

Extension of Coyote, *Canis latrans*, Breeding Range in the Northwest Territories, Canada

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Coyotes (*Canis latrans*) have resided in the Northwest Territories for several decades but have only rarely been sighted north of Great Slave Lake (>62° N. latitude) in the Taiga Shield ecozone. Records show Coyotes have been seen since the 1960s. Prior to 2000, evidence of Coyotes breeding in the Taiga Shield has been anecdotal. In 2000, a Coyote was repeatedly seen at the Yellowknife airport and in 2001, a pair of Coyotes was observed with two pups. Since then, Coyote pups have been observed annually at the airport and adult Coyotes are seen regularly within the city of Yellowknife, an urban island within the Taiga Shield ecozone. Unlike in most regions occupied by Coyotes, medium-sized prey are rarely seen. Recently, Coyotes have become a potential hazard to aircraft at the Yellowknife airport. Although Coyotes appear to have established themselves within the city of Yellowknife, maintaining a presence beyond the urbanized area remains uncertain.

Key Words: Coyote, *Canis latrans*, distribution, range extension, reproduction, Northwest Territories.

Coyotes (*Canis latrans*) have been uncommon in the Northwest Territories (NWT) north of Great Slave Lake (north of the 62nd parallel). Banfield (1974) and Voigt and Berg (1987) suggested Coyote distribution was limited to the Taiga Plain ecozone and did not extend beyond the northwest shore of Great Slave Lake where the Taiga Shield ecozone begins. The Taiga Shield ecozone is characterized by a patchwork of wetlands, forests, meadows, and shrublands situated on top of glaciated bedrock with numerous lakes and rock outcrops. Summers are short and winters are long and cold. Although sightings of Coyotes beyond current range limits may be expected, occurrences of reproduction beyond the Taiga Plain and into the Taiga Shield would be less likely. Bekoff (1977) and Bekoff and Gese (2003) estimated the range of Coyotes to be further northward but their delineation appears based on the northern limit of trees ("tree-line"). This paper reports on recorded sightings and breeding of Coyotes in the Taiga Shield ecozone in northwestern Canada. I identify current conflicts and management responses for Coyotes as their numbers have increased in a northern urban area.

Methods

I recorded and investigated Coyote sightings in the Yellowknife area since summer 2001. I solicited sighting and harvest information from wildlife officers, hunters, and trappers in the Northwest Territories and western Nunavut. I searched historical records for Coyotes among fur harvest records, Wolf (*C. lupus*) bounty receipts, and annual reports. Carcasses of Coyotes obtained since 2001 were examined whenever possible.

Results and Discussion

The earliest recorded sighting of Coyotes in the Taiga Shield ecozone occurred in the Yellowknife area in the early 1960s. In winter 1974-1975, five Coyotes were observed in the Long Lake area near the Yellowknife airport (J. Hordal, Hay River, Northwest Territories, personal communication). Prior to 2000, three other sightings occurred outside (>40 km) of the Yellowknife area (Figure 1) and in the late 1960s, a trapper shot a Coyote on Stark Lake, east from Lutsel K'e (formerly Snowdrift) (A. Boucher, Lutsel K'e, Northwest Territories, personal communication). One Coyote was occasionally sighted at the Yellowknife airport in 2000 and in spring 2001, two adult Coyotes were often reported near the airport; two pups were observed later that summer, the first documented occurrence of Coyotes breeding this far north in the Northwest Territories.

There have been two oral reports of Coyotes at Kugluktuk (67°49'N, 115°06'W), Nunavut, near the northern coast of mainland Canada. Although exact dates and written reports are absent, the sightings are noteworthy as they occurred on the tundra 40-60 kilometres beyond the tree-line. The first was by a hunter who shot a Coyote 70 km west of Kugluktuk around 1988. The second was circa 1997 when two hunters saw a Coyote southwest of Bloody Falls on the Coppermine River (A. Niptanatiak, Kugluktuk, Nunavut, personal communication).

The presence of Coyotes at the Yellowknife airport is not surprising because the area is characterized by open grassy habitat in contrast to the surrounding boreal forest. Rodents, birds, hares, and other wildlife on the airport property serve as food. The availability of food

scraps near the city of Yellowknife proper and at the city dump should contribute to a continued presence by Coyotes within the urbanized area. It is possible that the Coyotes observed near the Yellowknife airport in winter of 1974-1975 had bred in the area as three of the five Coyotes did not appear adult size (J. Hordal, personal communication).

