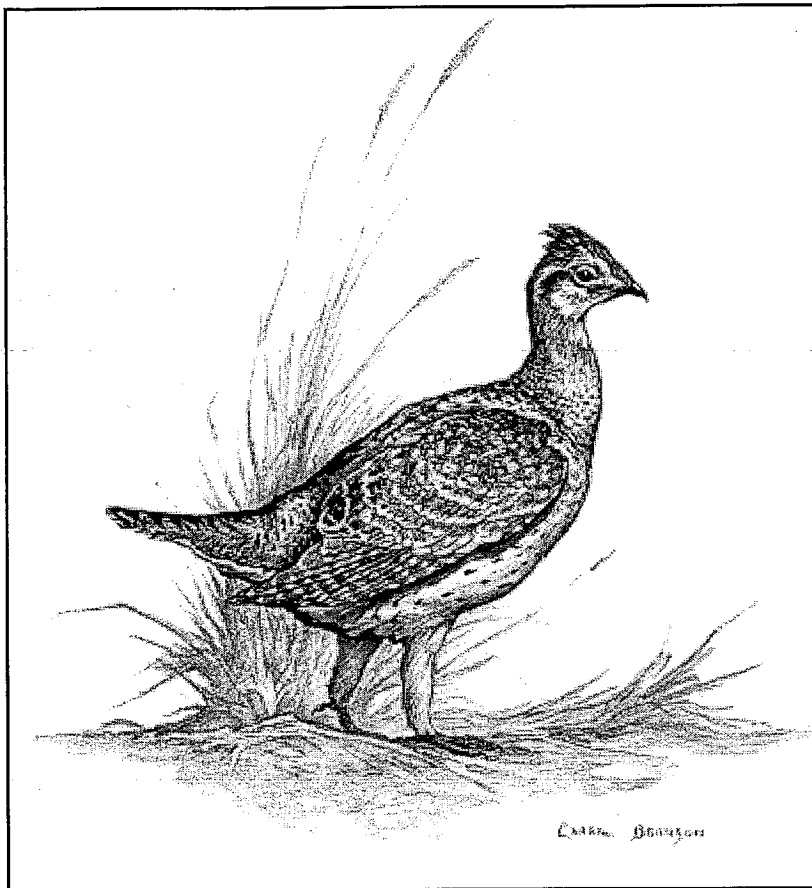


Columbian Sharp-tailed Grouse

(*Tympanuchus phasianellus columbianus*)



The Columbian Sharp-tailed Grouse was an important source of food for many Native Americans and early settlers of the West. The elaborate courtship displays of this bird are replicated in a variety of dances performed by Native Americans.

Description

Columbian Sharp-tailed Grouse are one of six native species of grouse found within Utah. They are smaller than sage and Blue Grouse, and larger than Ruffed Grouse and White-tailed Ptarmigan. They look very much like a hen pheasant, except for a short, pointed tail and V-shaped, brown markings on cream-colored breast feathers. Early Utah settlers commonly referred to sharp-tailed grouse as prairie chickens and prairie hens.

The male or cock is about 20 inches long and the female or hen slightly smaller. Sharptails weigh from one to one and three quarters pounds. Adult male and female sharp-tailed grouse are nearly identical in plumage. Both sexes are overall grayish-brown with black and buffy markings. White, circular spots on the primary wing feathers and the barred pattern of the wing are distinctive features. The under parts are white, while breast feathers have a distinct pattern of dark, V-shaped, brown markings. The tail is wedge-shaped, with the two central tail feathers longer than the rest. This is where the sharptail gets its name. Males have purple air sacs on the sides of the neck that cannot be seen except when inflated during breeding activities.

Habitat

In Utah, sharp-tailed grouse are associated with transitional zones within sagebrush communities, ranging in elevation from the interface of aspen-sagebrush to the edge of sagebrush and desert saltbush near the Great Salt Lake. Elevation within their distribution varies from 4,300 to 8,000 feet. Their distribution overlaps that of Blue and Ruffed Grouse within aspen-mountain brush-sagebrush communities, and sage-grouse and Hungarian Partridge within sagebrush rangelands and dryland farms.

