COSEWIC Status Report

on the

Common Nighthawk

Chordeiles minor

prepared for the

COMMITTEE ON THE STATUS OF ENDANGERED WILDLIFE IN CANADA

by

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EXECUTIVE SUMMARY

Species information

The Common Nighthawk is a medium-sized bird, with a large flattened head, large eyes, a small bill, a large mouth, long slender pointed wings and a long, slightly notched tail. It has dark brown plumage mottled with black, white and buff. In flight, adults have a white patch across the primaries. Seven subspecies are generally recognized in North America.

Distribution

The breeding range of the Common Nighthawk includes all of North America, Central America and possibly southeastern Colombia. In Canada, the species occurs in all Canadian provinces and territories, except Nunavut. The Common Nighthawk winters throughout South America, primarily in regions in eastern Peru and Ecuador and in southern Brazil.

Habitat

The breeding habitat of the Common Nighthawk is varied and includes open habitats where the ground is devoid of vegetation, such as sand dunes, beaches, logged areas, burned-over areas, forest clearings, rocky outcrops, rock barrens, prairies, peatbogs and pastures. From the start of European settlement, the Common Nighthawk probably took advantage of newly opened habitats created by massive deforestation in the eastern United States, as well as urban areas where it used flat gravel roofs for nesting. However, since the early 1900s, the quantity of available habitat has been declining due to forest fire suppression, reforestation, the intensive use of agricultural land and the gradual replacement of gravel roofs with tar covered roofs.

Biology

Generally, two eggs are laid directly on the ground, from the third week of May to mid-August. Incubation is carried out by the female only, and lasts 16 to 20 days, depending on the region. The nestlings remain in the nest from mid-June to the end of August and become fully developed at between 45 and 52 days. The life span of the Common Nighthawk is usually 4 to 5 years.

Population sizes and trends

The current population size for Common Nighthawks in Canada is estimated at 400,000 breeding adults. In Canada, data from the Breeding Bird Survey (BBS), indicate a significant long-term (i.e. 1968-2005) decline of 4.2% per year. In the most recent 10 year period (1995-2005), BBS data show a significant decline of 6.6% per year. This corresponds to a 49.5% decrease in the population.

Limiting factors and threats

The main threat to Common Nighthawk populations in North America is habitat loss and alteration, in particular the reforestation of abandoned agricultural fields and harvested forests, fire suppression, intensive agriculture and the gradual reduction of buildings with flat gravel covered rooftops. Other limiting factors may include a general decline in insect populations due to large-scale insecticide use, collisions with motor vehicles and climatic fluctuations at breeding sites and during migration.

Special significance of the species

The Common Nighthawk is one of the only species of insectivorous, crepuscular birds that uses a wide variety of habitats and is widely distributed in Canada.

Existing protection or other status designations

In Canada, the Common Nighthawk, its nest and eggs are protected under the *Migratory Birds Convention Act*, *1994*. Globally, NatureServe (2005) considers the species as secure (G5). The species has received NatureServe ranks in Newfoundland and Labrador and Prince Edward Island of S1S2B.

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SPECIES INFORMATION

Name and classification

The common English name of *Chordeiles minor* (Forster, 1771) is Common Nighthawk. The common French name is “Engoulevent d’Amérique”. Its taxonomy is as follows:

Class:	Aves
Order:	Caprimulgiformes
Family:	Caprimulgidae
Genus:	*Chordeiles*
Species:	*minor*

Seven subspecies are generally recognized in North America (Poulin et al. 1996), of which three are found in Canada. *C. m. minor* breeds from southeastern Alaska to Vancouver Island, and from southern Canada including all Canadian provinces, to Virginia, North Carolina, Georgia, and Oklahoma. This subspecies is distinguished from the others by its darker ventral bars (Poulin et al. 1996). *C. m. sennetti*, occurs primarily in the Great Plains, eastern Montana, southern Saskatchewan and southern Manitoba, to North Dakota, Minnesota and Iowa, and is generally paler than the other subspecies. *C. m. hesperis* breeds in southwestern Canada, particularly in British Columbia and Alberta, and in the United States, in Washington, Montana, Nevada, Utah, the extreme north of Colorado and western Wyoming. The latter subspecies is similar to *C. m minor* but has more grey and white. The differences between these subspecies are slight, and significant introgression zones have been noted (Salt and Wilk, 1958). This report will cover the species as a whole.

Morphological description

The Common Nighthawk is a medium-sized bird (i.e. 21–25 cm long, 65–98 g; Poulin et al. 1996), and is characterized by long, slender, pointed wings and by a long, slightly notched tail (Poulin et al. 1996). This species has a rather large, flattened head, large eyes, a small bill and a large mouth. The species has cryptic coloration, generally dark brown, with black, white and buff mottling on the wings and upper parts and fine buff bars on the under parts. Females can be distinguished from males by their throat band, which is buff rather than white. In flight, adults have a pronounced white patch at the base of the primaries, which are also dark brown. The tail is brown with fine buff bars and males also have a white band near the tip. Juveniles are distinguished from adults primarily by the absence of the white or buff throat band.

The Common Nighthawk resembles three other species that occur in Canada: Whip-poor-will (*Caprimulgus vociferus*), Common Poorwill (*Phalaenoptilus*

nuttallii) and Chuck-will's-widow (*C. carolinensis*). It can be distinguished from these species by the lack of rictal bristles (long, fine feathers surrounding the bill), the presence of white patches on the primaries, the shape of the tail and its coloration patterns, and by its long pointed wings.

Genetic description

Few molecular or genetic studies have been conducted to distinguish the Common Nighthawk from the other species in the family. The species is considered to be closely related to the Antillean Nighthawk (*C. gundlachii*) of southern Florida, the Bahamas and Greater Antilles. The two species were considered conspecifics until 1982, when they were separated because of differences in their calls, size, egg colouring and juvenile plumage, as well as their allozymic differences (Poulin et al. 1996).

