# Section 4: Mammals and Birds of the Cordillera

## 4.1 Introduction

The Northwest Territories Level II Cordilleran ecoregions – Tundra, Taiga, and Boreal Cordillera – contain a range of species that inhabit biomes that are defined by both latitude and elevation. The additional element of elevation makes the High Subarctic forest-tundra interface more distinct as defined by the tree line than the High Subarctic of the Taiga Plains or Taiga Shield. In the more southerly Boreal and Taiga Cordillera, alpine tundra on the upper slopes and peaks of the Boreal and Taiga Cordillera may be isolated from neighbouring tundra habitats by forested lowlands or glaciers. Conversely, it is the forest habitats that may be the most isolated in the Tundra Cordillera, as treeless habitats are much more extensive and continuous on lower slopes and plateaus.

Biodiversity and plant cover are highest in the warmer temperatures, sheltered sites, and better developed soils of the Boreal Cordillera valley bottoms. Many wildlife species carry out short-distance seasonal or daily vertical migrations between habitats above and below tree line, or snowline. High gradients in elevation, temperature, snow depth and wind speed result in narrow and discontinuous habitats. These confines may restrict some species to low numbers and island populations, or habitat area may be below the minimum threshold necessary to sustain viable populations.

Nearly 60 species of mammals are found in the Cordillera. This includes almost all of the species found in the adjacent Taiga Plains, and those that are adapted to mountainous terrain such as Dall's sheep, mountain goats, hoary marmots, bushy-tailed woodrats, long-tailed voles, singing voles and collared pikas. Northern Mountain woodland caribou are a unique montane ecotype, and Grant's caribou and Boreal woodland caribou have limited distribution in some ecoregions. Grizzly bears are more widespread and abundant in the Cordillera than in other regions of the Northwest Territories.

At least 200 species of birds nest or regularly migrate through the Cordillera. As many as 20 more could be occasional visitors, but this is difficult to estimate because so few observations are made on a regular basis. Conventional sources of information such as the annual Christmas Bird Count and North American Breeding Bird Survey are generally not available because there are few communities and limited road or trail access. About 30 bird species are year-round residents, and some are winter residents from nesting areas in the Arctic. The majority that breed in the Cordillera migrate south or to lower elevations for the winter.

Although the Cordillera shares a large number of bird species with the adjacent Taiga Plains, it also has its own suite of species that are primarily associated with mountain habitats. These species include Trumpeter Swans, Barrow's Goldeneyes, Dusky Grouse, White-tailed Ptarmigan, Wandering Tattlers, Hammond's Flycatchers, Say's Phoebes, Townsend's Solitaires, Northern Wheatears, American Dippers, Violet-green Swallows, Golden-crowned Sparrows, and Gray-crowned Rosy-Finches. Others (Gyrfalcons, Tundra Swans, Greater Scaup, Long-tailed Ducks, Willow and Rock Ptarmigan, Baird's, Pectoral and Semipalmated Sandpipers, Red-necked Phalaropes, American Golden Plovers, Semipalmated Plovers, Horned Larks, Smith's and Lapland Longspurs and Snow Buntings, and American Pipits) use both alpine and Arctic tundra habitats for nesting.

The Cordillera is a difficult environment to survey and that is probably a major reason why knowledge of the abundance and distribution of most mammals and birds is incomplete. Naturalists such as John Richardson, Bernard Ross, Edward Preble and Merton Williams published important works on wildlife between the mid 1800s and the early 1900s. However, they restricted their efforts to the easternmost Cordillera closest to the Liard and Mackenzie Rivers and reported information obtained from local people who travelled the interior ranges. Others including Andrew Stone, Joel Allen and Rudolph Anderson only undertook short natural history expeditions into the Cordillera to collect faunal specimens.

The construction of the Canol Road during the Second World War provided ground access through the Mackenzie Mountains from the Yukon to Norman Wells. In 1944, Austin Rand was the first zoologist to take advantage of this route as he carried out a mammal survey that spanned its length. The Canol Heritage Trail, as it is now known, continues to be an important corridor for biological investigation.

The Mackenzie Mountains Game Preserve covered the entire Boreal and Taiga Cordillera and was established in 1938 to protect hunting areas for the aboriginal people of the Mackenzie valley. After they became permanent residents of communities and seldom returned to the mountains, the preserve was abolished in 1953. Light hunting pressure and potential for a lucrative non-resident hunting industry led to the division of the Mackenzie Mountains into outfitter areas. Since 1966, there has been considerable research and collection of kill data on the high-profile game species, including Dall's sheep, mountain goats, caribou, moose and grizzly bears. The Richardson Mountains remain closed to non-resident hunters.

In 1968, Phillip Youngman compiled his mammal surveys and unpublished observations of other investigators in an area encompassing the southeastern Yukon and South Nahanni watershed of the Northwest Territories. After the establishment of Nahanni

National Park Reserve in 1972, the gathering of biological information in this area accelerated.

Recently, the ecological assessments under the Northwest Territories Protected Areas Strategy, the Ecosystem Classification Project, of which this report is a part, and other programs that collect baseline data have advanced the state of our knowledge of wildlife distribution and abundance in the Cordillera and other regions of the Northwest Territories. All available information has been captured in a species database, including complete reference listings that may be accessed on the Department of Environment and Natural Resources website: http://www.enr.gov.nt.ca.

## 4.2 Mammals of the Cordillera

### 4.2.1 Ungulates

Adult bull moose typically spend the summer feeding in lush dwarf birch-willow alpine valleys in preparation for the fall rut and winter. *Photo: D. Downing*

The largest moose in the Northwest Territories is the Alaska-Yukon subspecies that extends its range into the Cordillera. The other subspecies, the western moose, occurs near the Mackenzie River and most likely does not range into the mountains.

Aquatic vegetation and riparian habitats are used extensively by moose in summer. *Photo: D. Jones*

Subalpine shrubland, regenerating burns, wetland complexes, and riparian vegetation provide favourable habitat conditions. Fringes of lakes supply good quality food and locally high moose densities. Mineral licks are considered to be another important habitat component and some may be used year round by moose to obtain essential nutrients.

Moose populations in the Tundra Cordillera consist of two groups of animals. One group spends the entire year in the northern Richardson Mountains, while the other winters in the northern Richardson Mountains, and then migrates to the North Slope of the Yukon and Alaska for the summer.

Shrubby alpine areas are typical breeding areas for Cordillera moose. Following the rut they will begin moving down into the lower valleys as snow accumulates. *Photo: C. Donohue*

Although moose of the Taiga Cordillera and Boreal Cordillera are primarily sedentary, some may migrate short distances seasonally along elevation gradients. Moose become particularly concentrated in some lower valleys of the Liard Ranges Mid-Boreal (MB) Ecoregion in fall and winter.

The most widespread caribou of the Cordillera belong to the Northern Mountain ecotype. This ecotype contains

Northern mountain caribou seasonally use different elevations and move extensively between adjacent ranges. *Photo: J. Adamczewski*

five discrete populations, or herds, that occupy different winter ranges, and typically migrate to separate calving and post-calving summer ranges in high elevation alpine tundra. This is usually followed by migration into rutting areas and spruce – lichen winter range at lower elevations and foothills. There may also be small-scale vertical migrations during the day.

Mountain caribou make extensive use of lower elevation spruce – lichen habitat during winter.
*Photo: D. Cartier*

Three herds of Northern Mountain caribou occur in the southern third of the Cordillera, largely in the South Nahanni River watershed and neighbouring Yukon. These herds share adjacent and somewhat overlapping winter ranges, then spread out to more dispersed calving, post-calving and rutting ranges in alpine areas to the west, southwest and south. The genetic relatedness of these herds is not well known.

The *La Biche Herd* occupies the upper basins of the La Biche and Whitefish Rivers in southeast Yukon from calving until the rut. After fall migration northward, this herd's winter distribution in the Northwest Territories is quite variable. In years of heavier snowfall, these caribou may move further north along river valleys of the Liard Plateau and southwestern Tundra Ridge High Boreal (HB) Ecoregions.

The *Coal River Herd* spring-to-fall distribution is largely the alpine plateaus and subalpine basins of the Coal River and Hyland River watersheds in southeast Yukon, with some animals occupying plateaus in the upper Caribou River watershed in the Northwest Territories. After the rut, these caribou migrate eastward through the Caribou River pass on the Yukon-Northwest Territories Divide, into the Rock River Upland MB Ecoregion.

Winter range is mainly in the Liard Plateau HB Ecoregion, especially the area around the confluence of the Flat and South Nahanni Rivers. Here there may be some overlap with caribou from the La Biche Herd.