In Utah, 56 percent of the active leks, or dancing grounds, are found within sagebrush-native bunch grass habitat, 36 percent are found on Conservation Reserve Program (CRP) lands and 8 percent are on agricultural lands.

The Columbian Sharp-tailed Grouse (*Tympanuchus phasianellus columbianus*) is one of seven subspecies of sharp-tailed grouse found in North America. Historically, Columbian Sharp-tailed Grouse occurred within sagebrush-native bunch grass habitat throughout the intermountain region, extending from British Columbia, Washington, Idaho and Montana south through portions of Oregon, California, Nevada, Utah, Wyoming, Colorado and New Mexico.

Lewis and Clark were the first to describe the Columbian subspecies of sharp-tailed grouse in the early 1800s. In 1815, a taxonomist, named Ord, officially classified the Columbian Sharp-tailed Grouse by providing it with a scientific name. Some common names for the Columbian Sharp-tailed Grouse include: sharptail, brush grouse, spiketail, pintail grouse, sprigtail, prairie grouse, speckle-belly, prairie pheasant, white-belly, white-breasted grouse, spotted chicken, prairie chicken, prairie hen and white grouse. Sharp-tailed grouse belong to the family Phasianidae within the order Galliformes ("chicken-like" birds).

When native rangelands are used for nesting, most females nest beneath or within a few feet of a shrub. When available, sagebrush is preferred nesting habitat, although snowberry, bitterbrush, serviceberry and other mountain shrubs are also used. Within shrub habitat, females select nest sites with denser grass, forb and shrub cover than at independent sites. Studies in Utah during the 1930s to 1940s (prior to the CRP), found that within intensively cultivated areas, hens selected alfalfa or wheat stubble for nesting, although nest success was only 47 percent and 18 percent, respectively. Implementation of CRP, beginning in 1986, created extensive tracts of undisturbed nesting cover. Areas seeded with alfalfa and other forbs have developed into high quality nesting and brooding habitat. Researchers have found that nest success was higher in non-native (alfalfa and CRP) habitats (86%) compared to native habitats (53%).

Brooding habitat typically includes a high diversity of interspersed shrubs, perennial forbs and bunch grasses. On native rangelands, brood habitat typically consists of 60 to 80 percent grass/forb cover and 20 to 40 percent shrub cover. Cultivated fields, native grasslands and CRP lands are used when the density and height of vegetation provides 8 to 12 inches of visual obstruction. Columbian Sharp-tailed Grouse seem to respond to livestock grazing of brooding habitat by moving to ungrazed rangelands or by concentrating in ungrazed CRP lands.

The selection of winter habitat depends primarily upon snow accumulation and the availability of feeding and roosting sites. Typical wintering areas include deciduous trees and mountain shrubs in upland and riparian areas. In Utah, grouse often move from sagebrush up to maple-chokecherry cover types as snow accumulates. If snow depths remain minimal, grouse do not move to higher elevation habitat. Generally, grouse do not have winter food problems because the browse species they use are often abundant. However, habitat alterations and land conversions have seriously reduced the quantity and quality of preferred berry and bud-producing shrubs available to sharp-tailed grouse in Utah.

Food Habits

During spring and summer, sharp-tailed grouse forage in areas dominated by dense forb and sparse grass cover. During fall and winter, birds forage on the ground in areas where succulent forbs or grains are available and on fruits and buds in areas dominated by sagebrush, trees or shrubs. In Utah studies, the major food items in the diet during the spring and summer include forbs such as clover, goldenrod, hawksbeard, dandelion, fruits, grains, grass and grass seeds. The fall and winter diet consists of the fruit, seeds and buds of native shrubs, including serviceberry, hawthorn, birch, aspen, chokecherry, wild rose, willow, snowberry, Russian olive, and the leaves of rabbit brush. Where available, sharp-tailed grouse will also use wheat, corn and barley. Insects, including ants, grasshoppers,

crickets, beetles and galls from sagebrush, are eaten when available as well.

