates that use of tebuthiuron and similar acting herbicides to control sagebrush has no long-lasting negative impacts on sage grouse habitat, use these herbicides only on an experimental basis and over a sufficiently small area that any long-term negative impacts are negligible. Because these herbicides have the potential of reducing but not eliminating sagebrush cover within grouse breeding habitats, thus stimulating herbaceous development, their use as sage grouse habitat management tools should be closely examined. See Risk # 1 & 10.

*Summer-late brood-rearing habitat management
Habitat protection*

WAFWA Guideline 21

1) Avoid land use practices that reduce soil moisture effectiveness, increase erosion, cause invasion of exotic plants, and reduce abundance and diversity of forbs. See Risk #3, 4, 6, 7, 8, 10, 11 & 12.

WAFWA Guideline 22

2) Avoid removing sagebrush within 300 m of sage grouse foraging areas along riparian zones, meadows, lakebeds, and farmland, unless such removal is necessary to achieve habitat management objectives (e.g., meadow restoration). See Risk #8 & 13.

WAFWA Guideline 23

3) Discourage use of highly toxic organophosphorus and carbamate insecticides in sage grouse brood-rearing habitats. Sage grouse using agricultural areas may be adversely affected by pesticide applications. Less

toxic agri-chemicals or biological control may provide suitable alternatives in these areas.

WAFWA Guideline 24

4) Avoid developing springs for livestock water, but if water from a spring will be used in a pipeline or trough, design the project to maintain free water and wet meadows at the spring. Capturing water from springs using pipelines and troughs may adversely affect wet meadows used by grouse for foraging. See Risk #13.

Habitat restoration

WAFWA Guideline 25

1) Use brush beating or other mechanical treatments in strips 4-8 m wide in areas with relatively high shrub canopy cover (>35% total shrub cover) to improve late brood-rearing habitats. Brush beating can be used to effectively create different age classes of sagebrush in large areas with little age diversity. See Risk #10, 11 & 12.

WAFWA Guideline 26

2) If brush beating is impractical, use fire or herbicides to create a mosaic of openings in mountain big sagebrush and mixed shrub communities used as late brood-rearing habitats where total shrub cover is >35%. Generally, 10-20% canopy cover of sagebrush and <25% total shrub cover will provide adequate habitat for sage grouse during summer. See Risk #10, 11 & 12.

WAFWA Guideline 27

3) Construct water developments for sage grouse only in or adjacent to known summer use areas and provide escape ramps suitable for all avian species and other small animals. Water developments and "guzzlers" may improve sage grouse summer habitats. However, sage grouse used these developments infrequently in southeastern Idaho because most were constructed in sage grouse winter and breeding habitat, rather than summer range. See Risk #13.

WAFWA Guideline 28

4) Whenever possible, modify developed springs and other water sources to restore natural free-flowing water and wet meadow habitats. See Risk #13.

Winter habitat management

Habitat protection

WAFWA Guideline 29

1) Maintain sagebrush communities on a landscape scale, allowing sage grouse access to sagebrush stands with canopy cover of 10-30% and heights of at least 25-35 cm regardless of snow cover. These areas should be high priority for wildfire suppression and sagebrush control should be avoided. See Risk #1, 2, 3, 10, 11 & 12.

WAFWA Guideline 30

2) Protect patches of sagebrush within burned areas from disturbance and manipulation. These areas may provide the only winter habitat for sage grouse and their loss could result in the extirpation of the grouse population. They are also important seed sources for sagebrush re-establishment in the burned areas. During fire suppression activities do not remove or burn any remaining patches of sagebrush within the fire perimeter. See Risk #1 & 3.

WAFWA Guideline 31

3) In areas of large-scale habitat loss (>40% of original winter habitat), protect all remaining habitats. See Risk #1, 2 & 3.

Habitat restoration

WAFWA Guideline 32

1) Reseed former winter range with the appropriate subspecies of sagebrush and herbaceous species unless the species are re-colonizing the area in a density that would allow recovery within 15 years. See Risk #1, 2, 3, 10, & 11.

WAFWA Guideline 33

2) Discourage prescribed burns >50 ha and do not burn >20% of an area used by sage grouse during winter within any 20–30 year interval (depending on estimated recovery time for the sagebrush habitat). See Risk #1, 3, 10, 11 & 12.

The following are additional guidelines found in the WAFWA document

N(b) found on page 976

1) Viewing sage grouse on leks (and censusing leks) should be conducted so that disturbance to birds is minimized or preferably eliminated (Call and Maser 1986). Agencies should generally not provide all lek locations to individuals simply interested in viewing birds. Instead, 1 to 3 lek locations should be identified as public viewing leks, and if demand is great enough, agencies should consider erecting 2-3 seasonal blinds at these leks for public

use. Camping in the center of or on active leks should be vigorously discouraged.

P(b) found on page 977

1) Although mining and energy development are common activities throughout the range of sage grouse, quantitative data on the long-term effects of these activities on sage grouse are limited. However, some negative impacts have been documented (Braun 1998, Lyon 2000). Thus, these activities should be discouraged in breeding habitats, but when unavoidable, restoration efforts should follow procedures outlined in these guidelines.

Literature Cited:

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.