

Maine Breeding Bird Atlas

Atlasing Colonial Waterbirds in Maine

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A Project of the Maine Department of Inland Fisheries and Wildlife



Colonial waterbirds tend to breed in high-density groups in few locations, and require predator-free habitats. This breeding strategy makes these species susceptible to disturbance or other events, and loss of a single colony can result in major lasting impacts to regional populations. In Maine, the predator-free habitats with low disturbance tend to be in two separate habitats: 1) islands that are either offshore or in lakes, and 2) wetlands.

In our region, colonial waterbirds include eider, cormorants, herons, ibis, gulls, terns, and alcids, although we also include geese in this category because they can nest in the same habitats and also be fairly visible. Although this group includes a diverse array of species, these birds are linked by their inclination for nesting in colonies and foraging for their food in or near the water. The size of the breeding colony can vary from just a few scattered pairs up to a large colony with hundreds of pairs. Collecting breeding observations of these birds can sometimes be straightforward. By nesting together, nest sites can be conspicuous and therefore easier to detect. If you find or already know of a colony, you may be able to confirm breeding for some species easily. Many of these birds will also return to the same nest sites year after year, sometimes reusing nests from previous years.

All colonial waterbirds are susceptible to disturbance by people and should be monitored from a distance so the nesting birds are not disturbed. When adults are flushed off of nests, the eggs or chicks are vulnerable to predation from gulls, crows, eagles, and other predators, and adults may abandon the nesting location if the disturbance is excessive. During the nesting season, hundreds of nests can be negatively impacted by a single disturbance event such as a person entering a nesting colony during the heat of the day. In all instances, atlasers should observe the birds from a distance without disturbing the colony. It is important to remember that we do not need an estimate of the size of the breeding colony; our goal is to confirm breeding for the species, or observe evidence that the species may possibly be breeding.

It is important not to enter any nesting areas for colonial waterbirds, and to make all of your observations from a safe distance. Seabirds are particularly susceptible to disturbance, so do not land on any island with nesting seabirds, and instead make your observations from a safe distance away in a boat. Research specialists from many organizations in Maine are highly skilled at managing seabirds along the coast of Maine, and all islands with nesting seabirds are closed to visitors during the nesting season, whether the island is posted or not. Never land on any island where seabirds are nesting, and never land on any of the managed seabird colonies along the Maine coast as this type of disturbance can cause numerous problems for the nesting birds. The crews on most of the managed seabird colonies in Maine (Petit Manan Island, Ship Island, Seal Island, Matinicus Rock, Metinic Island (north end), Eastern Egg Rock, Pond Island, Jenny Island, Outer Green Island, and Stratton Island) are submitting breeding records to the Maine Bird Atlas, so there is no need to go near those islands to document breeding birds. However, there is much that can be learned about nesting seabirds from the water at a safe distance, without landing on the island.

The following suggestions will reduce the impact visitors will have on the breeding success of colonial waterbirds on both fresh and saltwater locations:

Atlasers doing the surveys should be well-organized and remain near the colony for the least amount of time possible, and never land on a seabird nesting island.

Kayaks, canoes, and other boats should remain at distances greater than 100m (300 feet) from nesting birds when observing the colony.



Maine has an additional citizen science program that help to document colonial waterbird colonies and we encourage atlasers to consider volunteering for this program as well. The Heron Observation Network of Maine is a citizen science adopt-a-colony program in which volunteers monitor great blue heron colonies throughout the state and record information regarding the number of active nests each spring. The data provided by volunteers help Maine Department of Inland Fisheries and Wildlife biologists better understand the status of Great Blue Herons, a Species of Special Concern in Maine due to a decline in nesting pairs along the coast. Additional details of this program are listed later in this document under the Great Blue Heron species profile.

Where to observe colonial waterbirds:

Where you focus your colonial waterbird observation efforts will depend on the area where you will be birding. Colonial waterbirds can be found nesting along coastlines, on islands, within freshwater marshes, and even on some flat rooftops. Some of these birds may be documented by approaching a local colony with your binoculars or scope and observing birds from a nearby location. Other species, particularly those nesting on islands off the coast, require extra effort and must be observed from a boat (***do not land on any island with nesting seabirds***). Review the species profiles at the end of this document to get a sense of which species you are likely to encounter in a given habitat type and what to watch for to confirm breeding without disturbing the breeding birds.

Breeding Bird Codes:

Care must be made to properly code breeding signs for colonial waterbirds you observe as many of these species are highly mobile and adults regularly cover great distances away from the breeding colony. Seeing colonial waterbirds visiting your block is not necessarily indicative of breeding because they range widely, and codes like “in appropriate habitat” (code **H**) and “pair in suitable habitat” (code **P**) are generally not suitable for this reason. The “carrying food” code (**CF**) should not be used for gulls and terns to confirm breeding because food may be gathered in one block and carried quite a ways back to the breeding colony. Juveniles also disperse and travel widely away from their nesting location as soon as they are capable of flight, so “Recently Fledged Young” (code **FL**) does not confirm breeding for many species unless the young are incapable of sustained flight and observed near the nest. Use the species-specific guidelines below to inform your judgements about which breeding codes to watch for and which ones do not confirm breeding at a location.

