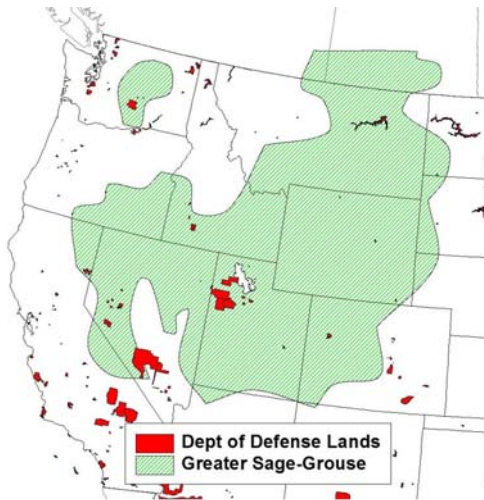




# Greater Sage-Grouse

(*Centrocercus urophasianus*)

The greater sage-grouse (*Centrocercus urophasianus*) was first described by Lewis and Clark in 1805. Its original territory spanned over a dozen states throughout the western region of the United States. Currently, greater sage-grouse occur in Washington, Oregon, Idaho, Montana, North Dakota, South Dakota, Wyoming, Colorado, Utah, Nevada, and California. Greater sage-grouse may also be found in parts of the Canadian Provinces of Alberta and Saskatchewan.



Range of greater sage-grouse (NatureServe, 2003) and Department of Defense lands.  
Map: Chris Eberly, DoD PIF

The greater sage-grouse's niche is sagebrush vegetation, at elevations between 4,000 and 9,000 feet above sea level. Research suggests that sagebrush once covered about 156 million acres in the United States. However, almost none of the original area has been left untouched, and about half of the current sagebrush areas are seriously degraded. A recent die-off in Utah, apparently related to sustained drought conditions, affected nearly one million acres of sagebrush habitat. Most of this sagebrush consisted of older plants, and little new growth is occurring in this region. Destruction of sagebrush habitat

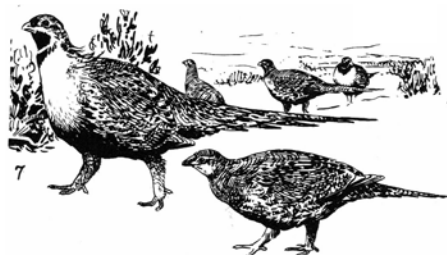
is typically associated with overgrazing, agricultural conversion, invasive species, development, herbicides, and wildfires. It can take up to 80 years for sagebrush to return to a sustainable condition.

Degradation of habitat extent and quality likely has been a main contributor to greater sage-grouse population declines. Range-wide estimates were thought to be around 1.1 million birds in 1800. A 1998 range-wide spring census recorded 157,000 birds; more recent range-wide estimates vary from 100,000 to 500,000. Greater sage-grouse populations declined an average of 3.5 percent per year from 1965 to 1985. Although the greater sage-grouse population is still declining, the rate of decline since 1985 has slowed to 0.37 percent annually across its range.

## Biology

The greater sage-grouse is a large round-winged ground-dwelling bird. It can measure to 30 inches in length and two feet in height, weighing from two to seven pounds. Greater sage-grouse have long, pointed tails with legs feathered to the base of the toes. Females are a mottled brown, black, and white color. Males are larger than the females, and have a characteristic white "ruff" around their neck with bright yellow air sacs on their breast, which they inflate during mating displays.

During the spring mating season, large numbers of males congregate on sites called "leks" (or "drumming grounds") to perform a communal courtship strutting display. Leks are relatively



Drawing: USFWS



Male greater sage-grouse.  
Photo: Gary Kramer, USFWS

small, open sites often surrounded by denser sagebrush. Males strut with their tails fanned and emit loud "plops" produced by large air sacs on their chests.

After mating, females build nests, lay eggs, and raise chicks, without the male's assistance. On average, a female greater sage-grouse will lay 2 eggs every 3 days for about 9 days. Generally, clutch size is 6 to 8 eggs and the incubation period is 25 to 27 days.

The greater sage-grouse depends almost entirely on sagebrush for food and cover. It constructs a nest from grasses and other plants that are typical of sagebrush habitat. During the summer, the greater sage-grouse diet consists of insects that are found in the sagebrush ecosystem. During winter, 99 percent of their diet is sagebrush leaves and buds. The average lifespan is 1 to 1-1/2 years but sage-grouse have been known to live up to 10 years.

