

Common Nighthawk

Guide to Identification, Monitoring, and Behavior during Nesting



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.



4/7/20

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*Female Common Nighthawk
photo by Rebecca Suomala.*

The Common Nighthawk (*Chordeiles minor*)

Background Information

Although its common name implies that the nighthawk is a raptor along with hawks, it is not. It belongs to Family Caprimulgidae, the same family as the whip-poor-will. Nighthawks are *crepuscular* – active at dawn and dusk. They eat flying insects such as beetles and moths. Their population is declining for reasons we do not understand.



Female Common Nighthawk by Mark Suomala.

Migration

Nighthawks are insect eaters and they migrate to South America for the winter to find food. They leave northern latitudes at the end of August and in New Hampshire it is rare to see one after September 15. They return in May when there is a reliable insect supply. The first nighthawks are usually seen in New Hampshire in the third week of May.

Courtship Behavior

Male courtship behavior includes circling above a potential nest site uttering a series of sharply accented “peent” calls. At regular intervals the male dives down to within several yards of a possible nest area, then turns abruptly upwards. Air whistling through its stiff primary feathers causes a “booming” sound as he transitions from the lowest point in the dive to ascend upwards. This is the males’ way to attract a potential mate, but males sometimes dive over females, other males or predators (including people) that are too close to a nest or chick.

Nesting

This species lays its eggs directly on the ground and does not build any type of nest. They prefer rooftops, open areas with gravel or rocky ledges, or disturbed sites with little vegetation. Unlike pigeons or other familiar city birds, Common Nighthawks do not leave a disagreeable mess around their nest site. They do not bring in any nesting materials such as mud, sticks or grasses. Eggs may be laid in the last week of May, but more likely in early June in New Hampshire. If a nest fails during incubation or at hatch, the female will move to a new location and try again, and possibly a third time. The latest date recorded for hatch in New Hampshire is July 30 (egg laid July 10). The female lays one or two eggs which are very well camouflaged thanks to their speckled coloration.



Common Nighthawk eggs. Photo by Pam Hunt.



The female incubates the eggs and is very well camouflaged when she is on the nest. Both male and female nighthawks feed insects directly to the young. There will be no fur, feathers, or bones left from their dinner. Once the chicks hatch, they move around and most nest sites are extremely clean with no sign of droppings. Both parents defend the chicks.

*Female Common Nighthawk on a nest.
Photo by Stephanie Parkinson.*

Nesting Chronology

Incubation by female, 16-20 days

Egg(s) Hatch

Day 2 - Chick weight doubles

Day 5 - pin feathers emerging along wing and scapular tracts

Day 7 - feather tracts on crown, shoulder, rump, side of breast, abdomen

Day 11 - feathers on wings showing

Chicks take their first flight at 18 days old

Chick flies well at 25-30 days

Chick fully developed at 45-50 days

Chick recorded at the nest for as long as 40 days after hatch

The female typically broods very young chicks under her breast feathers. When the chicks are larger, she will usually be on the ground next to them or nearby, except when she is off feeding at dawn and dusk. Once a chick has fledged it may remain on the ground in the nest area for as many as 40 days while the adults continue to feed it. A fledged chick will often chase the parent when it comes in with food.

Common Nighthawk chicks (left to right), 6 days old, 11 days old, and 22 days old. Photos by Stephanie Parkinson.



Territory and Nest Defense

The male typically defends an area around the nest, chasing off other males that come near. Both the male and female usually leave the nest area to feed, often heading to nearby lakes or rivers.

The nesting female relies on camouflage as her first defense both for herself and the eggs when she is away. If a nesting female is approached, she will usually stay very still, hoping to go undetected. If driven from her nest, she will try to lead the intruder away from her eggs or chicks by faking a broken wing. She may also open her mouth, which is bright pink, and make hissing type noises. Defense behavior does not include attacking people. Young nighthawks will also remain still. If approached too closely, the young bird will run away very quickly.