Submitting Bird Records:

Refer to the Maine Breeding Bird Atlas Volunteer Handbook for a detailed description of the options for submitting your bird records to the Maine Bird Atlas through eBird or on paper forms. On some of your marsh surveys, you may not detect any species. It is very important that you still send us this information since knowing where species are not found is just as important as knowing where they are found. If you are submitting your bird records directly into the Maine Bird Atlas eBird portal, you can simply submit a checklist without any species noted in your list. If you have any questions about any of this, please contact the Maine Bird Atlas Coordinator (mainebirdatlas@gmail.com).

Resources:

For more information about the Maine Bird Atlas (project of the Maine Department of Inland Fisheries and Wildlife), visit: <http://www.maine.gov/birdatlas>.



If you have questions or comments, contact:
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Maine's Colonial Waterbirds

Canada Goose: The Canada Goose is one of the most familiar and abundant waterfowl species in all of North America. This medium-sized goose breeds within a variety of wetland habitat types. These birds nest along the shores of lakes, ponds, and wetlands or on hummocks and islands within wetland areas. Nest sites are frequently used year after year. Birds are highly territorial during the breeding season, with threats and fights common before incubation begins. Although adults on nests can sometimes be difficult to detect if deep within a wetland, adults can readily be observed foraging on land and on the water with their goslings not long after hatching. Large migratory populations move through the state in the spring and fall so watching safe dates is necessary for some codes.

Safe Dates: April 25th to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: If a bird is seen or heard within the safe dates and in appropriate breeding habitat (wetlands, ponds, and coastal islands), use code **H**. Pairs may be recognized very early in the spring when birds are not at breeding locations, so this code should be used cautiously. For any indications of territoriality, including threats and fights (common during breeding season), use code **T**. If a Goose is observed visiting a probable nest site (near water or more frequently on islands), use code **N**. Adults are readily observed with goslings soon after hatch and this confirms breeding (code **FL**), but this code should not be used once the young are capable of flight (young are usually about 9 weeks old when capable of sustained flight).

Common Eider: The Common Eider is the largest duck in the northern hemisphere, and it can be found year-round off the Maine coast. Adults breed on the offshore islands, typically in areas with dense shrubs and herbs. Courtship displays and other pairing behavior can be seen through the winter and spring. Nests are located under some form of cover from overhanging vegetation and lined with down. Females may walk ashore or may fly to an inland location near the nest and then walk to the nest from there. Incubation, by the female only, lasts 24 to 26 days and the female may not leave the nest unless disturbed. Once young hatch, ducklings are led to the water by the mother about 24 hours after hatching, and are capable of flight at about 60 days old when they are about the size of the adults. Non-breeding females (so-called “aunts”) may accompany the brood at this point, and broods often join up on the water to form groups with 20 or more young. Once on the water, the young and tending females may travel from the nesting island to other areas with good feeding opportunities and less predation, and these groups of young may travel 10 or more miles from the nesting island while the young are still incapable of flight.

Safe Dates: May 1st to July 25th (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: If a bird is seen or heard within the safe dates and adjacent to an offshore island in May, use code **H**. If an Eider is observed heading into or coming out of the interior of an offshore island, use code **N**, and if multiple birds are observed entering or leaving the island interior, use code **ON**. Adults are readily observed with ducklings soon after hatch and



this confirms breeding (code **FL**), but this code should be used with caution once the young are older since they can swim great distances from their nesting colony.

Great Cormorant: Although the Great Cormorant is more often observed wintering along the Maine coast, a small number of birds breed at specific colonies on offshore islands in the mid-coast region. The nest colonies are established on coastal cliffs and rocky islands where they are more protected from predators, but this species is highly susceptible to human disturbance at these remote locations. These birds are gregarious and will readily nest in close proximity to Double-crested Cormorants and gulls. Adults will often forage for food near shore, but only rarely enter estuaries or freshwater. Males perform a “wing-waving” display as part of courtship. This silently performed display involves the male partner repeated raising of wing, flashing of conspicuous white leg patches, and head bobbing in synch with its wings. Males establish nest sites and defend them from other males with raucous calling and aggressive posturing. Pairs work together to construct a nest from sticks and seaweed. These birds continue to furnish their nests with fresh materials up until chicks fledge.

Safe Dates: May 1st to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: The Great Cormorant’s propensity for rugged, offshore nest sites and its very limited range in Maine means observing this species during the breeding season is unlikely. Observing this species at a Double-crested Cormorant colony can be coded as in appropriate habitat (code **H**). This **H** code should not be used for birds observed foraging nearshore as these individuals may well be foraging a distance from their nesting colony. Observers traveling to cormorant colonies by boat may observe the “wing-waving” courtship display (code **C**) which occurs at the nest site. Visiting the same colony from May through July may afford looks of Great Cormorants on a nest (code **ON**), young in the nest (code **NY**), and young incapable of flight near the nest (code **FL**), and these will be the most common breeding codes observed. *The Great Cormorant is a state-listed Threatened Species. Keep a respectful distance of 300’ or more from nesting islands and depart from the area immediately if birds become distressed.*

Double-crested Cormorant: The Double-crested Cormorant is the cormorant species most familiar to observers throughout Maine. This species is frequently found on inland lakes and rivers throughout the summer as well as on offshore islands from Kittery to Lubec. During the spring and summer, this species may shift between habitat types – foraging in freshwater lakes and rivers upon arrival before moving to coastal sites to nest. Colonies are formed in a variety of habitats including lakes, estuaries, islands, and coastlines. Males select nest sites and advertise to females with wing-waving. Copulation takes place on the nest. Nests are constructed on rocky islands, abandoned docks, bridges, emergent vegetation, and in trees or snags to avoid predators. Pairs work together to build or refurbish nests with sticks, plastic debris, seaweed, parts of dead birds, and liberal amounts of guano accumulated throughout the breeding season. Males and females share the duties of incubation, brooding, and feeding of their young.