The *South Nahanni Herd* spends most of the spring and summer on the Northwest Territories side of the Territorial Divide, from the headwaters of the Little Nahanni River near Tungsten northwest to Howard's Pass area. At this time of year they partially overlap with the adjacent *Finlayson Herd* (associated with the Yukon) to the west and *Redstone Herd* to the north.

South Nahanni caribou migrate eastward to winter range that is primarily in the river valleys of the Liard Plateau HB, Sunblood Range HB and Tundra Ridge HB Ecoregions.

The *Redstone Herd* is probably the largest population of Northern Mountain caribou in the Mackenzie Mountains. Calving range may be partially shared with the *Tay River Herd* whose winter range is in the Yukon. From their calving grounds along the Territorial Divide, Redstone caribou descend eastward along valleys of the Redstone, Keele, Little Keele, Twitya, Natla, Godlin, Mountain, Carcajou, and Moose Horn Rivers to extensive winter ranges that stretch across the Tigonankweine Range Low Subarctic (LS), Canyon Ranges LS, Painted Mountains LS and Mackenzie Foothills LS Ecoregions.

Mountain caribou such as this mature (*Redstone Herd*) bull are typically darkly coloured in late summer, the season when they often forage on alpine tundra slopes.
*Photo: S. Miller*

The *Bonnet Plume Herd* calving grounds are centred near the high elevation headwaters of the Bonnet Plume and Arctic Red River in the Yukon. Post-calving groups may wander into western parts of the Canyon Ranges High Subarctic (HS) and Northern Backbone Ranges HS Ecoregions.

Caribou of the *Redstone* and *Bonnet Plume Herd* use high alpine tundra during August – September. Note the dark colouration typical of these mountain caribou. *Photo: J. Nagy*

*Porcupine Herd* caribou, such as these post-rut mature bulls, occupy parts of the Richardson Mountains during winter. *Photo: J. Meikle*

The Boreal woodland caribou ecotype occupies the eastern edge of the Taiga Cordillera and Boreal Cordillera, including the Nahanni and Liard Ranges, and the Franklin Mountains east of the Mackenzie River. The Mackenzie Foothills LS, Carcajou Plain LS and Arctic Red Upland LS Ecoregions appear to be zones of overlap between the Boreal and Northern Mountain caribou ecotypes. The affiliation of caribou observed in the Nahanni Range HB, Nahanni – Tetcela Valley HB, Ram Plateau HB and eastern Tundra Ridge HB Ecoregions is unknown. Movements of Boreal caribou can best be described as nomadic, although there may be some seasonal migration to preferred calving and wintering areas.

Boreal caribou are generally nomadic and spend most of the year in open bog and closed-canopied black spruce habitats. *Photo: J. Nagy*

Caribou of the *Porcupine Herd* calve on the north slope of the Yukon and Alaska, and usually winter south of the Peel River in the Yukon. A major migration corridor passes through the Tundra Cordillera of the Northwest Territories. During some winters when these caribou migrate further east, they may reach the Canyon Ranges HS and Arctic Red Upland LS Ecoregions.

Mule deer are distributed across the southern Yukon and have been reported in the Liard Ranges MB Ecoregion and in the Liard Plateau HB Ecoregion near the confluence of the Flat and South Nahanni Rivers. There has been only one recent mule deer report from the southwest Northwest Territories (Deadmen Valley on the Lower South Nahanni in 2003).

White-tailed deer have been expanding their range into the southern Northwest Territories. There are reports from the Nahanni – Tetcela HB and the Nahanni Range HB Ecoregions between the South Nahanni River and Little Doctor Lake. White-tailed deer have also been reported in the Liard Plateau HB Ecoregion near the confluence of the Flat and South Nahanni Rivers, and from the town of Wrigley in the Central Mackenzie Valley HB Ecoregion.

White-tailed deer occupy a variety of habitats in lower elevation forests and river valleys but are still quite rare in the Cordillera. *Photo: J. Nagy*

Elk are regularly observed in the southeast Yukon and occasionally wander into the Northwest Territories. There have also been reports from the Nahanni Range HB Ecoregion, the mouth of the North Nahanni River in the Nahanni – Tetcela Valley HB Ecoregion, and the Root River in the Mackenzie Foothills HB Ecoregion.

Elk in the Yukon favour montane habitat consisting of a grassland and aspen forest mix; a habitat type that is rare in the Cordillera. *Photo: C. Donohue*

Bison populations that formerly inhabited Cordillera regions of North America were extirpated before they could adequately be described. "Mountain bison" may have been a variety of either plains or wood bison. Most of the historical evidence for the Northwest Territories has been in the Liard and lower South Nahanni River valleys in the southeast Boreal Cordillera.

Wood bison from a remnant herd in northeast Wood Buffalo National Park were rescued from disease and hybridization with introduced plains bison, and moved to Elk Island National Park for breeding stock in 1963.

A small wood bison population has been re-established in the Liard River valley, an area along with the adjacent Boreal Cordillera that is considered to be historic bison range. *Photo: B. Elkin*

As part of the wood bison recovery plan, 28 of their descendants were released into the Liard River valley in 1980, followed by subsequent releases of 12 bison in 1989 and 59 bison in 1998. Individuals from this new and expanding population occasionally wander into the Liard Ranges MB and Nahanni – Tetcela Valley HB Ecoregions.

Meadow habitats such as these in the Yukon are confined largely to the valley bottoms, and are favoured foraging sites for wood bison. These meadow habitats are uncommon in the mountains of the Northwest Territories. *Photo: D. Cartier*

Muskoxen that were re-introduced to Alaska have been expanding eastward into the Richardson Mountains of the Yukon and Northwest Territories. To the south, a single report of one animal exists for the Arctic Red Upland LS Ecoregion at the base of the Mackenzie Mountains. Muskoxen have also been extending their range west towards the Taiga Cordillera from the Great Bear Lake area in the adjacent Taiga Plains.

Muskoxen from the Alaska National Wildlife Refuge may be the source of animals that have recently shown up in the Richardson Mountains. *Photo: C. Donohue*

Dall's sheep occur in patchy concentrations throughout the Cordillera, mainly above tree line. Dall's sheep without pure white pelage are referred to as "Fannin" sheep. This variation occurs most often in the southwest border area with the Yukon, and is scattered in other parts of the Mackenzie Mountains. Dall's sheep commonly spend their entire lives within well defined mountain blocks. Optimal summer habitat consists of vegetated alpine tundra close to steep rugged terrain for escape from predators.

Dall's sheep rams often occur as small groups in exposed rocky terrain that provides good visibility and ready escape from predators. *Photo: R. Popko*

An important component of Dall's sheep habitat is mineral licks. Mineral lick locations may determine the size and shape of sheep summer ranges. Mineral licks may also maintain genetic diversity among sheep, as young rams interact with other family groups at these locations, and then follow them onto new ranges.

Although mineral lick areas may be used as summer range, animals often withdraw to small pockets of habitat during winter or migrate into more favourable range further east or north. Areas that receive high snowfall, including the Tlogotsho Range HB and Liard Ranges MB Ecoregions, maintain high sheep populations due to availability of steep, windswept terrain where snow depths are shallow enough to allow winter foraging. Heavily forested areas such as the Rock River Upland MB and Hyland Plateau HB Ecoregions may be almost devoid of sheep. Gentler slopes on the Low Subarctic front ranges to the east also lack good sheep habitat.

Dall's sheep ewes and lambs are often separated from the rams during the summer. They favour lush, well-vegetated slopes and ledges for foraging.
*Photo: Anonymous*

Compared to sheep in the Mackenzie Mountains to the south, the Richardson Mountains population is very lightly hunted and ranges across a broader extent of alpine tundra habitat; however, it is subject to a more rigorous climate. A series of surveys from 1971 to 2003 suggest that these sheep may periodically undergo several years of rapid population increase followed by years of steep decline and instability.

Although habitat appears favourable in the Franklin Mountains LS Ecoregion east of the Mackenzie River, there has never been any evidence of Dall's sheep in this area.

Mountain goats select areas above tree line in subalpine and alpine zones that are characterised by exposed cliff faces, ledges, pinnacles, and talus slopes. This habitat allows wind action to expose winter forage, and is also important as escape terrain. Compared to Dall's sheep, mountain goats tend to occupy steeper terrain, and their distribution is thus more restricted.

Mountain goats use extreme ledges and pinnacles for escape and for foraging on wind-exposed vegetation.
*Photo: C. Donohue*

Compared to other mountain ungulates, goats have been the least studied. Although there may be occasional extinctions of satellite groups and re-colonization from core populations, goat numbers are now increasing and they are becoming more widespread. Mountain goats do not migrate and do not often travel very far between natal, summer and winter habitats. Small scale vertical movements may occur during the day to include mornings in treed areas.

