

MAINE DEPARTMENT OF
INLAND FISHERIES AND WILDLIFE



Photo: Al Larson

**Forest Management Recommendations for
Great Blue Herons (*Ardea herodias*) and Black-
Crowned Night-Herons (*Nycticorax nycticorax*)**

Background

Colonial wading birds are medium to large birds with long legs, necks and bills - features specially adapted for capturing prey while wading in shallow water. They nest in groups, or colonies, which may contain a few pairs to several hundred, often with multiple nests occupying the same tree. Colonial wading birds are important predators that feed near the top of the food chain on a wide variety of fish and aquatic invertebrates. They are also relatively long-lived, making them good indicators of environmental quality, including wetland health, levels of toxic substances, and levels of human disturbance.

Two of Maine's eight colonial wading bird species have recently experienced declines in their populations: the great blue heron (listed as a Species of Special Concern), and the black-crowned night-heron (listed as Threatened). Great blue herons nest in every county in Maine. Maine's coastal island breeding population has experienced a steady downward trend from 1,208 pairs in 1983 to just 430 pairs in 2009. The inland breeding population also shows evidence of decline, but its extent is unknown and warrants closer monitoring. The black-crowned night-heron has experienced a decline in Maine over the past 30-40 years. Its limited nesting distribution (primarily along the coast in southern Maine) and small population warranted its designation as a Threatened species under the Maine Endangered Species Act in 2006.

Nesting habitat for great blue herons and black-crowned night-herons can be quite variable. All great blue heron colonies on Maine's coastal islands are found in an upland setting. Their nests are in live, dead, or dying trees, including both hardwoods and softwoods. In contrast, the inland colonies show greater variability in habitat setting including: beaver flowages with nests in snags; live trees on an island within a waterbody; live and dead trees in an upland along a waterbody shore; and live and dead trees in an upland not adjacent to a waterbody. Black-crowned night-heron nesting habitat is similar, but also includes shorter trees and shrubs. Both species may nest in single-species colonies or in mixed-species colonies with other wading birds.

Colony habitat preference is not completely understood, but great blue heron colonies are most often located within 2.5 miles of several important feeding wetlands; in areas with fewer roads and less human disturbance; and in large forest stands. Nesting in colonies helps in terms of predator avoidance, but it also makes these birds especially vulnerable to habitat loss. Impacts to a small area (the colony) and even brief disturbance events near the colony can affect hundreds of breeding pairs of several different species.

While there is some variability in the breeding timeline among colonies, a generalized Sensitive Nesting Period (SNP) for both species is 1 April to 15 August. During this time the birds can be extremely sensitive to disturbances caused by human intrusion, noise, and predators, and may even abandon a colony as a result. Their level of sensitivity does vary in relation to the stage of breeding; the intensity, duration, and setback of a new activity; site characteristics such as woodland buffers or topography; and pre-existing uses on adjacent lands. The most sensitive times tend to be prior to the onset of incubation (early May) and after the young are 4-6 weeks old (late June) and nearing fledging (late July).

Great blue herons build platform stick nests in trees 8-100 ft or more above the ground. A newly built nest can be quite flimsy and may not measure more than 20 inches across, whereas a nest that has been reused for many years (and rebuilt each year), may appear more bulky and measure 45 inches across with a depth of 40 inches. The black-crowned night-heron's nest is also built of sticks. It is a bit smaller (approx. 24 inches across), and when nesting in shrubs may be as low as 2 feet off the ground.

Individual herons and night-herons may not pair with the same mate, nor use the same exact nest year to year, but they do tend to return to the same colony location, especially if the location is free from disturbance, strategically located near feeding wetlands, and resulted in successful breeding attempts in the past. Individuals may also have a preference for a specific tree species within a colony. A look at historic data within Maine shows that more than 18 great blue heron colonies persisted for more than 10 years; 13 for more than 20 years, and 3 for more than 30 years. Black-crowned night-heron colonies, though fewer in number, have shown similar fidelity with 6 colonies persisting for more than 10 years, 3 for more than 20 years, and 1 for more than 30 years. While the use of these sites may have been intermittent, it remains a testament that colony sites do have the potential to persist for several decades.