Safe Dates: May 15th to July 20th (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Since Double-crested Cormorant nests are usually readily visible (and smelled!) from a distance, adults observed on the nest (code **ON**), young observed in the nest (code **NY**), young incapable of flight near the nest (code **FL**) will be the most common breeding codes observed. Since birds range widely in search of food, use code **H** if you observe an adult during the breeding season visiting a location that has had breeding cormorants in the



recent past, and add in these details under comments. Probable indicators of breeding such as courtship, agitated behavior, and territorial defense are only rarely observed and often if you observe these behaviors, they are at the nest colony and you can use codes that confirm breeding. Double-crested Cormorants maintain their nests throughout the entire breeding season, so breeding can be confirmed by observing adults carrying nest materials such as sticks and seaweed (code **CN**). *Double-crested Cormorants are susceptible to disturbance. Keep a respectful distance of 300' or more from nesting islands and sites and depart from the area immediately if birds become distressed.*

Least Bittern: Not only is the Least Bittern incredibly secretive, but it is also the smallest heron species in the world. These two qualities make it a particularly difficult species to observe. Being so small, the Least Bittern can climb on emerging vegetation, particularly the bulrushes and cattails found in its most favored habitat. When threatened, the Least Bittern will freeze and remain motionless until danger has passed. Luckily, this species is quite vocal during the breeding season and will respond aggressively to another individual calling. In addition, their calls increase as summer progresses, peaking in July. Their song is a series of soft, low-pitched “*kuh-kuh-kuh-kuh*” notes, similar to “*cu-cu-cu*” call of Black-billed Cuckoo. Least Bitterns nest on an elevated platform perched over water with an overhead canopy, so it is unlikely to be observed. Nest is constructed primarily by the male, and nest maintenance continues throughout incubation since the nest gradually sinks under weight of growing young. Adults feed chicks a regurgitated diet. While Least Bittern are solitary foragers, they can nest colonially near abundant sources of food. This species is usually found in central and southeastern Maine.

Safe Dates: May 15th to July 25th (applicable for **S** or **H** codes, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: For observations of a silent bird or if you hear one flush or give an alarm call within the safe dates and in appropriate breeding habitat, use code **H**. If you hear their soft, low-pitched “*kuh-kuh-kuh-kuh*” notes (usually 4-parted) within the safe dates, use code **S**. If you hear one singing, return to the same location 7 or more days later to upgrade to the **S7** code. Remember that their calling increases as the summer progresses, peaking in July. Since males continue nest maintenance through incubation, look for birds carrying vegetation (code **CN**). *The Least Bittern is a state-listed Endangered Species. Keep a respectful distance of 300' or more from nest sites and young birds and depart from the area if birds become distressed during your observations.*

Great-blue Heron: The Great Blue Heron is perhaps the most well-known wading bird in North America. They are colonial nesters and construct stick nests in snags or live trees in wetlands, uplands, beaver flowages, and on coastal islands. Colonies are typically established away from human development and roadways. Sticks for the nest are gathered by males and taken from the ground, trees, and even the unguarded nests of eagles. Colony sites and nests are generally reused year after year. Males and females both incubate the eggs and care for young after hatching. Vocalizations include the “*go-go-go*” call and the “*awk*” call, both given when disturbed at the nesting colony. Individuals may travel many miles from their breeding colonies to feeding sites. Do not assume that a colony is present within an atlas block simply because a heron is observed in good foraging habitat. Great Blue Herons are currently undergoing declines in Maine. The Heron Observation Network of Maine is a citizen science adopt-a-colony program in which volunteers monitor great blue heron colonies throughout the state and record information regarding the number of active nests each spring. The data provided by volunteers help Maine Department of Inland Fisheries and Wildlife biologists better understand the status of Great Blue



Hérons, a Species of Special Concern in Maine due to a decline in nesting pairs along the coast. There are many colonies in the state that have not yet been “adopted,” so they are always looking for more volunteers. In addition, Maine is a large state and is difficult to survey in entirety. All current and historic colonies that we know about are mapped and can be viewed on this website: <https://ifw.citizenscience.maine.gov/#/programs/heronObservationNetwork>. If you find a great blue heron colony that is not mapped, we would love to know about it. If you are interested in adopting a colony, reporting a colony, or want to find out more, please visit the Maine HERON Blog: <https://www1.maine.gov/wordpress/ifwheron/>, or email Danielle.dauria@maine.gov.