Mountain goats have a patchy distribution throughout a broad area encompassing all of the Boreal Cordilleran Mid-Boreal ecoregions, the Ram Plateau HB, Sunblood Range HB, Tundra Ridge HB and Nahanni Range HB Ecoregions, and the Southern Backbone Ranges LS, Painted Mountains LS, Sayunei-Sekwi Ranges LS and Tigonankweine Range LS Ecoregions. There is no evidence of goats in the High Subarctic ecoregions of the Taiga Cordillera or the Tundra Cordillera.

Mountain goats mainly inhabit the alpine and subalpine. To access mineral licks, mountain goats will also venture well into low-elevation forested areas. *Photo: C. Donohue*

### 4.2.2 Large Carnivores

Lynx are widespread in the forested valleys and plateaus of the Mid-Boreal and High Boreal ecoregions of the Boreal Cordillera and achieve high densities when snowshoe hare populations erupt. Cougars were reported in 2005 and 2008 along the South Nahanni River above Virginia Falls, in the Liard Plateau HB Ecoregion.

Lynx occur throughout forested areas of the Cordillera and feed primarily on snowshoe hares, grouse and a variety of small mammals. *Photo: J. Meikle*

Timber wolves range throughout the entire Cordillera. Although wolves prey on many species, their abundance is determined largely by the distribution and density of reliable ungulate prey. In the Mackenzie Mountains these are moose and woodland caribou.

Resident wolves in the Tundra Cordillera hunt caribou of the Porcupine herd during its migration through the area, but rely on resident moose and Dall's sheep when the caribou are gone. Wolves that occupy the northern Tundra Cordillera are transient and depend almost entirely on migrating caribou that they follow for great distances. Although wolf density here is lower than in other areas below tree line, pack size may double in years when Porcupine caribou winter in the Richardson Mountains.

Wolves are widely distributed throughout the Cordillera. They may reside year-round or follow migrating caribou. *Photo: D. Jones*

Coyotes have not been confirmed in the Cordillera. They may be expected in the Tundra Cordillera as migrants from the northern Yukon and Alaska, and in the Boreal Cordillera from Alberta or British Columbia. As in the Taiga Plains, there may be a central gap in their distribution.

Coyotes are widespread carnivores that occur in adjacent Cordilleran areas of the Yukon, British Columbia and Alberta. *Photo: G. Court*

Red foxes are not as widely distributed or abundant in the mountains as they are in other parts of the

Northwest Territories. Arctic foxes are long distance travellers that may be expected to occasionally wander into the Tundra Cordillera.

Red foxes are less abundant in the Cordillera than in the adjacent Taiga Plains and occupy a range of habitats as their food supply allows.
*Photo: D. Johnson*

Grizzly bears occur throughout most ecoregions of the Cordillera, except for the Franklin Mountains LS Ecoregion east of the Mackenzie River. The Richardson Mountains has some of the best grizzly bear habitat in the Northwest Territories.

Grizzly bears largely occupy habitats above tree line but may also spend considerable time foraging in forested areas. *Photo: D. Cartier*

Although grizzly bears prefer open alpine or tundra habitats, they also occur in forested areas. Low grizzly bear numbers and low recruitment prompted strict hunting restrictions in 1982 that remain in effect today.

Black bears are fairly common in the Boreal Cordillera, but sparsely distributed throughout the forested valleys of the Taiga Cordillera. Although these bears have been known to range into the foothills of the Tundra Cordillera, they rarely appear in the Richardson Mountains.

Forested lowland valleys are prime habitat for black bears. They tend to avoid areas with low tree cover, perhaps because these areas are frequented more often by grizzly bears which are black bear predators.
*Photo: D. Jones*

### 4.2.3 Mustelids and Skunks

Marten are common and widespread throughout the densely forested valleys and plateaus of the Cordillera. Extensive alpine and sub-alpine areas with sparse tree cover are less suitable as marten habitat.

Marten frequent dense coniferous forests throughout the Cordillera, and prey largely on small mammals and birds. *Photo: J. Meikle*

Fishers are close relatives of marten and occur at low densities in the most southerly Mid-Boreal and High Boreal ecoregions. They select dense coniferous forests with tall continuous canopy cover.

Wolverines are widely distributed at low densities and occupy large home ranges. They occur in all forest, sub-alpine, alpine, and tundra habitats. Wolverines are largely opportunistic and are attracted to areas where concentrations of ungulates and carrion provide a source of food.

Mink inhabit the myriad of watercourses within the Cordillera mainly below tree line where prey is abundant.

Mink inhabit mainly forested areas with lakes, streams and wetlands where they can capture small mammals, birds and fish. *Photo: D. Jones*

River otters, the other aquatic mustelid, are also found throughout the Cordillera, primarily below tree line. Specialising more on fish, otters require rivers with open rapids and/or beaver activity to enable access to fish under the ice in winter.

Fish-bearing rivers and streams with patches that remain open year-round provide important habitat for river otters throughout the Cordillera.
*Photo: D. Jones*

Short-tailed weasels are widely distributed throughout a diversity of habitats. Least weasels occur throughout the Yukon mountains and may be likewise distributed in the Northwest Territories. Weasel abundance is largely dependent on small mammal populations.

Striped skunks have never been reported in the Cordillera, although they range across the southern Yukon, and are occasionally observed in the southern portions of the Taiga Plains.

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### 4.2.4 Large Rodents

Porcupines are widespread in the Boreal and Taiga Cordillera where woody plant material is available for food. In winter they rely mainly on the inner bark and needles of conifers.

Porcupines use trees as an important food source and to escape predators.
*Photo: D. Cartier*

Arctic ground squirrels range across all Cordilleran ecoregions in a variety of well-drained habitats from open forests to alpine, but avoid areas with permafrost.

Arctic ground squirrels generally occur in 'colonies' or as individuals wherever they can burrow underground. They are active during the summer months but hibernate for seven to eight months.
*Photo: C. Donohue*

Northern flying squirrels have been reported from a few locations in the Taiga Cordillera and Boreal Cordillera but because they occur in forested habitats and are nocturnal, they are not easily noticed.

Red squirrels also occur wherever there is tree cover, and achieve highest densities in closed coniferous forests.

Red squirrels are active during the day throughout the year whenever temperatures are close to, or above freezing. *Photo: D. Jones*

Least chipmunks range as far north as the Taiga Cordillera HS, occupying a variety of habitats from forests to alpine. Evidence of chipmunks in Cordilleran ecoregions east of the Mackenzie River is lacking, and their northern limit of continuous range in the adjacent Taiga Plains is much further south than in the Cordillera.

Late summer is a critical time for small mammals such as least chipmunks to lay in their winter food supply. *Photo: J. Nagy*

Beavers and muskrats are widespread wherever suitable habitat and food supply occurs, including elevations above tree line. Beavers rely on woody deciduous vegetation near watercourses. Muskrats require marshy wetlands that do not freeze to the bottom in winter.

Beavers depend on deciduous vegetation such as aspen, willow, birch and alder, and occur in the Cordillera wherever food supplies are adequate. *Photo: D. Jones*

Hoary marmots are colonial mountain species found above tree line throughout much of the Cordillera. Prime habitat contains lush tundra vegetation along with a mix of rocky outcrops and boulder-strewn slopes for denning and predator avoidance. Hoary marmots are absent from the gentler slopes and forested foothills of the eastern ecoregions.

Hoary marmots occur throughout the Cordillera in rocky, boulder-strewn slopes above tree line. *Photo: J. Meikle*

Woodchucks have never been reported in the Cordillera, although they occur across the southern Taiga Plains and southern Yukon.

Bushy-tailed woodrats are usually restricted to mountains, and in many parts of North America they are found all the way from the lowest elevations to alpine slopes. Common habitat features may be cliffs, talus slopes, caves and rocky outcrops, and human infrastructure where available. Little is known about their distribution in the Northwest Territories, except that there have been occasional reports from widely separated locations within the Boreal and Taiga Cordillera.

Bushy-tailed wood rats or 'packrats' occur in various habitats including rocky terrain, cliffs, caves and human structures. *Photo: B. Randall*

### 4.2.5 Mice, Voles and Lemmings

These small mammals are important prey for most carnivores and birds of prey. Their fluctuating numbers greatly influence the distribution and abundance of predators that depend on them. Deer mice occupy habitats below tree line throughout the Boreal and Taiga Cordillera. Meadow jumping mice can be expected as far north as the Taiga Cordillera.

Northern red-backed voles are the most common microtine of the Cordillera, ranging from forested valleys to alpine summits.