DISTRIBUTION

Global range

The breeding range of the Common Nighthawk includes most of North America, and disconnectedly, Central America (Figure 1). In Canada, the species is distributed in all provinces and territories except Nunavut. In the United States, it breeds in all continental states. However, it is absent from eastern California, southern Nevada and southeastern Arizona (Poulin et al. 1996).

Although the Common Nighthawk winters throughout the whole of South America, it is most abundant in eastern Peru, eastern Ecuador and southern Brazil (Poulin et al. 1996). In most South American countries, its distribution is still poorly known, because of the difficulty in distinguishing this species from the Lesser Nighthawk (*C. acutipennis*), the difficulty in differentiating migrants from resident birds, and the general lack of information on the species (Poulin et al. 1996).

Canadian range

In Canada, the Common Nighthawk breeds in all provinces and territories except Nunavut (Figure 1). Breeding Bird Survey (BBS) data indicate that about 37% of the breeding range of this species is in Canada, although only 10% of the total world population is believed to breed in Canada (P. Blancher, unpubl. data).

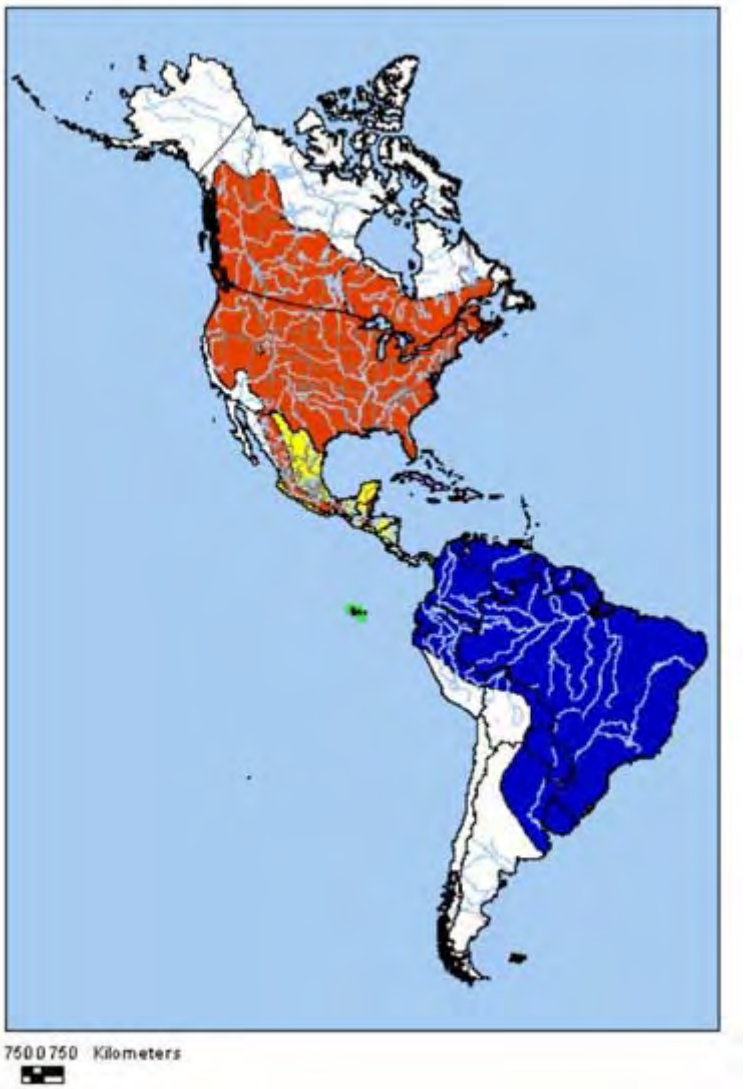

Figure 1: Breeding (red), wintering (blue) and migratory (yellow) locations of the Common Nighthawk (from Ridgely et al. 2003).

In eastern Canada, the species breeds only in the southern part of Labrador and is considered a rare visitor to the island of Newfoundland (Todd, 1963; Godfrey, 1986). The species is generally common and widely distributed in all of the Maritime provinces, with the exception of Prince Edward Island (Erskine, 1992; NatureServe, 2005; S. Blaney, pers. comm. 2005).

In Quebec, the range of the species includes regions south of the 54th parallel, including, the south coast of James Bay, Fermont, Lake Mistassini and Waskaganish (Todd, 1963; Godfrey, 1986; Gauthier and Aubry, 1996; J. Gauthier, pers. comm. 2005). There is no confirmation of this species breeding on the Magdalen Islands and Anticosti Island (Cyr and Larivée, 1995; Gauthier and Aubry, 1996). In Ontario, the species occurs throughout the province except for the coastal regions of James Bay and Hudson Bay (Cadman et al. 1987).

In western Canada, the species breeds throughout Alberta and Saskatchewan and south of the tree line in Manitoba (Semenchuk, 1992; Smith, 1996; Manitoba Avian Research Committee, 2003). In British Columbia, it occurs throughout the province, including Vancouver Island, but is absent from the Coast Mountains and from the Queen Charlotte Islands (Campbell et al. 1990; Poulin et al. 1996). In the Yukon, the species breeds in the southern part of the territory, up to the Dawson region (Sinclair et al. 2003). In the Northwest Territories, the species occurs along the border with Alberta and Saskatchewan and extends north along the Mackenzie River Valley to Norman Wells (Poulin et al. 1996; R. Popko, pers. comm. 2005). The species is considered an accidental visitor in Nunavut (M. Setterington, pers. comm. 2005).

The Extent of Occurrence (EO) for the species in Canada is estimated at 4,817,780 km^2 (Bird Studies Canada, unpubl. data.), while the Area of Occupancy (AO) is approximately 54,000 km^2. The latter assumes a population estimate of 200,000 breeding pairs (see below) each with an average territory area of 0.27 km^2 (Wedgwood, 1973).

