

# Greater Sage-Grouse | Tétraras des armoises

*Centrocercus urophasianus* (Bonaparte)

GRSG

ENDANGERED

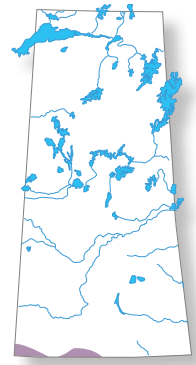


Photo: May Haga

The Greater Sage-Grouse is North America's largest grouse, a characteristic bird of habitats dominated by sagebrush (Schroeder et al. 1999). In extreme southwestern Saskatchewan, a few still inhabit silver [hoary] sagebrush grasslands. Each spring they congregate at leks during the early morning hours (Harris and Weidl 1988). The males have a spectacular mating display: they strut, raise and spread their showy tails, lift and swish their wings, and inflate their large esophageal air sacs to make distinctive, loud *plops* (Patterson 1952). If no females are present there is less incentive for males to compete, and their displays are reduced in intensity and duration (Harris and Weidl 1988, SM).

The Sage-Grouse is resident locally from central Washington, Montana, southeastern Alberta, southwestern Saskatchewan, southwestern North Dakota, western South Dakota, and extreme northwestern Nebraska, south to western Colorado and then west to south-central Nevada, southern Utah, Idaho, Oregon, and eastern California. Based on differences in size, behaviour, genetics, and plumage, the Gunnison Sage-Grouse (*C. minimus*) of southwestern Colorado and southeastern Utah has been recognized as a species distinct from the Greater Sage-Grouse (AOU 2000).

## HISTORY

### Coteau west of Wood Mtn Post, 1874:

Three cock Sage-Grouse seen 26 Jun 1874 (George Dawson in Houston and Prys-Jones 2019 submitted manuscript).

**Frenchman River, 1886:** North West Mounted Police constable John George Donkin shot "a few sage hens" in the White Mud district (Donkin 1889).

**South of Wood Mtn, 1895** [east block of GNP since 1988]: A dozen males were seen 14 Jun (Macoun 1900).

**Frenchman River, 1895:** Nest, 2 eggshells from which young had just emerged, 21 Jun; 4 adult specimens taken 22 Jun by Spreadborough (ibid.).

**Skull Creek, 1905:** One seen by C. S. Day 9 Jun 1905 (Bent 1907).

**Pinto Creek, 1914:** Male specimen 20 Jan (J. Burger SMNH #368). **Frenchman River, 1926:** Major Allan Brooks spent 26 Sep to 6 Oct studying, collecting, and painting Sage-Grouse (Laing 1979). **1929:** At a camp 12 mi northwest of Val Marie, sets of 7 eggs 23 May and 11 eggs 6 Jun, a chick 20 Jun, 3 adult females and 3 adult males collected; broods of 4 and 10 young seen 20 Jun (Bradshaw 1929b).

**Mitchell, 1924:** *Specimens from Wood Mtn west along United States boundary to Frenchman River. Uncommon.*

## STATUS

Circa 1960 the Sage-Grouse range in Saskatchewan stretched, thinly and sporadically, as far north as the Great Sand Hills near Verlo, where several were seen with Sharp-tailed Grouse 10 Jun 1967 (ARS), and Saskatchewan Landing until 1965—the year a presumed wandering Sage-Grouse was shot south of Anerley by Orville Durrell (Roy 1996). By the time of a 1988 survey (Harris and Weidl 1988) its range had shrunk to within the Missouri River drainage except for an isolated population in the Meyronne area in the Wood River basin. The population at that time was estimated to be 670 males at 30 occupied leks (22.3 males/lek). By 1994–1996 the Canadian range had fragmented into 3 areas: extreme southeast Alberta contiguous with extreme southwest Saskatchewan, and the west and east blocks of GNP (COSEWIC 2000). By 2009 only 45 birds were observed on 4 leks (GNP+, SK MoEt); by 2011 only 35 were counted in Saskatchewan and 13 in Alberta (Pat Fargey+); by 2012, 18 were counted in Saskatchewan and 13 in Alberta (Wilson 2012). In 2013, weather and access were contributors to only 3 males being observed on 2 leks in Saskatchewan. In 2014, there were 8 males counted on 3 leks but in 2015 an encouraging 20 males were counted on 3 leks.