Northern red-backed voles occupy diverse habitats throughout the Cordillera and are preyed upon by hawks, owls, foxes and mustelids.
*Photo: N. Barichello*

Meadow voles are widespread in valley bottoms throughout the Cordillera, but tend to be replaced by tundra voles at elevations above tree line. Long-tailed and singing voles are fairly unique to mountainous areas and probably occur throughout the Boreal and Taiga Cordillera.

Meadow voles subsist almost entirely on grasses and sedges. They construct elaborate runways, burrows and nests under the snow. *Photo: A. Veitch*

Taiga voles have yet to be reported from the Cordillera. Populations are known to be highly irruptive and may disappear from areas for decades. A colony of this species could possibly be found anywhere in the Cordillera. Heather voles may occur in the HB and LS ecoregions of the Cordillera. As southern red-backed voles are found in the southeast corner of the Yukon, they are also expected in the southern Boreal Cordillera.

Northern bog lemmings probably have a discontinuous range in wet habitats throughout wooded parts of the Cordillera. Brown lemmings are expected to occur in alpine and subalpine habitats of the Taiga and Tundra Cordillera, although they have not yet been reported within the Northwest Territories.

Brown lemmings are widespread in alpine wet tundra and subalpine stream banks of the Yukon and Alaska. Like many other small rodents, it has a very high reproductive rate when conditions are favourable. *Photo: K.Broadway*

Collared lemmings of the Tundra Cordillera HS and Taiga Cordillera HS may have originated from the east Beringia glacial refugium, separately from the collared lemmings that reside east of the Mackenzie River. Collared lemmings have been collected only in the Ogilvie Mountains of the Yukon and it is not known whether their distribution reaches the Northwest Territories.

### 4.2.6 Lagomorphs

Snowshoe hares range throughout the Cordillera wherever there are forest and tall shrub habitats, and numbers periodically irrupt. Because fires in the Cordillera are much less extensive than in the Taiga Plains or the Taiga Shield, snowshoe hares and other species that inhabit early successional forest must rely on other disturbances such as floods, landslides and avalanches to produce suitable habitat.

Although snowshoe hares prefer dense brush and conifer habitat during the day, they often forage in the open at night. *Photo: C. Donohue*

Collared pikas are an ecotonal species that exist where talus slopes come into contact with meadows, usually above tree line. This arrangement provides shelter in one habitat, and food in the other. Pikas are widespread in the Tundra Cordillera and Taiga Cordillera; however, they are rare or absent from some southerly areas of the Boreal Cordillera.

A gap of thousands of square kilometres of apparently suitable habitat currently exists between the southern limit of collared pikas and the northern limit of American pikas. These two close relatives were confined to widely separate glacial refugia and may now be slowly expanding their ranges and closing this gap.

Pikas have a very distinctive high-pitched alarm squeak that they use when danger threatens. They also remain active during winter and therefore need to store enough food to get through the long winter season. *Photo: J. Nagy*

### 4.2.7 Insectivores

Shrews, like many other small mammals, undergo sporadic population fluctuations. Information on their distribution and abundance is very limited, partly because small mammal trapping techniques that are effective for rodents tend to under-sample shrews.

Masked shrews are the most common and widespread species. American pygmy shrews occur throughout the Taiga and Boreal Cordillera. Dusky shrews and American water shrews may be limited to the Boreal Cordillera.

Masked shrews are mainly nocturnal and have voracious appetites. Their daily food consumption of insects, worms, slugs, snails, spiders and other small invertebrates often equals or exceeds their body weight. *Photo: R. Barbour*

American pygmy shrews are the smallest of all mammals with a length of 5 cm including a 2 cm tail and weight of about 2.5 g. They inhabit both coniferous and deciduous forests as well as open wet areas.
*Photo: R. Barbour*

Although arctic shrews have been reported only from the Fort Liard area, they are expected to occur in most of the Boreal Cordillera as well as Taiga Cordillera LS ecoregions. Tundra shrews have been documented in the Taiga Plains HS and Taiga Shield HS ecoregions but their occurrence in the Cordillera is not known.

### 4.2.8 Bats

Bats are highly mobile and difficult to detect, and their distribution in the Cordillera has not been well documented. Little brown bats have been reported from karst caves in the Tundra Ridge HB and Ram Plateau HB Ecoregions, and Deadmen Valley (Tlogotsho Range HB Ecoregion). A northern long-eared bat was observed in the Nahanni – Tetcela Valley HB Ecoregion. Bats were surveyed along the South Nahanni River in 2006 using mistnets and AnaBat® ultrasound detector systems. The presence of these two species was confirmed and an additional five species were discovered: western long-eared bats; long-legged bats; big brown bats; hoary bats; and eastern red bats. The total of seven species for this area surpasses the Yukon and Alaska in bat diversity. Although silver-haired bats were not confirmed, they may be expected because of the favourable habitat surveyed.

Big brown bats are widespread across the United States and southern Canada. They most likely only occur in the Cordillera in summer and migrate south to hibernate.
*Photo: Anonymous*

## 4.3 Birds of the Cordillera

### 4.3.1 Geese and Swans

Waterfowl nesting habitat is less extensive in the Cordillera relative to other areas in the Northwest Territories; however, the Central Mackenzie Valley HB Ecoregion and the Central Mackenzie Valley LS Ecoregion are both part of the important Mackenzie River waterfowl migration corridor.

Many Canada Geese travel through the Cordillera during spring migration on their way to the Arctic coast.
*Photo: D. Jones*

Canada Geese are widespread, mainly as migrants. Moulting birds have been observed in the Mackenzie Barrens (Natla Plateau MB Ecoregion), as well as broods at some locations along the South Nahanni River. Snow and Greater White-fronted Geese migrate across the entire Cordillera to and from their breeding areas further north.

Some Canada Geese nest in the scattered wetlands and along rivers within the more southern portions of the Cordillera. *Photo: S. Streit*

Tundra Swans are primarily migrants, but have been reported to nest in some areas as far south as the Redstone River in the Taiga Cordillera LS Ecoregion. Trumpeter Swan numbers have increased dramatically in recent years and their nesting areas have expanded into the southern and central Mackenzie Mountains.

Wetlands adjacent to the rivers, creeks, and lakes in the Nahanni – Tetcela Valley HB Ecoregion contain almost eight percent of the Canadian breeding population of Trumpeter Swans. Nesting has been reported almost as far north as Drum Lake (Raven-Redstone Valley LS Ecoregion). Nesting records of both species of swans have been confirmed from O'Grady Lake (Natla Plateau MB Ecoregion).

Tundra Swans have responded well to conservation efforts to become the most numerous and widespread species of North American swans. *Photo: D Johnson*

### 4.3.2 Ducks

Mallards, Northern Pintails, American Widgeon, Northern Shovelers and Green-winged Teal are the most common dabbling ducks of shallow lakes, ponds and marshes throughout the Cordillera.

Mallards are among the first dabbling ducks to arrive in northern regions, relying on patches of open water on their breeding grounds. *Photo: J. Nagy*

Blue-winged Teal probably occur everywhere except in High Subarctic ecoregions within the Cordillera. Gadwalls appear to have extended their range in recent decades north to the Taiga Cordillera LS.

Blue-winged Teal frequent ponds, sloughs, marshes, weedy edges of sluggish rivers and small streams. *Photo: S. Streit*

There are also several species of diving ducks that inhabit montane waterbodies. Although Greater Scaup and Long-tailed Ducks nest mainly in the Arctic, they also occur in shallow lakes of the Tundra Cordillera and alpine tundra in the Mackenzie Mountains. Lesser Scaup, Surf Scoters and White-winged Scoters are common on lakes and rivers throughout the Cordillera.

Surf Scoters nest locally on lakes in the Cordillera and winter along the Pacific Ocean coast. *Photo: S. Streit*

Mergansers are deep divers that rely mainly on invertebrates as immature ducks, and on fish as adults. Red-breasted Mergansers are common on lakes and rivers throughout the Cordillera and usually build their nests on the ground. Less widespread Common Mergansers generally occupy fast-flowing rivers below tree line and prefer to nest in tree cavities.

Common Mergansers are large diving ducks that feed mainly on fish. Like other mergansers, they have serrated edges on their bills that help with gripping prey. *Photo: D. Jones*

Common Goldeneyes are cavity nesters that occur mostly below tree line. Closely related Barrow's Goldeneyes have greater affinity to mountains and are more widespread in Alaska and the Yukon. They nest on small forest ponds, and are often found on both swift-flowing streams and lakes such as Palmer Lake (Shattered Ranges HS Ecoregion) and O'Grady Lake (Natla Plateau HB Ecoregion).