Safe Dates: May 1st to August 10th (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Observing breeding behaviors which indicate possible or probable breeding is challenging in this species, but luckily their nests can be fairly easily detected. Occupied nests (code **ON**) and nests with young (code **NY**) can be viewed once nest sites are discovered, but note that we strongly discourage closely approaching or disturbing nesting birds. If multiple birds are seen in a potential breeding area (i.e., wetland with many large snags or a stand of large pine trees with dead branches) that could contain a nesting colony, but the colony cannot be found, use code **N**. *The Great Blue Heron is a species of Special Concern in Maine. Keep a respectful distance of 300’ or more from nest sites and young birds and depart from the area of birds become distressed during your observations.*

Great Egret: The Great Egret is a large and elegant-looking heron plumed entirely in white. Their breeding range extends into southern Maine where they tend to nest on coastal islands and feed in coastal wetlands. Nests are typically constructed of sticks and are built in live trees or occasionally on the ground. Nests are prone to annual collapse or usurping by earlier arriving herons, thus males must generally gather materials and rebuild each year. These birds typically nest in colonies and often in the presence of other egrets, herons, ibises, or sometimes cormorants. Adults regurgitate fish for their nestlings.

Safe Dates: May 25th to July 15th (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: The breeding range of the Great Egret extends only into the southern-most region of the state. Consequently, all breeding behaviors should be carefully documented for this species. Observing breeding behaviors which indicate possible or probable breeding are more challenging than confirming this species. Occupied nests (code **ON**) and nests with young (code **NY**) can easily be viewed once nest sites are discovered, but note that we strongly discourage closely approaching or disturbing nesting birds. Given that nests must be reconstructed nearly every season, males may be observed constructing their nests using twigs and sticks gathered from the surrounding area (code **NB** or **CN**).

Snowy Egret: Another all white egret, the Snowy Egret, has a breeding range which extends throughout southern Maine. These birds often share colonies with other egrets, herons, ibises, or sometimes cormorants. Colony locations may change from year to year and are often located in remote estuarine areas with dense vegetation. Males attract mates to their nest sites by performing a stretch display where they pump their bodies up and down while calling “*a-wah-wah-wah*”. Pairs work together to construct stick nests in trees, shrubs, and occasionally on the ground in dense vegetation. Parents regurgitate food either into the nest or directly into the mouths of their young.

Safe Dates: May 1st to July 15th (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).



Breeding Evidence: Snowy Egret colony locations can change from year to year and those colonies are typically located in isolated areas. Consequently, breeding behaviors are rarely observed. All signs of breeding within Maine should be carefully documented. Observing breeding behaviors which indicate possible or probable breeding are more challenging than confirming this species. Occupied nests (code **ON**) and nests with young (code **NY**) can easily be viewed once nest sites are discovered, but note that we strongly discourage closely approaching or disturbing nesting birds. Given that nests must be reconstructed nearly every season, birds may be observed constructing their nests using twigs and sticks gathered from the surrounding area (code **NB** or **CN**).

Little Blue Heron: The Little Blue Heron looks somewhat like a colorful version of a Snowy Egret. Juvenile birds, however, are a strong contrast to adults and are nearly entirely white with yellow legs. Little Blue Herons are colonial nesters and inhabit coastal wetlands in the southern regions of Maine. Their nests are typically composed of sticks and are built in shrubs or small trees. Males display at the nest sites with branch-shaking, crest-raising, bill-snaps, wing-extensions, and a simple call “*unh*”. Nests are constructed at various heights depending upon the height of the nest-bearing vegetation and the space between nest sites is variable as well. Breeding colonies can be shared with other herons, egrets, ibises, and cormorants.

Safe Dates: May 1st to July 15th (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Little Blue Heron breeding behaviors are only rarely observed. All signs of breeding within Maine should be carefully documented. Observing breeding behaviors which indicate possible or probable breeding are more challenging than confirming this species. Occupied nests (code **ON**) and nests with young (code **NY**) can easily be viewed once nest sites are discovered, but note that we strongly discourage closely approaching or disturbing nesting birds. Given that nests must be reconstructed nearly every season, birds may be observed constructing their nests using twigs and sticks gathered from the surrounding area (code **NB** or **CN**).

Tricolored Heron: The Tricolored Heron is a colorful heron with shades of blue, purple, and rufous all prominently featured in its plumage. This large and graceful heron inhabits coastal wetlands and islands during the breeding season. While not known to currently breed in Maine (last documented nesting in Maine was in 2003), it is increasingly being reported during the breeding season in southern Maine. The bird frequently nests in colonies with other heron and egrets, but will occasionally nest solitarily. When nesting in a mixed species colony, Tricolored Herons are typically found nesting along the margins in denser vegetation. The construction of a nest platform by males precedes pair formation and copulation. These platforms are typically constructed in small trees at various heights, often in the same place year after year. Twigs are added to the nests following copulation. Eggs are incubated by both parents and, upon hatching, young are fed on a diet of regurgitated fish.

Safe Dates: May 1st to July 15th (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Maine is well north of the Tricolored Heron’s traditional breeding range although the species has been reported nesting in Maine in the past. All signs of breeding within Maine should be carefully documented. Observing breeding behaviors which indicate possible or probable breeding are more challenging than confirming this species. Occupied nests (code **ON**) and nests with young (code **NY**) can easily be viewed once nest sites are discovered, but note that we strongly discourage closely approaching or disturbing nesting



birds. Given that nests must be reconstructed nearly every season, males may be observed constructing their nests using twigs and sticks gathered from the surrounding area (code **NB** or **CN**).

