



Greater Sage-Grouse (*Centrocercus urophasianus*) in British Columbia: History, Translocation, Breeding, and Current Status

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Abstract

New information, gleaned from historical literature, field notes, and correspondence, is presented on the native occurrence and translocation history of Greater Sage-Grouse in British Columbia including the province's first breeding record in 1959. The last record for the province is 14 August 1966.

Introduction

Greater Sage-Grouse (*Centrocercus urophasianus*), the largest species of grouse in North America, have inhabited the continent for over 11,000 years. It is a species that was originally found in sagebrush steppe habitats of 16 western states and three Canadian provinces (Figure 1). During the twentieth century, resident populations declined due to degradation and/or loss of critical habitat to urbanization, agriculture, livestock grazing, energy developments, and management activities such as prescribed fires and herbicide spraying (United States Department of Energy 2007). Today, Greater Sage-Grouse is only found in 11 states and two provinces and is still experiencing population declines (Connelly and Braun 1997, Braun 1998; Figure 2).

In Canada, the northern limit of sage-grouse range in North America, Campbell et al. (1990) consider the species extirpated in British Columbia while small extant, but decreasing populations, still exist in extreme southeastern Alberta and southwestern Saskatchewan (Aldridge 1998, Schroeder et al. 1999, 2004; Figure 2).

New information on the presence of Greater Sage-Grouse in British Columbia was recently discovered in early notebooks and correspondence

of collectors, biologists, and naturalists and is summarized here.

Early History in British Columbia

Although aboriginal people have lived in the Osoyoos area for thousands of years, we could not find any reference of their knowledge or use of Greater Sage-Grouse. In the early 1800s, the first European fur traders arrived in the southern Okanagan Valley and by 1821 the Hudson's Bay Company had made the valley a major trade route to locations in the southern interior (Fraser 1967, Hauka 2003). By 1858, the discovery of gold in the new Colony of British Columbia attracted thousands of miners who travelled in wagon trains with their livestock to the Fraser goldfields through the Okanagan Valley from the United States (Akrigg 1977). This sudden influx necessitated the establishment of a border crossing and custom house that was built on Osoyoos Lake in 1861 to collect taxes. In the mid-1860s, the first bridge was built across the "narrows" joining Osoyoos Lakes and soon the region was growing, albeit slowly, as cattle ranches were established. The first commercial orchards were in production in 1890.