Female Common Nighthawk doing a broken wing display. Photo by Stephanie Parkinson.



Females can make a low soft “quacking” sound usually repeated only once or twice. This is usually in response to a threat. Males may “quack” loudly and frequently if there is a perceived threat such as a hawk, cat, or human nearby.

Female Common Nighthawk in a defensive posture. Photo by Rebecca Suomala.

Common Nighthawk Identification

The Common Nighthawk is a medium sized bird, about the size of a dove, 9 inches (22-24 cm.) from tip of bill to the end of the tail. Its wingspan is 21-22 inches (53-57 cm) which is similar to a Blue Jay's wingspan. Nighthawks are very well camouflaged with a mottling pattern of browns, black and grey plumage. The most characteristic feature for identifying a nighthawk is the distinct, broad, white patch on the underside of each outer wing. Nighthawks are the only bird species in North America with these white wing patches. In flight, nighthawks have long, pointed, bent wings. Their slender shape and erratic flight also help identify them.



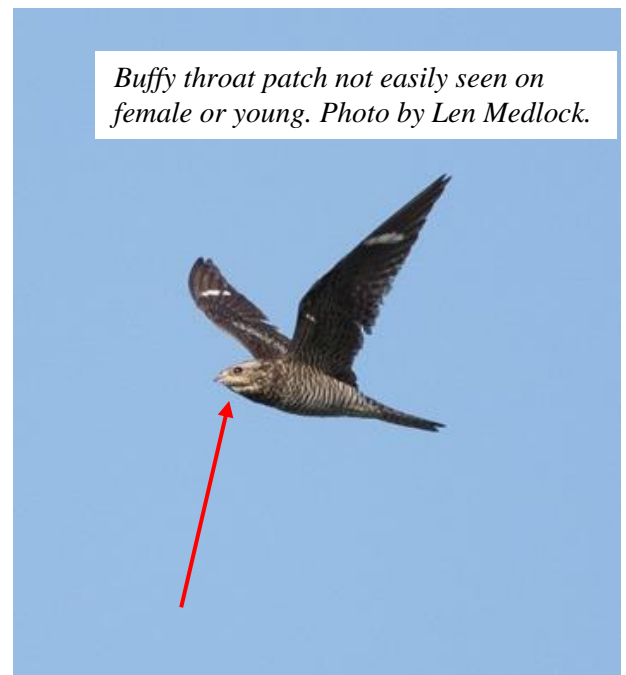
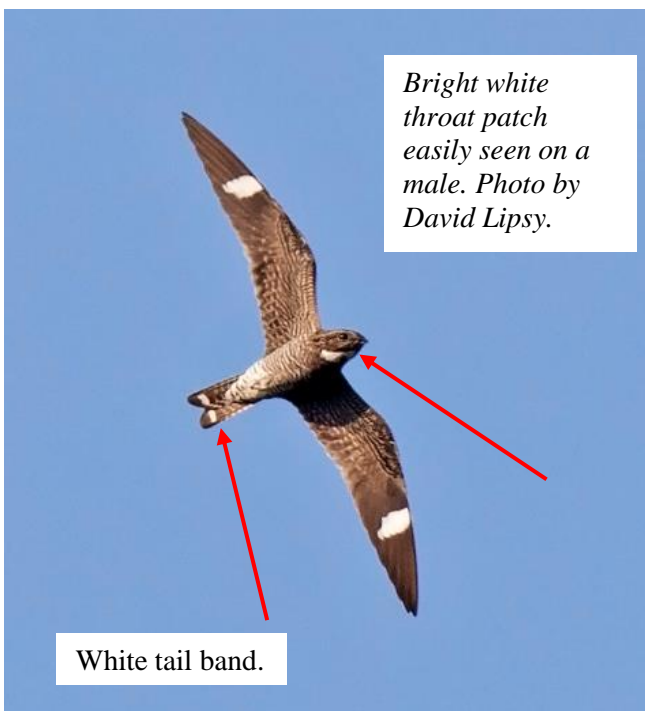
Common Nighthawk male about to capture an insect in its large mouth. Photo by David Lipsy.

