

**APPENDIX I**  
**GUSG DISTURBANCE GUIDELINES**

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Successful implementation of these guidelines for protecting GUSG from disturbance will require the identification and delineation (e.g., mapping, ground truthing) of breeding, summer - fall, and winter habitats. All anthropogenic structures (e.g., powerlines, roads, fences) should also be identified and delineated. Available GUSG and GRSG habitat use and movement information were used to develop these guidelines. If data were not available, guidelines are consistent with Connelly et al. (2000). As new or local information becomes available through research or monitoring, these guidelines or recommended restrictions may be adjusted to more effectively manage for GUSG.

For the purpose of these guidelines, we primarily adopt the Connelly et al. (2000) definition of an active lek as a open area that has been attended by  $\geq 2$  male sage-grouse in  $\geq 2$  of the previous 5 years. However, this definition is derived mainly from observations of leks in large, stable populations and may not be appropriate for small populations with reduced numbers of males attending leks in fragmented sagebrush communities. Therefore, for the smaller GUSG populations outside of the Gunnison Basin, an active lek is defined as an open area where 1 or more sage-grouse have been observed on more than 1 occasion, engaging in courtship or breeding behavior. An area used by displaying males in the last 5 years is considered an active lek.” Buffers for protection from disturbance need to be from the perimeter of the open area defining the lek, not from a center point within the lek area.

Guidelines are organized into 2 types of disturbance: (1) structures or actions that may modify GUSG habitat, or structures that may affect GUSG by potentially increasing collision risks and exposure to predation (all these structures and associated activities may also result in the second type of disturbance); and (2) human activities that may cause disturbance to GUSG themselves (i.e., anthropogenic noise or movement), especially during critical seasonal use periods. Within each type of disturbance, guidelines are organized by type of activity that might cause disturbance, and/or by seasonal habitat type. In addition to this section, review conservation strategies for particular threats (e.g., powerlines) for further guidance.

If habitat disturbances that will require habitat restoration occur, the potential community needs to be identified (Winward 2004) and a diverse seed mixture of native shrubs, grasses, and forbs should be used (Monsen 2005) for appropriate restoration (see “Habitat Enhancement” strategy, pg. 214 and “GUSG Structural Habitat Guidelines, Appendix H).

### **Designation of Seasonal Habitats**

#### Unmapped Seasonal Habitats

If seasonal habitats are not mapped and field-validated, they should be designated by 2 concentric circles around active leks, the first with a radius of 0.6 miles (“Lek Habitat”), and the second with a radius of 4.0 miles (both “Non-lek Breeding Habitat” *and* “Summer – Fall Habitat) (Fig. 1). Generally, breeding habitat is considered to be sagebrush communities within the 4-mile circle. Summer-fall habitat includes sagebrush communities, wet meadows, and agricultural fields within the 4-mile circle.

The basis for the first circle, 0.6 miles from a lek (Fig. 1), is data from 5 separate studies of daytime movements of adult male GRSG during the breeding season (Carr 1967, Wallestad and Schladweiler 1974, Rothenmaier 1979, Emmons 1980, Schoenberg 1982; see pg. 28). No similar data are available for GUSG.

The second circle, 4.0 miles for non-lek breeding and summer – fall habitats (Fig. 1), is based on 3 studies of GUSG (NPS unpublished data, Young 1994, Apa 2004). Habitat use data from these studies indicate 85.2 percent of all GUSG nests and 81.3 percent of all GUSG breeding and summer-fall seasonal locations are within 4.0 miles of the lek of capture (see “GUSG Habitat Use Data”, Appendix J).

Because GUSG winter habitat use data are limited, we defined winter habitat as sagebrush areas (Connelly et al. 2000) within currently occupied habitat that are available (i.e., not covered by snow) to sage-grouse in average winters (see “GUSG Structural Habitat Guidelines”, Appendix H).

