

Greater Sage-Grouse
(*Centrocercus urophasianus*)

State Status: Threatened, 1998

Federal Status: Candidate, 2001
(Washington Distinct Population Segment)

Recovery Plans: State, 2004



Figure 1. Male greater sage grouse on a lek in Douglas County (photo by M. Schroeder).

The greater sage-grouse is the largest North American grouse species. In the breeding season, adult males weigh between 5.5–7.0 lb, while adult females weigh between 2.9–3.7 lb (Schroeder et al. 1999). Historically, greater sage-grouse were distributed throughout much of the western United States in 13 states and along the southern border of three western Canadian provinces.

The spring courtship display of males is the most conspicuous behavior of sage-grouse and occurs when birds gather for displaying and mating at specific locations, called leks. Male sage-grouse establish small territories on the lek and perform a strutting display to proclaim and defend a territory and attract females.

Habitat. Greater sage-grouse inhabit shrub-steppe and, as their name implies, are closely associated with sagebrush. Wyoming big sage (*Artemisia tridentata wyomingensis*) and three-tip sage (*Artemisia tripartita*) are the most important species in Washington. Habitat generally consists of sagebrush/bunchgrass communities with medium to high (10-35%) canopy cover in sagebrush and a diverse grass and forb understory. Seasonal habitat needs vary somewhat with their diet and extensive areas are needed to sustain a sage-grouse population. Sagebrush, grasses, forbs, and insects comprise the annual diet of sage-grouse. Sagebrush comprises 60-80% of the yearly diet of adult sage-grouse (Schroeder et al. 1999) and up to 95-100% of the winter diet. Forbs are important to nesting hens in the pre-laying period and insects are essential for growing chicks.



Figure 2. Recent and historical range of sage-grouse in Washington.

Population trends. Greater sage-grouse have declined dramatically in both distribution and population size in Washington due to conversion of shrub-steppe for production of crops and degradation of the remaining native habitat (Stinson et al. 2004). Of 69 lek complexes documented since 1960, 68% are currently vacant (Stinson et al. 2004). Many of these vacant lek complexes (55%) are in areas where sage-grouse have been extirpated since 1960. Current range in the state is about 8% of the historical range. Birds persist in two relatively isolated areas: one primarily on the U.S. Army’s Yakima Training Center (YTC) in Kittitas and Yakima counties and the other in Douglas County (Figure 2; Schroeder et al. 2000). A third population is currently being reestablished in Lincoln County.

Based on changes in number of males counted on lek complexes, the sage-grouse population size in Washington declined more than 50% from 1970 to 2012 (Schroeder et al. 2012). The 2012 spring

population was estimated to be about 1,084 birds (Figure 3), with 148 on the YTC, 853 in Douglas County, and ~83 in Lincoln County. The declines and the isolated nature of these populations were part of the U.S. Fish and Wildlife Service’s (2001) assessment of whether sage-grouse in Washington and northern Oregon represented a distinct population segment and whether the population warranted federal threatened status. Listing was determined to be warranted, but has been precluded by higher listing priorities.

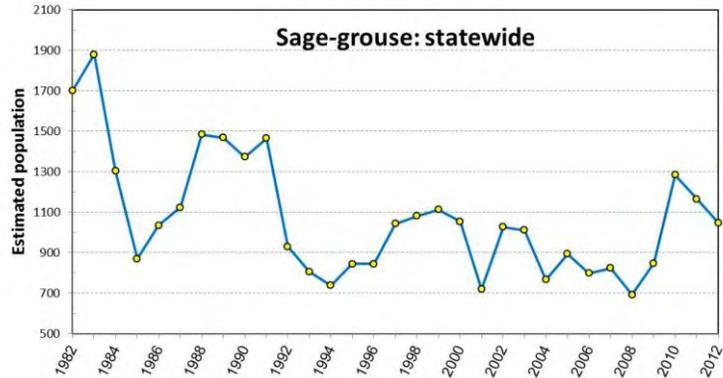


Figure 3. Statewide population estimate of sage-grouse in Washington, 1982-2012.