## FWS Status Review

Between 1999 and 2001, the U.S. Fish and Wildlife Service (FWS) received three petitions to list the greater sage-grouse range-wide as endangered or threatened and began a formal status review in April 2004. The review was completed late in 2004. The FWS determined that the species does not warrant protection under the Endangered Species Act at this time. However, the status review clearly illustrated the need for continued efforts to conserve sage-grouse and sagebrush habitat on a long-term basis. The status review found 92 percent of the known active leks occur in 10 core populations across 8 western states and that 5 of these populations are large and expansive. The greater sage-grouse is currently identified as a Bird of Conservation Concern by FWS and is listed as endangered in Canada.

## The Military's Role

At least 35 different Army installations, as well as numerous Army National Guard and Army Reserve properties, fall within the current range of the greater sage-grouse; the Air Force, Navy, and Marine Corps have a combined 12 installations in this species' range. There are eight known military installations with confirmed populations of greater sage-grouse. Six of these are Army sites—Dugway Proving Ground (UT), Sheridan Training Area (WY), Camp Guernsey (WY), Hawthorne Army Depot (NV), Tooele Army Depot (UT), and Yakima Training Center (WA). The other two are Air Force Bases (AFB)—Nellis AFB (NV) and Mountain Home AFB (ID).

Through the use of Integrated Natural Resource Management Plans (INRMPs), the military has implemented conservation actions for this species. These plans are unique to each installation and outline the steps that need to be taken for land, resource, and species conservation. Installations that have confirmed the presence of sage-grouse include the species in the INRMP. Other installations with appropriate sagebrush habitat within the range of sage-grouse conduct surveys and manage potential habitat.

Yakima Training Center developed and implemented a greater sage-grouse management plan as part of its INRMP.



Sagebrush habitat, Yakima Training Center.  
Photo: Yakima Training Center

This plan includes translocating birds to diversify the gene pool, maintaining high quality habitat, and reducing threats from fire and predation. Efforts taken by the Yakima Training Center have significantly improved the numbers and genetic diversity of the Columbia Basin distinct population segment of greater sage-grouse, a candidate species that is warranted for listing but precluded by higher listing priorities. At Hawthorne Army Depot, nesting and lek sites are fenced for protection, cattle have been excluded, and sage-grouse hunting discontinued.

Mountain Home AFB has been implementing conservation actions for the greater sage-grouse since 1998, including research, habitat mapping, surveys, and avoidance protocol. To support these efforts, the installation has trained ground emitter crews to identify the species, sagebrush habitat, and noxious weeds. Emitter crews must report any sightings of sage-grouse or noxious weeds to the natural resources office. The base also restricts ground use of emitter sites during the breeding season, strives to prevent man-made fires, and coordinates with the local Sage-Grouse Working Group, one of many such groups that exist to coordinate and evaluate conservation efforts. Between 1998 and 2004, the installation invested over \$3 million in greater sage-grouse conservation efforts.

Nellis AFB discovered a small group of greater sage-grouse on one of its training ranges. Another restricted-access range has suitable habitat, but cannot be surveyed on foot. Helicopter surveys are being considered to determine the extent of suitable habitat and confirm the presence of greater sage-grouse, if

possible. The installation is considering a number of projects to include in their INRMP update, such as the potential for additional ground and aerial surveys, initiation of a monitoring program, assessment of potential sage-grouse and habitat management needs, and a study of the potential impact of the wild horse population on sage-grouse habitat.

Naval Air Station Fallon (NV) has not confirmed the presence of greater sage-grouse. However, populations occur in nearby mountain ranges, and suitable habitat is found on the Naval Air Station. The installation conducts surveys to determine species presence and has implemented noxious weed and soil erosion control programs. Much of the historic sagebrush habitat around Naval Weapons Systems Training Facility Boardman (OR) has been converted to agriculture. Boardman's sagebrush is largely isolated from other large blocks of sagebrush. Though greater sage-grouse are not currently known to occur on the installation, invasive weed and erosion control efforts are benefiting native plant communities, including sagebrush, and may ultimately result in suitable habitat for population translocation.

Department of Defense (DoD) installations are committed to stewardship that will benefit current and future populations of greater sage-grouse. Through partnerships and implementation of installation INRMPs, DoD is enacting conservation measures on existing sagebrush habitat and appropriate restoration actions for degraded habitat to stabilize or increase populations of this enigmatic species of the sagebrush steppes.

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