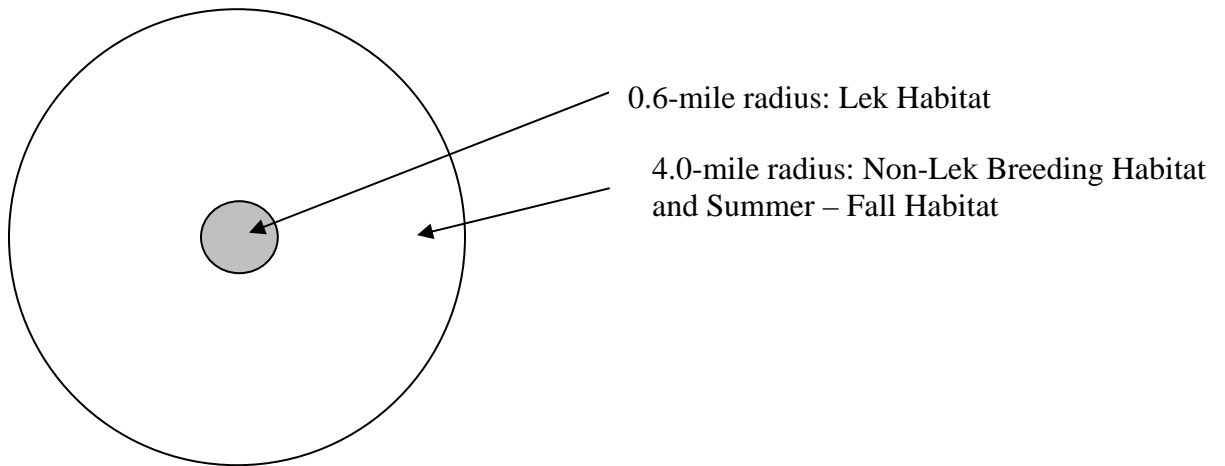


Fig. 1. Designation of GUSG seasonal habitat borders around an active lek, if seasonal habitats have not been mapped.

Within the 0.6 mile border, observe the recommendations listed under “Breeding – Lek Habitat”. If a particular area is outside the 0.6 mile buffer, but within the 4.0 mile radius, the sage-grouse habitats within the circle could be considered Non-Lek Breeding, Summer – Fall, or Winter Habitat. Follow the guidelines for these other seasonal habitat categories. In general, the sagebrush stands would be considered the sage-grouse habitat within the 4.0 mile radius, but “summer-fall habitat” also would include riparian areas and agricultural fields within this circle.

## Mapped Seasonal Habitats

If seasonal habitats have been mapped, the following guidance should be followed in, and relative to, the mapped habitat. If there is overlap among different seasonal mapped habitats, whichever seasonal recommendations are the most restrictive should be observed.

### **(1) Structures and/or Actions that May Modify GUSG Habitat, or That May Increase Mortality of GUSG**

(includes fences, roads, powerlines, housing development, wind power generation, oil and gas exploration and production, sagebrush removal and/or treatment)

## Fences

*Breeding: Lek Habitat (within 0.6 miles active lek; see Fig. 1)*

- Fences should not be constructed within 0.60 miles of an active lek, if possible. Fences that will be built closer to leks, or pre-existing fence within this buffer, should be fitted with visual devices to minimize grouse collisions. Where possible, fences should be placed in areas where topographic features can be used that will deter collisions.

*Other Seasonal Habitats: (Breeding: Non-lek Habitat, Summer – Fall Habitat, or Winter Habitat)*

- If, in the course of other activities, it is determined that fences in a particular area might be causing collision danger to GUSG, avoid constructing new fences in that area, and move, or retrofit existing fences to increase visibility and decrease possibility of GUSG collisions.

## Roads

*Breeding: Lek Habitat (within 0.6 miles active lek; see Fig. 1)*

- Local (generally, unpaved) roads should not be constructed within 0.60 miles of an active lek. If this is impractical, roads should be placed so they and the associated traffic are not in direct line-of-sight of strutting males, and should be minimally developed. Vehicles should not exceed 35 mph (adapted from Tessman et al. 2004) within 0.60 miles of an active lek on local or unpaved roads.

*Other Seasonal Habitats: (Breeding: Non-lek Habitat, Summer – Fall Habitat, or Winter Habitat)*

- Local (generally, unpaved) roads should be excluded when possible, and when not, road length and width should be minimized to the extent possible. Vehicles should not exceed 35 mph (adapted from Tessman et al. 2004) on local or unpaved roads.

### Powerlines

Consultation with local biologists (state and federal) must occur before placement of any new powerlines in all GUSG habitats, to use local knowledge and options (such as local topographic features) to minimize impacts to GUSG.

*Breeding: Lek Habitat (within 0.6 miles active lek; see Fig. 1)*

- Powerlines should not be constructed within 0.60 miles of active leks. If this is impractical, powerlines within 0.60 miles of any active lek should be buried or retrofitted to deter raptor perching.

*Other Seasonal Habitats: (Breeding: Non-lek Habitat, Summer – Fall Habitat, or Winter Habitat)*

- If possible, powerlines should be avoided in all other seasonal GUSG habitats. If not possible, consider burying powerlines, placing raptor perching deterrents, and avoiding sage-grouse concentrated-use areas and riparian areas.

### Housing Development

*Breeding: Lek Habitat (within 0.6 miles active lek; see Fig. 1)*

- No housing developments should occur within 0.60 miles of active leks.

*Other Seasonal Habitats: (Breeding: Non-lek Habitat, Summer – Fall Habitat, or Winter Habitat)*

- Housing developments should be discouraged in all GUSG habitat. When this is not practical, houses should be clustered as much as possible to maintain larger areas of undisturbed habitat.

### Wind Power Generation and Communication Towers

*Breeding: Lek Habitat (within 0.6 miles active lek; see Fig. 1)*

- Wind power turbines and communication towers should not be constructed within 0.60 miles of active leks.

*Other Seasonal Habitats: (Breeding: Non-lek Habitat, Summer – Fall Habitat, or Winter Habitat)*

- Wind power turbines and communication towers should be avoided in other GUSG seasonal habitat, if possible. If not possible, retrofit all aspects of turbines and towers to deter raptor perching, and to decrease the possibility of GUSG collisions.

