

# Common Nighthawk Monitoring and Management at Wind Turbine Sites



The Common Nighthawk is listed as state Endangered in New Hampshire. This crepuscular species lays its eggs on the ground on bare rock or gravel, where they are very effectively camouflaged. By creating clearings on ridges, where pre-existing ledges may have provided nighthawk nesting habitat, wind energy facilities have strong potential to attract nighthawks to nest on sites. Nests in turbine areas are vulnerable to vehicle and equipment traffic associated with operations and maintenance, and both resident and interloping adult nighthawks are vulnerable to collision with turbine blades. New Hampshire has documented Common Nighthawks nesting at wind turbine sites and adult mortality associated with these nest sites.

The following are recommended best management practices to avoid nighthawk mortality at wind turbine sites, based on current available knowledge. They are designed to avoid collisions of flying nighthawks with turbine blades and crushing eggs or flightless young in the area of the turbine pad. They are based on nighthawk nest activity patterns documented by NH Audubon's Project Nighthawk. Author: Rebecca Suomala, Project Nighthawk Coordinator

Prepared by Rebecca Suomala

Information recorded and compiled by NH Audubon's Project Nighthawk staff and volunteers.

Funded by grants, donations, and the NH Fish & Game Dept.

April 23, 2020



## Contents

### Best Management Practices Overview

**Section 1** *Pre-construction Surveys*

**Section 2** *Pre-operation best management practices*

**Section 3** *During operations: Recommended surveys and/or curtailment*

**Section 4** *Recommended actions if nighthawk activity is detected during a survey or incidentally.*

**Section 5** *Recommended actions if nighthawk injury or mortality is detected.*

**Section 6** *Modifications if nighthawk activity is **not** detected.*

**Section 7** *Decommissioning*

**Additional Resources**

### Best Management Practices Overview

This document covers the Common Nighthawk breeding season. The primary goals of these best management practices are to:

1. Avoid destruction of eggs and chicks on the ground near turbines during nesting.
2. Avoid nighthawk collisions with turbine blades while birds are on site during the breeding season.

This document does not deal with potential mortality during migration.

**Nighthawks may be present at breeding sites in New Hampshire from mid-May through the end of August.** More typically nighthawks arrive at breeding sites in the third week of May and are gone by the third week of August. Nighthawks that fail in their first nesting attempt may try again at a different site. Survey periods are designed to detect both early and late-nesting nighthawks.

Although nighthawks could be present on the breeding grounds in New Hampshire from May 10 through August 30, an individual bird or pair will be at a specific nest site for only a portion of that time with a maximum of approximately 80 days. Monitoring a nest will allow plant operators to determine when nighthawks are no longer present at the nesting site and turbine curtailment may be discontinued prior to the required date.

Nighthawk surveys and monitoring should be conducted by personnel knowledgeable in nighthawk identification and behavior. For information on nighthawk behavior and monitoring, see the *Common Nighthawk Guide to Identification, Monitoring, and Behavior during Nesting*.

### Section 1

*Pre-construction Surveys*

Common Nighthawks have been documented nesting on exposed ledges on ridgetops in the same locations where wind turbines are placed. Turbines placed at locations close to pre-existing nests appear to have the highest risk of fatalities. Nighthawks have strong nest site fidelity and mortality issues can potentially be avoided if turbines are not placed near pre-existing nest sites.

1. To identify possible nesting nighthawks conduct surveys as described in Section 3-#1 at the proposed location of each turbine.

2. If nighthawk activity is detected, conduct additional watches as needed to identify the specific area(s) of activity. Utilize behavioral observations, as outlined in the *Common Nighthawk Guide to Identification, Monitoring, and Behavior during Nesting* to determine if there is probable nesting and the potential location of the nest site. Walking a grid to find a nest is not recommended. Eggs and chicks are well camouflaged and it is easy to accidentally step on them.

It is inadvisable to locate a turbine near a possible nesting site. Turbines placed near pre-existing nests have a potential risk curtailment during the breeding season.