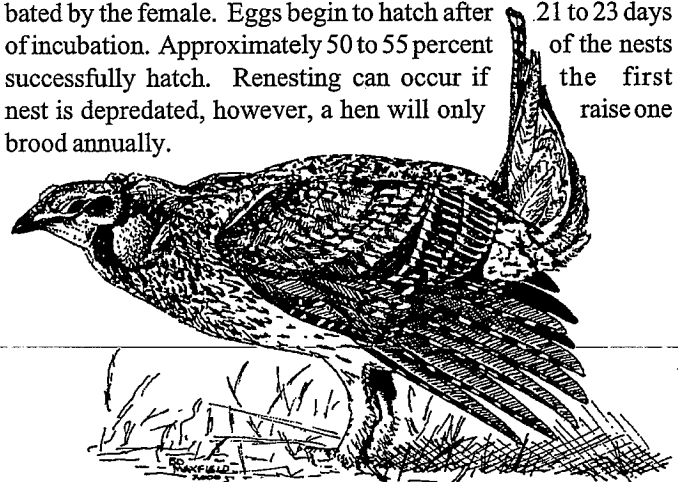
Reproductive Biology/Ecology

The breeding season for sharp-tailed grouse begins in March when males start congregating on leks (dancing grounds). The word "lek" comes from the Swedish term *lekställe* which means "mating place." Dancing grounds may be located on low ridges and knolls, recent burns, forest clearcuts, natural openings, and other areas with low sparse vegetation allowing good visibility, good acoustics and unrestricted movement. Established dancing grounds will be used for many years, although their exact location may shift over time and smaller "satellite" dancing grounds may be formed in the vicinity of historic dancing grounds. Dancing grounds form the hub of sharptail breeding habitat.

Males engage in communal courtship displays while on the dancing grounds to establish territorial boundaries and a dominance hierarchy for breeding. They display twice daily, at sunrise and shortly before sunset. With tail erect, wings lowered and neck outstretched, the males rapidly quiver their tail feathers, and slowly twist and turn while swiftly stamping their feet. Resonant gurgling sounds made by repeatedly inflating and deflating the air sacs on the sides of their neck accentuate the traditional dance. This elaborate display of dancing males attracts females to the site for mating.

The most dominant male bird, called a "master" cock, does most of the breeding of hens. Other cocks in order of dominance are called "dominant" cocks, "guard" cocks and "outsider" cocks. Breeding continues through early May.

Following breeding, females leave the dancing grounds to select a nest site. Provided suitable nesting habitat is available, most female sharp-tailed grouse nest within one and a half miles of the dancing ground site. Nesting begins in April. Nests are comprised of shallow hollows lined with grass, leaves and feathers and are usually placed near the base of a shrub or clump of grass. About 11 to 14 olive-brown eggs are laid and incubated by the female. Eggs begin to hatch after 21 to 23 days of incubation. Approximately 50 to 55 percent of the nests successfully hatch. Renesting can occur if the first nest is depredated, however, a hen will only raise one brood annually.



Male Columbian Sharp-tailed Grouse performing courtship display.

Chicks remain relatively close to the nesting area throughout the summer. CRP fields, which include alfalfa, are often used as brooding habitat for two to three weeks after hatching. Chicks feed primarily on insects, including ants, crickets, moths, grasshoppers and beetles.

Annual brood surveys conducted in Utah between 1972 to 1976 and 1992 to 2000 have shown average brood sizes varied from 2.5 to 6.0 chicks per brood. The long-term average is 4.5 chicks per brood. Broods usually disperse within six to eight weeks. Successful brood-rearing is highly dependent on areas with abundant forbs and insects. The summer diet of juvenile sharptails consists of both insects and succulent plant material, whereas adults eat primarily succulent plant material.

Historical Status in Utah

Sharp-tailed grouse numbers once were more abundant in Utah due to habitat quality and quantity. An early account by Cache Valley resident Joel Ricks states that in the early 1870s, when the telegraph wire was put through Cache Valley, scores of wild chickens were killed by flying in to it. There were thousands of these chickens until about 1875 when they began to dwindle. In another historical account, Dr. W. W. Henderson of the Utah State Agricultural College in Logan reported that in the 1890s, it was not uncommon to see flocks of several hundred sharptails in northern Cache Valley, stating it would have been possible to see ten thousand in one day of riding the range.