HABITAT

Habitat requirements

The breeding habitat of the Common Nighthawk includes open habitats, such as sand dunes, beaches, recently logged areas, recently burned-over areas, forest clearings, short-grass prairies, pastures, open forests, peatbogs, marshes, lakeshores, gravel roads, river banks, rocky outcrops, rock barrens, railways, mine tailings, quarries, urban parks, military bases, airports, mines and commercial blueberry fields (Peck and James, 1983; Gauthier and Aubry, 1996; Poulin et al. 1996; Manitoba Avian Research Committee, 2003). The species is also present in mixed and coniferous forests, as well as in pine stands (Gauthier and Aubry, 1996). In Alberta and Saskatchewan, canyons, grassy plains and dune complexes are also favoured habitats for the Common Nighthawk (Dale et al. 1999; A.R. Smith, pers. comm. 2005). At the beginning of the 20th century, the species also nested in cultivated fields, corn and potato fields, orchards, parks and gardens in residential areas and railways (Gross, 1940). Since the end of the 1870s, it has also used flat gravel covered roofs in urban areas for nesting (Gross, 1940). Although nighthawks may have benefited from the new habitats provided by urban areas, they generally prefer natural sites (Brigham, 1989). It is not clear, however, what proportion of the Canadian population breeds in poorly surveyed areas, such as the boreal forest.

Habitat trends

Little is known about the habitat trends of the Common Nighthawk in Canada (Poulin et al. 1996). In the early days of European settlement, the Common Nighthawk probably took advantage of newly opened habitat created by extensive deforestation in the eastern United States and parts of Canada (Poulin et al. 1996). The appearance of gravel rooftops on urban buildings in the second half of the 19th century further contributed to the expansion of Common Nighthawk habitat in North America (Weir, 1989; Gauthier and Aubry, 1996) to the point that, at the beginning of the 1990s, the species bred almost exclusively on the roofs of buildings in urban areas in Ohio and Pennsylvania (Peterjohn and Rice, 1991; Brauning, 1992).

Since the beginning of the 20th century, however, forest fire suppression and changes in forest harvesting practices that reduce the number of open areas, along with extensive reforestation and intensive use of agricultural land have all contributed to the decline in the quantity and quality of Common Nighthawk habitat (Gauthier and Cyr, 1996; R.M. Brigham pers. comm. 2007). Similarly, gravel rooftops are gradually being replaced by tar covered roofs, which further reduce the amount of available breeding habitat in urban areas (Poulin et al. 1996). Habitat does not appear to be declining in some areas. For instance, in the Maritimes logged-over areas, commercial blueberry fields, coal mines and gravel quarries, which provide suitable breeding habitat, are constantly being created (S. Blaney, pers. comm. 2005).

Habitat protection/ownership

In Canada, the quantity of habitat available to the Common Nighthawk or the degree of habitat protection on public lands is unknown. Some habitat on public lands will undoubtedly be protected by the creation of protected areas, although these areas account for less than 8% of the total area of Canada (Natural Resources Canada, 2005). There are no programs for the protection of Common Nighthawk habitat within Canada's protected areas. Nevertheless, controlled burning programs in specific national parks could increase the species' habitat (Campbell et al. 1990; R.M. Brigham, pers. comm. 2005). In managed forests, there are no specific programs for Common Nighthawk habitat protection.

Data are equally lacking on the level of habitat protection for this species in private areas (i.e. urban and agricultural areas).

BIOLOGY

Reproduction

The age of sexual maturity for this species is one year (Poulin et al. 1996). The two eggs are laid directly on soil, sand, gravel or bare rock (Dexter, 1952; Weller, 1958; Peck and James, 1983; Poulin et al. 1996; Sinclair et al. 2003). The species generally has one brood per year, but a second clutch may be produced in the southern part of its range (Weller, 1958). The eggs are generally laid from the second week of May to mid-August (Gauthier and Aubry, 1996; Poulin et al. 1996). Only the female incubates the eggs, for an incubation period of 16 to 20 days, depending on the region (Rust, 1947; Foyle, 1946; Campbell et al. 1990). Nestlings generally remain in the nest from mid-June to late August (Poulin et al. 1996). During this period, the female broods the nestlings continually and the male feeds the female and the nestlings in the nest (Granza, 1967; Brigham, 1989). The nestlings are semi-precocial and are able to move short distances in search of shade within the first few days (Gross, 1940). The young begin to fly after 18 days and can capture their first insects near the ground after 25 to 30 days, (Gross, 1940; Rust, 1947). The nestlings reach full development at between 45 and 52 days (Gross, 1940; Rust, 1947). In Quebec, the period of dependency after leaving the nest has been estimated to be from the second week of June to the last week of July (Gauthier and Aubry, 1996). In the Yukon, juveniles still dependent on adults and not yet able to sustain flight over large distances were reported as late as 22nd August (Sinclair et al. 2003).

Survival

Very little information is available on annual adult survival rates on breeding or wintering grounds. Moreover, no studies have been conducted on reproductive success or fledgling survival rates (Poulin et al. 1996). The life span of the Common Nighthawk is generally 4-5 years (Poulin et al. 1996), although banded birds aged 9 years have been reported (Dexter, 1961). A 50% mortality rate in adults has been reported at the start of the breeding period in the Okanagan Valley in British Columbia, probably as the result of starvation due to cold, rainy weather (n = 4 adults, Firman et al. 1993). Similarly, extremely high temperatures on roof surfaces in summer (i.e. 60°C) can cause nestling mortality (Gross, 1940).

Dispersal/migration

The Common Nighthawk has one of the longest north-south migration distances of any species in North America (Poulin et al. 1996). Nighthawks arrive in Canada from early May to the beginning of June (Weir, 1989; Manitoba Avian Research Committee, 2003) and migration to South America occurs from mid-August to mid-September (Ouellet, 1974; Manitoba Avian Research Committee, 2003). These autumnal migratory flights are often associated with the emergence of flying ants (hymenoptera) in August (Poulin et al. 1996) and involve flocks ranging from 10 to an estimated 16,000 individuals (Ouellet, 1974; Tuft, 1986;

Weir, 1989; Poulin et al. 1996).