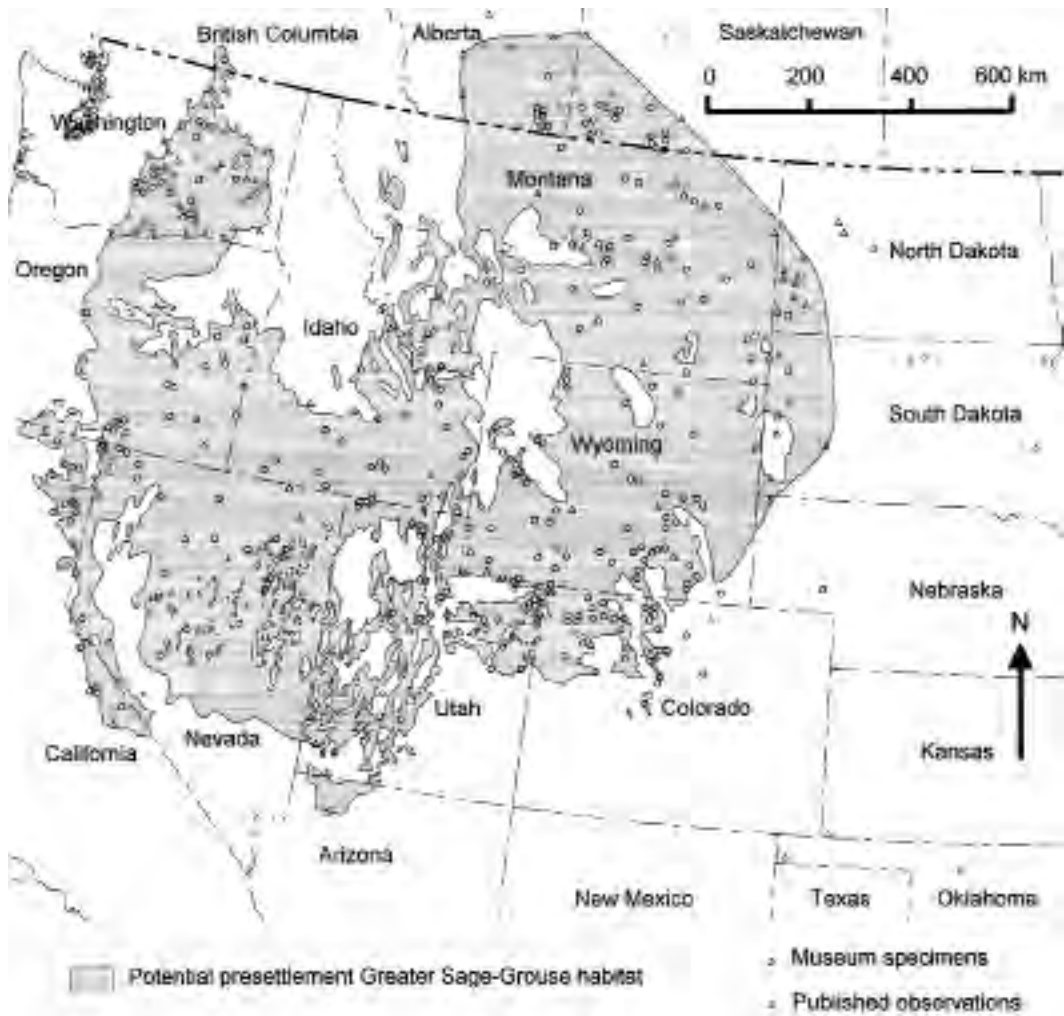


Figure 1. Distribution of Greater Sage-Grouse in North America prior to settlement. The map was prepared using early museum specimens and published observations (Reprinted, with permission, from Schroeder et al. 2004).