## **Section 2**

### *Pre-operation best management practices*

1. Establish or encourage the growth of vegetation that is not conducive to nighthawk nesting. In general Common Nighthawks prefer open habitat with few to no trees, low shrubs, and scattered open patches of ground. Allowing/encouraging trees and tall, dense shrubs to fill in construction sites will help to discourage nighthawks, but more study is needed on the most effective strategy.
2. Establish and clearly mark a designated parking area within each turbine clearing for use by all operations and maintenance vehicles and equipment and ensure its consistent use.
3. The project operator shall either:
  - Make arrangements for a qualified individual to collect specimens immediately and deliver to the appropriate agency personnel (NHFG) *or*
  - Obtain the necessary permits to collect specimens and maintain a freezer onsite for the storage of dead specimens pending retrieval by appropriate agency personnel (NHFG).

## **Section 3**

### *During operations: Recommended surveys and/or curtailment*

1. At each turbine site (see also item e. below) a trained individual shall conduct three presence/absence surveys annually during each year of the Project's operational life (except as outlined in Section 6), as follows:
  - a. Conduct three surveys per year, one in each of the periods June 1-15, June 18-July 6, and July 10-25, not less than 10 days apart.
  - b. Each survey is 90 minutes in length at the same location. Surveys should be conducted in the evening or early morning. Evening surveys should take place 30 minutes before sunset to one hour after sunset and early morning surveys should be 90 minutes before sunrise to sunrise. In New Hampshire, surveys between the hours of 8:00-9:30 PM or 3:30-5:00 AM are sufficient.
  - c. Surveys should occur during times when wind speeds are 10 MPH or less (Beaufort 3), temperatures are above 65 degrees Fahrenheit, and the sky is clear to partly cloudy with no precipitation. Clear, calm, warm evenings or mornings are preferred.
  - d. The observer remains stationary, watching from one location for the entire 90-minute period. Driving surveys result in false negatives, because bird activity at a nest site can be infrequent, even during peak nighthawk activity periods.
  - e. Ideally surveys should be conducted at each turbine site. It may be possible to cover more than one turbine from a single observation site depending on visibility

and acoustic conditions. ARUs (autonomous recording units) may provide a viable alternative to human observation at turbines with no nighthawk activity during the first survey period. More study is needed. If ARUs are used, recordings must be analyzed or reviewed during the survey period.

2. If the plant operator chooses not to conduct surveys as described in Section 3-#1 above, curtail (shut down) all wind turbines daily during the period 30 minutes before sunset to one hour after sunset, and the period 90 minutes before sunrise to sunrise, until surveys can be conducted. In New Hampshire, the following times are sufficient: between the hours of 8:00 PM and 9:30 PM and between the hours of 3:30 AM and 5:00 AM.
3. If the site has a history of nighthawk nesting at a specific turbine with no injuries or fatalities (sites with injuries/fatalities see Section 5) and surveys cannot be conducted during the first period, curtail (shut down) that wind turbine daily as described in Section 3-#2 until surveys take place.

## **Section 4**

*Recommended actions if nighthawk activity is detected during a survey or incidentally.*

1. Immediately conduct at least three evening surveys (as in Section 3-#1c-f) within one week after detection of displaying nighthawks to determine the specific turbine location of nighthawk activity and the likelihood of nesting in the vicinity.
2. When the specific turbine has been identified, determine if there is a nest in any designated traffic area. Inspect all gravel roads, designated parking areas, and the human/vehicle traffic zone in the turbine area on foot searching for a nest during daylight hours on a minimum of three days (or until a nest is located). Nests are well camouflaged and difficult to detect; it is easy to miss the eggs or young chicks and step on them. If a nest is not located, conduct a minimum of two evening watches as in Section 3-#1 to determine if activity continues and to locate the nest using behavioral cues (see *Common Nighthawk Guide to Identification, Monitoring, and Behavior during Nesting*).
3. Cordon off an area of not less than ten feet in diameter surrounding any nest site to prevent disturbance from vehicular or pedestrian traffic.
4. Curtail (shut down) the wind turbine closest to the displaying nighthawk or probable/discovered nest as follows:
  - a. Daily during the period 30 minutes before sunset to one hour after sunset, and the period 90 minutes before sunrise to sunrise. In New Hampshire, the following times are sufficient: between the hours of 8:00 PM and 9:30 PM and between the hours of 3:30 AM and 5:00 AM.
  - b. Commencing from the date of the observation of the nighthawk activity, and continuing until August 31. To end curtailment sooner, monitor the nest every three days to determine when nighthawk activity ceases. Curtailment may end when monitoring shows that nighthawks are no longer present at the turbine on two consecutive surveys. Failure to locate a nest during ground searches is insufficient to end curtailment; nighthawk activity must also cease.