Factors affecting dispersal from the natal site are unknown (Poulin et al. 1996). Studies involving banded birds have found that female nighthawks exhibit nest site fidelity (Dexter, 1961; Poulin et al. 1996). No data are available for males (Poulin et al. 1996).

Diet and feeding habits

The Common Nighthawk is an aerial insectivore that feeds primarily at dusk and dawn (Poulin et al. 1996) at heights varying from 1 m to more than 80 m (Brigham, 1990; Poulin et al. 1996). Unlike other species of nightjar which use echolocation, the Common Nighthawk visually detects its prey, aided by a highly developed *tapetum lucidum*, which improves its vision in low-light environments (Poulin et al. 1996). Where insect densities are high, the species can feed in groups ranging from a few dozen to several hundred individuals (Brigham and Fenton, 1991; Brigham and Barclay, 1995). In urban areas, nighthawks often forage near street and building lights, where they capture insects attracted by the light (Poulin et al. 1996). During breeding and migration periods, the species is regularly seen feeding on trichoptera over water (Montreal, Ouellet, 1974; Okanagan Valley, Firman et al. 1993; northwestern Saskatchewan, C. Savignac, pers. obs. 2005).

The diet of the Common Nighthawk includes a wide variety of insects (over 50 species), with the species showing a preference for homoptera, coleoptera, hymenoptera, diptera and orthoptera (Gross, 1940; Blem, 1972; Caccamise, 1974; Brigham, 1990; Brigham and Fenton, 1991; Firman et al. 1993; Todd et al. 1998). Analyses of stomach contents have shown that flying ants and coleoptera represent 25% (i.e. 200 to 1,800 ants/stomach) and 20% of the total food eaten, respectively (n = 87 individuals, Gross, 1940).

Interspecific interactions

The Common Nighthawk is aggressive towards other similar species, such as the Antillean Nighthawk and the Chuck-will's-widow (Bjorklund and Bjorklund, 1983). However, it is subordinate to bats at some feeding sites (Shields and Bildstein, 1979). The Lesser Nighthawk excludes the Common Nighthawk from its territory in certain desert regions of the southern United States where insect densities are low (Caccamise, 1974).

Potential predators of adult nighthawks include domestic cats (*Felix catus*), American Kestrels (*Falco sparverius*) and Peregrine Falcons (*Falco peregrinus*) (Poulin et al. 1996). Predation of eggs and nestlings by the American Crow (*Corvus brachyrhynchos*), Common Raven (*Corvus corax*), gulls, owls, coyotes (*Canis latrans*), striped skunks (*Mephitis mephitis*), dogs, foxes and snakes is

regularly reported (Marzilli, 1989; Wedgwood, 1991).

Home range and territory

The Common Nighthawk is highly territorial and males seldom cross territorial boundaries (Wedgwood, 1973). Average territory size varies according to habitat and is estimated at approximately 10 ha in urban areas (Rust, 1947; Armstrong, 1965; Wedgwood, 1973) and 28.3 ha in natural areas (Wedgwood, 1973). Territory size can also vary according to the availability of suitable nest sites, as demonstrated by a study carried out in Florida, where the average distance between 16 nests was only 73 m (Sutherland, 1963). In Saskatchewan, the density of Common Nighthawk territories is higher in urban areas (1 male/18.6 ha) than in suburban areas (1 male/36.6 ha, n = 48, Wedgwood, 1973).

Behaviour and adaptability

Since the middle of the 19th century, the Common Nighthawk has adapted well to urban areas in which buildings with flat gravel roofs provide suitable nest sites (Poulin et al. 1996). The species has also benefited from the abundance of insects around city lights and artificial habitats, such as treatment ponds.

POPULATION SIZES AND TRENDS

Search effort

Breeding Bird Survey (BBS)

The BBS is a large-scale monitoring program that surveys North American bird populations during the breeding season (Sauer et al. 2005). Bird abundance data are collected by volunteers, who record all birds seen and heard within a 400 m radius circle at stops positioned every 800 m along roads (Downes et al. 2005). Although the BBS can track Common Nighthawks because the species is highly visible (Poulin et al. 1996; Sauer et al. 2005), it is considered to have only Fair accuracy for establishing population indices (Rich et al. 2004). One limitation of this method for tracking Common Nighthawks in Canada is that less populated regions, such as the boreal forest, will not be well represented. Additionally, because the birds are crepuscular they tend to be detected only on the first stops of a BBS route on a given day. This limitation is somewhat countered by the fact that the species is detected on a large number of routes, providing a good sample size for trends (P. Blancher pers. comm. 2006).

Étude des populations des oiseaux du Québec (EPOQ)

In Quebec, the EPOQ database, which manages ornithological checklist data provided by thousands of volunteers since 1969, is the tool of choice for examining bird population trends in Quebec (Cyr and Larivée, 1995). The EPOQ database primarily covers regions (i.e. St. Lawrence lowlands) south of the 52nd parallel and includes all seasons (Cyr and Larivée, 1995). The main disadvantage of this method is that it tends to cover mostly inhabited areas where access is easier.

Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas surveyed breeding bird populations in Ontario during the periods of 1981-1985 and 2001-2005. It provides information on changes in the distribution of Common Nighthawks in the province in the 20 years between surveys (Cadman et al. 1987; Ontario Breeding Bird Atlas, 2006). Population trends are determined by comparing the percentage of 10 X 10 km squares reporting Common Nighthawks between the two time periods and also by comparing the number of squares per 100 km X 100 km block divided by the total number of squares/block surveyed.