"There were two dancing grounds within a mile of our house and quite frequently I used to steal up close and watch the proceedings. ... The Sage-Grouse becomes very tame if left alone and some years ago we were troubled with the young birds trespassing in our garden, where they would eat the hearts out of the lettuce plants. Scaring them off had little effect. ... I have seen a couple of youngsters enjoying a dust bath within 20 feet of the stable door. ... But the coming of the railway up the valley [1913–1914] changed all this and between 1914 and 1920 hardly a bird did we see" (L. B. Potter 1922).





Photo: R. E. Gehlert

Threats to this species' survival include drought and natural disasters, chronic disturbance, small population size, small genetic diversity, habitat loss and degradation, changes to ecological dynamics or natural processes, and accidental mortality (EC 2014c). Throughout the species' range, some specific threats include destruction of sagebrush, cultivation, irrigation, herbicides, pesticides, fires, and development of reservoirs, roads, dwellings, fences, power lines, and energy resources (Braun 1998).

Other factors affecting Sage-Grouse populations include West Nile virus and climate change. In southeastern Alberta, 5 radio-marked Sage-Grouse died from West Nile virus in 2003, reducing late summer survival more than 25%. None had antibodies to this virus, suggesting that they lack resistance (Naugle et al. 2004). In recent decades adverse weather events, cold wet days in May, and increased June precipitation have reduced nesting and brood-rearing success (Kerwin 1971, Aldridge 2000, McNeil et al. 2007).

## HABITAT

Because of their obligate diet of sage plants these grouse do not survive outside the range of sagebrush in Saskatchewan. Sage-Grouse are almost totally dependent upon sage plants for food and cover, especially during winter, having no muscular gizzard with which to grind hard seeds and grains like other gallinaceous birds (Patterson 1952, Dahlgren et al. 2015).

Sagebrush habitats are now among the most imperiled biomes in North America (Knick et al. 2003). Although Thorpe et al. (2005) reported no net increase in cultivation within 3.2 km of leks in Saskatchewan between 1981 and 2003, about 90% of sagebrush habitat has been lost in Saskatchewan (Aldridge and Brigham 2003). In southwestern Saskatchewan, sagebrush was more common and occurred in higher densities around occupied leks than abandoned leks (McAdam 2003). In the area later designated as GNP, habitat used by broods had a mean shrub

cover of 7% and a mean height of 30 cm (Kerwin 1971).

Habitat quality is an issue also because the remaining areas of suitable habitat are being subjected to fragmentation from energy development, road construction, and associated activities (EC 2014c). Economic development often takes precedence over conservation of this magnificent species.

## BREEDING

Weather permitting, lek activity begins in late February and ceases in early June (Harris and Weidl 1988, Kerwin 1971). Until intensive recent research triggered by the population decline, few nests were reported. Reported nests include 2 in 1929 northwest of Val Marie (7 eggs 23 May and 11 eggs 6 Jun) (Bradshaw 1929b), and 2 near Val Marie (8 eggs early Jun 1941 and 9 eggs early Jun 1942) (Soper 1970). Two nests were found in summerfallow by J. David Chandler: with 8 eggs 11 mi southeast of Masefield 11 May 1959 and with 7 eggs 2 mi west of Consul 12 May 1963 (PNRS). In 1970 and 1971, the peak hatch in the Frenchman River area occurred between the fourth week of May and the third week of June, when 61% and 41% of hens were seen with at least 1 chick in 1970 and 1971 respectively (Kerwin 1971). In the East Block of GNP, J. D. Tack found 3 hatched and 2 predated nests between 5 May and 5 Jun 2009 (GNP+).