The population centered in Douglas County occupies mostly private lands that are a mosaic of small areas of high-quality shrub-steppe and farmlands enrolled in the federal Conservation Reserve Program (CRP). In 2010, a large lek was discovered on CRP land that was unsuitable cropland until relatively recently. CRP has allowed the Douglas County population to remain relatively stable, while the Yakima Training Center population has continued a downward trend, even though it occupies one of the largest areas (1,300 km²) of shrub-steppe remaining in the state (Figure 4). Military training and wildfires pose the greatest threats to habitat security on the YTC. Cross-country maneuvers with military vehicles decrease habitat quality by killing sagebrush and disturbing understory plant communities (Cadwell et al. 2001). Training also starts wildfires that have degraded significant portions of the habitat, although the adjacent highway is also the source of some fires.

Monitoring. WDFW staff count birds at 26 active leks each year and another 9 inactive leks are checked for activity, and searches for new leks were done opportunistically. To focus efforts on the most likely locations for new leks to occur a GIS-based lek search model was developed. Data from current active leks in Douglas County was used to assess

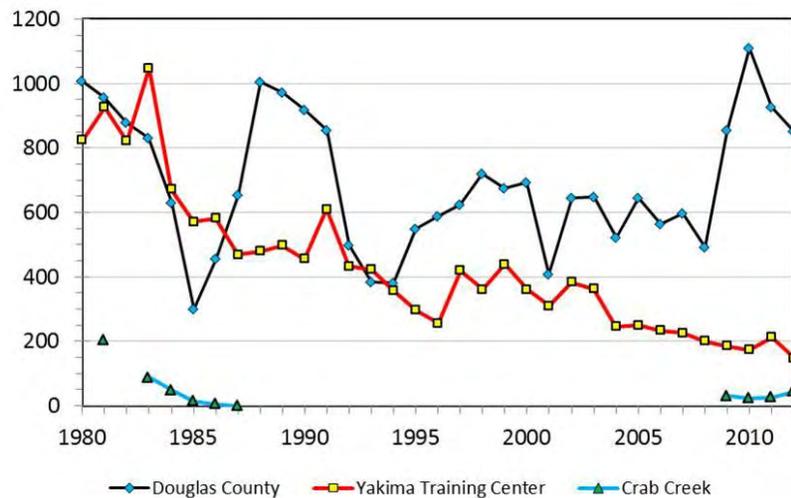


Figure 4. Estimates for three populations of sage-grouse in Washington, 1980-2012.

landscape variables and inter-lek characteristics to develop a profile of lek locations. This model was used to predict areas where other leks might exist, and resulted in locating 4 sage-grouse leks in 2010, and 3 in 2012. In 2012, we counted a high of 331 males in Douglas County representing a 9% decrease from 2011 (362); reports from other states suggest a rangewide decline, likely related to drought conditions. Yakima Training Center also reported a continued decline (44 males, down from 56 in 2011). The Yakima Training Center initiated a telemetry project in 2012 to validate core use areas, document off-post movements, and investigate sources of mortality.

Conservation activities. Enhancement of existing populations and re-establishment of additional populations were identified as high priorities in the state recovery plan (Stinson et al. 2004). WDFW, in cooperation with the U.S. Bureau of Land Management (BLM), Washington State University, Oregon Department Fish and Wildlife, and the U.S. Fish and Wildlife Service, initiated a project in 2008 to reintroduce greater sage-grouse to the Swanson Lakes Wildlife Area and adjacent BLM lands in Lincoln County. Sage-grouse were extirpated from the county in 1987, but habitat has improved since that time, with more than 200 km² of shrub-steppe habitat now present on public lands. From spring 2008 to spring 2012, 181 greater sage-grouse were translocated from southern Oregon to the release area (Table 1). The movements, productivity, habitat use, and survival of these birds have been monitored. Display behavior was first observed in 2010, and in 2011, a lek site was established by males from previous years' releases with a high count of 10. The same lek was active again in 2012 with a high count of 16. One female moved ~85 km to Douglas County, while two others that attempted that move were found dead near a large transmission line. Thirteen nesting attempts were documented in 2012, 8 clutches hatched, and at least 4 hens fledged broods. Nine sage-grouse hens have reared at least one chick to 50 days of age, and hens without collars were observed with broods (2011 and 2012), indicating recruitment is occurring. Plans for 2013 include continuation of the translocation effort into Lincoln County.