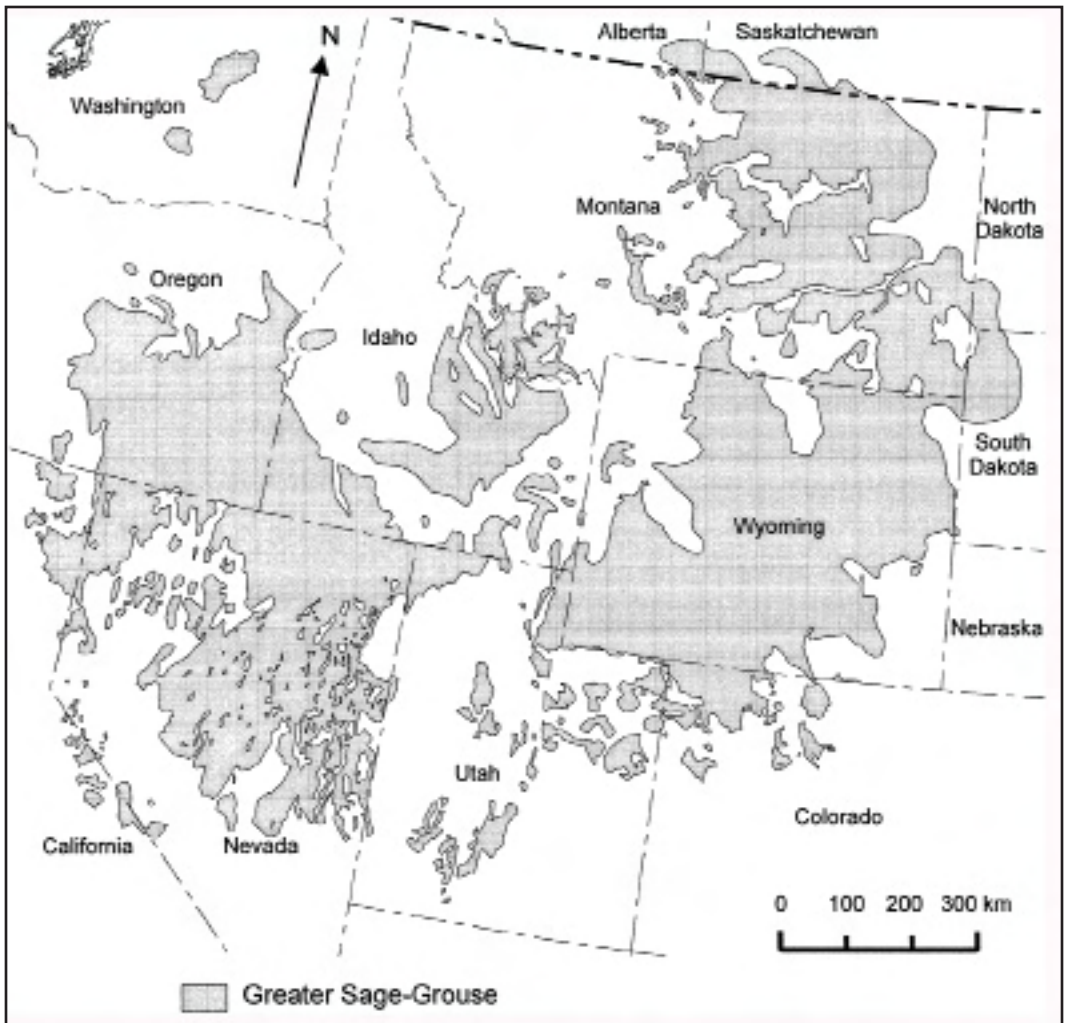


Figure 2. Distribution of Greater Sage-Grouse in North America in 2000 (Reprinted, with permission, from Schroeder et al. 2004)

Like many peripheral species in British Columbia, Greater Sage-Grouse included its North American range in the province because of the presence of its preferred habitat. The species is sagebrush obligate (Figure 3) and tongues of suitable habitat existed in the very dry valley bottoms of the southern Okanagan Valley. Dominant vegetation here consists of bluebunch wheatgrass (*Pseudoroegneria spicata*) grasslands dominated by big sagebrush (*Artemisia tridentata*) and antelope-bush (*Purshia tridentata*) with patches of brittle prickly-pear cactus (*Opuntia fragilis*).

The early history of Greater Sage-Grouse in British Columbia is not well documented and most available information is anecdotal. This suggests that the population was marginal, small, and local.

Michael A. Schroeder (pers. comm.) mentions that early explorers David Douglas and Meriwether Lewis and William Clark observed massive numbers of sage-grouse along the Columbia River, WA, in the 1820s and that during the latter half of the century very little information was recorded on the

species. It is likely that numbers were large enough in the adjacent southern Okanagan Valley in British Columbia that early inhabitants may have witnessed the spectacular strutting displays of males on leks during courtship rituals (Figure 4).



Figure 3. As an evergreen shrub, the leaves of sagebrush provide year-round food for Greater Sage-Grouse. *Photo by R. Wayne Campbell, Richter Pass, BC, 7 July 1997.*



Figure 4. While not documented in the early history of British Columbia, Greater Sage-Grouse may have gathered in small numbers on breeding leks in the extreme southern Okanagan Valley similar to that displayed in this diorama in the Denver Museum, CO. *Photo by Ken P. Morrison, 25 October 1966.*

The earliest record for British Columbia was reported in 1864. John Fannin (1891), curator of the Provincial Museum in Victoria, wrote “Three specimens [were] taken by G.B. Martin, M.P.P., at Osoyoos Lake in October, 1864.” He also suggested that the “bird is probably accidental here.” Munro and Cowan (1947) further stated that a specimen in the Provincial Museum [Victoria, BC] was collected by R.H. Pooley on the Dewdney Trail about 1864 (Figure 5). The Dewdney Trail, a 720 km trail across southern British Columbia connecting Fort Hope [Hope] in the southwest to what became Fort Steele in the southeast, was built in the mid-19th century to secure British control along the United States border. By May 13, 1865, it had reached *So-o-yoyos* [Osoyoos] (Anderson 1969) bringing settlement to the region.

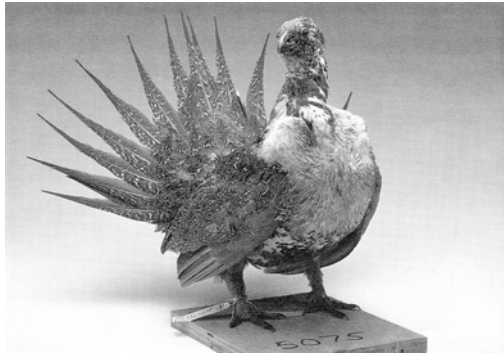


Figure 5. Male Greater Sage-Grouse collected by R.H. Pooley on the Dewdney Trail near Osoyoos, BC in 1864. The specimen was mounted from the collections of the Royal British Columbia Museum (RBCM 5075) and used in their early displays of the province’s avifauna. *Photo by Andrew Niewmann.*

The species may have been present in British Columbia over the following two decades as Brooks and Swarth (1925) reported that on information supplied by Mr. Val Haynes, “two [Sage Hens] were killed by an Indian named Si-an at Osoyoos about 1883.” Cannings et al. (1987) note that this occurrence was “only a few years after Judge Haynes, the first Osoyoos resident, came to the area. It appears that the species was still present in the vicinity of Osoyoos several years later as Fannin

(1898), in a letter from naturalist Charles de B Green of Osoyoos on 21 May 1896, wrote “I [CdeBG] have two most reliable reports of the occurrence of Sage Hens in the locality.” Yocom (1956) noted that “Old-timers in the Oroville [Washington] area mention shooting Sage Grouse in the sage-covered terraces along the Okanagan River soon after the turn of the century [19th century].” Kermodé (1904, 1909) does not add any new information for the status of the sage-grouse through 1908.