Green Heron: The Green Heron is another small and secretive heron. It is frequently observed with its neck tucked down while hunting, and is found in a wide variety of wetland habitats. Individuals give a loud, metallic “*keow*” call, often given in flight and often this is punctuated by a stream of white defecation, resulting in one of its nicknames - chalk-line. Courtship includes display flights usually interspersed with a number of non-aerial movements, calls, and displays. The Green Heron often nests in trees overhanging shallow water or in a secluded cove, either alone or in loose aggregations. Unlike other heron species, Green Herons tend to stay close to their nesting area. The male typically gathers nest material for the female who builds the nest. Green Herons are typically found in the southern half of Maine.

Safe Dates: May 15th to August 15th (applicable for **S** or **H** codes, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: For observations of a silent bird or their “*keow*” call heard within the safe dates and in appropriate breeding habitat, use code **H**. If courtship displays or flight displays are observed, use code **C**. If two Green Herons are observed interacting in a way that suggests a pair, use code **P**. Since both males and females construct the nest and there is sometimes an exchange of vegetation from between a pair, look for birds carrying vegetation (code **CN**) or working on the nest (code **NB**). Again, it is not necessary to find the actual nest.

Black-crowned Night-heron: Observers along the Maine coast may encounter the reclusive Black-crowned Night-heron. This heron is most active during the evening and night (hence the name). They inhabit swamps, marshes, and the edges of rivers, streams, lakes, and lagoons with fresh, salt, or brackish waters during the breeding season. Nest sites are selected by males and are typically constructed by the pair in a small tree over water. These birds give guttural, bark-like “*Quock*” calls while perched or in flight. Pairs have a distinct vocalization when a partner returns to the nest with food (“*Woc-a-woc, woc, woc, wock-a-woc*”), however, vocalizations are only rarely heard. Both parents incubate the eggs and feed their young upon hatching. Young beg for food with a distinct and persistent “*Yak! Yak! Yak!*” vocalization.

Safe Dates: May 1st to August 1st (applicable for **S** or **H** codes, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: The secretive and nocturnal nature of this species means breeding behaviors are only rarely observed. Consequently, all potential breeding records should be carefully documented. Should a colony site be located, observers may see pairs working to construct their nests (code **NB** or **CN**). Visiting the colonies later in the season increases the chances of observing incubating adults on nests (code **ON**) or nests with young (code **NY**), but note that we strongly discourage closely approaching or disturbing nesting birds. *The Black-crowned Night-heron is a state-listed Endangered Species. Keep a respectful distance of 300’ or more from nest sites and young birds and depart from the area if birds become distressed during your observations.*

Yellow-crowned Night-heron: The breeding range of the Yellow-crowned Night-heron ends well south of Maine. Nonetheless, this species has been historically documented breeding within the state. In their known range, this heron species inhabits swamps and forested wetlands. Yellow-crowned Night-herons form small colonies or nest as more scattered pairs. Platform nests are constructed from sticks in trees near water. Nest building is an important part of courtship



in this species and nests may be initiated in several places before the final site is selected. Both parents incubate their eggs and brood hatched young. Young birds are fed on a diet of fish and crustaceans which are regurgitated into the center of the nest by their parents. This bird gives a raspy “*scaup*” and “*whoop*” calls throughout the night.

Safe Dates: May 25th to July 15th (applicable for **S** or **H** codes, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: This bird’s secretive and nocturnal nature makes observing breeding behaviors a challenge. Consequently, all potential breeding records should be carefully documented.

Glossy Ibis: The Glossy Ibis is a medium-sized wading bird which inhabits the southern coastal region of Maine. It is often observed in large flocks within emergent freshwater and brackish wetlands. They breed in wetland areas in a diverse array of nesting habitats and may be found nesting in trees or in grasses. These birds nest in colonies, often mixed with other species of herons, egrets, and cormorants. Pairs construct a bulky nest of twigs, grasses, and leaves, adding to the nest until the young fledge. Pairs perform bows, allopreening, and bill touching when relieving one another at the nest, typically accompanied by a guttural vocalization. Young are fed by receiving a regurgitated meal of insect larvae and crustaceans. Within a week of hatching, young may climb branches in close proximity to the nest.

Safe Dates: May 1st to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: The limited range and remoteness of Glossy Ibis nest colonies means observing breeding behaviors in this species is challenging. Locating a colony presents the best chance for documenting breeding as ibises may be observed on their nests (code **ON**) or nests with downy, altricial young may be observed (code **NY**), but note that we strongly discourage closely approaching or disturbing nesting birds.

Laughing Gull: The Laughing Gull is a small gull species that is known to nest on 4 or 5 islands off the Maine coast. These gulls form pairs at staging areas during migration and maintain their bond upon reaching nesting colonies through courtship displays. These displays are complex in Laughing Gulls and include long calls (a high-pitched series of “*keeeaaaahhh*” calls followed by shorter “*kah*” calls), a “facing-away” display, head-tosses, hunched posturing, and courtship feeding. Males give a long, staccato “*kakakakaka*” call during copulation. In Maine, nest colonies are primarily found on coastal islands. Elsewhere in New England, these gulls nest in salt marshes. Pairs arrive at colonies as early as a month before egg-laying. Laughing gull courtship levels peak in the early morning or late afternoon just prior to the egg-laying period in mid- to late May. Nests are constructed of grasses in dense vegetation and are provisioned up until egg-laying.