Table 1. Greater sage-grouse released in the Crab Creek Sage-grouse Management Unit (Swanson Lakes Wildlife Area, Lincoln County).

	Spring 2008	Fall 2008	Spring 2009	Spring 2010	Spring 2011	Spring 2012	Total
Male	10	7	15	23	19	18	92
Female	7	17	13	15	17	20	89
Total	17	24	28	38	36	38	181

The Yakama Nation and University of Idaho have re-engaged in a project to re-establish a population on the reservation. Eight birds were observed in 2012, likely a result of previous releases, but no active leks are known. Releases of birds from Nevada are planned for 2013-2015. A concurrent project will erect fencing around a 25,000 ac area to exclude feral horses which negatively affected habitat.

SAFE/CRP. The U.S. Department of Agriculture's CRP program is currently the main financial incentive for private landowners to provide sage-grouse habitat, and has been essential for providing habitat for sage-grouse in Washington (Schroeder and Vander Haegen 2006, 2011) and in other states. State Acres for Wildlife (SAFE), a new initiative under the CRP program, may boost grouse populations; 63,000 ac were allocated in 2010 for sage-grouse and sharp-tailed grouse habitat in northern Douglas County. WDFW biologists have been assisting landowners with planting plans for lands accepted into the sage-grouse and sharp-tailed grouse SAFE, and working with Farm Service Agency (FSA), Natural Resources Conservation Services (NRCS) and conservation district staff to facilitate program implementation. A total of 356 conservation plans covering 56,918 acres have been written since October 2010. In October 2012, an additional 8,900 acs were allocated to the Shrub-steppe SAFE; with the acres already enrolled, this creates a total of 16,222 acres in sage/sharp-tailed-grouse management zones in northern Grant, Lincoln and Okanogan counties.

Habitat restoration. Since 1996, WDFW has restored almost 2,500 ac in Lincoln County, and is currently finishing up restoring 100 ac in the Telford area. Fence collisions can be a major source of mortality for sage-grouse, and making them more visible can dramatically reduce collisions (Stevens et al. 2012). In 2011, BLM funded a project to mark 55 miles of fences on WDFW lands and 71 miles of fences on adjacent BLM lands in Lincoln County to reduce grouse collision mortalities. WDFW also assisted the Lincoln County Conservation District with an ALEA grant to remove 15 miles of unneeded fencing in 2010 and an additional 5 miles in 2011. Wenatchee Sportsmen marked 28 miles of fences on

WDFW lands in Douglas County with the help of a grant in 2011. In northern Douglas County, work is currently underway to restore 413 ac of old grain fields to shrub-steppe with a \$250,000 grant. In 2011, WDFW acquired 473 acres of land in Douglas County that may benefit sage grouse.

Wildfires in 2012. The Apache Pass fire in Lincoln County started several miles west of Swanson Lakes Wildlife Area (SLWA), and burned 1,069 ac on SLWA. In addition to good sage and sharp-tailed grouse habitat being burned at SLWA, the BLM had 7,648 acres of its ground burned, including crucial sage-grouse habitat. SLWA staff and BLM wildlife and range biologists collaborated to reseed 100 ac on SLWA and 100 ac of BLM land with a grass/forb/legume mix.