Herons and night-herons also have a high fidelity to feeding sites, especially if the food source remains rich at these sites over time. Foods include fish, invertebrates, amphibians, reptiles, small mammals, and young birds. They are most commonly observed feeding in shallow wetlands or intertidal beaches, but will also forage in grasslands. Black-crowned night-herons have also been known to decimate nearby colonies of seabirds by feeding on the young. Herons will fly far distances to prime foraging areas; researchers have observed up to 18 miles, but it is more common for feeding sites to be within 2.5 miles of the colony. In cases where a colony is located in the center of a wetland, foraging may take place on site. Great blue herons primarily feed during the day, and black-crowned night-herons at night, but both may feed at all hours especially when provisioning young.

Forest management can be a compatible land use for great blue herons and black-crowned night-herons. Timing considerations are critical. Fall or winter harvesting is preferable. Setbacks and other harvest prescriptions are best planned on site with a wildlife biologist. Management practices that maintain or improve the integrity of the overstory and provide for a continuing supply of mature trees favored for nesting are often rewarded with continued colony

occupancy. This minimizes the frequency of shifting colony locations locally and the resulting management complications that follow.

Management Recommendations

Three main elements should be considered for protection and conservation of great blue heron and black-crowned night-heron colonies: (1) avoiding disturbances during the SNP, (2) promoting healthy forest stands within and adjacent to the colony, and (3) protecting important feeding areas.

Planning

Upon the suspicion or discovery of a colony within 1 mile of the planned activity, consult with a MDIFW wildlife biologist to determine the best way to proceed. On the ground reconnaissance for determining the location of the colony proper (area with nests), as well as the status (whether it is active or not and the breeding stage) will be needed in order to ensure the most appropriate setback distances and timing restrictions to be implemented. Intentional cutting of a tree containing an active nest is prohibited by the Migratory Bird Treaty Act.

Definitions

Colony proper = the area encompassing all trees containing nests (active or inactive).
Sensitive Nesting Period (SNP) = 1 April to 15 August.

Primary Nesting Buffer (within 660 ft of the colony proper)

All human use of this buffer should be avoided during the SNP. Certain annual farming practices that must take place during the SNP (e.g., grazing, hay cropping, tillage, etc.) and that have occurred in the past 5 years without the loss of the colony may be conducted. While outdoor recreational activities, maintenance of existing roads or trails, and farming practices are compatible outside the SNP, keep in mind that increased trails and decreased understory may provide ground predators easier access to the colony.

Do not remove overstory trees in the surrounding stand within 660 feet of all intact nests. Stand evaluations and timber stand improvement may be permissible if conducted outside the SNP or if written approval to waive timing safeguards is granted by agency wildlife biologists (e.g., when surveys reveal birds' absence or shift to another locale).

Land clearing, sand or gravel extraction, new road construction, creation of ATV and snowmobile trails, and building of permanent structures should not occur within this buffer at any time.

Secondary Nesting Buffer (660-1320 ft of the colony proper)

Land clearing, new road construction, and permanent structures should be avoided at all times within this buffer. In addition, harvesting activities and blasting should be avoided during the SNP unless agency wildlife biologists provide written approval to waive timing safeguards. Selective harvests should be conducted in consultation with wildlife biologists to ensure stand integrity, availability of potential nest trees, and to maintain landscape buffers.

Foraging Habitat Protection

The location of a colony is often driven by the availability of important high quality foraging areas, especially within 2.5 miles. Protect shallow wetlands and streams, and gradual shorelines (of lakes and ponds) within a 2.5 mile radius by maintaining a minimum 75 ft no-cut zone, and adopting land use practices that protect water quality, limit erosion, and conserve native wildlife and vegetation.