

Going, Gone, and Missing in Action: The Extinct, Extirpated, and Historic Wildlife of British Columbia

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ABSTRACT

While relatively few species in British Columbia are formally regarded as extinct, there are many species and subspecies that are classified as extirpated and even more listed as “historic”, with no verified record in the last 40 years. Fish, birds, mammals, reptiles, vascular and non-vascular plants and invertebrates are listed here: no amphibians in British Columbia are currently on this list.

Key words: extinct, extirpated.

In general, British Columbia has a relatively intact flora and fauna, which is more diverse than any other part of Canada (Harding and McCullum 1994). However, there are a number of species that have been lost from British Columbia and are now extinct or extirpated. An even larger number are “missing”—that is, these species or subspecies have not been recorded in recent times.

The species listed in this paper are extinct, extirpated, or considered “historic.” Many of the species in the historic category will likely be relocated once sufficient effort has been spent searching for them. Others, however, require habitats that have largely disappeared, especially those species that were restricted to specific habitats that have been largely lost to urbanization.

For each of these listings, The Nature Conservancy’s global ranks (G) and the British Columbia Conservation Data Centre’s (CDC) provincial rank (S) are given. In general the ranks run from 1 (critically imperilled) to 5 (secure). The G and S ranks are modified with letters: H = historic, not verified for some time, but may be rediscovered; X = extinct or extirpated, without the expectation that it will be rediscovered; ? = limited information; T = a rank associated with a subspecies or variety. For more detailed information on this ranking scheme in British Columbia see Harcombe (2000), Douglas et al. (1998), Cannings and Ptolemy (1998), Cannings et al. (1999), and Fraser et al. (1999).

These lists frequently change, historic species are found, and new species are added to these lists as records become old enough to meet the criteria for “historic”. For the newest listings contact the CDC website at <http://www.elp.gov.bc.ca/rib/wis/cdc/tracking.htm>.

EXTINCT

The following 5 species and subspecies are considered to be extinct.

EXTINCT FISH

Dragon Lake Whitefish (Coregonus sp.) GX HX.— This undescribed species differed from *C. clupeiformis* in the number of gill raker counts (Lindsey et al. 1970). The species was eliminated when the lake was “rehabilitated” by poisoning in 1956 (Lindsey et al. 1970, Cannings and Ptolemy 1988).

Hadley Lake Limnetic Stickleback and Hadley Lake Benthic Stickleback (Gasterosteus sp.) GX HX.— Formerly restricted to Hadley Lake on Lasqueti Island. Endemic to British Columbia (McPhail 1988). By 1994 these species were eliminated by the introduction of a nonnative catfish (*Ameiurus nebulosus*; Cannings and Ptolemy 1998). The introduced catfish preyed on the eggs of the sticklebacks and probably caused the extinction in a matter of a few years (Hatfield 1999). There are a few other lakes in British Columbia with similar species pairs, and the possibility of the introduction of nonnative fish puts these species at very high risk.

EXTINCT BIRDS

Passenger Pigeon (Ectopistes migratorius) GX SX.— Known from a specimen taken at Chiloweyuck (Chilliwack) Depot in June of 1859 and from bones in a midden at Fort D’Epinette in northeastern British Columbia (Campbell et al. 1990). Possibly more numerous in the province than previously believed (Campbell et al. 1990). The last passenger pigeon died in captivity in 1914 in Cincinnati, Ohio.

EXTINCT MAMMALS

Dawson's Caribou (Rangifer tarandus dawsonii) GX SX.— Poorly known subspecies restricted to the Queen Charlotte Islands. Last record was of 4 animals seen on Graham Island in 1908, 3 of which were shot (Kelsall 1984, Edwards 1996). Parts of these animals are in the Royal British Columbia Provincial Museum.

EXTIRPATED SPECIES

Extirpated species are those that formerly occurred in the province, and still exist elsewhere.