Barrow's Goldeneyes occur on ponds and lakes during the nesting season and winter in coastal British Columbia. *Photo: J. Meikle*

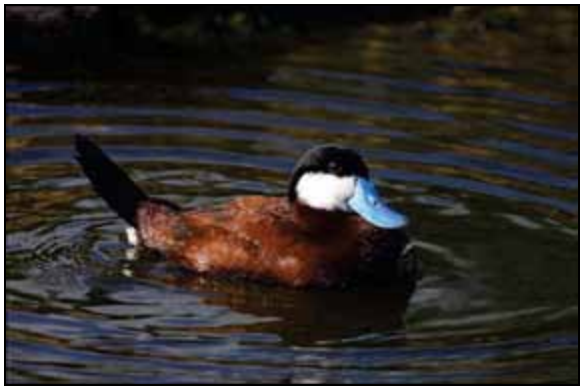
Ringed-necked Ducks and less common Canvasbacks are fairly widespread in the Boreal and Taiga Cordillera. Both nest in productive wetlands and may use larger lakes during migration.

Harlequin Ducks are also most at home in the mountains, although breeding pairs may occasionally be found in the Taiga Shield. As agile divers, they feed on aquatic insects in turbulent streams above and below tree line.

Buffleheads are common summer residents on small lakes in the Boreal and Taiga Cordillera, and occasionally reach the Tundra Cordillera. Like several other species of diving ducks, they require tree cavities for nesting.

In summer Buffleheads occur on ponds and lakes close to open forests where they nest in tree cavities, often made by woodpeckers. *Photo: S. Streit*

Black Scoters occasionally wander into the Northwest Territories from their main breeding areas in Alaska. Redheads and Ruddy Ducks are infrequent visitors from the south.



Ruddy Ducks are small diving ducks with stiff, elongated tails that occur in lakes, ponds and sloughs with margins of emergent vegetation. *Photo: S. Streit*

### 4.3.3 Grouse

Spruce Grouse are widespread in mature coniferous forest and are the most common species of this family. The distribution of Dusky Grouse appears limited to the Boreal Cordillera and the Taiga Cordillera LS where they prefer coniferous forest, especially sub-alpine fir. Sharp-tailed Grouse are localised in recent burns and shrubland habitats and do not range as far north as the adjacent Taiga Plains. Ruffed Grouse are most abundant in mixed forests of the Boreal Cordillera.

Dusky Grouse are restricted to the extreme southern Cordillera, including Nahanni National Park and often occur near tree line during the breeding season. *Photo: S. Hayes*

Willow Ptarmigan are year-round residents of the Cordillera and undergo seasonal movements across most of the region. Less common are Rock Ptarmigan that have similar seasonal movements, but usually breed in alpine tundra at higher elevations than Willow Ptarmigan. White-tailed Ptarmigan are strictly a mountain species. They are the smallest species of grouse and nest in rocky scree on high mountain slopes.

Rock Ptarmigan prefer higher alpine terrain and are year-round residents of the Cordillera. *Photo: J. Nagy*

### 4.3.4 Loons and Grebes

Red-throated Loons often occur on relatively small tundra ponds. Yellow-billed Loons are infrequent migrants that breed in the Arctic. Pacific and Common Loons occur on some of the larger Cordillera lakes and rivers.

Common Loons are sparsely distributed on the larger Cordillera lakes during summer and nest near the water's edge or on islands. *Photo: L. Spitalnik*

Horned and Red-necked Grebes are found throughout the Cordillera on shallow lakes with abundant emergent vegetation. Pied-billed Grebes have been reported from Yohin Lake (Nahanni – Tetcela Valley HB Ecoregion).

Pied-billed Grebes are small grebes with stout bills that inhabit ponds, sloughs and shallow bays in summer. *Photo: S. Streit*

### 4.3.5 Eagles, Hawks and Ospreys

Golden Eagles, Bald Eagles and Peregrine Falcons occur throughout the Cordillera. The largest of these, Golden Eagles, are most abundant in the Tundra Cordillera and much of the Taiga Cordillera. Similar to Peregrine Falcons, they use steep cliffs for nesting. Breeding Bald Eagles are distributed mainly as isolated pairs wherever fish-bearing rivers and lakes have tall trees nearby for nesting.

Golden Eagles are the largest bird of prey in North America. They are sparsely distributed in the mountains, and require cliff nesting habitat, and prey including arctic ground squirrels and a variety of other small mammals. *Photo: N. Barichello*

Gyrfalcons breed in tundra environments, including the alpine tundra of the Cordillera. Rough-legged Hawks nest in Arctic tundra, but are rarely reported in alpine areas except during migration.

American Kestrels are the smallest and most abundant raptor in the southern Cordillera. Along with Merlins and Northern Goshawks, they occur below tree line throughout the Cordillera. Northern Harriers and Sharp-shinned Hawks have been reported as far north as the Richardson Mountains HS Ecoregion.

American Kestrels frequent relatively open terrain and hunt primarily for mice, voles and insects. They will often hover overhead while scanning the ground for prey. *Photo: B. Aardema*

Red-tailed Hawks are probably limited to ecoregions within the Boreal and Taiga Cordillera. Swainson's Hawks have been reported from a few locations including the confluence of the Flat and South Nahanni Rivers (Liard Plateau HB Ecoregion), Mackenzie Barrens (Natla Plateau MB Ecoregion), and Tate Lake (Mackenzie Foothills LS Ecoregion).

Red-tailed Hawks occupy a broad range of habitats and prefer to build their nests high up in trees. *Photo: L. Spitalnik*

Ospreys have the most specialised diet of all birds of prey that consists almost entirely of fish. They are known to nest along the South Nahanni and Flat Rivers, and have been observed at Godlin Lakes and Twitya River (Sayunei-Sekwi Ranges LS Ecoregion). Ospreys observed along the Keele River may be wanderers from the more reliable fishing grounds of the Mackenzie River and Great Bear Lake

Ospreys are large hawks with broad wingspans and are associated with fish-bearing streams and rivers in the Cordillera. *Photo: J. Nagy*

### 4.3.6 Wading Birds

Sandhill Cranes have been observed throughout the Cordillera during their migration. Although they are occasionally spotted in the mountains during the summer months, there has been no evidence of nesting.

American Coots are small marsh birds that frequent shallow ponds, sloughs and slow-flowing streams. *Photo: S. Streit*

American Coots and Soras are primarily localised in the marshy wetlands of Yohin Lake, with Soras being the most widespread. Both species have been reported as far north as Sterile Lake in the Mackenzie Foothills LS Ecoregion.

### 4.3.7 Shorebirds

Lesser Yellowlegs, Spotted Sandpipers and Wilson's Snipes are common breeders throughout most of the Cordillera. Breeding activities of Least and Upland sandpipers are more localised.

Spotted Sandpipers are common shorebirds that frequent sandy, muddy or rocky shores of Cordillera lakes and rivers. *Photo: D. Jones*

Most shorebirds that appear in Cordilleran ecoregions are migrants that nest on the Arctic tundra. Semipalmated Sandpipers are probably the most common migrants that nest in the Arctic, although there is evidence of breeding in some areas of the Cordillera such as the Mackenzie Barrens (Natla Plateau MB Ecoregion).

Wilson's Snipes occur in low-lying marshes, bogs and wet meadows. In spring they use their wings and tail to produce a distinct whistling sound in mid-air. *Photo: D. Jones*

Other less frequent visitors include Ruddy Turnstones, Whimbrels and Stilt Sandpipers. There are several Arctic species that have occasionally been reported or may be expected.

During nesting season Semipalmated Sandpipers occupy moist sedge-grass tundra and sandy pond and river shores. *Photo: L. Spitalnik*

Long-billed Dowitchers nest mainly along the Arctic coast of Siberia and Western Alaska. They have more limited breeding range in Canada and are occasionally observed in the Cordillera during migration. Western Sandpipers are uncommon migrants from breeding grounds on the Alaska coast that regularly appear on the Mackenzie Barrens (Natla Plateau MB Ecoregion).

Shorebirds such as Baird's Sandpipers, Pectoral Sandpipers, American Golden-Plovers, Semipalmated Plovers and Red-necked Phalaropes are more typical of the Arctic, but these species may also nest in the Tundra Cordillera and high elevation alpine habitats in Taiga Cordillera ecoregions.

Red-necked Phalaropes are small shorebirds that swim for sustained periods, often in circular motion. During the breeding season the female (shown) is larger and more brightly coloured than the male. *Photo: J. Nagy*

The only Northwest Territories shorebird species unique to the mountains are Wandering Tattlers. They usually breed along gravelly mountain streams above tree line where they can find an abundance of aquatic insects for food. They have been reported at locations near the Canol Road, stretching from the Yukon border eastward, and probably reach the Mountain River (Shattered Ranges HS Ecoregion).