The last reference to native birds inhabiting the Okanagan Valley was made by Yocom (1956). He stated that in 1918 “a prospector [W.J. Ripley], who worked extensively in the mountains bordering the Okanagan Valley in Washington and British Columbia, Canada, claims to have shot the last Sage Hen that was in the [Oliver] area.” Published information suggests that Greater Sage-Grouse was present in British Columbia in low numbers for at least 54 years but was distributed locally and difficult to find.

There is no reference, or published information, of sage-grouse breeding in British Columbia between 1864 and 1918.

Translocation

In an attempt to re-establish an extirpated population of sage-grouse in British Columbia, the provincial government, in co-operation with the Oregon State Game Commission, trapped 63 Greater Sage-Grouse in Malheur County and transported them to British Columbia on 21 August 1958 (Taylor 1959). Most birds were juveniles or immatures but a few adults were included in the group. Four sage-grouse died in transit and another two during the release process, so 57 birds were actually released. The translocation site was a small pot-hole lake, with adjacent big sagebrush, about three kilometres north of Richter Lake (Figure 6) which is located 16 km due west of Osoyoos in the extreme southern Okanagan Valley (Anonymous 1958).



Figure 6. The location in Richter Pass, BC, where 57 Greater Sage-Grouse from Oregon were released on 21 August 1958 by the British Columbia provincial government. *Photo by R. Wayne Campbell, Richter Lake, BC, 7 July 1997.*

During the following autumn and winter, 11 sage-grouse, from six different locations along Richter Pass, were reported to provincial game biologists by farmers, ranchers, and landowners (E.W. Taylor pers. corres.). All sightings were of one to four birds (in a group), all from the east end of Richter Pass between Kilpoola Lake, Spotted Lake (Figure 7), Lower Richter Lake, and Mount Kobou, where big sagebrush dominates the landscape. Three observations were from September, one from October, one from November, and one from December, 1958. Unfortunately age, sex, and behaviour was not recorded. No reports of sage-grouse were received between January and April, 1959 and it appeared that the birds may not have survived the winter or had dispersed into the hills (Figure 8). As well, Carl and Guiguet (1972) mention that no Greater Sage-Grouse had been reported in

the province since 1960 and Campbell and Meugens (1971), in their treatise of birds of Richter Pass, report that no Sage Grouse [Greater Sage-Grouse] had been seen in the region for the decade between 1961 and 1970 despite many trips by permitted egg-collectors.



Figure 7. After being released in Richter Pass in August 1959, Greater Sage-Grouse were reported the following month in the sage-covered hills above Spotted Lake, BC. *Photo by R. Wayne Campbell, 22 September 1973.*



Figure 8. Winters in Richter Pass are unpredictable. Temperatures and snow cover vary greatly between years but in most years, snow blankets the sage-covered hills. *Photo by R. Wayne Campbell, 15 January 1996.*

Attempts to translocate Greater Sage-Grouse in North America, to augment low-density populations or to re-establish populations in suitable habitat, began in 1933. Over the ensuing 65 years over 7,200 sage-grouse were translocated in at least 56 attempts in seven United States and one Canadian province. Only three of the 56 attempts (3%) were successful

(Reese and Connelly 1997). Taylor (1959) suggested that re-introduction of Greater Sage-Grouse in British Columbia should not be considered as a viable management option in the future.

There are four post-translocation records of Greater Sage-Grouse in British Columbia between 1962 and 1966 that Cannings et al. (1987) list as “unverified” because specific details were lacking. These include P. Karran who reported four sage-grouse near Osoyoos Lake in 1962 as well as a male and female at Osoyoos in early August 1963. W.K. Dobson, in a report from the Osoyoos area dated August 1963, stated “Sage Hens sighted several times here.”