EXTIRPATED NONVASCULAR PLANTS

There are 4 species of nonvascular plants, all mosses, that are regarded as extirpated in British Columbia. Ryan (1996) provides more information on extirpated bryophytes in British Columbia.

Disceium nudum G3G4 SX.— Formerly known from 3 collections on the lower mainland and 1 in the Queen Charlotte Islands. Restricted to earthen banks that are subject to slumping and invasion by vascular plants (Schofield 1990).

Micromitrium tenerum G4 SX.— A moss known in North America only from the Point Grey area of Vancouver (Ryan 1996). Schofield (1990) indicates that these sites have been destroyed by human activity.

Physcomitrium immersum G2G4 SX.— A moss known from single sites in Ladner and Langely at the margins of fields (Ryan 1996).

Pseudephemerum nitidum G? SX.— A moss known in North America from a single site on silt hummocks in a grassy area near the riverbank, MacDonald Beach, Sea Island (Ryan 1996). The habitat has been eliminated as a result of human activity (Schofield 1968).

EXTIRPATED VASCULAR PLANTS

There are 4 species of vascular plants that are regarded as extirpated in British Columbia. For more information on extirpated vascular plants see Douglas et al. (1998). All extirpated plant species are on the province's Red List.

Pink Sand Verbena (Abronia umbellata ssp. acutalata) G4TXQ SX.— Formerly found on beaches and sand dunes on the west coast of Vancouver Island (not the east coast as stated in Douglas et al. 1998), south to Oregon. Collections from Pachena Bay, mouth of "Bamfield Creek," and Ahouse (then located in Ahouse Bay, Vargas Island; Ceska 1986). Also extirpated in Washington State (Douglas et al. 1998). The subspecies *acutalata* is the only subspecies found in British Columbia.

Common Downingia (Downingia elegans) G5 SX.— The only known Canadian population was from Leach Lake, near Creston. The muddy shoreline habitat for this species was eliminated during a waterfowl habitat enhancement project (Douglas et al. 1998).

Rabbitbrush Goldenweed (Ericameria bloomeri [Haplopappus bloomeri]) G4 SX.— Formerly known from Westbridge and Spence's Bridge in south-central British Columbia (Douglas et al. 1998).

Lobb's Water-Buttercup (Ranunculus lobbii) G4 SX.— Formerly known from vernal pools and wet sites on south-eastern Vancouver Island. Last collected in 1948 in Victoria (Douglas et al. 1998). Older collection sites included Florence Lake, Langford, Glen Lake, Oak Bay, and Blenkinsop Lake (Ceska 1986).

EXTIRPATED INVERTEBRATES

Our knowledge of the rare invertebrates in British Columbia is very poor and this list is likely incomplete. The best known groups, such as butterflies and dragonflies, are being tracked by the CDC. Winchester and co-workers (Winchester and Ring 1996; Winchester 1997a,b, 1998; Winchester et al. 1999) have argued that the extirpated and extinct arthropod fauna in British Columbia is likely much larger. Scudder (1996) lists a number of species not seen in British Columbia in more than 50 years; however, many of these species would require a specialist's search to relocate them.

Island Marble (Butterfly) (Euchloe ausonides ssp. unnamed) G5TX (G5T1 pending verification) SX.— An undescribed subspecies known only from southeastern Vancouver Island and some of the Gulf Islands. This subspecies is large compared to the other Canadian subspecies, with greener underwings and duskier females (Layberry et al. 1998). Records range from Nanaimo and Gabriola Island in the north, southward to Beacon Hill Park in Victoria (Shepard 1999). In 1998, a population of marble butterflies was found on San Juan Island, Washington, "uplisting" this species from extinct to extirpated (Shepard 1999). Introduced plants and grazing by sheep in the early 1900s most likely eliminated or reduced the larval food plant. Shepard (1995) speculates that the introduction of the cabbage white (*Pieris rapae*) may also have had an impact on this regional endemic. Shepard (1999) suggests that undiscovered populations may occur on Sidney, James, and D'Arcy islands. Given the severe overgrazing by introduced fallow deer (*Cervus dama*) and early farm history on Sidney and James islands, and the lack of suitable habitat on D'Arcy Island, this seems unlikely. The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) considered this species extirpated in Canada in 1999 (Shepard 1999).