Coyotes in northern urban areas

The existence and colonization of Coyotes in and around Yellowknife is of concern to residents and airport authorities. Residents are primarily concerned for the safety of their pets. Airport authorities are concerned as Coyotes and their pups occupy the Yellowknife airport property and represent an air safety risk. In 2002, 2003 and 2004, 2, 7, and 4 pups were observed on the airstrip area respectively (S. Loutitt, Yellowknife airport, personal communication). Coyotes have not been limited to the airport. Seven were observed together on Back Bay in Yellowknife on 9 December 2004 (J. Bastedo, Yellowknife, personal communication) representing the largest number of Coyotes observed together within Yellowknife to date. In addition, a Coyote pup was found dead on 30 August 2004 (J. Bastedo, personal communication) and another Coyote pup was road-killed on 29 October 2004, both within Yellowknife city limits. Furthermore, on 21 October 2004, a Coyote pup was killed on the highway about 60 kilometres northwest of Yellowknife and may represent a separate litter (Figure 1).

The origin of this newest incursion of Coyotes is unknown, although they may have followed the single highway corridor connecting Yellowknife to the south. Coyotes have been expanding their range elsewhere over recent decades and human-induced habitat changes are likely contributory (Moore and Parker 1992; Chubbs and Phillips 2002; Chubbs and Phillips 2005). Factors that might discourage Coyotes from colonizing northward include morphology, behaviour, and reproduction (Phillips 1982). Although not morphologically equipped for travel in areas with deep snow, Coyotes might overcome this limitation by using trails and areas with hard snow (Murray and Boutin 1991; Murray and Larivière 2002). Wolves often kill coyotes where their ranges overlap (Krefting 1969; Paquet 1989; Crabtree 1998), further discouraging northern Coyote range expansion.

Air-strike risk

Coyotes at the Yellowknife airport present a public safety risk because of aborted take-off and landing attempts and potential for collisions causing property damage and personal injury (B. Webber, Yellowknife airport, personal communication). Although the airport perimeter is fenced, Coyotes can access the area through holes in the chain-link or by digging underneath. Continual removal efforts would be required to be effective over the long-term.

Although Coyotes have the potential to cause significant damage to small planes, those struck at southern airports are often hit by undercarriage and do little overall damage to the aircraft (Dolbeer et al. 2000; Cleary et al. 2004). The greater risk is from aborted take-off and landings (Dolbeer et al. 2000), as pilots tend to see Coyotes on runways before collisions occur.

There is anecdotal evidence that Coyotes may disperse other wildlife at airports such as Sandhill Cranes (*Grus canadensis*), Red Fox (*Vulpes vulpes*), and deer (*Odocoileus* sp.), and thus reduce the overall risk of wildlife strikes by aircraft (R. Dolbeer, United States Department of Agriculture, personal communication; S. Loutitt, personal communication). Coyotes are known to predate on Red Fox in some southern regions (Voigt and Earle 1983; Sargeant et al. 1987; Harrison et al. 1989), although fox predation by Coyotes has not yet been reported at the Yellowknife airport. There are few site-specific wildlife studies that address relative abundance and spatial patterns of wildlife at airports (Hoffman et al. 1996; Dolbeer et al. 2000). The dilemma at the Yellowknife airport is one of risk management. Airport management staff believe co-existence is possible and have chosen not to eliminate Coyotes but to monitor their presence and reduce numbers when required.

Coyote persistence

Whether Coyotes remain in the Yellowknife region is uncertain, although they occupy similar habitat elsewhere (e.g., Alaska; Labrador). Coyotes expanded their range northwest to Alaska in the late 1800s by scavenging along trails left by the gold rush (Gier 1975) and arrived in the Yukon by 1910 (Parker 1995). Coyotes appeared in the Northwest Territories fur harvest in the early 1930s when records were first kept. Suppressants to early colonization of Coyotes in the Yellowknife region include hunting, trapping, predation by Wolves, and incidental mortality at poison baits during Wolf control in the early 1960s (Heard 1983; Cluff and Murray 1995). Wolves are occasionally observed at the Yellowknife airport, and in 2004 a pack of five were reported within city limits.