Safe Dates: May 15th to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Like Maine’s other gulls, Laughing Gulls range widely in search of food and may well cross atlas block boundaries while doing so. As such, code **H** (“in appropriate habitat”) should not be used for Laughing Gulls. Laughing Gulls perform courtship behaviors (displays, “long call”, and the copulation call described above) and copulation (code **C**) at nest colonies well before egg-laying occurs. Observing potential colonies from a boat in late May and early June may afford opportunities to confirm breeding by observing Laughing Gulls repeatedly entering and leaving an area of dense vegetation on an offshore island (code **ON**), but make sure to keep your distance from and do not land on the managed seabird colonies along the Maine coast as researchers there are already submitting breeding records from those is-



lands. *The Laughing Gull is a species of Special Concern in Maine. Keep a respectful distance of 300' or more from nest sites and young birds and depart from the area of birds become distressed during your observations.*

Ring-billed Gull: Although frequently observed throughout the state, the breeding range of the Ring-billed Gull touches just the northernmost regions of Maine. These gulls nest on the ground on low elevation islands in lakes or those just off the coast. Ring-billed Gulls have a strong fidelity to colonies and their area within the colony. Pair formation occurs before Ring-billed Gulls arrive to their nesting grounds. Courtship is complex with many displays and postures. Ring-billed Gull copulation is typically preceded by the female begging for food from the male, the male regurgitating food for the female to eat, before the male flies in circles around the female before mounting, calling (“ka-ka-ka-kakakaka”), copulating, and displaying with wing raising. Nests are typically constructed of grasses, sticks, leaves, lichens, and mosses in sparsely vegetated areas under the cover of plants or trees. When agitated by a nest site intruder, Ring-billed Gulls perform a “swoop-and-soar” display and charge call (a plaintive series of “kreeeeeeeee”). Young remain in the nest until they are able to walk and are cared for by both adults. Young gulls will abandon negligent parents and seek foster parents elsewhere in the colony.

Safe Dates: May 15th to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Like Maine’s other gulls, Ring-billed Gulls range widely in search of food and may well cross atlas block boundaries while doing so. As such, code **H** (“in appropriate habitat”) should not be used for these birds. If Ring-billed Gulls are observed visiting a probable nest site on the ground during the breeding season, use code **N**. If a colony is located, scan for adults carrying nesting materials (such as sticks, leaves, and grasses), nests with eggs (code **NE**) or adults sitting on nests (code **ON**) to confirm this species. *Keep a respectful distance of 300' or more from nesting islands and sites and depart from the area immediately if birds become distressed.*

Herring Gull: The Herring Gull is the most numerous and widespread gull species in Maine. It remains in the state year-round along the entire coastline and has a summer breeding territory which covers the northern third of the state. This gull species is adaptable and colonies can be found in a wide range of habitats ranging including rocky islands, agricultural lands, forests, and on flat rooftops. Courtship displays are variable in Herring gulls, but can include courtship feeding, head-tossing displays, and “mew” calls (a long, drawn out whine), which are followed by copulation. Herring gulls are known to nest on rocky ledges, building rooftops, sandy islands, and even under porches. Rudimentary nests of vegetation are typically constructed under light vegetative cover (or near air conditioners and ventilation units on roofs) for protection from the elements and as a visual barrier between pairs. Both parents care for their young and can travel great distances in search of food.

Safe Dates: May 15th to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Herring Gulls range widely in search of food and may well cross atlas block boundaries while doing so. As such, code **H** (“in appropriate habitat”) should not be used for this species. Pairs typically form before Herring Gulls reach the breeding ground, however, courtship behaviors and calls (code **C**) may be observed in the year-round population on the coast. Given that Herring Gulls generally nest in open, tree-less areas, you may observe these birds visiting a probable nest site (code **N**). For the same reason, if a nest is found, confirming breeding can be easily done if a bird is on the nest (code **ON**) or nests with young are



observed (code **NY**). Young birds at a breeding colony, while incapable of sustained flight, are still dependent on their parents for care and can be coded as **FL**. *Keep a respectful distance of 300' or more from nesting islands and sites and depart from the area immediately if birds become distressed.*

Great Black-backed Gull: Great Black-backed Gulls are a large, northeastern gull species which can nest both in colonies or as single pairs. This species lives along the entire Maine coast year-round. Great Black-backed Gulls nest on islands, offshore rocks, and piers for protection against mammalian egg-predators like raccoons and rats. Males attract female to territories through courtship flights and a display called the oblique posture (bird lowers their head down before throwing it back and giving a trumpeting long call – “*keow-keow-keow*”). Head-tossing typically precedes copulation. Nests are composed of a scrape in the dirt lined with feathers, vegetative material, and plastic debris. Although sometimes aggressive with colony members after chicks hatch, Great Black-backed Gulls are typically tolerant of their mixed-assemblage of gull neighbors, especially in more sparsely populated colonies.