The historical distribution of sharp-tailed grouse in Utah occurred within the sagebrush-native bunch grass region from Nevada east along the Utah-Idaho border to Wyoming. Their range extended south along the length of the Wasatch Mountains to Garfield County and east from Utah County through the Uintah Basin to Colorado. This distribution was maintained until the early 1900s, when they were reported to still be numerous in Cache, Davis, eastern Juab, Morgan, Rich, Salt Lake, Sanpete, Summit, Wasatch, Weber and Utah counties. By 1935 though, large-scale conversion of sagebrush-steppe to cropland and overgrazing by domestic livestock had significantly eliminated and impacted habitat, and the distribution of sharp-tailed grouse was greatly reduced.

Populations survived in only a few areas in the north-central portion of Utah. Within these areas, birds were restricted to remaining islands of sagebrush-steppe within dry-farmland and foothill bench pastures which had not been severely overgrazed. Scattered or isolated populations remained only in Box Elder, Cache, Morgan, Rich and Weber counties.

Current Status in Utah

As a result of habitat loss and over hunting, by 1935, grouse numbers had plummeted to the point that a survey done that same year provided a total estimated fall-winter population of only 1,500 birds. Subsequent surveys in 1939 and 1948 estimated the total population at 1,155 and 1,515 birds. Popu-

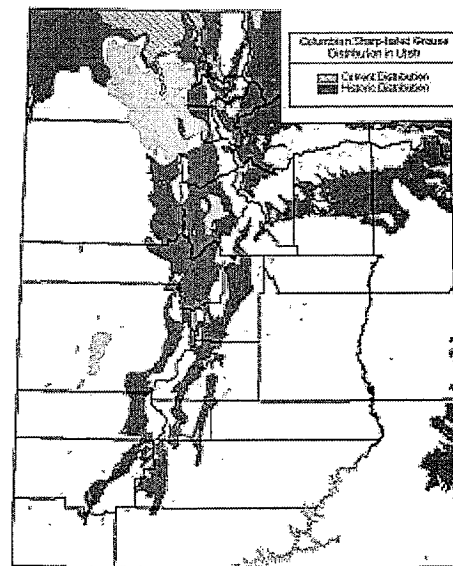
lations remained low until the mid-1970s when hunters, landowners and Utah Division of Wildlife Resources (UDWR) personnel began sighting more birds.

Since 1979, dancing ground counts have been used as an index of sharp-tailed grouse population size. Dancing ground count results indicate that population trends remained stable until the late 1980s, after which they increased.

The most graphic indication of increases in abundance of sharptails since the 1970s can be found in the results of the 1999 harvest questionnaire in which 288 hunters reported seeing 6,597 sharp-tailed grouse—an average of 20 birds per hunter-day. Data from surveys conducted during 1998 and 1999 were used to estimate a 1999 fall population of 11,153 birds.

The reason for the dramatic increase in numbers is most likely due to the federally funded Farm Bill's Conservation Reserve Program. First implemented in 1986, CRP provides a continuum of habitat that interconnects isolated core sharptail population areas and provides isolated populations opportunities to expand. As a result of CRP, overall sharptail distribution increased by approximately 400 percent from the known distribution in 1975. Because of its dependence on federal agricultural programs to keep crucial habitat out of production, some refer to the sharptail as a "Federal Bird."

Today, sharp-tailed grouse in the west are leading a precarious existence. They are doing well in certain areas, but everything can change with the sale of a field or changes in the economy.



Historical and current distribution of Columbian Sharp-tailed Grouse.

Hunting

The Columbian Sharp-tailed Grouse is classed as an upland game species by the Utah Legislature. However, they were not hunted in Utah from 1925 to 1973. By the early 1970s, reported observations by the public and UDWR personnel indicated that

populations were increasing and a limited hunt was initiated in 1974. In 1979, all sharp-tailed grouse hunters were required to obtain a free permit.

Due to a decline in observations during the spring-summer inventory period, hunting was discontinued in 1980 and remained closed through 1997. Between 1998 and 2000, a limited entry hunt was authorized within a 595 square mile hunt unit in eastern Box Elder County. Fall populations within the unit were estimated at 5,757 grouse in 1998 and 7,196 grouse in 1999. Harvest levels were set at percentages that would not impact subsequent breeding densities.