To sustain a Coyote population a reasonable prey base must exist. Birds, Snowshoe Hare (*Lepus americanus*) and other small mammals would be the main source of food for forest-dwelling Coyotes (Crête et al. 2001). White-tailed Deer (*O. virginianus*) are only rarely sighted in the Taiga Shield (unpublished data; Veitch 2001). Wood Bison (*Bison bison athabascae*) have expanded their range into the area since 1999 but this may adversely impact Coyotes if Wolf numbers also increase. Garbage and domesticated animals in the Yellowknife area would augment the available food supply. The Yellowknife city dump, electrified only in summer against Black Bears (*Ursus americanus*), is not a barrier to Coyotes. Cabins and homes scattered on the landscape outside of Yellowknife may also supply

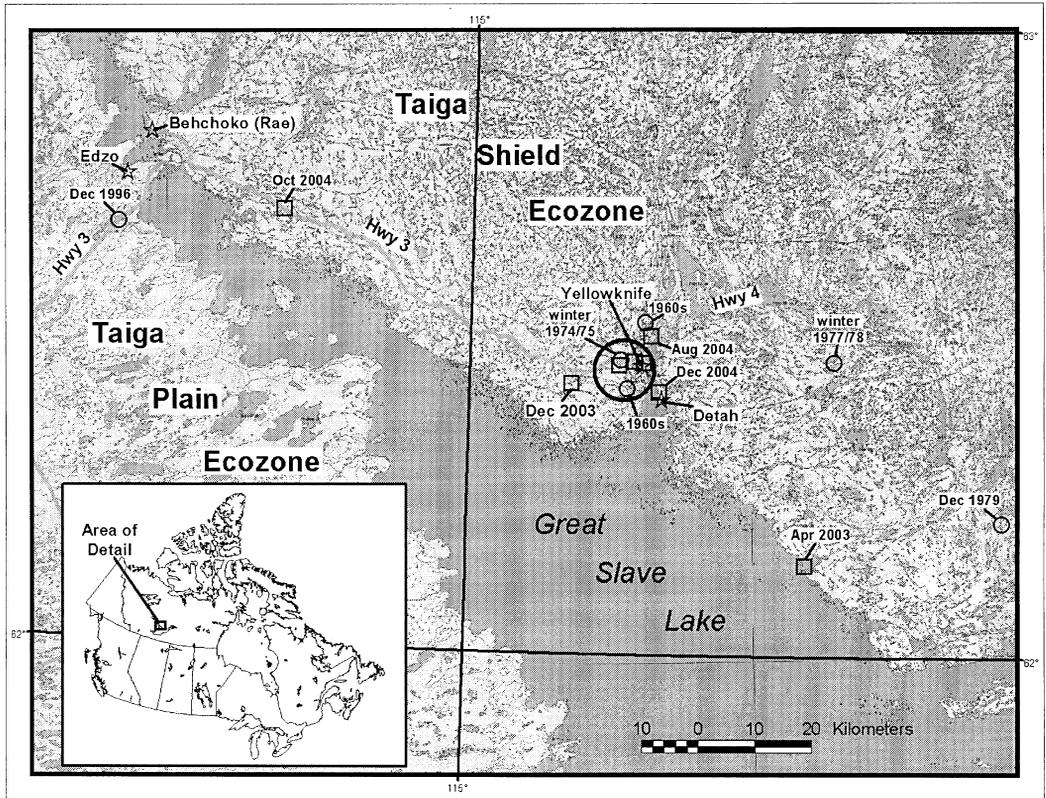


FIGURE 1. Taiga Plain and Taiga Shield ecozones bordering Great Slave Lake in the Northwest Territories showing records of Coyotes since the 1960s documented in text. Circles represent sites prior to 2000, squares in 2003 and 2004.

food. Consequently, Coyote persistence in Taiga Shield of the Northwest Territories may be strongly linked to a suburban environment, especially if an inadequate prey base exists elsewhere. How the public and wildlife management authorities choose to deal with Coyotes as urban carnivores will be a key factor for Coyote persistence in the Yellowknife region.

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