Additional surveys

In British Columbia, Alberta, Saskatchewan and Manitoba, information on Common Nighthawk trends comes mostly from local ornithological knowledge (i.e. notes and observations from amateur ornithologists, see Manitoba Avian Research Committee, 2003) and includes counts of migrating birds as they pass fixed stations in Manitoba (Taylor, 1996) and mapping of breeding bird territories in Saskatchewan (Wedgwood, 1973).

Abundance

According to BBS abundance estimates (after Rich et al. 2004), the current population of Common Nighthawks in Canada, is approximately 400,000 breeding adults or 200,000 breeding pairs (P. Blancher, pers. comm. 2007).

Other than the estimates provided by the BBS, very few studies exist which assess the abundance of the Common Nighthawk in Canada. Data on the density of the species are only available for the Saskatoon and Cluff Lake areas in Saskatchewan. Reported densities range from a minimum of 0.03 male/ha in urban areas around Saskatoon (Wedgwood, 1973) to 0.11 male/ha (33 males/24 stops) in boreal forest dominated by a 25 year old burn in the Cluff Lake area (C. Savignac, unpubl. data 2005).

Fluctuations and trends

Breeding Bird Survey

In the United States, where most of the breeding population of Common Nighthawks occurs, the long-term BBS data show a significant decline of 1.83% per year (n = 1498 routes, P < 0.00) between 1968 and 2005 and, on the short-term, a significant decline of 1.58% per year (n = 995, P = 0.02) between 1995 and 2005 (Sauer et al. 2005).

In Canada, long-term BBS data show a significant decline of 4.2% per year (n = 312 routes, P < 0.05) between 1968 and 2005 (Downes et al. 2005; Figure 2). In the most recent 10-year period (1995-2005), BBS data show a significant decline of 6.6% per year (n = 164 routes, P < 0.05), which amounts to a 49.5% decrease in the population (Downes et al. 2005).

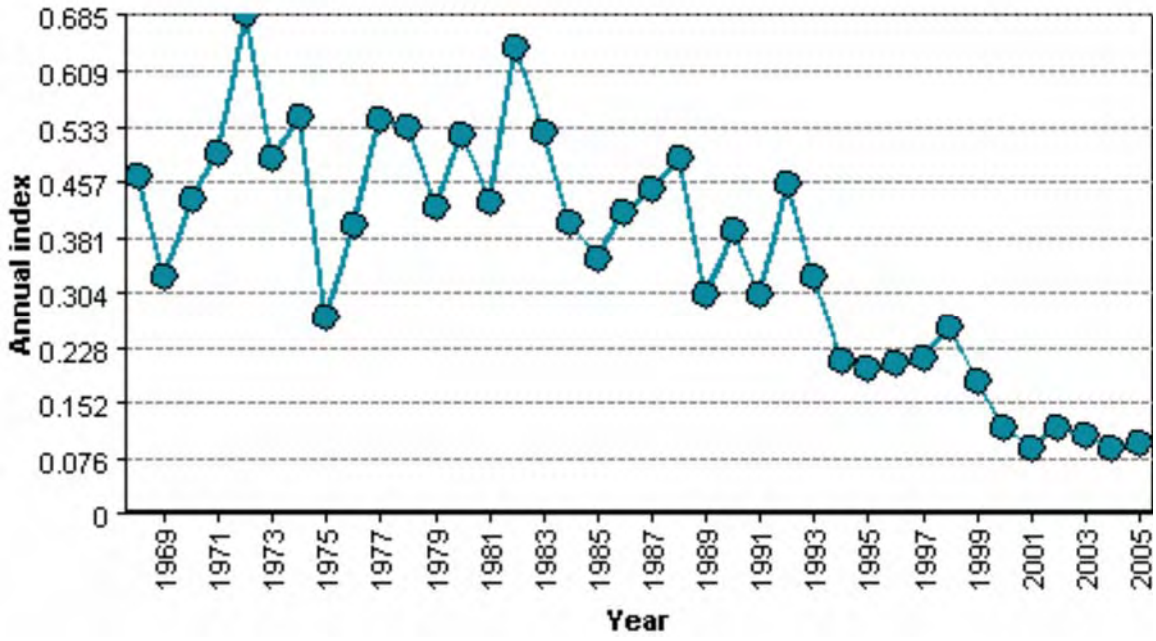

Figure 2: Annual index of abundance for the Common Nighthawk in Canada between 1968 and 2005 according to BBS data (from Downes et al. 2005)

Étude des populations des oiseaux du Québec

The EPOQ database for Quebec shows a significant long-term decline of 0.24% per year (Y = -0.0024x + 4.9, $P \leq 0.01$) between 1970 and 2004 (Larivée, 2005; Figure 3) and a non-significant short-term decline of 0.20% per year (Y = -0.002x + 4.6, $P = 0.25$) between 1991 and 2004 (Larivée, 2005).