Wandering Tattlers are one of North America's least known shorebirds. They are more familiar on their wintering grounds which extend along the Pacific coast as far south as Ecuador. *Photo: C. Eckert*

Surfbirds also breed above tree line in the mountains of Alaska and the Yukon, including the Dempster Highway near the Northwest Territories border. Although they have been observed in Inuvik, evidence of breeding in the Northwest Territories has yet to be documented.

Surfbirds nest on rocky mountain slopes and ridges, and winter along the British Columbia coast south to Vancouver Island. *Photo: S. Streit*

Killdeers are the most widespread plovers in Canada and uniquely do not range into the Arctic. Solitary Sandpipers breed in remote habitats, do not flock during migration as most other sandpipers, and may be more widely distributed in the Cordillera than records indicate. Greater Yellowlegs and Short-billed Dowitchers breed mainly in central Canada, and are uncommon in the mountains. Their ranges may be limited to those ecoregions adjacent to the Mackenzie River.

Killdeers are one of the earliest spring arrivals, and are less associated with water than most other shorebirds. They prefer open uplands for breeding, and their nests consist of pebbles and bits of weeds built into a shallow depression. *Photo: D. Jones*

### 4.3.8 Gulls, Terns, and Jaegers

Bonaparte's, Mew and Herring gulls are found in the vicinity of many rivers and lakes of the Cordillera.

Bonaparte's Gulls are widespread in western and central Canada. They usually nest in coniferous trees in the vicinity of muskeg lakes or ponds. *Photo: J. Nagy*

Arctic Terns have a circumpolar breeding range that includes the Cordillera, and they migrate to the southern hemisphere, almost to Antarctica, for a "second summer". One of the few nesting colonies of Black Terns in the Northwest Territories are the marshy shores of Yohin Lake.

Black Terns are most common in marshes, ponds, sloughs and rivers, where they feed on a variety of insects, small fish and amphibians. They have a wide breeding distribution that includes North America, Europe and Asia. Those from North America winter in northern South America. *Photo: J. Bohdal*

Jaegers, found primarily along the Arctic coast, are opportunistic predators of small mammals and birds. Long-tailed Jaegers may be the only species whose breeding range includes parts of the Cordillera. Parasitic Jaegers have been reported from the MacMillan Pass – Tungsten area (Natla Plateau MB and Itsi Mountains MB Ecoregions).

### 4.3.9 Owls

Snowy Owls occasionally nest in alpine tundra of the Taiga and Boreal Cordillera, but occur more commonly in the Arctic.

Snowy Owls are nomadic and unpredictable migrants that usually breed in Arctic tundra regions where they depend heavily on lemmings. Unlike most other owls, Snowy Owls hunt mainly in daylight. *Photo: L. Spitalnik*

Most owls are generally considered year-round residents of the Cordillera that undergo some seasonal movements. Exceptions are Short-eared Owls, which nest in open habitats such as alpine tundra, then migrate south for the winter. During migration, they search for prey in wet meadows throughout the Cordillera, and their abundance is closely associated with small mammal populations.

Although Short-eared Owls are one of the most widely distributed owls in the world, there is concern in Canada about long term decline. *Photo: D. Jones*

Great Horned, Great Gray and Northern Hawk Owls occur throughout the Cordillera, mainly in valleys below tree line. Boreal Owls probably reach their northerly range limit in the Taiga Cordillera LS, although they have been reported near the Dempster Highway on the Yukon side of the Richardson Mountains.

Female Boreal Owls are much larger than the males and are obligate cavity nesters in old growth forest. *Photo: L. Spitalnik*

Long-eared Owls have been reported from Deadmen Valley (Tlogotsho Range HB Ecoregion), and Tate Lake (Mackenzie Foothills LS Ecoregion). Considering their elusiveness, and records from the adjacent Taiga Plains, these owls may be more common in the Boreal and Taiga Cordillera than the scarcity of observations would suggest.

### 4.3.10 Nightjars

Common Nighthawks are the only representatives of this group in the Northwest Territories. Although most common in the Boreal Cordillera, they extend their range well north into the Taiga Cordillera. Their seasonal residency is short because food requirements demand high insect activity.

Common Nighthawks pursue flying insects on the wing, mainly at dawn and dusk. Declining numbers are cause for concern. *Photo: J. Meikle*

### 4.3.11 Hummingbirds

Rufous Hummingbirds have been reported from the Natla Plateau MB Ecoregion, as well as the headwaters of the Keele River (Itsi Mountains MB Ecoregion).

These tiny birds may be more widespread where wild flowers are abundant, but are difficult to detect and can easily be confused with the hummingbird clearwing moth.

Rufous Hummingbirds range farther north and migrate longer distances than other North American hummingbirds. *Photo: S. Streit*

### 4.3.12 Kingfishers

Belted Kingfishers are fish-eaters that occur as far north as the Tundra Cordillera. Distribution is likely limited by adequate nesting sites that consist of steep eroded banks near water where burrows can be excavated.

Belted Kingfishers are quite territorial along shorelines of fish-bearing lakes and streams. *Photo: S. Streit*

### 4.3.13 Woodpeckers

Most woodpeckers are able to reside in the Cordillera year-round, feeding on dormant tree insects in winter, although they may seasonally move according to prey availability. Two species migrate because of their food requirements. Widespread Northern Flickers forage for ground-dwelling insects in open woodlands up to tree line. Yellow-bellied Sapsuckers of the Boreal Cordillera and Taiga Cordillera depend mainly on the flowing sap of deciduous trees, e.g., white birch.

Northern Flickers excavate tree cavities for nesting. They are a "keystone species" of woodland ecosystems, as they provide the nest cavities upon which a number of other species depend.
*Photo: D. Johnson*

American Three-toed Woodpeckers likely occur throughout the Cordillera, preferring forests dominated by white spruce. Black-backed Woodpeckers are often associated with decaying old growth forest and burns that provide abundant wood-boring insects. The range of Hairy Woodpeckers probably does not reach the Taiga Cordillera HS. Downy Woodpeckers most likely do not occur as far north as the others.

Downy Woodpeckers are the smallest of the woodpeckers. Males tend to forage on small branches, while females concentrate on the larger limbs and trunks. *Photo: D. Jones*

Pileated Woodpeckers are the largest species of this group, and have been observed occasionally in mature mixed-wood and deciduous forests of the Flat and South Nahanni valleys in the Boreal Cordillera.

Pileated Woodpeckers require trees of sufficient girth to excavate nest holes, thus their distribution is limited by the availability of large-diameter trees.
*Photo: D. Johnson*

### 4.3.14 Flycatchers

This group specializes in catching insects in flight, and their residency and distribution are constrained by the short Cordillera summers that affect insect activity. Because of similar markings some species are most reliably identified by their song.

Say's Phoebes nest in high elevation open habitats throughout the Cordillera, including alpine tundra.

Say's Phoebes occur at the highest elevations and across the greatest latitudinal range of any of the flycatchers. They compensate for lack of flying insects in cold weather by hover-gleaning insects from the ground. *Photo: C. Eckert*

The only other species likely to breed in the Tundra Cordillera HS are Alder Flycatchers which are the most common and widespread. Ranges of Olive-sided Flycatchers (assigned by COSEWIC as Threatened), Least Flycatchers, and Eastern Phoebes extend into the Taiga Cordillera.

In the Yukon, and possibly also the Northwest Territories, the northerly limit of Hammond's Flycatchers extends beyond that of Least Flycatchers. Western Wood Peewees, Yellow-bellied Flycatchers, and Eastern Kingbirds may be limited to lowland forests of the Boreal Cordillera.

Hammond's Flycatchers prefer mature and old growth forests where they nest high in the canopy.
*Photo: S. Streit*

Northern Wheatears, formerly included in the Thrush family, are now considered to be Old World flycatchers. Although they have a wide breeding distribution in the northern hemisphere, in western North American they are restricted to rocky open habitats of the Cordillera.

Northern Wheatears make one of the longest migrations of any small bird, often crossing open ocean and desert. They may be the only North American passerines that winter in sub-Saharan Africa.
*Photo: Wikipedia*

Bluethroats are also considered Old World flycatchers. They have been reported to breed on the Yukon side of the Dempster Highway in the Richardson Mountains HS Ecoregion, and can be expected to reside in the Northwest Territories as well. They generally occupy low shrub habitat along rivers, drainages and lake edges in open tundra.

The Bluethroat's song is fascinating and complex and can mimic those of other birds. It is often performed by the males during dramatic aerial displays.
*Photo: S. Yeliseev*

### 4.3.15 Shrikes and Vireos

Northern Shrikes are mainly insect-eaters that supplement their diet with vertebrate prey. Small mammals and birds are particularly sought after during the colder months when insects become scarce. These shrikes range across the Mackenzie Mountains and probably reach the Tundra Cordillera.