Conservation Concerns

Sharp-tailed grouse throughout the western United States have been experiencing declines in the number of dancing grounds and the number of males attending dancing grounds. Although for most populations, declines can be a result of a variety of causes, the key to maintaining any species is providing sufficient habitat.

For sharp-tailed grouse, fragmentation and loss of habitat has been the result of several factors including increased building of roads, the spread of housing developments, powerline construction and the destruction of riparian areas. Degradation in quality of habitat has come as a result of excessive livestock grazing, drought and land treatments. Grazing has severely impacted the vegetative composition of sagebrush-native bunch grass habitat on foothill and bench rangelands, causing native bunch grasses to be replaced by exotic annual grasses and canopy coverage of sagebrush to become too dense. In riparian habitats many bud-producing shrubs have been eliminated or reduced.

Although most of the sagebrush-native bunch grass areas within dry-farm lands in Box Elder County is in good ecological condition and currently not grazed due to lack of water for livestock, future livestock water developments could change existing conditions. The subdivision of ranches and farms in rural areas for residential and recreational homes and other developments also threatens core populations of sharp-tailed grouse.

Basically the greatest threat to grouse populations in a general sense is the increasing human population. Most of the impacts listed above are due to our growing presence in the sagebrush ecosystem. In Utah, most people live within only a one or two hour drive of the remaining sharp-tailed grouse habitat found in the state. Only time will tell if this once plentiful and revered western bird will continue as a part of a fractured landscape.



What You Can Do

- Become an active member of a conservation organization devoted to grouse or the wise management of sagebrush/sagebrush-steppe habitats.
- Become a member of a local working group dedicated to conservation planning efforts for the Columbian Sharp-tailed Grouse. Contact your local Division of Wildlife Resources office for information on established groups in northern Utah.
- Become more knowledgeable about various conservation programs and their renewal under the Federal Farm Bill. The Conservation Reserve Program (CRP) has provided essential habitat for grouse. Please let your congressional representatives and other leaders and decision-makers know how important these programs are to wildlife.

Additional Reading

Connelly, J. W., M. W. Gratson, and K. P. Reese. 1998. Sharp-tailed Grouse (*Tympanuchus phasianellus*). In *The Birds of North America*, No. 354 (A. Poole and F. Gill, eds.). The Birds of North America, Inc. Philadelphia, PA.

Giesen, K. M., and J. W. Connelly. 1993. Guidelines for management of Columbian Sharp-tailed Grouse habitats. *Wildl. Soc. Bull.* 21:325-333.

Hart, C. M., O. S. Lee, and J. B. Low. 1950. The Sharp-tailed Grouse in Utah. *Utah Dept. Fish and Game Publ.* 3.

Johnsgard, P. A. 1983. *The grouse of the world*. University of Nebraska Press, Lincoln. 413 pp.

Johnsgard, P. A. 1973. *Grouse and quails of North America*. University of Nebraska Press, Lincoln. 553 pp.

Marshall, W. H., and M. S. Jensen. 1937. Winter and spring studies of the sharp-tailed grouse in Utah. *J. Wildl. Manage.* 1:87-99.

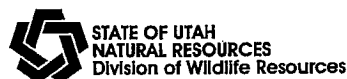
Wildlife Notebook Series No. 17

Produced by: Project WILD

Compiled by: Dean Mitchell, Upland Game Coordinator and Jerry Openshaw, Conservaton Outreach Manager

Edited by: Diana Vos and Vicki Unander

Illustrated by: Clark Bronson and Brian Maxfield



The Utah Department of Natural Resources receives federal aid and prohibits discrimination on the basis of race, color, sex, national origin, or disability. For more information or complaints regarding discrimination, contact Executive Director, Utah Department of Natural Resources, P.O. Box 145610, Salt Lake City, UT 84116-5610 or Office of Equal Opportunity, U.S. Department of Interior, Washington, D.C. 20240. The Division of Wildlife Resources is funded by the sale of hunting and fishing licenses and through federal aid made possible by an excise tax on the sale of firearms and other hunting and fishing-related equipment.