

POTENTIAL FOR SHARP-TAILED GROUSE MANAGEMENT ON THE OKANOGAN NATIONAL FOREST, WASHINGTON

Report to the Okanogan National Forest

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INTRODUCTION

Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*) were historically found throughout many of the meadow and shrub steppe habitats of eastern Washington (Yocom 1952, Aldrich 1963). However, statewide populations of sharp-tailed grouse have declined precipitously as the result of three major factors: 1) removal of shrubs as part of various agricultural practices has reduced the quantity and quality of winter habitat; 2) degradation of meadow and shrub steppe habitat as a result of livestock management has reduced the quality of breeding habitat; and 3) isolated populations are at increased risk of extinction. Surveys indicate that sharp-tailed grouse are primarily restricted to Okanogan, Douglas, and Lincoln counties (Zeigler 1979, Weddell et al. 1992, Tirhi 1995). Remaining populations appear to be relatively small and isolated, corresponding to partially intact and/or restored areas that provide adequate breeding and wintering habitat (Marshall and Jensen 1937, Yocom 1952, Marks and Marks 1988, Zeigler 1979, Giesen 1987, Meints et al. 1992, Giesen and Connelly 1993).

Populations in north-central Washington are clearly becoming more isolated every year. The isolation of populations may have important ramifications on their genetic quality and/or recruitment. However, it is not yet clear if the Washington populations are declining because of their isolation or because of a combination of other factors. For example, removal and degradation of riparian, shrub steppe, and meadow steppe habitat has clearly reduced the availability of both breeding (nesting and brooding) and winter habitat for sharp-tailed grouse in Washington.

Breeding habitat for sharp-tailed grouse should include relatively thick grass and forb cover. Winter habitat should include a diversity of deciduous shrub and tree species in close proximity to relatively thick grass and forb cover. Although adequate breeding habitat is often infrequent, there are several factors that indicate that declining quantity and quality of winter habitat may be the most significant factor in the large-scale declines of sharp-tailed grouse. First, although annual survival of radio-marked birds in Washington appears to be relatively high (53%), there is a trend toward higher mortality during winter (Schroeder 1994); this trend is very unusual among grouse.

Second, blue grouse (*Dendragapus obscurus*) still nest in many of the areas formerly occupied by sharp-tailed grouse, despite the fact that both nest in similar habitats. Because blue grouse move away from shrub and meadow steppe habitats to winter areas in conifer habitats, their populations apparently have not been at risk (Zwickel 1972).

Third, evidence from research in Washington has indicated that breeding success of radio-marked birds is high (Schroeder 1994). Consequently, it is difficult to support a conclusion that good quality breeding habitat is limiting on a small scale. On a large scale, sage grouse (*Centrocercus urophasianus*) continue to nest successfully in areas formerly occupied by sharp-tailed grouse. The primary change in the areas occupied by sage grouse is the replacement of shrub steppe habitat and riparian areas with wheat.

Fourth, virtually all remaining populations in north-central Washington are increasingly restricted to 'high' elevation habitats~ These high elevation sites have relatively high quality habitats (both shrubs and grasses); they are characterized by cooler temperatures, wetter climates, and reduced grazing pressure.

Fifth, the low elevation sites were historically the best winter habitats; these sites had the best riparian areas, shrub cover, and weather conditions. Low elevation sites have been altered the most; they have been converted to orchards, roads, houses, and lakes. The remaining shrub steppe habitat at low elevations is in extremely poor condition and is not likely to provide useful cover for wintering populations of sharp-tailed grouse.

Sixth, the concentration of sharp-tailed grouse at low elevations during winter has resulted in heavy harvest pressure. This was primarily due to the easy access by hunters, but also due to the removal of birds from orchards because of concerns about crop-damage.

As a result of these six factors, populations of sharp-tailed grouse have been restricted to isolated high-elevation islands of habitat in north-central Washington. The long-term prospects improvement of habitat must be evaluated in terms of land-use realities. For example, because it is unlikely that sharp-tailed grouse will ever be compatible with orchards, the corridors along the Okanogan, Methow, and Columbian rivers will never be occupied by stable populations of sharp-tailed grouse again. Consequently, habitat improvement efforts should be directed toward the following situations: 1) improve shrub steppe habitats in riparian corridors within 0.5 km of acceptable winter habitat (must provide cover in deep snow); 2) restore riparian or deciduous shrub habitats in upland areas dominated by shrub or meadow steppe habitat (shrubs should vary between 0.5 and 2.5 m in height); and 3) improve the condition of shrub and meadow steppe habitat throughout the potential range of sharp-tailed grouse.