Northern Shrikes occupy a variety of habitats throughout the Cordillera but they are not common anywhere. *Photo: C. Eckert*

All Vireos are probably limited to the Boreal Cordillera. Red-eyed Vireos may be quite common in

mature forests that contain a high deciduous component, but are at their western edge of their range in the mountains. Philadelphia Vireos share the same habitat, but are less common and more difficult to detect. Warbling Vireos prefer balsam poplar and aspen forests. Unlike the others, Blue-headed Vireos are most often found in coniferous forests.

Red-eyed Vireos are mainly insectivorous during the breeding season and often forage in the forest canopy. *Photo: L. Spitalnik*

### 4.3.16 Corvids

This family of birds are habitat generalists with quite versatile feeding habits and are great beneficiaries of human activities.

Gray Jays use sticky saliva to help cache food in trees and begin nesting in late winter. *Photo: D. Jones*

As ready scavengers of animal carcasses, Gray Jays and Common Ravens are widespread throughout most of the Cordillera. The few reports of American Crows have been limited to the Boreal Cordillera and Central Mackenzie Valley LS Ecoregion. Black-billed Magpies have yet to be reported in the Cordillera, although they are present on the Yukon side of the mountains and seem to be expanding their range in the adjacent Taiga Plains.

### 4.3.17 Larks

Horned Larks breed in sparsely vegetated tundra, prairie and agricultural fields, and are one of the most abundant birds in alpine Cordillera areas. This species is mainly insectivorous in summer and seeds become more important during migration.

Horned Larks prefer open country. Although holarctic in distribution, they are the only lark native to North America. *Photo: L. Spitalnik*

### 4.3.18 Swallows

This group of aerial insectivores is characterised by colonial nesting behaviour and their residency in the Cordillera is constrained by the short northern summers.

Cliff Swallows are able to construct mud nests on nearly vertical substrates and breeding colonies may contain thousands of pairs. *Photo: S. Streit*

Cliff Swallows are most common and their breeding range may extend to the Tundra Cordillera. Bank Swallows are probably as widely distributed, but their abundance is more restricted by the availability of steep river banks for nesting. Barn Swallows are limited to suitable nesting sites in the Taiga and Boreal Cordillera.

Violet-green Swallows, a mountain species, are most common in the Yukon and Alaska. They appear to be the western congener of the Tree Swallow, but there is much overlap between these two species in the Taiga and Boreal Cordillera. Tree Swallows are least colonial and reside in forested areas as far north as the Tundra Cordillera.

Violet-green Swallows usually nest in tree cavities, often woodpecker holes in dead trees, but will also use small opening or rock crevices in cliffs and canyons.
*Photo: J. Meikle*

### 4.3.19 Chickadees and Nuthatches

These birds may be present year-round, yet seasonal movements are influenced by weather and food supply. Boreal Chickadees occupy coniferous forests throughout the Cordillera. Black-capped Chickadees reside as far north as the Low Subarctic, preferring deciduous forests. Gray-headed Chickadees are regular inhabitants of Alaska and northern Yukon, and have been observed in the Mackenzie Delta. They have also been reported from the Richardson Mountains (Yukon) on the Dempster Highway, near the Northwest Territories border.

Boreal Chickadees are almost entirely restricted to boreal forests where they reside year-round.
*Photo: J. Meikle*

The distribution of Red-breasted Nuthatches includes mature coniferous forests of the Boreal and Taiga Cordillera. Populations may fluctuate dramatically according to winter food supply.

Red-breasted Nuthatches excavate tree cavities for nesting and smear conifer resin around the entrance, possibly to deter predators or competitors.
*Photo: L. Spitalnik*

### 4.3.20 Dippers

Primarily mountain residents, American Dippers occur year round throughout the entire Cordillera. Dippers require close proximity to turbulent streams where they feed almost exclusively on aquatic insects, except in winter when small fish become important. Populations may be limited by adequate nesting sites.

American Dippers are North America's only truly aquatic songbird, and the continent's sole representative of this holarctic genus.
*Photo: J. Meikle*

### 4.3.21 Kinglets

Ruby-crowned Kinglets are the smallest songbird of the mountains and breed in wooded lowlands and valleys as far north as the Tundra Cordillera. The range limit of Golden-crowned Kinglets is considerably further south, as they have been reported only in mature white spruce forests of the Boreal Cordillera.

### 4.3.22 Thrushes

Omnivorous diets and habitat versatility likely allow all resident thrush species to occur across the entire Cordillera.

Gray-cheeked Thrushes are retiring ground-foraging songbirds that prefer to nest low in conifers, or on the ground at the base of tall shrubs or thick undergrowth. *Photo: L. Spitalnik*

The breeding range of Gray-cheeked Thrushes extends across the northern boreal forest and adjacent tundra. American Robins are perhaps the most widespread and abundant birds of this family.

Varied Thrushes are noted for their distinctive plumage and eerie, melancholic song. *Photo: D. Jones*

Varied Thrushes are primarily a mountain species, preferring dense mature forests and tall shrublands. Swainson's Thrushes are common residents in a variety of forest habitats, while Hermit Thrushes are less abundant. Mountain Bluebirds occasionally appear as migrants and their breeding range seems to be restricted to Alaska and the Yukon.

Townsend's Solitaires are found only in mountain habitats. Although usually found in coniferous forests, they may venture above tree line.

Townsend's Solitaires occur at higher elevations than other thrushes and have a fondness for juniper berries. *Photo: D. Jones*

### 4.3.23 Starlings

European Starlings were released in New York City in the early 1890s, and reached the Northwest Territories by the early 1950s. This highly successful exotic species has been observed in the Boreal and Taiga Cordillera.

The successful colonization of European Starlings in North America has had adverse effects on some native species. *Photo: L. Spitalnik*

### 4.3.24 Pipits

American Pipits may be the most abundant alpine species in the Cordillera. Pipits are insectivorous in the summer and add seeds to their diet when insects become unavailable.

American Pipits are seen most often on the ground foraging for insects. They are one of the few songbirds that nest exclusively in Arctic and alpine tundra. *Photo: J. Nagy*

### 4.3.25 Waxwings

These birds subsist mainly on fruits during most of the year although insects become important during the warmer months. Of the two resident species, Bohemian Waxwings are the most widely distributed, and occasionally spend the winter in some of the more southerly Cordilleran ecoregions. Cedar Waxwings are summer residents as far north as the Taiga Cordillera LS, but are not known to winter in the Northwest Territories.

Bohemian Waxwings are a circumpolar species that breeds in northern boreal forests. They may be quite nomadic depending on available tree fruit crops. *Photo: J. Meikle*

### 4.3.26 Warblers

Several species of the large family of wood-warblers are known to occur in the Cordillera. They are typically insectivorous forest dwellers and are highly migratory. Orange-crowned, Yellow, Blackpoll, Yellow-rumped and Wilson's Warblers are quite common in forest habitats as far north in summer as the Tundra Cordillera.

Northern Waterthrushes are widespread, but prefer wetlands. The distribution of Tennessee, Palm and Black-and-white Warblers, American Redstarts and Common Yellowthroats probably only extends north to the Taiga Cordillera.

Common Yellowthroats are less arboreal than most of the other warblers and commonly occur in low shrubs, often along watercourses and more open areas. *Photo: J. Meikle*

Magnolia Warblers, Ovenbirds and much rarer Bay-breasted and Mourning Warblers are restricted primarily to mixed-wood forests of the Boreal Cordillera.

Bay-breasted Warblers largely nest in coniferous old-growth. Population changes are often correlated with spruce budworm outbreaks that provide these large warblers with an abundant food supply. *Photo: L. Spitalnik*

Cape May, MacGillivray's and Canada Warblers may also be expected here as they are present in the adjacent Taiga Plains and Yukon Boreal Cordillera Ecoregions.

### 4.3.27 Sparrows

The Emberizidae are a large family of birds commonly known as sparrows, juncos, longspurs and Snow Buntings. They are mainly seed-eating and occupy a variety of habitats.

American Tree, Fox, Savannah and White-crowned Sparrows, and Dark-eyed Juncos are quite common throughout the Cordillera including the Richardson Mountains HS Ecoregion. Lesser numbers of Chipping and Lincoln's Sparrows also range into the Tundra Cordillera.

American Tree Sparrows breed throughout northern Canada including the Cordillera. They occur in various forest and shrubland habitats - along streams, in bogs and above tree line. *Photo: L. Spitalnik*

Lapland Longspurs and Snow Buntings commonly nest in alpine tundra of the Taiga Cordillera, and are frequent migrants through most ecoregions. Summer range of Smith's Longspurs extends into alpine tundra of the Taiga and Boreal Cordillera.