Perdiccas Checkerspot (Euphydryas chalcedona perdiccas) G5T2T3 SX.— In Canada, this subspecies was formerly found on southern Vancouver Island (Layberry et al. 1998), where it was known from Goldstream, Mount Tzouhalem, and Duncan (Shepard 1995). It was last recorded in British Columbia in 1919 (Shepard 1995). Grazing by introduced sheep may have eliminated the larval food plant (Shepard 1995).

Viceroy (Butterfly) (Limenitis archippus) G5 SX.— Last collected in Lillooet in 1930 (Scudder 1996). This showy

butterfly is a well-known mimic of the monarch butterfly (*Danaus plexippus*) in both appearance and flight behaviour. Larvae of the species were recorded feeding on apple foliage in south-central British Columbia. Possibly extirpated due to pesticide use (Guppy et al. 1994). In other parts of the species range the larval food plants are usually willow (*Salix* spp.) and poplar (*Populus* spp.; Layberry et al. 1998), thus the loss of riparian habitats in south-central British Columbia (Cannings et al. 1987) may have also played a role in this extirpation.

EXTIRPATED REPTILES

Western Pond Turtle (Clemmys marmorata) G3 SX.— Originally ranged from the lower Fraser Valley in southwestern British Columbia (Cannings et al. 1999) through to Baja California (Storm and Leonard 1995). Known in British Columbia from 2 records, both from south of the Fraser, and the last of which was in 1966. The species is now extirpated from the Puget Sound area of Washington State (Richardson 1993) and is listed as endangered in the remainder of Washington, with only 2 isolated populations remaining in the state (Richardson 1993). A recovery plan has been prepared for Washington State (Hays et al. 1999).

Gopher Snake, catenifer ssp. (Pituphis catenifer catenifer) G5T5 SX.— Recorded from Galiano Island and at the Sumas border crossing (Gregory and Campbell 1984), the last record was in the 1800s (Gregory and Gregory 1999). While no searches have been conducted for this subspecies, the species is large and resembles a rattlesnake, and it seems unlikely that it has been overlooked. The subspecies is considered extirpated in Washington State as well (Storm and Leonard 1995). Probably lost from habitat loss, direct persecution, and the impact of introduced species (Cannings et al. 1999).

EXTIRPATED BIRDS

Sage Grouse (Centrocercus urophasianus) G5 SX.— Formerly widespread in western North America, but increasingly fragmented and declining (McAdam 1997). In British Columbia, sage grouse were restricted to the southern Okanagan, and the last record of the original population was a bird shot in 1918 (Campbell et al. 1990). A reintroduction of 57 sage grouse in 1958 failed, the last bird found from this reintroduction attempt being one found dead on Anarchist Mountain in 1966 (Campbell et al. 1990). The population in Washington State has undergone a dramatic decline and the species is no longer found in any county adjacent to British Columbia (Smith et al. 1997). Washington State's population is estimated at only 600 (Smith et al. 1997) to 800 (Stepniewski 1999) birds.

Yellow-billed Cuckoo (Coccyzus americanus) G5 SXB,SAN.— Most records are from the period between 1881 and 1927, and the species is presumed to have bred in southwestern British Columbia, including southern Vancouver

Island (Campbell et al. 1990). Western populations may be a separate subspecies, *C. a. occidentalis* (Hughes 1999). There are a few British Columbia records since 1988, but the species is regarded as being extirpated as a breeding bird (Campbell et al. 1990, Fraser et al. 1999). This species has declined dramatically throughout the Pacific states (e.g., Laymon and Halterman 1987, Gaines and Laymon 1984, Hughes 1999). It was extirpated from Washington State by 1934, from Oregon by 1945, and from California north of Sacramento by the 1950s (Hughes 1999). The remaining western North America population is probably less than 30 pairs, all restricted to southern California (Laymon and Halterman 1989).