Additional information for the final record was obtained recently from William [Bill] D. Barkley (pers. comm.), an experienced naturalist and past director of the Royal British Columbia Museum. In 1966, during an 836-mile survey of road-killed wildlife between Shuswap Lake Park, Osoyoos, Trail, Glacier National Park, and Radium Hotsprings, Bill noticed a dead sage-grouse lying off the side of the road [Highway 3] on the “Osoyoos side of Anarchist Mtn” on 14 August (Barkley 1966). He recalls the bird “was considerably larger than a Blue [Dusky] Grouse, probably a female or juvenile because of the mottled gray-brown drab appearance, and it had a long pointed tail. The surrounding habitat was a sagebrush hillside and the bird was lying on a slight berm off the main highway. It may have been dead a day or two.”



Figure 9. The general breeding habitat for Greater Sage-Grouse in the vicinity of Kilpoola Lake, BC. *Photo by R. Wayne Campbell, 8 August 1996.*

This discovery is the latest record for British Columbia. Based on survival rates in the United States (Michael A. Schroeder pers. comm.), this bird could either be an adult from the earlier translocation or from the offspring produced by the translocation in British Columbia. In Washington State, Michael A. Schroeder (pers. comm.) notes that birdwatchers rarely see sage-grouse even when the birds are common, unless they know where a lek is situated.

Breeding

It is possible that sage-grouse bred in the province at one time but there is no evidence, even circumstantial, that they did. Recently, two independent breeding records were discovered in the field notes of two experienced naturalists and collectors, both from the vicinity of Kilpoola Lake in 1959 (Figure 9).

While exploring the Kilpoola Highlands on May 17, 1959, Glenn R. Ryder wrote: “We [my brother and I] had hiked a little further to the edge of the sagebrush and sat down on some rocks to rest when out from behind the shrubs walked a sage hen [Greater Sage-Grouse] with her four small young, about 4 to 5+ days old. I told my brother not to move or speak very loud. We watched the group walk away down the slope headed in a southerly direction. Soon they vanished from view.

The female was mottled and overall speckled

gray and somewhat drab-looking plumage. The body showed white on the lower side of the belly and a large black patch on her lower belly. The pointed tail was barred, or vermiculated. The bird was larger than a Blue Grouse [Dusky Grouse]. The head area had a thin white stripe from the top of the eye to the base of the bill and stops behind the ear. The bill looked blackish or deep gray.”

Robert E. Luscher reported he watched “a female and a small young feeding above the lake [Kilpoola Lake] on July 2, 1959.”

It is likely that a few of the 57 sage-grouse introduced in Richter Pass nine months earlier survived the winter to breed in the vicinity of Kilpoola Lake. The lake is at 815 m elevation and about eight to 10 km due east of the original release site.

Status

Greater Sage-Grouse in British Columbia has always been at its range periphery in North America (Figure 10). Occurrence of native birds has been documented infrequently in the province between 1864 and 1918 and introduced birds from late summer 1958 to mid-summer 1959. The latest record (isolated and of unknown origin) was 14 August 1966. Records reported in 1962 and 1963 are not supported by details (Cannings et al. 1987).



Figure 10. The northern limit of the sagebrush ecosystems of western North America reaches south-central British Columbia where historically small numbers of Greater Sage-Grouse subsisted. *Photo by R. Wayne Campbell, Richter Pass, BC, 1 May 1994.*

Doug Brown (pers. comm.), who has lived and watched birds in the Osoyoos area since 1978, does not recall anyone reporting Greater Sage-Grouse through 2009. Although the species has been confirmed breeding in British Columbia, probably from introduced stock, there have been no other reliable reports for over 45 years and Greater Sage-Grouse can now be considered extirpated. †

Acknowledgements

Bob Luscher and Glenn Ryder, who entrusted their valuable early field notes to the senior author, provided British Columbia’s only breeding record for Greater Sage-Grouse. Michael A. Schroeder, upland bird research scientist with the Washington Department of Fish and Wildlife in Bridgeport, WA, kindly reviewed the manuscript. He also provided the early and current distribution maps as well as additional historical information for adjacent Okanogan County in Washington State.

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Wayne is co-founder and Director of the Biodiversity Centre for Wildlife Studies. He is presently compiling a catalogue of colonial-nesting fresh-water birds for British Columbia that includes a program to enhance breeding success of Black Terns with placement of artificial nesting platforms in marshes.

Glenn is a naturalist, collector, and artist. He has travelled throughout British Columbia for nearly seven decades exploring places for signs of early history and recording wildlife along the way.