### Oil and Gas Exploration and Production

*Breeding: Lek Habitat (within 0.6 miles active lek; see Fig. 1)*

- All surface-disturbing activities should be prohibited within 0.60 miles of an active lek. If not practical, any equipment should have minimal noise; compressors, vehicles, and other sources of noise should be equipped with effective mufflers or noise suppression devices. Attempts should be made to minimize continuous noise by reducing noise levels to 10 dBA or less (adapted from Tessmann et al. 2004) because most grouse vocalizations are less than 20 dBA (Dantzker et al. 1999).

*Other Seasonal Habitats: (Breeding: Non-lek Habitat, Summer – Fall Habitat, or Winter Habitat)*

- Surface-disturbing activities should be avoided in other GUSG seasonal habitats. If not possible, implement SMP's (see Appendix L) to minimize impacts to GUSG, and implement pertinent timing restrictions in this Appendix.
- Any necessary equipment should produce minimal noise; all compressors, vehicles, and other sources of noise should be equipped with effective mufflers or noise suppression devices. Attempts should be made to minimize continuous noise by reducing noise levels to 10 dBA or less (adapted from Tessmann et al. 2004) because most grouse vocalizations are less than 20 dBA (Dantzker et al. 1999).
- Encourage remote monitoring to minimize human disturbance.

Sagebrush Removal and/or Treatment

*Breeding: Lek Habitat (within 0.6 miles active lek; see Fig. 1)*

- Any sagebrush removal or treatment should be prohibited or limited within 0.60 miles of an active lek (Wallestad 1975), unless implemented to maintain or enhance the lek.

*Breeding: Non-lek Habitat (if not mapped, then within 4.0 miles of active leks, but outside of 0.6 mile buffer; see Fig. 1)*

- If seasonal habitat is uniform and not fragmented, then sagebrush loss, removal, treatments, or other surface-disturbing activities should be limited and not exceed 20-30% (Connelly et al. 2000) of the total mapped habitat. Treatments must have recovery objectives that meet the habitat objectives listed in this RCP. Treatment blocks should be small (< 50 acres), interspersed across the landscape, and irregular in shape. Treatment areas should not be distributed systematically or predictably across the landscape.
- If > 40% of the original mapped breeding habitat has been lost (Connelly et al. 2000) to other factors, all remaining habitat should be protected.

*Summer – Fall Habitat (if not mapped, then within 4.0 miles of active leks; see Fig. 1)*

- Maintain sagebrush communities within 0.25 miles (based on Connelly et al. 2000, Hausleitner 2003) of known summer - fall habitat (such as riparian, wet meadows, or agricultural areas). Sagebrush treatment is not discouraged but must be planned to achieve the habitat objectives outlined in the RCP.

*Winter Habitat (if not mapped, then entire area within 6.0 miles of active leks; see Fig. 1)*

- Any treatments should be small (<10 acres) in size and sagebrush loss, removal, treatments, or other surface-disturbing activities should not exceed 10% of the delineated winter habitat. Treatments should be irregular in shape and not distributed predictably or systematically on the landscape. Treatments in the shape of rows or strips should be avoided.

**(2) Timing Restriction Recommendations for Human Disturbance in GUSG Habitat (e.g., anthropogenic noise or movement). Does not include agency-conducted research and population monitoring, or formal lek viewing sites; these activities are covered by separate guidelines.**

*Breeding Habitat: Lek Habitat*

The following activities should be restricted as stated from mid-March through late-May (precise dates should be obtained from a local biologist).

- Any activities that could be categorized as “line of sight” or in direct view of the lek would need to follow more restrictive guidelines than situations where a topographical configuration interrupts the line of sight. Direct line of sight activities should be limited to > 300 feet from the edge of the lek. If topographical features interrupt the line of sight, the aforementioned distance can be reduced to 150 feet. Human activities that would be repetitive (occurring every day, or every other day) could be more detrimental than activities or disturbances that occur sporadically or occur equal to or less than 1 time/week.
- All activities, motorized or non-motorized, should be limited between sunset the evening before to 2 hours after sunrise the next morning (modified from Lyon and Anderson 2003, A.D. Apa, CDOW, personal communication). There should be complete exclusions from 2 hours before sunrise to 2 hours after sunrise. Any activities that create noise > 20 dBA should be severely limited (adapted from Dantzker et al. 1999).

*Breeding Habitat: Non-Lek Habitat*

The following activities should be restricted as stated from mid-April through June.

- Limit activities, motorized or non-motorized, when hens with broods are most active, from ½ hour before sunrise to 2 hours after sunrise, and 1 hour before sunset to sunset when hens with broods are most active.
- Activities should be confined to established roads and trails.

*Summer - Fall Habitat*

The following activities should be restricted as stated from July – September.

- Limit activities, if possible to established roads and trails.

*Winter Habitat*

The following activities should be restricted as stated during October - mid-March.

- All activities, except foot and horse traffic, should be limited to established roads and trails in areas of known winter concentration of GUSG.