Safe Dates: May 1st to July 20th (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Great Black-backed Gulls range widely in search of food and may well cross atlas block boundaries while doing so. As such, code **H** (“in appropriate habitat”) should not be used for this species. Because Great Black-backed Gulls live along the Maine coast year-round, courtship displays and copulation (code **C**) are more likely to be observed in this species than in migratory species which pair before arrival to the breeding grounds. Given that Great Black-backed Gulls generally nest in open, tree-less areas, you may be able to confirm breeding if a bird is observed on the nest (code **ON**) or nests with young are observed (code **NY**). Great Black-backed Gull chicks and juveniles are playful and may be observed actively playing tug-of-war or running with objects at the breeding colony. These young, while incapable of sustained flight, are still dependent on their parents for care and can be coded as **FL**. *Keep a respectful distance of 300' or more from nesting islands and sites and depart from the area immediately if birds become distressed.*

Least Tern: The coastline of southern Maine marks the northern limits of the Least Tern’s Atlantic breeding range. This tern species is typically associated with sandy beaches and open islands free of vegetation. Colonies typically form on sand or mudflats just above the high-tide line. Least terns pair upon arrival to their breeding grounds and courtship may occur at the colony site or at separate courtship grounds. Courtship consists of two phases. The first consists of fish flights (male flies with a fish in its bill while calling) and aerial glides (accompanied by other terns). The second takes place on the ground and involves courtship-feeding, posturing, parading, and eventually, copulation. Both males and females make a number of shallow nest scrapes, only one of which is selected by the female for egg-laying. The nest site is typically on a ridge or else a slightly elevated area of sand. During periods of hot weather, an incubating adult will shade eggs with its body or else wet its breast in nearby water and drip water on the eggs to cool them. Least Tern pairs will aggressively defend their nest sites from intruders with dives, defecation, and alarm calls (“*zwreep*”).

Safe Dates: May 25th to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Least Terns range widely in search of food and may well cross atlas block boundaries while doing so. These birds may fly upriver and forage at freshwater sites away from breeding colonies. As such, code **H** (“in appropriate habitat”) should be used care-



fully for this species - only when a historically-used colony site is within the block. Should Least Terns be observed making nest scrapes, use code **B**. Least Terns defend their nest sites aggressively from intruders with diving, defecation, and emphatic calling. If these agitated behaviors are observed, use code **A**. If a colony is located, Least Terns may be confirmed through observations of adults on nests (code **ON**) or nests with eggs (code **NE**). *The Least Tern is a state-listed Endangered Species. Keep a respectful distance of 300' or more from nest sites and young birds and back away from the area if birds become distressed during your observations.*

Black Tern: The Black Tern is unique among Maine's tern species in that they nest in freshwater marshes and not usually on the offshore islands. They also literally contrast with other terns in that, as their name suggests, they are predominately plumed in black. Pairs are formed prior to reaching the nesting grounds, however, site-selection and nest building is rapid, with egg laying beginning within just 4 days of arrival at the colony. Colonies are frequently formed in areas with shallow, still water and emergent vegetation. Nests are constructed of nearby vegetation piled on floating mass of vegetation, boards, or muskrat lodges and made into a cup. Adults arriving to feed their young typically give a "kyew" call when approaching the nest. Adults may dive-bomb, strike, mob, and give chase to intruders that approach their nest site.

Safe Dates: June 1st to August 1st (applicable for **H** code, and use codes in the "Probable" breeding category with caution if outside these dates).

Breeding Evidence: Observing breeding behaviors in the Black Tern is challenging. Birds range widely in search of food and may well cross atlas block boundaries while doing so. These birds may fly outside the colony area while foraging for fish and insects to bring back to their young. As such, code **H** ("in appropriate habitat") should be used carefully for this species - only when a historically-used colony site is within the block. If a known or suspected colony is located within your block, you may be able to confirm this species by watching for birds on nests (code **ON**) or nests with young (code **NY**) from a distance with a spotting scope or binoculars. Note that we strongly discourage closely approaching or disturbing nesting birds *The Black Tern is a state-listed Endangered Species. Keep a respectful distance of 300' or more from nest sites and young birds and depart from the area if birds become distressed during your observations.*

Roseate Tern: The Roseate Tern is a rare tern species nesting on offshore islands in Maine. Pair formation occurs before Roseate Terns arrive at their nesting colonies in May. Colonies are shared with other tern species, often the Common Tern. As part of courtship, pairs make a series of nest scrapes before choosing a nest site. Nests are typically built under cover of rocks, debris, or dense vegetation and are provisioned with loose vegetation after incubation has already begun. Roseate Terns frequently use man-made nest boxes rather than natural sites when available. Both parents incubate the eggs and rarely leave the eggs uncovered for any length of time. These terns are less aggressive than other tern species when defending against intruders, but will still circle and dive at threats or conspecifics.

Safe Dates: June 1st to July 25th (applicable for **H** code, and use codes in the "Probable" breeding category with caution if outside these dates).