Males make a peenting call that is extremely similar to American Woodcock peents. They are difficult to tell apart. Woodcocks typically return to New Hampshire in March and peent until mid to late May. Nighthawks do not usually return until late May so any peenting in March, April or early May is almost certainly a woodcock. There is a brief overlap in late May when woodcocks and nighthawks may both be peenting. The location of the peenting may help identify the species. Woodcocks peent from the ground while nighthawks peent from high overhead.

Distinguishing Males from Females

Visual characteristics

The sexes are very similar, especially when seen in flight. Although the male has a white bar that females lack across the end of the tail, this is nearly impossible to see in flight. The most visible characteristic of the male is its bright white throat which can often be seen when it is circling overhead just after sunset when there is still light in the sky. In contrast, the female has a pale yellowish-beige colored throat that often looks dark. To identify the sex of a nighthawk circling overhead, focus on the throat. Both male and female young look like adults except that their throat patch is less well defined like the female. Young are lighter and more extensively barred on the underside of their body but this is very difficult to see.



Behavior

Male nighthawks display by circling overhead, making a “peent” noise and doing vertical dives that make a booming noise. A diving nighthawk will always be a male. Females do not dive or boom. Males also have a distinctive flight pattern when they are displaying that alternates between several normal flaps and several rapid flaps: fly-fly-fly-flutter, flutter, flutter-fly, fly, fly-flutter, flutter, flutter, etc.

Still photos from a video of the male Common Nighthawk’s display dive. He turns upside down before diving and at the bottom of the dive pulls his wings forward which creates the “boom” noise as he swoops up. Video by Bob Quinn.



Nesting females are generally very hard to spot and come in or leave the nest site like a shadow. Often, but not always, when she is leaving the nest or returning to it, the male will follow her in a close chase, peenting rapidly. However, males may also chase interloping males and females that intrude from other nest sites. Determining males and females when nighthawks are in a chase requires patience to continue following the birds until a white throat is visible or some behavior, typically the dive of a male, provides conclusive evidence.

Vocalizations

Although females do peent, they are not commonly heard. If a bird is repeatedly peenting overhead, it is a male. If the bird peents just once or twice, it could be either male or female, but if it is circling overhead peenting continually, it is a male.

Males will usually peent very rapidly when another nighthawk is around. A nesting male typically peents rapidly when the female is leaving or returning to the nest. If you hear a rapid peent, be alert for another bird.

Confusing Species

Mourning Dove is a similar size and shape to a Common Nighthawk. It often flies to roost about the time that nighthawks are becoming active. It is most likely to be confused with a female nighthawk coming in quietly to a nest site. Mourning Doves lack the white wing patches of the nighthawk.

Killdeer have pointed wings like a nighthawk and are a similar size. They also nest on the ground in open habitat, including stone rooftops. They have a white breast with two dark breast bands and are not likely to be confused with nighthawks if they are seen well. However, at dusk, they may present a similar silhouette and lift off from the ground or rooftop where nighthawks might also be expected.

Confirming and Locating a Nest

Nesting habitat is typically an open area with few trees and patches of exposed gravel, ledge, sand, or even wood chips where little vegetation is growing. Sandy pine barrens, river banks, exposed ridgetops, and recently logged areas are the most common natural nest sites in New Hampshire. Occasionally the site will be covered with mid-sized trees but this is uncommon and likely is the result of site fidelity to a formerly clear area that has grown in. In urban areas they will use rooftops with peastone or other small to medium-sized stone.



Nighthawk nesting habitat in the pine barrens of New Hampshire. Photo by Rebecca Suomala.



Common Nighthawk female nesting on a peastone roof in New Hampshire. Photo by Rebecca Suomala.