Populations of sharp-tailed grouse in north-central Washington offer a unique opportunity to implement and evaluate various management strategies. Many current (and historic) populations are found on, or adjacent to, state or federal public property that is managed by the Washington Department of Fish and Wildlife, the Washington Department of Natural Resources, the U. S. Bureau of Land Management, and the U. S. Forest Service. For example, the Washington Department of Fish and Wildlife owns and manages the Methow, Scotch Creek, Tunk Valley and Chesaw Wildlife Areas, often with the goal of improving conditions for sharp-tailed grouse. The purpose of this report is to address the feasibility of expanding goals of sharp-tailed grouse management to adjacent areas of public property, primarily the U. S. Forest Service. Consequently, this report has three specific objectives: 1) examine the location of historic and current sharp-tailed grouse habitat in relation to the Okanogan National Forest in Okanogan County, Washington; 2) determine which area (or areas) of the Okanogan National Forest offer the greatest potential for sharp-tailed grouse; and 3) consider the types and

practicalities of management options which may influence sharp-tailed grouse on, and adjacent to, the Okanogan National Forest.

SHARP-TAILED GROUSE DISTRIBUTION IN RELATION TO OKANOGAN NATIONAL FOREST

The historic range of sharp-tailed grouse clearly overlaps the boundaries of the Okanogan National Forest (Yocom 1954, Tirhi 1995). Between 1954 and 1996, 45 display sites (leks) were documented in Okanogan County (excluding the Colville Indian Reservation). Approximately 49% (22) of the lek sites are within 5 km of an Okanogan National Forest boundary, 22% (10) are within 3 km, and none are within 1 km. The drop-off in number of leks close to the forest service land illustrates the transitional nature of sharp-tailed grouse habitat. The specific areas within 5 km of sharp-tailed grouse leks include the following:

1. Cougar Creek and Pipestone Canyon area southwest of Blue Buck Mountain about 7 km east of Winthrop.
2. Piper Creek, Wolf Canyon, Beaver Creek, Coyote Ridge, and Fraser Creek area about 10 km east of Twisp.
3. Fish Lake and Schalow Mountain area about 5 km northeast of Conconully.
4. Beehive Mountain area about 25 km northeast of Omak.
5. Patterson Creek and Bonaparte Creek area about 18 km southeast of Tonasket.
6. Island Mountain area about 15 km east of Tonasket.
7. Burge Mountain area about 5 km southwest of Havillah.
8. Mosquito Creek area about 10 km southeast of Oroville.
9. Buster Mountain and Myers Creek area about 10 km south southwest of Chesaw.
10. Ethel Creek and Thorp Creek area 2 km east of Chesaw.

It is important to realize that this is probably not a complete list of potential sharp-tailed grouse management areas. This list is based on known information on sharp-tailed grouse display sites. However, because of the difficulty in documenting and monitoring all display sites, it is likely that the information on display sites is incomplete. Consequently, a preliminary objective of sharp-tailed grouse management on the Okanogan National Forest should be to conduct additional surveys in areas adjacent to forest service property. These should be conducted in areas with a reasonable amount of potential such as the Cayuse Mountain, Bonaparte Creek, and Aeneas Valley area east of Tonasket.

PORTIONS OF OKANOGAN NATIONAL FOREST WITH SHARP-TAILED GROUSE POTENTIAL

Despite the proximity of forest service lands to historic and active leks, numerous other factors should be considered before actively managing the forest service lands for sharp-tailed grouse. For example, 35 of the 50 leks are currently inactive; many of the relatively small and isolated populations appear to be extinct. Many of the extinct populations are not likely to be reestablished without intensive translocation efforts. Because it is not clear why the previous populations were extirpated, it is not certain that modifications of forest service management would offer much additional potential in those particular areas. Consequently, it seems reasonable to concentrate on areas that are relatively close to active populations.