Recent nesting effort has been successful near 5 leks, 1 on the extreme southern edge of the East Block of GNP and 4 in the northern half of Valley County, MT, where 90% of nests raised 1 or more young in 2007 and 95% in 2008, with a range of 4–11 eggs per clutch (Tack 2009). A hen was flushed on the Allemand Ranch near Shaunavon in spring 2013 (Beatriz Prieto Diaz†). The proportion of males that fathered offspring in their lifetime averaged 45.9% (Bush 2009). In Saskatchewan, young have been seen 17 Jun 1987 Govenlock (3 young) (Don Weidl†), 20 Jun 1986 Govenlock (4 young) (Guy Wapplet), 20 Jun 1929 Val Marie (broods of 4 and 10 young) (Bradshaw 1929b), 4 Jul 1937 Middle Creek (6 young) (Soper in Godfrey 1950), and 8 Jul 1948 between Divide and Claydon (2 young) (Godfrey 1950).

## MIGRATION

Some Sage-Grouse remain as residents throughout the year and others migrate

(Schroeder et al. 1999). Jack Kinneart and others saw a flock of at least 60 Sage-Grouse in Woodpile Creek valley southeast of Govenlock in November 1973, apparently caught in 15 cm of wet snow. Don Weidl† reported that old-timers saw large flocks of Sage-Grouse south of Cypress Hills migrating in fall. Others in the Beaver Valley district southeast of Ponteix also told of migration to the Milk River basin in fall (Hooley 1949). Kerwin (1971) suspected the small winter flocks he observed in the GNP area were stragglers and that the bulk of the birds moved off the study site for the winter; large flocks arrived on site again in spring (Ted Weinst†). Tack (2009) discovered that hens in the East Block of GNP migrate more than 20 km to winter in big sagebrush habitat south of the Milk River, MT, with 1 hen migrating 122 km; aerial surveys confirmed that most had migrated by November. Dispersal appears to have prevented the genetic bottleneck that may occur with small populations (Bush 2009).



Photo: Stan Shadick

## WINTER

Only 43% of females, 33% of males, and 18% of yearlings survive a Saskatchewan winter (SK MoE 2001). Four of 9 CBCs at Eastend 1919–1935 reported Sage-Grouse: 1 each in 1926 and 1934, 3 in 1933, and 30 in 1935 (M. I. Houston and Houston 1976). Since 1950, another 673 Sage-Grouse have been observed during 52 CBCs, including those that moved slightly north to be recorded on CBCs at Maple Creek and Skull Creek. CBC localities with number seen and date of last CBC appearance are: Shaunavon (1, 3 Jan 1965); Maple Creek (1, 1 Jan 1969); Val Marie (2, 27 Dec 1970); Eastend (1, 2 Jan 1982); Skull Creek (2, outside count day, 1986–87); Ft Walsh (no number given, 14 Dec

1991); Glentworth (17, 19 Dec 1991); GNP (15, 28 Dec 1995); and Govenlock (single bird, 28 Dec 2007, and 2, 17 Dec 2013, after 6 years total absence). *High count*: 106 in 1 flock at Govenlock 15 Dec 1979.

## MANAGEMENT

A national Sage-Grouse Recovery Team was formed in 1998 and published its recovery strategy in 2001 (Canadian Sage-Grouse Recovery Team 2001). On 9 Sep 2009, by judicial order under SARA, the current range was identified through the amended recovery strategy (EC 2014c, 2015). Using federal funding, the mapped sagebrush locations are being expanded to include historical leks. In response to the potential extirpation of the species in Canada, the government of Canada implemented an EPO under SARA in 2013. The total area protected by Critical Habitat and the EPO is 3354 km<sup>2</sup> (EC 2014c).