Nests are very difficult to find and it typically takes multiple observations to determine if a nest is present. The female and eggs are well camouflaged and the female is very secretive. It can be a challenge to spot her. With persistence nesting can be confirmed by behavior alone, even if you cannot find the nest or young.

A nesting pair has a typical behavior pattern. The behavior of the male and the timing of arrivals and departures from a site can provide an indication of nesting. Monitor a site using the protocol described below to gather behavioral data. Recording the timing of behavior during repeated observations provides the information needed to determine if there is nesting and helps to confirm nesting without locating the nest (including on a rooftop).

Male nighthawks are the easiest to see and their behavior provides the first clue to potential nesting.

Behavior that Indicates Possible nesting:

- Repeated sightings of a male nighthawk peenting and booming in a potential nesting area.
- Sounds of peenting in the evening and morning hours from a nighthawk circling over a specific area.

Once a male is found in a specific area, conduct one or more watches using the recommended guidelines below. Record the behavior and watch for a female.

The following behavior indicates a Probable nest (it may also indicate a female considering a nesting site):

- Male circles overhead, peents and booms repeatedly over the same site with appropriate nesting habitat.
- Male chases off interlopers (other nighthawks).
- Male seen chasing female.
- Male lands or lifts off repeatedly from a rooftop or nearby tree.
- A female is present at the site.

A single observation of this behavior is not enough to confirm nesting. A female may consider a site but then move on and activity will be greatly reduced. If a nest fails (due to predation, weather, etc.), activity will cease and likely shift to another site. Repeated observations of a consistent pattern will be needed to confirm nesting if an incubating female or chick(s) cannot be located.

Classic Nesting behavior:

- Males peent and boom consistently over a specific location, often booming very low to the ground.
- Males fly and circle low over the nest site, landing close to the female.
- Females lift off the nest in the evening and early morning to feed.

Typical timing in New Hampshire in the evening:

Female departs the nest area at approximately 8:20-8:40 pm to feed

Female returns about a half hour later, 9:00-9:15ish. She may return sooner if she is feeding chicks or later if cool weather extends feeding.

- Males often chase females when they leave the nest site or when they return.
- Males may “buzz” observers by booming low to scare you away (move back, you’re too close).
- Male and female land to feed chicks.

Observations that Confirm nesting:

1. Observing an incubating female or chicks

The best way to locate a female on the nest is to watch for her coming and going and determine the area where she leaves from and returns to. Females are very secretive and will come and go like a shadow. Watch for her to leave the nest and return at regular times each night (see Classic Nesting Behavior above). Interactions between the male and female often take place during these time frames. Often, but not always, the male will follow the female in a close chase when she leaves or returns to the nest. He may also vocalize by peenting rapidly – watch for the female when there’s a rapid peent!

Try to narrow down your search area so you can watch the ground during the time she may leave. A second person can expand the observation area or focus on the male while the other person watches for a female. Do your best to be unobtrusive.

Walking a grid to find a nest is not recommended. They have such good camouflage that it is easy to miss the eggs or young chicks and step on them. Also, your scent trail may lead predators to the nest.

Nighthawk chicks are extremely hard to spot, especially when newly hatched. Photo by Stephanie Parkinson.





Females stay with the chicks on the ground; finding her is the best way to find where the chicks may be. Watch for chicks to come out of hiding when the adults return with food. A spotting scope or binoculars that are good in low light are helpful. The chicks will not come out and the adults will not come in to feed if you are too close.

Common Nighthawk female with nearly fledged chick. Photo by Rebecca Suomala.

2. Defensive behavior. The following are indicative of a nest and can be considered confirmation of a nest or young in the vicinity:
 - Quacking alarm calls by either the male or female, especially when combined with consistent male activity.
 - A female in a defense posture with mouth open, or doing a broken wing display.
 - Extremely low booms by the male, nearly touching the head of the observer.