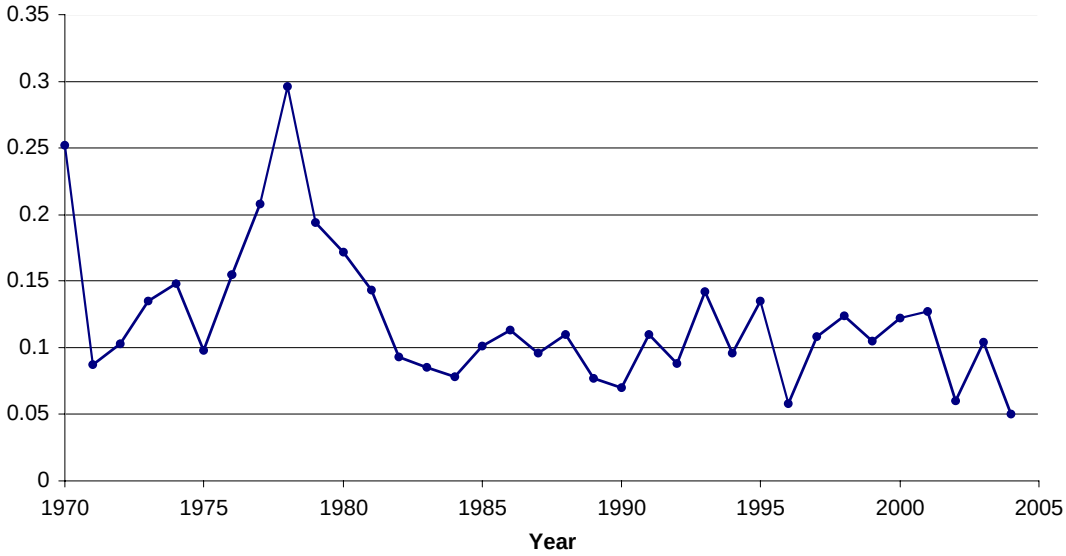

Figure 3: Annual index of abundance for the Common Nighthawk in Quebec between 1970 and 2004 according to the EPOQ database (Larivée, 2005).

Ontario Breeding Bird Atlas

A comparison of data from the first (1981-1985) to the second (2001-2005) atlas period shows a decrease in the number of squares reporting a Common Nighthawk between the two survey periods (1981-1985: 38% of squares, 2001-2005: 21%, Cadman et al. 1987; A. Darwin unpubl. data 2005). Similarly, the number of 100 X 100 km blocks where there were fewer squares with Common Nighthawks in the second atlas than the first (n = 115) was greater than the number of blocks where the squares with nighthawks had increased (n = 14) or stayed the same (n = 1) (Wilcoxon Sign test $_{2\text{-tailed}}$ = -8.8, $P \leq 0.001$; A. Darwin, unpubl. data 2005).

Recent results show significant declines between the two atlas periods in the Southern Shield Region, one of the population strongholds for this species in Ontario, of 31% and declines in the Carolinian (14%), Simcoe-Rideau (21%), and Northern Shield (20%) Regions (L. Friesen, pers. comm. 2007). The only region that did not report a significant decline was the Hudson Bay Lowlands, lying at the extreme northern edge of the species range (L. Friesen, pers. comm. 2007).

Additional surveys

Manitoba

Although the species is still relatively abundant and widely distributed throughout

the province, data coming primarily from the ornithological community of Manitoba indicate that the species has declined in several urban centres, including Winnipeg (Manitoba Avian Research Committee, 2003; P. Taylor pers. comm. 2005). Visual counts of migrating birds (probably from the boreal forest) in the Pinawa area suggest that the species declined by 75% between the periods 1976-1981 and 1992-1997 (Taylor, 1996; P. Taylor pers. comm. 2005; Figure 4). However, counts increased during the 2000-2005 period (P. Taylor pers. comm. 2005).

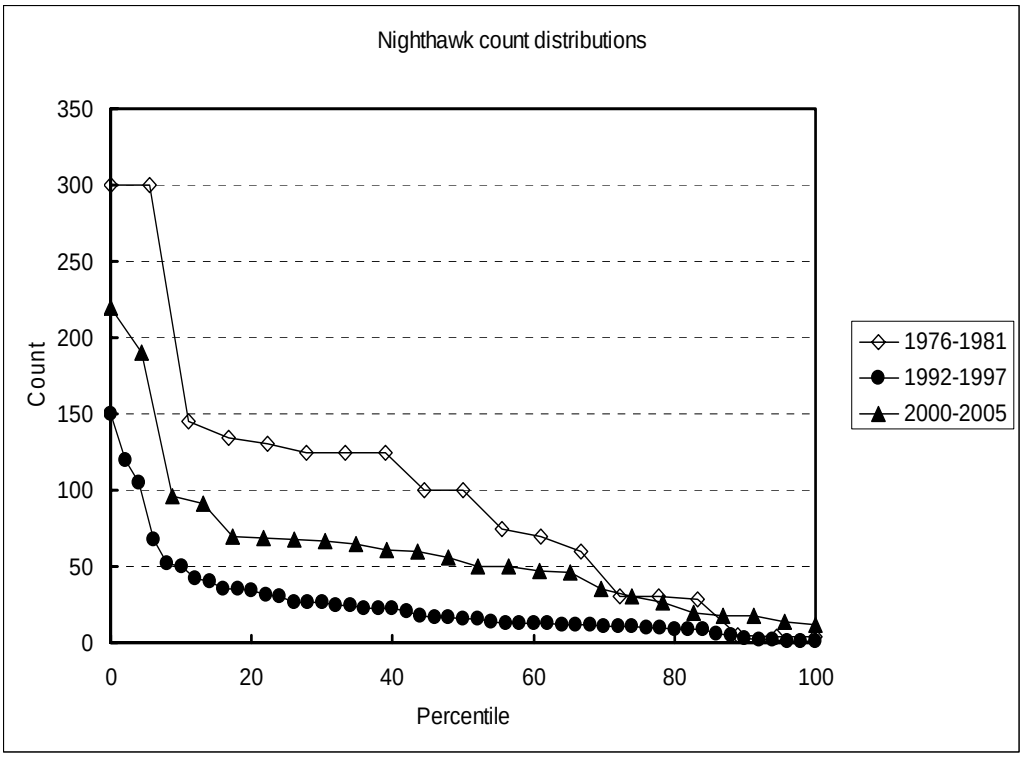

Figure 4: Distribution of sunset count totals of Common Nighthawks (usually feeding flocks) during the fall migration peak (11-25 August) at Pinawa, MB sewage lagoons for three 6-year periods. Counts during the periods 1992-1997 (n=51) and 2000-2005 (n=24) were more frequent and systematic than in 1976-1981 (n=19). The values on the x axis are individual counts assigned a percentile ranking between 0 and 100 to normalize the x-axis and allow comparisons across the three time periods (P. Taylor, unpubl. data).

Saskatchewan

The comparison of an exhaustive Common Nighthawk survey in Saskatoon from 1971 to 1990 suggested a decline in breeding populations of 58% (i.e. 68 territories in 1971 vs. 28 in 1990, Wedgwood, 1991).

Historical

Historical references to Common Nighthawk abundance are also consistent with the decline suggested by the above survey data. For instance, in the mid-1800s in the Montreal area, the species was considered a common resident that nested on the gravel rooftops of city houses (Wintle, 1882, 1896 in Ouellet, 1974). In the 1970s, the species was also considered a common summer resident in the Montreal and Montérégie areas and nested in small numbers in all cities and towns, although the species was not as common as in the 1800s (Ouellet, 1974). More recently, a significant decline in the species has been reported in these areas and in several other towns of the St. Lawrence Valley, notably Rimouski, Quebec City and Gatineau (J. Larivée pers. comm. 2005; J. Gauthier pers. comm. 2005).

In the early 1900s in Ontario, the species was considered abundant by Macoun and Macoun (1909). A decline was first reported in the early 1970s (Goodwin and Rosche, 1970, 1974).

In summary, both long and short-term BBS data show significant declines in the abundance of Common Nighthawk populations across Canada. These results are consistent with provincial surveys (e.g. Ontario Breeding Bird Atlas) that also show declines in nighthawk abundance. Although it is not clear what portion of the population occurs outside the populated areas (e.g. the boreal forest) covered by these surveys, there is no doubt that some areas of the range in Canada will not be adequately sampled by these methods. There is, thus, some uncertainty about whether the above trends can be applied to the entire Canadian population. This issue cannot currently be resolved. However, it is worth noting that fall counts from Manitoba, which likely sample birds on migration from the boreal forest, have also shown long-term declines.

Rescue effect

BBS data for the United States, the potential source of immigrants for Canada, also show significant long and short-term declines in nighthawks (see above).

LIMITING FACTORS AND THREATS

There have been no studies on limiting factors and threats for Common Nighthawk populations in Canada. However, data from the United States suggest that factors such as the alteration and loss of habitat may affect Common Nighthawk populations in Canada (Poulin et al. 1996). For example, fire suppression, changes in harvesting practices that reduce the number of open areas in forested regions and an increase in intensive agriculture are all believed to be responsible for the decline in several open-habitat species such as the

Common Nighthawk (Askins, 1993; Degraff and Yamasaki, 2003; R. M. Brigham pers. comm. 2007). In the prairie provinces, the loss and alteration of native prairies from cultivation, fire suppression, and cattle grazing are believed to be the primary factors in the decline of the species since 1900 (Jones and Bock, 2002, Northern Prairie Wildlife Research Centre, 2005). In addition, in urban areas, the gradual replacement of gravel covered roofs with tar covered roofs is believed to be a primary cause of habitat loss (Poulin et al. 1996). It is also thought that the recent colonization of large roofs by Ring-billed Gulls (*Larus delawarensis*) in some major cities (such as Montreal) reduces the amount of habitat available to the Common Nighthawk (J. Gauthier, pers. comm. 2005). In northern Canada, where some unknown portion of the population occurs, Common Nighthawk populations may be little affected by the alteration and loss of habitat.

While there are no specific studies on the subject, the decline of the Common Nighthawk may also be partly related to a general decline in insect populations in both the breeding and wintering grounds, due to large-scale insecticide use since the mid 1900s (Cane and Tepedino, 2001; Conrad et al. 2004). For example, it has been assumed that mosquito control programs in most urban areas in North America are probably responsible for the decrease in several species of aerial insectivores such as the Common Nighthawk (Poulin et al. 1996). Similarly, the decline in the Eurasian Nightjar (*Caprimulgus europaeus*) is believed to be due in part to the decrease in insect populations from large-scale pesticide spraying programs in Europe (Conrad et al. 2004; UK Forestry Commission, 2006; UK Biodiversity Action Plan, 2006).

The increase in terrestrial predators, such as domestic cats, striped skunks and raccoons (*Procyon lotor*), as well as avian predators, such as American Crows and Common Ravens may play a role in the decline of the species, especially in urban areas (Poulin et al. 1996; R.M. Brigham, pers. comm. 2005).

Collisions with motor vehicles have been reported as a mortality factor for several Common Nighthawk populations in North America. Populations that use dirt roads in managed forests as roost or nest sites are affected by increased vehicle traffic (including ATVs), which collide with adults or destroy nests (Bender and Brigham, 1995; Poulin et al. 1996; J. Gauthier, pers. comm. 2005). Nighthawks can also collide with aircraft. Indeed, relatively high mortality rates have been reported during fall migration at some sites (Cumming et al. 2003).

Extreme climatic fluctuations in the spring could also affect adult survival and breeding success, although this has not been documented. Given that the Common Nighthawk does not enter into torpor as frequently as other goatsuckers (Fletcher et al. 1993), the species is more susceptible to prolonged periods of cold weather in the spring. Moreover, the increased frequency of tropical storms in the Gulf of Mexico may negatively affect nightjars during their autumn migration (e.g. Chimney Swifts, *Chaetura pelagica,* J. Gauthier, pers.

comm. 2005). Further studies are necessary to assess the effect of climate change on the ecology of the Common Nighthawk.

SPECIAL SIGNIFICANCE OF THE SPECIES

The Common Nighthawk is one of the only species of insectivorous bird that is both crepuscular and widely distributed in Canada.

EXISTING PROTECTION OR OTHER STATUS DESIGNATIONS

In Canada, the Common Nighthawk, its nest and eggs are protected under the *Migratory Birds Convention Act*, 1994 (Environment Canada, 2004).

At the global level, the species is considered as secure (G5, last reviewed in 1996; NatureServe 2005; Table 1). It is also considered to be secure in the United States (last reviewed in 2000; NatureServe 2005; Table 1). However, it is considered critically imperiled (S1) or imperiled (S2) in five eastern U.S. states (Connecticut, Rhode Island, New Hampshire, Vermont and Delaware).

In Canada, the species is not on any species-at-risk list and is generally considered secure by NatureServe (2005, Table 1). It is also considered a low-responsibility species in Canada, because less than 10% of the North American population breeds in Canada (Dunn et al. 1999). NatureServe (2005) gives a rank of S1S2B in two Atlantic Provinces: Newfoundland and Labrador, and Prince Edward Island (Table 1). The General Status of Species in Canada gives the species an overall rank of 4 or Secure in Canada. It is considered 3 or Sensitive in AB, NB, NS, and PE and 4 or Secure in YT, NT, BC, SK, MB, ON, and QC (CESCC 2006).

In most Canadian provinces, the species is not at risk and is therefore not monitored by conservation data centres (Yukon, Sinclair et al. 2003; Northwest Territories, L. Armer, pers. comm. 2005; British Columbia, K. Stipec, pers. comm. 2005; Saskatchewan, Saskatchewan Environment, 2006; Manitoba, Manitoba Conservation, Wildlife and Ecosystem Protection Branch, 2006; Ontario, Ontario Ministry of Natural Resources, 2005; Quebec, Ministère des resources naturelles et faune du Québec, 2006; Maritimes, S. Blaney, pers. comm. 2005). In Alberta, the species is considered a sensitive species because its numbers are declining due to the effects of pesticides on insect populations in urban and suburban areas (Alberta Government, 2003).

The Common Nighthawk is not on the Partners in Flight Watch List (Rich et al. 2004). However, the species is listed by Partners in Flight as a species of concern in six Bird Conservation Regions in the southern United States (PIF species assessment database http://www.rmbo.org/pif/scores/scores.html), out of

34 Bird Conservation Regions where it breeds.

Table 1: Rankings assigned to the Common Nighthawk (NatureServe 2005).

Region	Rank*
Global	G5
United States	N5B
Canada	N5B
British Columbia	S4S5B
Alberta	S5
Northwest Territories	SNRB
Newfoundland /Labrador	S1S2B
New Brunswick	S4B
Nova Scotia	S4B
Prince Edward Island	S1S2B
Yukon Territory	SNRB
Saskatchewan	S5B
Manitoba	S4B
Ontario	S4B
Quebec	S5

* S1 means that the species is critically imperiled due to extreme rarity (often 5 or fewer occurrences) or other factors, such as a significant decline that makes it vulnerable to extinction; S2 means that the species is imperiled due to its rarity or to certain factors that make it very vulnerable to extinction, usually with 6 to 20 occurrences or few remaining individuals (i.e. 1,000 to 3,000); S3 means that the species is vulnerable within a particular state or province because it is rare or uncommon, or because it is found only in a restricted range, or because other factors make it vulnerable to extinction; S4 means that the species is very uncommon but that it is not rare and that it is of long-term concern due to population declines or other factors; S5 means that the species is secure, because it is common, widespread and globally abundant.

TECHNICAL SUMMARY

Chordeiles minor

Engoulevent d'Amérique — Common Nighthawk

Range of occurrence in Canada: Yukon, Northwest Territories, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Newfoundland and Labrador, New Brunswick, Nova Scotia, Prince Edward Island.

Extent and Area Information	
• Extent of occurrence *(EO) (*km^2*)* Canadian range according to NatureServe calculated by Bird Studies Canada, unpubl. data.	4,817,780 km²
• *Specify trend in EO*	Stable
• *Are there extreme fluctuations in EO?*	No
• *Area of occupancy (AO) (*km^2*)* Number of breeding pairs in Canada (200,000)* average territory area of 0.27 km^2	Approx. 54,000 km^2
• *Specify trend in AO*	Decline
• *Are there extreme fluctuations in AO?*	No
• *Number of known or inferred current locations*	not applicable
• *Specify trend in #*	not applicable
• *Are there extreme fluctuations in number of locations?*	not applicable
• *Specify trend in area, extent or quality of habitat*	Decline
Population Information	
• *Generation time (average age of parents in the population)*	2 -3 years
• *Number of mature individuals* Based on BBS abundance estimates	Approx. 400,000
• *Total population trend:*	
• *% decline over the last/next 10 years or 3 generations* Based on BBS data: decline of 49.5% in most recent 10 year period (1995-2005)	49.5%
• *Are there extreme fluctuations in number of mature individuals?*	No
• *Is the total population severely fragmented?*	No
• *Specify trend in number of populations*	not applicable
• *Are there extreme fluctuations in number of populations?*	not applicable
• *List populations with number of mature individuals in each:*	not applicable
Threats (actual or imminent threats to populations or habitats)	
• Habitat loss and alteration in forest, agricultural and urban areas • Other possible factors include, reduced insect density due to pesticides,increases in predators in urban and farming areas, collisions with motor vehicles, and climate change	
Rescue Effect (immigration from an outside source)	
• *Status of outside population(s)?*	

USA: significant decline of 1.83% per year (1968-2005)	
• *Is immigration known or possible?*	yes
• *Would immigrants be adapted to survive in Canada?*	yes
• *Is there sufficient habitat for immigrants in Canada?*	yes
• *Is rescue from outside populations likely?*	Unlikely because declining throughout its range
Quantitative Analysis	None
Current Status None	

Recommended Status and Reasons for Designation

Recommended Status: Threatened	**Alpha-numeric code:** A2b

Reasons for Designation:

In Canada, this species has shown both long and short-term declines in population, with a 49% decline in surveyed areas over the last three generations. The causes of decline are likely due to habitat loss and alteration from fire suppression, intensive agriculture and changes from gravel to tar rooftops in urban areas.

Applicability of Criteria

Criterion A (Declining Total Population): Meets Threatened A2b because population has declined by 49% in the last three generations

Criterion B (Small Distribution and Decline or Fluctuation): Does not meet criterion

Criterion C (Small Total Population Size and Decline): Does not meet criterion

Criterion D (Very Small Population or Restricted Distribution): Does not meet criterion

Criterion E (Quantitative Analysis): None available

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