To be effective, conservation of Sage-Grouse in Saskatchewan must include Alberta and Montana. Currently, the Northern Sage-Steppe Initiative (NSSI) allows Alberta, Saskatchewan, and Montana to coordinate and share management of Sage-Grouse, pronghorn, and mule deer. Saskatchewan imposed protective notations on industrial activity year-round within 1000 m of Sage-Grouse habitat and within 3200 m of leks (SK MoE 2015). Saskatchewan is improving

provincial protection for the Greater Sage-Grouse through increasing year-round Activity Restriction Guidelines for non-EPO protected habitats of up to 6400 m around leks and 1000 m around other habitats, depending on the activity (ibid.).

Collaborative projects to support recovery efforts in Saskatchewan include marking fences bordering provincial lands and GNP to reduce Sage-Grouse collisions with fences. Saskatchewan is also evaluating abandoned wellsites to prioritize their reclamation in Sage-Grouse habitat (Jesus Karst†).

“As I sat on the dusty ground in the fragrant sagebrush range near Manyberries [Alberta], where grouse had once been so abundant and exuberant in their instinctive springtime dance of procreation, I was reminded that species can be saved only when citizens recognize there is a problem and demand action from governments, scientists, conservationists and, most important, themselves. And, sadly, I realized that even significant changes might not be enough to prevent this icon of the Canadian prairie from strutting into oblivion, a result of too little action and not enough time” (Lynch 2005).



Photo: Stan Shadick

The USFWS determined in September 2015 that existing conservation efforts are sufficient to recover the species and that listing under the Endangered Species Act is unwarranted at present (Audubon 2015). If the Sage-Grouse is to survive in Canada (and in North America), restoration of sagebrush habitat must be combined with a moratorium on development within 10 km of known and previous leks (Knick et al. 2003). Other manageable threats must also be addressed. “We must convince our society of the intrinsic value of sagebrush ecosystems” (ibid.).

Susan McAdam (SM)

## Spruce Grouse | Tétrás du Canada

*Falcipennis canadensis* (Linnaeus)

SPGR

This small, dark grouse, a permanent resident of Rocky Mountain and boreal forests from Alaska to Labrador south to the northern contiguous US, is known for its relative tameness. If it flies when flushed, it does not fly far. It is sometimes seen at roadsides and often sits still as vehicles approach. “Because of its confiding habits, which make it easy prey for hunters, and because it requires extensive tracts of undisturbed forest, the Spruce Grouse has not adjusted well to civilization” (Smith 1996).

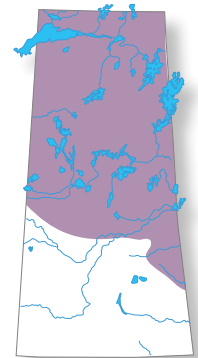
## HISTORY

**Cumberland House, 1819–1820:** Specimens, male and female (Sabine 1823). Resident all the year, common. North to 68°. All the thick and swampy black spruce forests between Canada and the Arctic Sea abound with this bird (Richardson and Swainson 1832). Frequents pine [spruce] woods (Drummond 1830). **Ft Carlton, 1858:** “I found it as far west as Ft Carlton. Seen on two occasions below the Forks” [near Fort-à-la-Corne] (Blakiston 1859, 1863). **Duck**



Photo: Nick Saunders

**Mtn and Porcupine Hills, 1881:** Very numerous in the poplar woods to the north of Ft Pelly along Red Deer River, and at the sources of the Swan River, August 1881 (Macoun in Thompson Seton 1891). **Cumberland House, 1891:** Early in June a set of 5 identified eggs was sent to USNM, Washington



(MacFarlane 1891). **Prince Albert, 1892–1893:** Plentiful in the heavy spruce forests during winter. “It well deserves the name of ‘fool hen’ as I have seen it picked up by hand without attempting to escape, this usually when the temperature was 40 or 50 degrees below zero” (Deacon 1894b). **1901:** “On 8 Feb I received one splendid male specimen; it seems to be rather rare” (Coubeaux 1902). **1902:** Reported by the natives as not uncommon in the swamps north of the river (Congdon 1903). **Mitchell, 1924:** *Common resident in central Saskatchewan, less so in northern third.*