3. A repeated behavior pattern consistent with classic nesting behavior (i.e. male displays nightly with peents and low booms, male engages in close chase with another nighthawk or peents rapidly at the times associated with female leaving and returning), combined with any one of the following:
 - multiple observations of a female,
 - female appears to leave between 8:20-8:40 pm and returns 9:00-9:15ish,
 - male and/or female observed landing on or taking off from the ground in the same area on more than one date.

Repeated observations of a nesting pattern combined with a bird landing on the ground, especially more than once, is confirmation of nesting. Nighthawks do not land on the ground unless there is nesting or courtship. If you observe landing more than once over multiple days, there is a nest.

Note: Behavior can be variable and appears to be influenced by the number of other males in the area. Males appear to be less active displaying when they are the only nighthawk in the area.

Common Nighthawk chicks are well camouflaged. Photos by Rebecca Suomala



Common Nighthawk Nest Monitoring Guidelines

Survey Dates

Nighthawks may begin nesting immediately after they return in the spring, or may delay for a week or more. In addition, nighthawks that fail in their first nesting attempt may re-nest at a different location. A site that had no activity in June, may have a late nest in July. To be certain that a nighthawk is not nesting at a site, multiple surveys should be conducted during the potential nesting period. In New Hampshire, the optimal survey periods are: June 1-15, June 18-July 6, and July 10-25, with surveys taking place not less than 10 days apart.

New Hampshire Date Ranges from Project Nighthawk data (2007 – 2018):

Egg laying: May 28 to July 10 (historically May 13)

Chick hatch: June 17 to July 30 (historically June 1)

Longest period a chick remained on site after hatch: 40 days

Adults present through 54 days after hatch

Chick on site as late as August 22

Maximum period adult(s) present at a single nest site: approx. 80 days

Although nighthawks could be present on the breeding grounds 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.

Survey Protocol

1. Watch and record behavior at a single site for the entire period. The observer remains stationary – do not change locations during the watch period. Birds usually leave the display or nest location to feed and then return.
2. Watch at the site from 30 minutes before sunset until at least an hour after sunset when it is fully dark (approx. 8:00-9:30 pm in New Hampshire). You can also watch from 90 minutes before sunrise to sunrise (approx. 3:30-5:00 am in New Hampshire).
3. Best conditions are clear, calm, and warm. Surveys should occur during times when wind speeds are 10 mph or less (<Beaufort 3), temperatures are above 65 degrees Fahrenheit, and sky conditions are clear to partly cloudy with no precipitation.
4. Record all nighthawk observations and the time they occur. Also record the bird's behavior. Record your observations even when there are no nighthawks. Documenting the absence of nighthawks is just as important as recording their presence. A data form with instructions is provided in Appendix 1.

Items to Bring

- Clipboard
- Observation form or notebook
- Writing implement
- Flashlight
- Bug Spray
- Compass
- Binoculars
- Chair
- Watch or other time piece
- FRS radios and/or cell phones, if needed, to communicate with other observers

Appendix 1. Data Form and Instructions

Instructions

1. Note in the space provided on the data sheet whether or not a bird is present at the site when you arrive.
2. Record both **presence** and **absence** of birds any time that you check a site.
3. Whenever there is a nighthawk at the site record the time and behavior. If the behavior changes, record the time and the new behavior.
4. Be as specific as possible and write legibly.
5. It is important to distinguish when birds are present at a site and not present. This may seem pretty straight forward – either they are there or not. The males, however, tend to fly in large circles around a site and may appear to leave the area only to immediately return. Consider a bird to have left the area if you observe or hear it fly away from the site and subsequently can no longer see or hear the bird for at least one minute. Note both the time the bird left the area and the direction of flight. When a bird returns/arrives, note the time and the direction from where the bird arrived.
6. The following codes are designed for speed and organization. Not all codes will apply to every site.