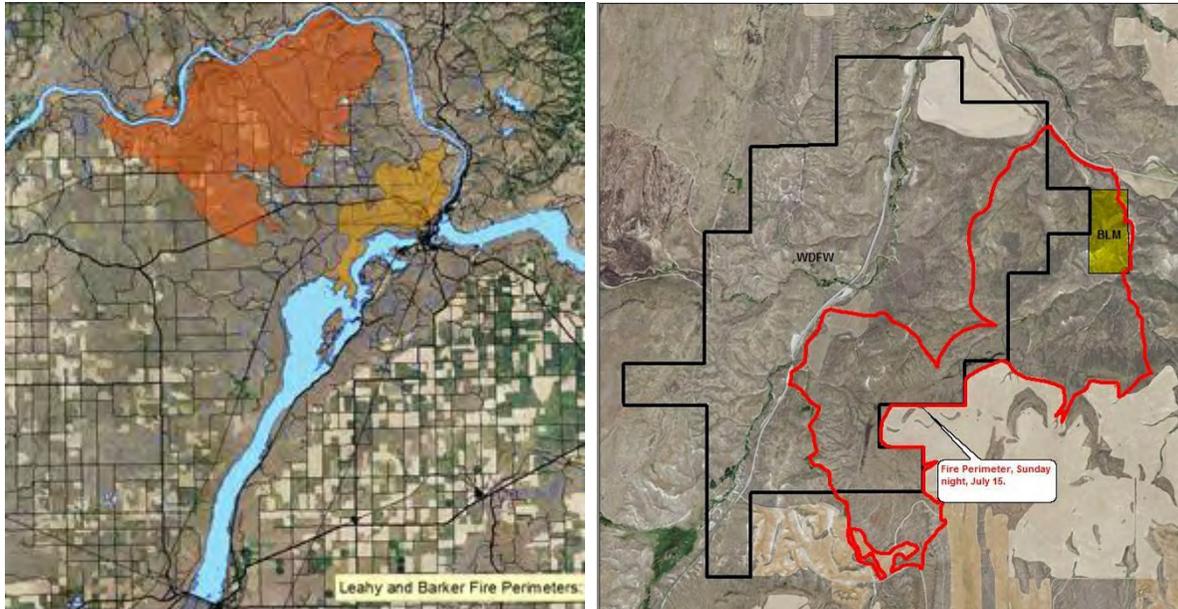


Figure 5. The Leahy and Barker Fires (left) and the Foster Creek Fire perimeters (right).

Douglas County was impacted by wildfires ignited by lightning storms. The Barker and Leahy fires in northeast Douglas County burned 17,000 plus acres of cropland, CRP, and shrub-steppe and the Leahy fire burned over 73,000 acres. Within the Leahy fire perimeter, one active and one inactive sage grouse lek was burned. The leks represent complexes of nesting, brood rearing and wintering habitat associated with a lek site. Many of the CRP-SAFE fallow fields to be seeded this fall acted as firebreaks saving many homes in the area.

An estimated 725 acres of WDFW land burned in the Foster Creek Fire, much of which was sagebrush that was in excess of 30% cover. The total acreage for the Foster Creek Fire is approximately 1,350 including private lands, BLM and WDFW. A helicopter was used to seed a total of 140 acres between the Foster Creek burns and another burn in Central Ferry Canyon. BLM acreage within the Foster Creek burn was also seeded.

Landscape planning. The Washington Wildlife Habitat Connectivity Working Group is addressing connectivity patterns for numerous focal species, including greater sage-grouse. An analysis of statewide connectivity patterns was published in 2010 and an ecoregional analysis for the Columbia Plateau was completed in 2012 (Robb and Schroeder 2012). The latter analysis is modeling habitat concentration areas and movement corridors for greater sage-grouse. The Arid Lands Initiative is a group of governmental (WDFW, WDNR, BLM) and non-governmental organizations (e.g. TNC) formed in 2010 to engage landowners with the goal of conserving shrub-steppe across multiple jurisdictions. Greater sage-grouse have been identified as one of the focal species for which conservation strategies will be

developed and implemented.

Partners and cooperators: Bureau of Land Management, Oregon Department of Fish and Wildlife, Washington State University, U.S. Fish and Wildlife Service, Department of Defense-Yakima Training Center, Wenatchee Sportsmen, Inland Northwest Wildlife Council, Spokane Audubon, Lincoln County Conservation District, The Nature Conservancy, Yakama Nation, Farm Service Agency, Natural Resource Conservation Service.

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Figure 6. Sage-grouse on a re-established lek in Lincoln County, 2012 (photo K. Thorburn).