5. Ensure that all project personnel are aware of the nest site.

## Section 5

*Recommended actions if nighthawk injury or mortality is detected.*

- A. Actions after evidence of nighthawk injury or mortality is detected.
  1. If the bird is injured, transport it to a licensed wildlife rehabilitator immediately. NHFG maintains a list of rehabilitators on its web site.
  2. Document the location of the nighthawk injury/mortality and contact NHFG within 24 hours.
  3. Photograph in place any mortality specimens or parts thereof in close up and also showing the surrounding area so the location of the specimen can be seen in relation to the turbine. Collect the specimen immediately or make arrangements with NHFG for collection. Store specimens or parts in an airtight bag or container in a freezer with the following information: date found, date collected, location collected from (including specific turbine), and the name of the individual who found the specimen and who collected it (if different). If the specimen cannot be immediately collected, protect it in place; for example, place a bucket over it with a weight on top.
  4. Conduct actions described in Section 4-#2, #3, and #4.
  5. Ensure that all project personnel are aware of the nest site.
- B. If nighthawk injury/mortality continues to occur at the same turbine in either the same year or subsequent years:
  1. Annually curtail (shut down) the wind turbine where the injury/mortality occurred as follows:
    - a. Daily during the period 30 minutes before sunset until *sunrise*. In New Hampshire, the following times are sufficient: between the hours of 8:00 PM and 5:00 AM.
    - b. Commencing from May 25 and continuing until August 31 if no surveys are conducted. Curtailment may be forestalled if weekly watches, conducted as in Section 3-#1 indicate no nighthawk activity. When activity is detected curtailment shall begin immediately as described above in Section 5B-#1a. To end curtailment sooner at an active site in a given season, monitor the site every three days to determine when nighthawk activity ceases. Curtailment may end when monitoring shows that nighthawks are no longer present at the turbine on two consecutive surveys.
- C. Sites with nighthawks can help advance our knowledge of best management practices by reporting annually the presence **or absence** of nighthawks at the site and any actions taken to mitigate mortality or discourage nighthawk presence.

## **Section 6**

*Modifications if nighthawk activity is **not** detected.*

- If surveys are conducted as described in Section 3-#1 and nighthawks are not detected anywhere at the wind turbine site for three consecutive years, surveys may be reduced to once every three years. If nighthawks are not detected for the subsequent two surveys (six years), nighthawk surveys may be reduced to once every five years.
- If nighthawk activity is detected in one area of a facility, but is not detected in other disjunct areas for three consecutive years, surveys may be reduced to once every three years in the areas with no activity.

If nighthawk activity (or a fatality) is detected at a site that was previously inactive, regular surveys and curtailment shall immediately resume as described in Sections 3 and 4 (and Section 5 for a fatality).

## **Section 7**

*Decommissioning*

- In the event that no nesting nighthawk activity has been documented during the Project's operational life, all monitoring and survey work shall cease upon the final shutdown of the Project turbines.
- In the event that nesting nighthawk activity has been documented at any time during the 10-year period preceding the final shutdown of the Project turbines, then nighthawk surveys shall continue during the decommissioning period in the same manner as during Project operations until all decommissioning activities have been completed.

## **Additional Resources**

*Common Nighthawk Guide to Identification, Monitoring, and Behavior during Nesting*

by Rebecca Suomala, NH Audubon, 84 Silk Farm Rd., Concord, NH 03301

Available on the Project Nighthawk web page: <https://nhbirdrecords.org/project-nighthawk/>