Overall, there are 7 active leks within 5 km of the forest service boundary and 4 active leks within 3 km. Five of the 10 listed areas (numbers 3, 4, 5, 6, and 10) are within 5 km of active leks and 3 areas (numbers 4, 5, and 6) are within 3 km of active leks. The 3 closest populations to forest service land offer an additional advantage in that they are relatively healthy sharp-tailed grouse populations; this is especially true for the area near Beehive Mountain (number 4).

SHARP-TAILED GROUSE MANAGEMENT ON THE OKANOGAN NATIONAL FOREST

Relatively thick grass and forb cover is a component of both breeding and winter habitat. A diversity of deciduous shrub and tree species is particularly important for winter habitat; servicberry (*Amelanchier* spp.), snowberry (*Symphoricarpos* spp), common chokecherry (*Prunus virginians*), hawthorn (*Crataegus* spp.), quaking aspen (*Populus tremuloides*), water birch (*Betula occidentalis*), silver buffaloberry (*Shepherdia argentea*), willow (*Salix* spp.), and rose (*Rosa* spp.). Although sharp-tailed grouse may occasionally use conifers, some have suggested that conifers create additional problems by providing perching and nesting cover for avian predators. Most management recommendations are based on basic information concerning the habitat requirements of sharp-tailed grouse and the assumption that winter habitat is often limiting.

The primary management tool for sharp-tailed grouse habitat is livestock grazing. Although many types of grazing have been examined, the only clear trend is that excessive grazing is detrimental to both breeding and winter habitat (Marshall and Jensen 1937, Hart et al. 1950, Parker 1970, Zeigler 1979, Kessler and Bosch 1982, Klott 1987, Marks and Marks 1987, Klott and Lindzey 1990, Giesen and Connelly 1993). Consequently, the management response has usually been to remove cattle from overgrazed areas.

Grazing may also be a significant management concern following habitat treatment with other management tools such as habitat restoration. Restoration of habitat may be a consideration on overgrazed areas, heavily weed-infested areas, and formerly cultivated areas. Restoration can include development of habitats supplying adequate cover for nesting and winter habitat and increasing the diversity of food plants. The potential success of restoration efforts can be

illustrated by the increasing populations of sharp-tailed grouse in areas influenced by the federal Conservation Reserve Program.

Herbicides (such as 2,4-D) and fire have frequently been used to remove shrubs from rangelands used for livestock grazing. Because winter habitat is often a limiting factor in Washington, most of the impacts of shrub removal have been negative (Yocum 1952, Buss and Dziedzic 1955, McArdle 1977, Blaisdell et al. 1982, Giesen and Connelly 1993). Fire has been effectively used in situations where removal of trees is advantage: 1) removal of conifers encroaching into rangelands (typically Ponderosa pine, *Pinus ponderosa*), primarily because of a lack of fire; 2) slowing or stopping the succession of forests following initial grass, forb, and/or shrub dominated stages; and 3) removal of slash and small trees following clearcuts (Ammann 1957, Giesen and Connelly 1993).

Realistic management options for sharp-tailed grouse may be limited on the Okanogan National Forest. First, there are few areas (numbers 4, 5, and 6) within close proximity to healthy sharp-tailed grouse populations. Second, none of the areas contain a substantial quantity of potential breeding habitat. Third, the slopes on most of the forest service lands are prohibitive for sharp-tailed grouse, even if they contained adequate habitat (Meints et al. 1992). Fourth, although clear-cuts followed by prescribed burns could provide additional sharp-tailed grouse habitat, the management scenario would not be feasible over the long-term.

If there is potential for sharp-tailed grouse management on the Okanogan National Forest, it should probably be directed toward the provision of winter habitat. This should probably be directed toward the forest edges in areas bordered by sharp-tailed grouse breeding habitat (usually rangeland). The specific enhancement projects should include deciduous shrub/tree plantings, deciduous shrub/tree protection, and removal of scattered conifers in areas dominated by potential breeding habitat or on the edge of potential breeding habitat. The shrub/tree plantings should include serviceberry, snowberry, common chokecherry, hawthorn, quaking aspen, silver buffaloberry, willow, water birch, and rose. Plantings may need some initial protection from both dehydration and browsing by mule deer (*Odocoileus hemionus*). The ultimate objective of these enhancement projects should be to produce habitats that are dominated by approximately 30% deciduous shrubs and trees and 70% by grasses and forbs.

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