

Nocturnal Survey Guidelines

Owls, nighthawks and Whip-poor-wills present atlas surveyors with several challenges. Although many Minnesota species, including thrushes and marsh birds, may vocalize at sunset, pre-dawn, or even at night, most can be detected during early morning and daytime surveys. The surveyor's chances of detecting most owls, however, as well as the common nighthawk and whip-poor-will, will be considerably enhanced by adding nocturnal surveys.

Owls

Minnesota's 11 owl species are a mix of permanent, non-migratory residents (Eastern Screech Owl, Great Horned Owl and Barred Owl); summer residents (Long-eared Owl, Short-eared Owl, and Saw-whet Owl) and three species whose summer populations probably include both permanent residents and migratory invaders (Boreal Owl, Northern Hawk Owl and Great Gray Owl). The Burrowing Owl is an extremely rare summer resident in the western grassland region and the Barn Owl has been an erratic species whose status as a permanent resident or migratory invader is unknown.

Three of these species tend to be more diurnal and the chances of seeing them during the day are relatively good. They include two open habitat species, the Short-eared Owl and Burrowing Owl, and one forest species, the Northern Hawk Owl. Like marsh hawks, Short-eared Owls can often be seen flying low over wet grasslands and marshes hunting for prey during the morning and early evening hours. The Burrowing Owl, a very rare nesting species in the state, is prominent as it stands as a sentinel atop its nesting burrow, just inches above the surrounding grassland. Northern Hawk Owls, on the other hand, are often seen perched atop a dead tree in a forest opening or conifer lowland, searching for prey.

Aside from these three species, the majority of Minnesota's owls are forest dwelling species that are particularly difficult to detect because they are secretive, primarily nocturnal and roost in concealed locations throughout the day. In addition, the structure of their primary wing feathers enables them to fly silently, making them even more challenging to detect.

Perhaps the easiest clue for finding these owls during daylight hours is the persistent cawing of crows as they mob an owl or large hawk. Follow the sound and see if you can't locate the object of the crows' raucous behavior; oftentimes it is a Great Horned Owl or a Barred Owl.

Night time, however, is the best time to detect the presence of most owls. For the surveyor, the diverse residency status of Minnesota's species results in a very long nesting season. The permanent, non-migratory residents start nesting early, beginning in mid-late January for the Great Horned Owl and early-mid March for the Barred Owl and Eastern Screech Owl. Migratory species begin nesting a couple of months later in April and May; observations of these owls (calling or sight) made earlier in the season are more likely to be migrants.

Surveying for owls when it is dark can seem daunting. Nocturnal species are elusive and quiet most of the time, especially small owls that may be preyed upon by larger owls. Dense vegetation and low light increase the challenge. Nevertheless, with some preparation your chance to detect owls will be a lot higher.

Tips for Nocturnal Owl Surveys

- Take time to learn the calls and vocalizations of the species you are most likely to find in your block. Depending on which region of the state you are in, make sure you can detect the differences between species with similar vocalizations; boreal owls, for example, can sound very similar to winnowing snipe. Learning vocalizations is important because the chance that you will hear an owl is much higher than the chance that you will see one.
- Given the early nesting period of the Great Horned Owl, surveys could be conducted as soon as early February, and then at later times in the spring (March-May) for later nesting species. If you have time to only conduct one nocturnal survey, by walking or driving (see below), then aim for early to mid-April.
- Listening in areas with big trees on calm, moonlit nights can be good opportunities for detecting owls.
- Protocols for many official owl surveys recommend listening 1 hour after sunset to no later than midnight. Call rates of some species tend to be lowest in the middle of the night (midnight to 4am) and resume again early in the morning. However, early morning hours before sunrise (3:30 am to dawn) also work in many instances.
- A good rule of thumb is to listen intently for about 10 minutes once you reach one of your 'owling' spots.
- As noted in the MNBBA Handbook (p. 14), the use of playback tapes is discouraged. For owls there are two reasons to be hesitant in using playbacks:
 1. To work effectively, particularly in heavily wooded areas, a tape recording usually is not sufficient unless it is broadcast with a speaker; and
 2. Broadcasting can result in unintended consequences. Eastern Screech Owls can be prey for larger owls so if their call is broadcast, and there are larger owls in the vicinity, you may be attracting a predator.
- Conducting surveys in late summer can also be a good time to find young, recently fledged owls calling very loudly to their parents for food.

Tips for Nocturnal Owl Road Surveys

- If enough roads are available, you may want to establish a road route through your block with listening stations positioned along the road.
- Listening stations should be approximately 1 mile apart to minimize chances for double counting. Some of the larger owls can be heard from fairly large distances.
- Once you leave the car, wait for at least 1-2 minutes and then begin a 5-10 minute listening period, before moving on to the next station.

- Conduct the survey at least 30 minutes after sunset and finish at least 30 minutes before sunrise.
- As with conducting any songbird survey, surveys are best conducted when the weather is good and the wind is calm or there is only a light breeze (<10 mph) with little or no precipitation.

For readers interested in learning more about road surveys for owl monitoring that are conducted in the Western Great Lakes Region visit the Hawk Ridge Observatory website: <http://www.hawkridge.org/research/springowl.html>

Nighthawks and Whip-poor-wills

Owls are not the only nocturnal species. Two other species that surveyors should keep in mind during their survey efforts are the Common Nighthawk and Whip-poor-will. Both species vocalize primarily at night. Although we often associate nighthawks with urban areas where they nest on flat rooftops, they can be found throughout the state nesting in rock outcrops and open sand and gravel areas. Whip-poor-wills have been found in woodland habitats throughout the state although they appear to be localized in abundance.

Little is known about some members of the Nightjar, or Goatsucker, family because of their nocturnal habits. Common nighthawks have received particular attention in some regions of the United States, including the Twin Cities metropolitan area. Because of the concerns regarding all members of the family, survey guidelines have been established by many conservation groups. The following recommendations can be found at The Center for Conservation Biology's United States Nightjar Survey Network website: <http://www.ccb-wm.org/nightjar/protocols.htm>.

Tips for Surveying Nightjars

- Detection rates appear to be higher on bright moonlit nights. Calling and foraging behaviors increase in these conditions and some scientists think that breeding may actually be timed with the lunar schedule.
- Try to conduct the surveys only when the moon is above the horizon; even when a full moon is anticipated nightjars call less frequently when the moon is still below the horizon.
- Surveys should begin 30 minutes after sunset or later if the moon is below the horizon and should be finished 15 minutes before sunrise, or before the moon is below the horizon.
- Avoid overcast nights
- Surveys should be conducted in good weather with low winds (<10mph)
- In Minnesota two survey windows are recommended: May 31 through June 15 and June 29 through July 15.

- If you are conducting a road survey, use the same route that you established for your nocturnal owl survey, with stations located 1 mile apart from one another.

Other Night-time Bird Vocalizations

Don't be surprised if you hear other species besides owls and nightjars calling at dusk and on nights with significant moonlight. Examples include the American Woodcock, Wilson's Snipe, and Nelson's Sharp-tailed