HISTORIC SPECIES

HISTORIC NONVASCULAR PLANTS

The following nonvascular plants have not been verified in British Columbia in the past 45 years.

Bryum tenuisetum G? SH.— Listed as historic by the CDC. The only record in CDC files is of an 1887 collection from an unknown location in British Columbia.

Dicranum fuscescens var. congestum G5T?Q SH.— Known from 3 widely separated sites (Golden, Six Mile Lake, and the Skeena region), but last collected in 1931 (CDC data).

Polystricum commune var. perigoniale G?SH.— Last collected in 1926 at Summit Lake, New Denver.

HISTORIC VASCULAR PLANTS

The following plants have not been verified in the past 45 years. For more detail on the rare vascular plants of British Columbia see Douglas et al. (1998); the brief descriptions that follow are from that volume. Plants listed as historic are Red-listed in British Columbia (Douglas et al. 1998). Plants are listed in alphabetical order by Latin name.

Giant-Hyssop (Agastache foeniculum) G4G5 SH.— Formerly found in open woods and clearings in the montane zone, this species was last collected in Golden in 1947 (Douglas et al. 1998). The species is available in the nursery trade, but no wild populations have been established from cultivated stock.

Alaskan Orache (Atriplex alaskensis) G3G4Q SH.— Known in British Columbia only from the Queen Charlotte Islands, and last collected in British Columbia in 1898 (Douglas et al. 1998).

Short-Flowered Evening-Primrose (Camissonia breviflora [= Oenothera brevifolia]) G5 SH.— Last collected in British Columbia in 1925 in dry steppe near the Neamaia River (Douglas et al. 1998).

Boreal Paintbrush (Castilleja fulva) G1? SH.— A poorly known species apparently restricted to northeastern British Columbia and southwestern Yukon. It was last collected in British Columbia in 1940 (Douglas et al. 1998).

Crawe's Sedge (Carex crawei) G5 SH.— Formerly

collected in southeastern British Columbia. Last collected in 1948 at Kinbasket. Douglas et al. (1998) report that this site may no longer exist.

Brookgrass or Water Hairgrass (Catabrosa aquatica) G5 SH.— Known only from a single collection from Fernie in 1911 (Douglas et al. 1998).

Golden Carpet (Chrysosplenium iowense) G3 SH.— In British Columbia known only from the Tupper Creek area near Dawson Creek. Last collected in 1937 (Douglas et al. 1998).

Fendler's Cryptantha (Cryptantha fendleri) G4 SH.— Formerly found in dry sites in the steppe and montane zones of the Douglas-fir and ponderosa pine zone in south-central British Columbia. Last collected in 1937 (Douglas et al. 1998).

Smooth Spike-Primrose (Epilobium pygmaeum) G5 SH.— Last collected in 1921 from a "Douglas Lake," exact locality unknown, as there are several Douglas Lakes in British Columbia (Douglas et al. 1998).

Globe Gilia (Gilia capitata var. capitata) G5T5 SH.— Original populations were found on dry sites in the Interior of British Columbia. Recent collections from Victoria are regarded as escaped cultivated plants (Douglas et al. 1998).

Shy Gilia (Gilia sinuata) G5 SH.— Known only from a collection at Osoyoos in 1940 (Douglas et al. 1998).

Floating Water Pennywort (Hydrocotyle ranunculoides) G5 SH.— Last collected in Departure Bay in 1939. Formerly known in British Columbia from southeastern Vancouver Island and the lower Fraser Valley (Douglas et al. 1998). Probably extirpated, as the ponds, marshes, and wet sites that it was known from are now urban areas (Douglas et al. 1998 including addenda).

Arctic Daisy (Leucanthemum arcticum) G4? SH.— In British Columbia known only from an 1893 collection on Larcomb Island in Observatory Inlet, on the extreme northern British Columbia coast (Douglas et al. 1998).

Spurred Lupine (Lupinus arbustus ssp. neolaxiflorus) G5T? SH.— In British Columbia known only from a 1944 collection at Flagstone, in extreme southeastern British Columbia (Douglas et al. 1998).

Sulphur Lupine (Lupinus oregonus var. kincaidii [Lupinus sulphureus ssp. kincaidii]) G5T2 SH.— Known in British Columbia from a collection made in Victoria in 1929 (Douglas et al. 1998).

Branching Montia (Montia diffusa) G4 SH.— In British Columbia known only from a collection in 1916 in moist forest near Port Alberni, Vancouver Island (Douglas et al. 1998).

Pine Broomrape (Orobancha pinorum) G4 SH.— In British Columbia known only from a collection made in 1914 at Duncan along the Cowichan River (Ceska 1986, Douglas et al. 1998).

Canada Ryegrass (Oryzopsis canadensis) G5 SH.— Known in British Columbia from a single species collected at Pouce Coupe in 1921 (Douglas et al. 1998).

Northern Parrya (Parrya nudicaulis) G5 SH.— In British Columbia last collected in 1945 from Log Jam Creek and

Father Mountain near the British Columbia–Yukon border (Douglas et al. 1998).

Fringed Pinesap (Pleuricospora fimbriolata) G4 SH.— In British Columbia known only from Horne Lake on Vancouver Island. Last collected in 1916 (Douglas et al. 1998).

Banff Bluegrass (Poa laxa ssp. banffiana) G5?T1 SH.— Known in British Columbia only from the Rocky Mountains at Simpson Pass and the Valley of Ten Peaks. Last collected in 1943 (Douglas et al. 1998).

Coastal Bluegrass (Poa nervosa) G5 SH.— First collected by Scouler at Nootka Sound and named by Hooker in 1840 based on the British Columbia specimen. The species has not been collected from British Columbia since then (Douglas et al. 1998).

Virginia Polypody (Polypodium virginianum) G5 SH.— Known in British Columbia from Beatton River and Mount Selwyn in northeastern British Columbia. Last collected in 1943 (Douglas et al. 1998).

California Sword-Fern (Polystichum californicum) G4 SH.— Known in Canada only from Texada Island, southwestern British Columbia, where it was last collected in 1937 (Douglas et al. 1998).

Purple Rattlesnake-Root (Prenanthes racemosa ssp. multiflora) G5T4? SH.— Formerly known from Dawson Creek and Pouce Coupe in northeastern British Columbia. Last collected in 1946 (Douglas et al. 1998).

Siberian Primrose (Primula nutans) G5 SH.— Known in British Columbia only from Atlin, northwestern British Columbia, where it was last collected in 1914 (Douglas et al. 1998).

Prairie Buttercup (Ranunculus rhomboideus) G4 SH.— Formerly found in northeastern British Columbia in dry grasslands and open forests. Last collected at Hudson's Hope in 1934 (Douglas et al. 1998).

Alkali-Marsh Butterweed (Senecio hydrophilus) G5 SH.— A species of wet areas, often alkaline, formerly known from the Salmo and Kootenay river areas in extreme southeastern British Columbia. There no collections from British Columbia since 1929 (Douglas et al. 1998).

White Western Groundsel (Senecio integerrimus var. ochroleucus) G5T? SH.— Last collected in south-central British Columbia "prior to 1900" (Douglas et al. 1998).

Munroe's Globe-Mallow (Sphaeralcea munroana) G4 SH.— Last collected in British Columbia in 1922. Formerly found near Osoyoos (Douglas et al. 1998).

Salt-Water Cress (Thellungiella salsuginea) G4G5 SH.— Formerly found along dry, saline lakes and meadows at Windermere and Columbia Lake in southeastern British Columbia. Last collection was in 1942 (Douglas et al. 1998).

HISTORIC MOLLUSCS

Three-ridges Valvata (*Valvata tricarnata*). Last collected at Kootenay Lake in 1969 (J. Lee, pers.comm).

HISTORIC INSECTS

Scudder (1996) lists a number of insects that have not been recorded for many years. Several of these have only been collected from British Columbia and, until they are found elsewhere, are considered endemic. However, many of these species have not been recently searched for and would require specialists to identify them. The CDC lists 2 species as historic, both from well-known and showy insect groups; one is a tiger beetle, the other a butterfly.

Parowana Tiger Beetle (Cicindela parowana) G4 SH.— A beetle of alkaline flats, known historically from Okanagan Falls, Oliver, and Penticton. There are no recent records and the Penticton site has been destroyed by a housing development (Scudder 1996).

Vancouver Island Blue (Plebejus saepiolus insulanus) G5TU SH.— No extant populations of this endemic Vancouver Island subspecies are known and it may be extinct (Guppy et al. 1994). Elsewhere the larvae feed on legumes, including both native and introduced clovers (Scott 1986), which are abundant on Vancouver Island (Shepard 1995). Last records for the species were from G. A. Hardy in 1963 at Francis Park and Observatory Hill, Saanich; and in 1960 at Mount Finlayson, now part of Goldstream Provincial Park, at Spectacle Lake on the Malahat, and at another unspecified Malahat (Station?) location (Shepard 1995).

HISTORIC REPTILES

Pigmy Short-horned Lizard (Phrynosoma douglasi) G5 SH.— Known in British Columbia from a collection of 2 individuals near Osoyoos in 1910 (Gregory and Campbell 1984, Powell and Russell 1992), as well as an unconfirmed record from Chopaka in the 1980s and several unconfirmed sight records from southeast of Oliver in the past 30 years (Cannings et al. 1999). Extensive habitat loss to orchards, urban areas, and vineyards makes extirpation likely.

HISTORIC BIRDS

Horned Lark, strigata ssp. (Eremophila alpestris strigata) G5T2 SH.— This coastal subspecies of horned lark formerly occurred in British Columbia in open habitats on southeastern Vancouver Island and in the lower Fraser Valley (Campbell et al. 1997). The last summer coastal records of the horned lark were at the Vancouver International Airport in 1987 (Campbell et al. 1997). The species probably disappeared due to urbanization of habitat and habitat structural changes caused by the introduction of species such as Scotch broom, gorse, and tall agronomic grasses (Fraser et al. 1999). This subspecies is also extirpated from most of its former Washington range (Smith et al. 1997). The estimated Washington State population in 1999 was “fewer than 100 pairs; this is down from perhaps thousands from the turn of the century” (R. Rogers, Evergreen State College, pers. comm.).

HISTORIC MAMMALS

Southern Red-Backed Vole, occidentalis ssp. (Clethrionomys gapperi occidentalis) G5T5 SH.— Formerly considered a separate species (*C. occidentalis*; Cowan and Guiguet 1965). Known in British Columbia only from 2 specimens, 1 from Point Gray and another from Stanley Park. Not recorded for more than 40 years (Cannings et al. 1999).

Long-Tailed Weasel, altifrontalis ssp. (Mustela frenata altifrontalis) G5T? SH.— Known from the Fraser Delta north to Harrison Lake (Forbes n.d., Cowan and Guiguet 1965). No recent specimen records, and only 1 recent, unconfirmed sight record exists (Cannings et al. 1999). The subspecies is apparently relatively abundant in second-growth forests in nearby Washington State (Wilson and Carey 1996).