Lapland Longspurs breed throughout much of the circumpolar region including Alaska, northern Canada, Greenland and northern Eurasia. *Photo: J. Meikle*

Golden-crowned Sparrows breed in alpine and sub-alpine habitats characterised by stunted ground-hugging conifers (krummholz) and dense shrubs. They are the only sparrows that live almost exclusively in the mountains.

Golden-crowned Sparrows occur primarily in mountainous habitat, breeding in the Cordillera and wintering as far south as northern California. *Photo: D. Jones*

White-throated, Song and Swamp Sparrows occur as far north as the Taiga Cordillera. LeConte's Sparrows have also been reported in the Taiga Cordillera, but they and Clay-coloured Sparrows are rare in the Boreal Cordillera.

White-throated Sparrows are at the western edge of their range in the mountains. During the breeding season they exhibit either tan-striped or white-striped plumages, and each morphological variety almost always mates with its opposite. *Photo: L. Spitalnik*

Harris's Sparrows have been reported from the Mackenzie Barrens (Natla Plateau MB Ecoregion) and along the Canol Heritage Trail, considerably west of their breeding range in the Taiga Plains and Taiga Shield.

### 4.3.28 Cardinals

The only representatives of this family found in the mountains are Western Tanagers and less common Rose-breasted Grosbeaks. Both have been reported from the Boreal Cordillera where they reside mainly in mixed coniferous-deciduous forests.

Rose-breasted Grosbeaks are summer residents of the Boreal Cordillera that migrate south into Mexico and Central America for the winter. *Photo: L. Spitalnik*

### 4.3.29 Blackbirds

Most of these species prefer fairly open habitats and are opportunistic feeders. In migration and on their winter range, they have generally benefited from forest clearing, agriculture and other forms of landscape disturbance.

Rusty Blackbirds breed in treed bogs, fens and conifer swamps. They are widely distributed across the Cordillera and range further north than other blackbirds.

Although Rusty Blackbird numbers in the Northwest Territories appear to be stable, there is concern about their decline elsewhere in North America.
*Photo: S. Denault*

Brewer's Blackbirds have expanded their distribution in recent decades, and sightings include some locations in the Taiga Cordillera LS.

Brewer's Blackbirds breed largely in western Canada north to the southern Northwest Territories, and they prefer open areas along streams and other clearings. *Photo: S. Streit*

Red-winged Blackbirds, and less common Brown-headed Cowbirds are restricted to the Boreal and Taiga Cordillera. Few Common Grackles have been reported and the western edge of their range may approach the foothills and valleys near the Mackenzie River.

Red-winged Blackbirds breed in marshes and vegetated water margins throughout most of south-central Canada north into the southern Yukon and Northwest Territories. *Photo: L. Spitalnik*

### 4.3.30 Finches

Many types of tree seeds, especially conifers, are an enduring food supply, and birds such as finches that use them may not be compelled to migrate south at the onset of winter. Conifers that do not bear heavy cone crops every year may predispose bird species that rely on them to experience significant fluctuations.

Hoary Redpolls breed in the Arctic and may be widespread winter residents in the Cordillera. Closely related Common Redpolls show considerable range and behavioural overlap with Hoary Redpolls. Abundance and seasonal distribution of both species largely depends on seed production from preferred trees and tall shrubs.

Hoary Redpolls are small, light-coloured, short-billed finches that may be difficult to distinguish from Common Redpolls, with which they often associate. *Photo: D. Johnson*

White-winged Crossbills occur year-round in open coniferous or mixed-wood forests throughout the Cordillera. Available seed crops determine local abundance and timing of reproduction in these large finches. Nesting occurs at any time of the year.

As their name implies, White-winged Crossbills have specialized bills for extracting spruce seeds from between the scales of cones. *Photo: L. Spitalnik*

Pine Grosbeaks also breed throughout the mountains, but become less common further north. They move seasonally and during winter likely only occur in the Boreal Cordillera and Taiga Cordillera.

Gray-crowned Rosy-Finches rarely stray beyond the mountains during any time of the year. They nest in rocky holes or crevices above tree line wherever suitable rugged habitat is available.

Gray-crowned Rosy-Finches are one of the highest elevation breeding birds in North America, and only descend to lower slopes in winter. *Photo: S. Streit*

Purple Finches, Pine Siskins and Red Crossbills occur in the Boreal Cordillera, as well as southerly portions and foothills of the Taiga Cordillera. Coniferous forests are generally preferred during the breeding season, and these finches migrate south beyond the Northwest Territories for the winter.

Purple Finches select open forests for breeding; they winter throughout much of their range. Their dependence on conifer seed production however, especially during the colder months, results in population cycles. *Photo: S. Streit*

Summer observations of less common Evening Grosbeaks have been limited to the Boreal Cordillera, where these birds are at the northwest edge of their range.

### 4.3.31 Vagrants

Vagrants are those species that have been sighted in the Northwest Territories Cordillera only once or at most a few times, and not enough is known about their distribution to comment further on their range within the Cordillera. These species are listed and described briefly below.

*Hooded Merganser* – single sighting from Boundary Lake (Tlogotsho Range HB Ecoregion).

Hooded Mergansers breed through much of central Canada but the northern limit of their range is poorly known. *Photo: S. Streit*

*Eared Grebe* – single record from Rabbitkettle Lake (Ragged Range Valley MB Ecoregion).

The North American breeding range of Eared Grebes is restricted to western Canada southward. *Photo: S. Streit*

*Yellow Rail* – reported from Yohin Lake (Nahanni – Tetcela Valley HB Ecoregion).

Yellow Rails breed locally in grassy marshes, mainly in central and eastern Canada but occasionally occur in the southern Northwest Territories. *Photo: J. Brisson*

*American Bittern* – reported from Rabbitkettle Lake (Ragged Range Valley MB Ecoregion) and Hodgson's Creek (Central Mackenzie Valley LS Ecoregion).

*Black-bellied Plover* – Arctic migrant observed on Mackenzie Barrens (Natla Plateau MB Ecoregion).

Black-bellied Plovers breed in Alaska and the mid-Arctic, including northern Russia. They winter along both the Pacific and Atlantic coast as far south as Chile and Brazil. *Photo: L. Spitalnik*

*Red Knot* – Arctic nester observed on the Mackenzie Barrens in summer (Natla Plateau MB Ecoregion).

*Wilson's Phalarope* – observed at Godlin Lakes in spring (Sayunei-Sekwi Ranges LS Ecoregion).

*White-rumped Sandpiper* – Arctic migrant observed in Deadmen Valley (Tlogotsho Range HB Ecoregion).

White-rumped Sandpipers normally breed in tundra areas of the Canadian Arctic. *Photo: L. Spitalnik*

*Pomarine Jaeger* – recorded from Mackenzie Barrens (Natla Plateau MB Ecoregion).

*Caspian Tern* – single individual reported at Keele-Twitya River junction (Tigonankweine Range LS Ecoregion).

*Barred Owl* – reported from Deadmen Valley (Tlogotsho Range HB Ecoregion).

*Clarke's Nutcracker* – unconfirmed report from aerial survey in Nahanni National Park Reserve .

*Winter Wren* – Yohin Lake (Nahanni – Tetcela Valley HB Ecoregion), and Hole-in-the-Wall Lake (Ragged Range Valley MB Ecoregion).

Winter Wrens occur throughout most of central Canada, and primarily occupy mature coniferous forest where they forage in shrubby understory and forest openings. *Photo: L. Spitalnik*

*Marsh Wren* – single breeding record from Yohin Lake (Nahanni – Tetcela Valley HB Ecoregion).

*Gray Catbird* – single sighting from Kraus Hotsprings (Nahanni – Tetcela Valley HB Ecoregion).

Gray Catbirds are summer residents of southern Canada that may occasionally wander north into the Northwest Territories. *Photo: D. Livingstone*

*Townsend's Warbler* – recorded from Mackenzie Barrens (Natla Plateau MB Ecoregion).

Townsend's Warblers breed in western Canada south from southern Alaska and Yukon but occasionally occur in the Northwest Territories. *Photo: S. Streit*

*Black-throated Green Warbler* – several sightings from Deadmen Valley (Tlogotsho Range HB Ecoregion).

*Vesper Sparrow* – single observation from Godlin Lakes in summer (Sayunei-Sekwi Ranges LS Ecoregion).

*Western Meadowlark* – recorded from Mackenzie Barrens (Natla Plateau MB Ecoregion).

*Mourning Dove* – reported at Mile 212 and 216 of the Canol Heritage Trail (Sayunei-Sekwi Ranges LS Ecoregion), and Rabbitkettle Lake (Ragged Range Valley MB Ecoregion).