Observation Codes

Type: Use this to indicate the sex of the nighthawk and to some extent the identity of the bird, i.e. if it is the “territorial” male that is actively peenting and displaying at the site or just a passerby.

NM – male that is active at the site (does not have to be nesting), peenting regularly, circling overhead

NF - female of the pair, if there is a nesting pair

J - juvenile from nest (if there is a nest)

U- unknown (add F/M/J if known, i.e. **UF** for unknown Female not from the resident pair.).

If you can identify an individual nighthawk because of the sound it makes, you can assign specific codes and explain on form, i.e. SQ = “Squeaky male” or M11 = male from turbine 11.

Activity: Use these codes to help describe what the bird is doing. Write additional notes on the form.

AQ-all quiet (no vocalizing, peenting or booming heard/observed)

B-diving/booming **CB**-chick brooding **CF**-chick feeding

CH-chase (2 or more birds follow each other very closely and usually flying briskly)

CO-circling overhead (add direction if other than over nest/site, i.e. CE-circling to east)

EOO-end of observation **I**-incubation **L**-landed

LN-left area (bird flies away and is no longer seen/ heard for at least one minute)

NLO-no longer observed **P**-peenting

Q-guttural quack-like call. (a soft vocalization from either a male or female)

RN-return to area (bird is seen or heard at the site after being gone for at least one minute)

RP-rapid peenting (watch for 2nd bird)

S-silent bird (non-vocalizing bird is observed at the site or flying by)

Developed by Project Nighthawk, NH Audubon, 84 Silk Farm Rd., Concord NH 03301



COMMON NIGHTHAWK SITE MONITORING

YEAR 20 __

Date [] **Town** [] **Location** []

Observer(s) []

Observation Start Time: [] **End Time:** [] **Total Obs. Time:** []

Travel Time: [] **Total Volunteer Time (obs. + travel):** [] **Total Mileage:** []

Weather – general sky/wind/temp (i.e. clear/calm/warm or overcast/windy/cold; add temp if known):
[]

Fill in Summary of Observation After Watch:

Bird Present Upon Arrival? Yes <input type="checkbox"/> No <input type="checkbox"/>				If yes, check Male <input type="checkbox"/>		Female <input type="checkbox"/>		Unknown <input type="checkbox"/>	
Nest Status: None <input type="checkbox"/>		Active? <input type="checkbox"/>		Probable? <input type="checkbox"/>		Unknown? <input type="checkbox"/>			
If active: Incubation? <input type="checkbox"/>		Eggs # []		Chicks # []		Unfledged? <input type="checkbox"/>		Fledged? <input type="checkbox"/>	
Total Adult Birds: Male # []		Female # []		Unknown # []					
Male displaying at site? Yes <input type="checkbox"/> No <input type="checkbox"/>				Female present at site? Yes <input type="checkbox"/> No <input type="checkbox"/> Maybe <input type="checkbox"/>					

Watch and record behavior from 30 minutes before sunset until at least an hour after sunset.

Record both presence and absence of birds any time that you check. Use the following codes (as applicable):

Type: NM-male on site NF-female on site J-juvenile from nest
U-unknown (add F/M/J if known, i.e. UF for unknown Female not from the resident pair)

Activity: AQ-all quiet B-diving/booming CB-chick brooding CF-chick feeding
CH-chase CO-circling overhead (add direction if not over nest, i.e. CE-circling to east)
EOO-end of observation I-incubation L-landed LN-left area
NLO-no longer observed P-peenting Q-guttural quack-like call
RN-return to area RP-rapid peenting (watch for 2nd bird) S-silent bird

Time	# of birds and type i.e. 1M/1F/1UM	Activity (see codes)	Describe activity (i.e. what's happening?)

Time	# of birds and type i.e. 1M/1F/1UM	Activity (see codes)	Describe activity (i.e. what's happening?)

Comments:

Volunteer signature

Supervisor's signature

Return form to: