Species Ecology

Common Nighthawks (*Chordeiles minor*) arrive in Alberta in late May, returning from their wintering grounds in Central and South America to establish breeding territories in open areas such as grasslands, gravelly soils, or bare ground. Unlike traditional nest builders, they lay their eggs directly on the ground, relying on camouflage for protection. Eggs are incubated for 18–20 days, after which the nestlings hatch and are cared for by both parents.[1,2,3]

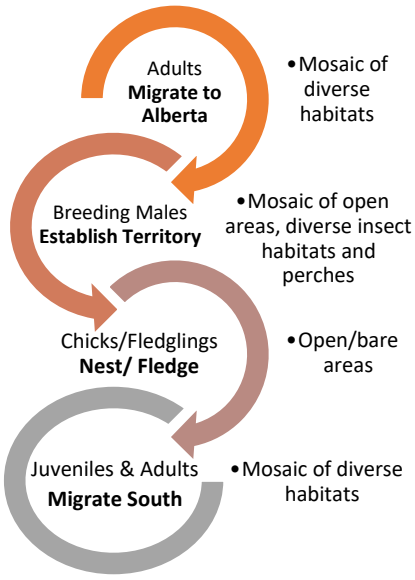
Young birds fledge approximately 20 days after hatching, gradually developing the strength and skills required for independent flight. By late August to September, juveniles disperse from their breeding grounds and prepare for the long migration back to their southern wintering areas, completing their annual life cycle.

Habitat Ecology

Migration and Home Range Habitat

The Common Nighthawk relies on specific features of its habitat during migration and daily routines to access sufficient resources for feeding, resting, roosting, and shelter.[1,2,3]

Open Areas: This includes grasslands, agricultural fields, river valleys, and wetlands where flying insects (their primary prey) are abundant.



Perching and Roosting: The bird uses branches, rocks, or rooftops to rest during the day, camouflaging effectively due to its plumage.

Shelter: Sparse vegetation or urban structures offer some protection from predators and weather extremes.

Feeding Zones: The Common Nighthawk thrives in locations with concentrated insect populations, such as near water bodies or well-lit areas.

Breeding Habitat

In Alberta, Common Nighthawks breed in both natural and human-altered landscapes. Their coloration helps them avoid predators.[1,2,3]

Open Spaces: Open grasslands, sand dunes, and rocky outcrops used for laying eggs on bare surfaces.

Sparse Vegetation: Low ground cover aids visibility for foraging and flight.

Urban Areas: Gravel rooftops mimic natural nesting sites for safe egg-laying.

Foraging/Fledging Habitat: Chicks learn to fly and forage about two weeks after hatching.

Rarity

The Common Nighthawk population in Alberta is declining due to several factors.[1,5] Urban development and intensive agriculture result in habitat loss, reducing their breeding and foraging areas. Diminished insect populations, which are the main food source for Common Nighthawks, are attributed to the use of pesticides. Climate change further exacerbates the situation by altering weather patterns, which in turn affects migration routes and habitat suitability.

Conservation Status Rank[4]	Vulnerable to Apparently Secure Breeding Habitat
General Status Category[5]	Sensitive
***Wildlife Act* Regulations**[6]	Not listed
COSEWIC Status[1]	Special Concern
***SARA*-Listed**[7]	Special Concern

Movement Behaviour

Within their home ranges, Common Nighthawks display remarkable movement behaviors. They perform aerial manoeuvres at dusk and dawn to capture flying insects and, during the breeding season, males execute dives with "booming" wing sounds to attract mates and defend territories. [1,8]

Common Nighthawks are highly mobile, often traveling considerable distances between roosting sites and foraging areas within their expansive home range, and undertake long-distance migrations, traveling from North America to their wintering grounds in South America.

Mapping Habitat

Breeding and home range sizes for Common Nighthawks vary depending on habitat quality and resource availability. However, breeding territories are generally estimated to range between 10 and 28.3 ha in size, while home ranges can extend up to 6 km from nest sites. [1,2,3]

For habitat analysis, Common Nighthawk observations were used, and a 6,000 m buffer was applied around nest observations to represent home range size, while a 300 m buffer was applied to all other observations to approximate breeding territory size. Overlapping polygons were merged into a single unit for habitat isolation analysis.

In the grasslands of Alberta, 627 Common Nighthawk breeding territory/home range polygons were mapped (Figure 1).

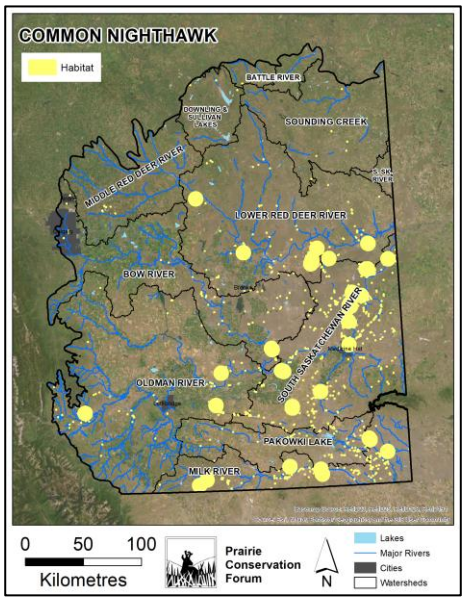


Figure 1 Common Nighthawk Breeding Territories & Home Ranges

Isolated Habitats

What does 'isolated habitat' mean?

…the degradation or loss of connections between resource patches [habitat].

~*Taylor 2022*

What are isolated habitats?

Isolated habitats for Common Nighthawks are their mapped home ranges or breeding territories that have over 50% area of unsuitable habitat, or more than 50% area that is annually cultivated.

What is unsuitable habitat?

Nighthawks can tolerate industrial, agricultural, and rural activities in their breeding grounds. However, excessive land use makes habitats unsuitable, particularly the effects on insect populations. Land uses were classified based on their benefits and costs to determine unsuitability. High-cost activities or habitat types that cumulatively covered more than half the mapped habitat areas were considered to be unsuitable and deemed isolating.

How does cultivation affect habitats?

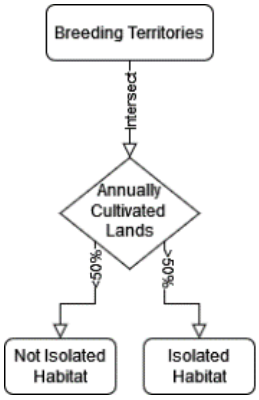
Annual cultivation threatens breeding habitats by creating conditions that deter birds from nesting or increase mortality risks. [1,2,3] Cultivation leads to:

- Reduced insect diversity and numbers, impacting the bird's diet due to habitat loss and pesticide use.

- Less protective vegetation cover, as crops grow too late to provide adequate shelter for fledging chicks.

How did you determine whether annual crops create isolating conditions?

The proportion of cultivated land within each breeding territory/ home range polygon was calculated, and those with more than 50% area cultivated were deemed isolated.



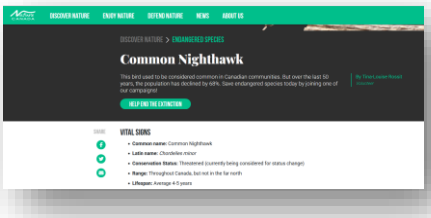
What were the isolated habitat mapping results?

Of the 627 Common Nighthawk breeding territories/ home ranges mapped in the grasslands of Alberta, 87 (14%) were deemed isolated, seven of which had a high density of unsuitable habitat, and 83 with high crop density (Figure 2).

Interested in SAR habitat conservation?

Species-specific habitat management activities are meant to reduce isolating conditions and re-connect isolated habitat patches for a given Species At Risk (SAR); however, there is no one-size-fits-all approach. Although a general practice that will protect many grassland SAR is to avoid driving across contiguous grassland between April 30 to mid-August[3].

To learn more about Common Nighthawks, check out Nature Canada's Common Nighthawk Website.



You can also check out the Agriculture Best Management Practices for Grassland Bird SAR

In the grasslands, it is often the case where habitat patches of one SAR overlap habitat patches of another. In some cases, the presence of one SAR, like a Ferruginous Hawk nest, may be a barrier to another SAR, like a swift fox den.

Visit PCF's *Isolated Habitat Webpage*, to find organizations who can provide specific opportunities for habitat enhancement, development, and restoration of prairie habitats, and/or help you to establish your legacy through SAR habitat conservation on your land.

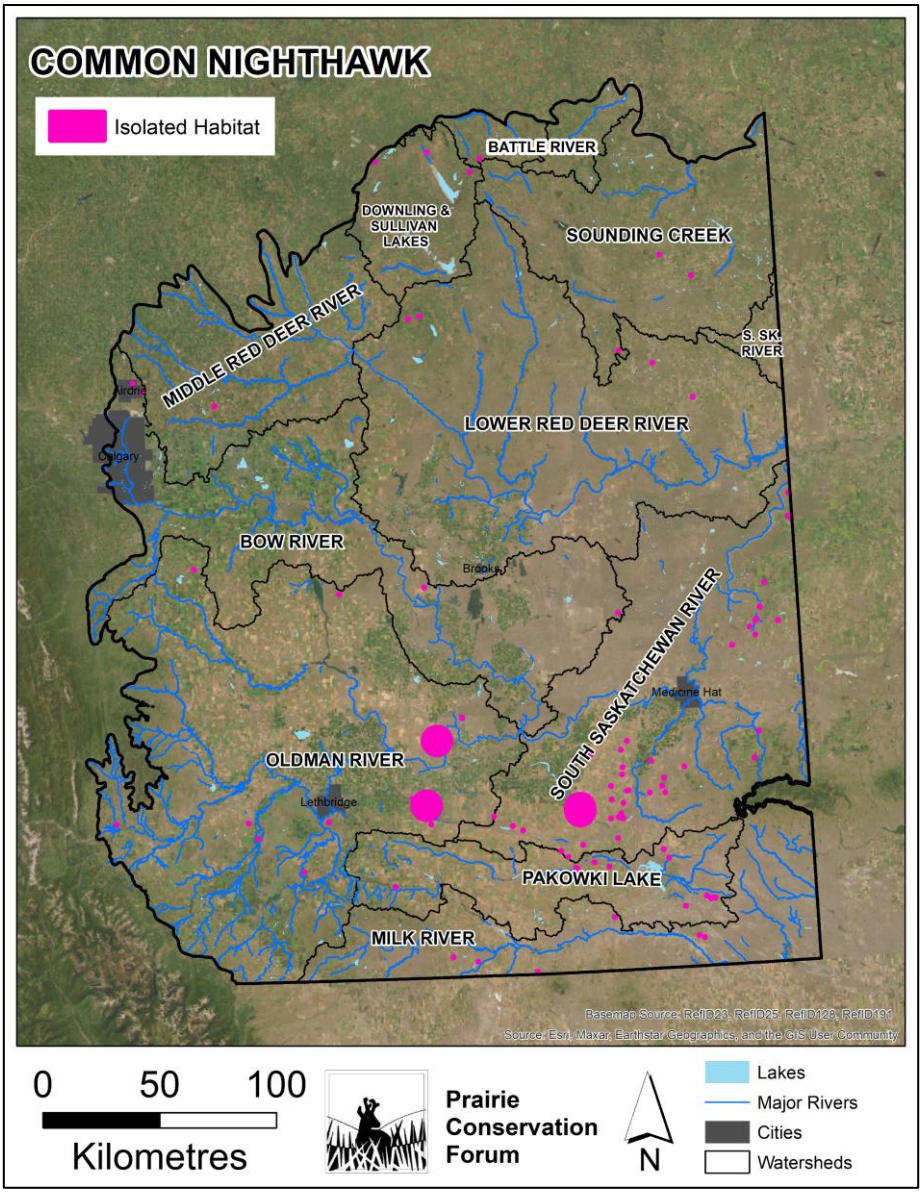


Figure 2 Common Nighthawk Isolated Breeding Territories/Home Ranges

- To view the isolated habitat mapping for this species, check out PCF's Map Viewer
- For more specifics on PCF's Isolated Habitat initiative, check out PCF's *Isolated Habitat Website*
- To learn more about the SAR, click on the superscript numbers in the text

User Notice

Isolated habitat maps represent general areas that might benefit from SAR-specific habitat conservation efforts. PCF makes no representation or warranty, either expressed or implied, in fact or in law, with respect to the accuracy.