Sei Whale (Balaenoptera borealis) G3 SH.— Sei whales were formerly encountered in British Columbia waters between June and August (Horwood 1987). More than 1,400 sightings were made of sei whales by Coal Harbour whalers off Vancouver Island and the Queen Charlotte Islands between 1963 and 1967 (Cirella 1999). A total of 3,272 sei whales were taken in British Columbia waters, 62% between 1962 and 1967. However, Cirella (1999) could find no recent sightings of the species since the commercial whaling era on the west coast.

Black Right Whale (Eubalaena glacialis) G1 SH.— This was the first whale species to be decimated by commercial whaling in British Columbia. It was considered commercially extinct by the mid-1800s, although there may have been illegal takes of right whales in the North Pacific into the 1960s (Brownell and Clapham 1996). The surviving population in the North Pacific is estimated to be in the low hundreds (Gaskin 1990). The few remaining animals appear to congregate in the summer months around the eastern Aleutian and Kodiak islands and the nearby waters of the south Bering Sea. Wintering grounds are still unknown. Last recorded black right whale for British Columbia was one taken accidentally off Vancouver Island in 1951 (Cirella 1999). However, a sighting on 24 May 1992 off Cape Elizabeth, Washington (Rowlett et al. 1994) and a small number of sightings in Oregon, California, and Baja California (Brownell and Clapham 1996) indicate that very small numbers may occasionally pass through British Columbia waters.

**EXTIRPATED SPECIES
SUCCESSFULLY REINTRODUCED**

In addition to the species listed below, reintroduction attempts have been made for sage grouse, but the population slowly declined and eventually disappeared (Campbell et al. 1990). Burrowing owls, while never regarded as officially extirpated (Fraser et al. 1999), are dependent on an ongoing reintroduction program (Leupin and Low 1999).

Sea Otter (Enhydra lutra) G4 S2.— This species formerly inhabited coastal regions of the north Pacific, but by 1911

it had been extirpated from British Columbia and most of its eastern Pacific range, with only peripheral populations remaining (Watson et al. 1997). A total of 89 animals were reintroduced into British Columbia between 1969 and 1972 (Watson et al. 1997). Sea otter numbers are estimated to be 2,000–2,200 on the west coast of Vancouver Island and 200–400 at the Hakai Provincial Recreation Area (Cannings et al. 1999).

Plains Bison (Bison bison bison) G4 S3.— Plains bison formerly occurred in very small numbers in the extreme eastern part of the province (Cowan and Guiget 1965). A number of archaeological sites in southeastern British Columbia contain bison bones, however, and clearly the species was more widespread than the few records would indicate. The only extant population is centred around Pink Mountain in northeastern British Columbia and is the result of establishment of feral animals. It is outside the historic range of this subspecies (Cannings et al. 1999). In 1998 the British Columbia population was estimated to be between 1,500 and 1,800 animals (Cannings et al. 1999).

Wood Bison (Bison bison athabasca) G4T? S1.— Historically, wood bison were found in northeastern British Columbia, and prehistorically near Atlin as well (Wood Bison Recovery Team 1987). They were extensively harvested in the 1800s (Harper et al. 1999) and the last confirmed record was a single animal shot in 1906 near Fort St. John (MacGregor 1952). A male was reported as shot by natives in the Liard River drainage near Lower Post in 1939 (Clarke 1944, Lotenberg 1996). In the 1960s there were sightings in the Clear Hills north of Fort St. John on the British Columbia–Alberta border, and in the late 1970s a small herd was observed in the lower Buckinghorse River area (Harper et al. 1999). Wood bison reestablished populations in the 1980s from animals dispersing from the Nahanni Butte reintroduction in the Northwest Territories. Additional reintroductions were made in the province in 1995, 1996, and 1999 (Harper et al. 1999). There are now 80–100 animals in the herds found in British Columbia and another 100 animals in the Hay-Zama herd that is shared with Alberta (Harper et al. 1999).

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