Photo: Harvey Schmidt

### STATUS

In Saskatchewan, the Spruce Grouse is rare or absent from the now mainly settled and cultivated transition forest portion of the southern boreal forest. It remains a fairly common permanent resident throughout the rest of the southern boreal, and in the northern boreal and the subarctic woodland zones. "Although essentially sedentary, individuals have on very rare occasions wandered south of the normal range (Luseland, Saskatoon and Grenfell)" (Smith 1996). "Like others of their family, they are short-distance fliers, moving generally fewer than 16 km between summer and winter ranges" (Gilliland in Leighton et al. 2002). Too few Spruce Grouse have been recorded on the SK BBS and CBC to derive population trends.

### HABITAT

The Spruce Grouse is a denizen of all types of coniferous and mixedwood forests. As the

species feeds heavily on conifer needles, it is rare in, or absent from, deciduous forests. Its range-wide preferences for the needles of pine over spruce, and white spruce over black spruce, suggest that it may be most common in pine woods, and least common in spruce bogs. The species also prefers young successional stands that are fairly dense with a relatively well-developed middle storey (Boag and Schroeder 1992).

### BREEDING

Although the male Spruce Grouse normally struts and displays individually to attract females, communal courtship behaviour of a group of Spruce Grouse consisting of about 10 males and about 6 females was observed by Ernie Kuyt near Stony Rapids 9–13 May 1958 (Nero 1963a). Nests have been found as follows: 8 eggs 4 Jun

1942 Kazan Lake (Randall 1962), 7 eggs 6 Jun 1947 Narrow Hills PP (Walkinshaw 1960b), and 5 eggs 30 Jun 1960 Offset Lake (Scotter 1961). An early nest with 2 eggs found 13 May 1977 Besnard Lake area may have been a partial clutch, as the average clutch size for our subspecies (*F. c. canadensis*) is 5.4 eggs (Keppie 1982). In the Prince Albert area, a hen was incubating a nest of 8 eggs on 2 Jun 1977 (Wayne Harris SBDB). Observations from Besnard Lake span the provincial brood-rearing period, with hens and chicks observed as early as 11 Jun, and as late as 12 Aug, and a female and 4 almost grown young 4 Sep 1992 (Gerrard et al. 1996).

### WINTER

In Saskatchewan, little is known about how the onset of winter affects the species. In other parts of the range they are known to move short distances to denser stand types when there is snow, and return to more open stands as the snow melts (Boag and Schroeder 1992).

The species has been recorded on 125 CBCs (plus 30 during count period), with a high of 28 on the 1948 Nipawin-Fishing Lakes count (see table). There are 4 counts from Kamsack in the aspen parkland, but it is almost certain that they were observed in nearby Duck Mtn which actually lies in southern boreal forest.

Brenda Schmidt



Photo: Harold Fisher

Distribution of Spruce Grouse on Saskatchewan CBCs to Winter 2013–14, by Natural Vegetation Zone

Natural Vegetation Zone	Total Counts	Counts Present	Percent Present	High Count	
				# Birds	Location, Date
Northern Boreal Forest	36	5	13.9	2	Creighton, 2 Jan 2009
Southern Boreal Forest	1146	115	10.0	28	Nipawin-Fishing Lakes, 31 Dec 1948
Aspen Parkland	1707	4	0.2	10	Kamsack, 4 Jan 1986; Kamsack-Togo, 2 Jan 1988
Mixed Prairie	975	1	0.1	1	Luseland, 27 Dec 1987
Dry Mixed Prairie	158	0	0.0		
Cypress Hills	51	0	0.0		
PROVINCE-WIDE	4073	125	3.1	28	Nipawin-Fishing Lakes, 31 Dec 1948