Breeding Evidence: Roseate Terns range widely in search of food and may well cross atlas block boundaries while doing so. As such, code **H** ("in appropriate habitat") should be used carefully for this species - only when a historically-used colony site is within the block. Observing other breeding behaviors in this species is difficult due to the remoteness of typical colony sites, but luckily seabird researchers are annually surveying all potential tern nesting islands



along the coast of Maine and submitting their records to the atlas. Make sure to keep your distance from and do not land on the managed seabird colonies along the Maine coast as researchers there are already submitting breeding records from those islands. *The Roseate Tern is a state-listed Endangered Species. Keep a respectful distance of 300' or more from nesting islands and depart from the area if birds become distressed during your observations.*

Common Tern: The Common Tern is Maine's most common and widespread tern species with a breeding range along coastal and northeastern Maine. These terns typically nest on rocky islands, but will also nest on barrier beaches, saltwater marshes, and occasionally along freshwater lakes and in freshwater wetlands. Colonies are generally in areas that lack woody vegetation but with the cover of scattered annual herbaceous plant growth. Courtship and pair formation occurs once birds reach the nesting colony. Courtship can include flights over the colony carrying fish (while females pursue), parading (the male walks circles around the female), mate-feeding, and nest scraping (in which multiple nest scrapes can be made). Nests can be constructed in loose substrate (sand, gravel, earth), in depressions in rock, or, in freshwater situations, on muskrat lodges. Materials such as dead vegetation are added to the nest over time during incubation. Birds will aggressively defend the colony against intruders with calling (a harsh "keeeee-arrrr"), diving, mobbing, and pecking.

Safe Dates: June 1st to July 25th (applicable for **H** code, and use codes in the "Probable" breeding category with caution if outside these dates).

Breeding Evidence: Common Terns range widely in search of food and may well cross atlas block boundaries while doing so. As such, code **H** ("in appropriate habitat") should be used carefully for this species - only when a historically-used colony site is within the block. Observing other breeding behaviors in this species is difficult due to the remoteness of typical colony sites, but luckily seabird researchers are annually surveying all potential tern nesting islands along the coast of Maine and submitting their records to the atlas. Make sure to keep your distance from and do not land on the managed seabird colonies along the Maine coast as researchers there are already submitting breeding records from those islands. *The Common Tern is a species of Special Concern in Maine. Keep a respectful distance of 300' or more from nest sites and young birds and depart from the area if birds become distressed during your observations.*

Arctic Tern: As might be inferred by its name, the Arctic Tern is a species which largely breeds on the Arctic Ocean. A breeding population can be found along Midcoast and Downeast Maine among the offshore islands. Arctic Terns reach their colonies on islands in the Gulf of Maine around mid-May. Nesting typically takes places on sparsely vegetated or rocky islands, barrier beaches, and occasionally wetland areas like marshes, bogs, and wet meadows. Arctic Tern courtship takes place both before and after reaching the colony. Courtship behaviors consist of courtship flights in which fish are carried over the colony by the male, females enter the male's territory and posture, after which the fish is given to the female. Like many other tern species, the ritualized making of multiple nest scrapes plays a role in courtship. Males will advertise their presence with a call ("kitikeeyer"). Eggs are laid into a simple scrape or depression to which materials (such as dried vegetation, twigs, stones, bones, and plastic debris) are sometimes added during incubation.

Safe Dates: June 1st to July 25th (applicable for **H** code, and use codes in the "Probable" breeding category with caution if outside these dates).

Breeding Evidence: Arctic Terns range widely in search of food and may well cross atlas block boundaries while doing so. As such, code **H** ("in appropriate habitat") should be used



carefully for this species - only when a historically-used colony site is within the block. Observing other breeding behaviors in this species is difficult due to the remoteness of typical colony sites, but luckily seabird researchers are annually surveying all potential tern nesting islands along the coast of Maine and submitting their records to the atlas. Make sure to keep your distance from and do not land on the managed seabird colonies along the Maine coast as researchers there are already submitting breeding records from those islands. *The Arctic Tern is a state-listed Threatened Species. Keep a respectful distance of 300' or more from nest sites and young birds and depart from the area if birds become distressed during your observations.*

Razorbill: The Razorbill is a stocky alcid (auks and puffins) which can be found along the coast of Downeast Maine year-round and breeds on coastal islands. Maine is the only state in the U.S. which supports breeding Razorbills. These birds use a wide variety of partially or wholly enclosed nesting sites including caves, gaps between boulders, cliffs under overhangs, and cracks in rock. Depending on the location of the nest, Razorbills may or may not construct simple nests using nearby materials such as pebbles, shells, vegetation, and feathers. Pairs share brooding responsibility and, once hatched, the feeding of their young. Males continue to feed young on the open water once fledged.

Safe Dates: May 1st to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Razorbills forage in close proximity to their breeding colonies which makes it easy to observe this species in the appropriate breeding habitat (code **H**). Nest burrows are often near shore and therefore it is fairly common to observe Razorbills entering probable nest sites (code **N**). Adults may be observed carrying fish in their bills back to nearby colony sites (code **CF**). Adult Razorbills feed their young by passing fish (held crosswise in their bill) to their young while the brooding adult continues to sit quietly at the nest site (code **FY**). As soon as the young birds take to the water, they disperse from the colony and breeding codes should not be used for these observations. *The Razorbill is a state-listed Threatened Species. Keep a respectful distance of 300' or more from nest sites and young birds and depart from the area if birds become distressed during your observations.*

Black Guillemot: The Black Guillemot is a medium-sized alcid (auks and puffins) which breeds along the entire Maine coast. This species nests above the high tide line along the shoreline of rocky offshore islands, nesting under boulders, overhangs, or in cracks or earthen burrows. Black Guillemots forage in the shallow waters near their breeding colonies. Chicks 25 days old or more can sometimes be observed at nest chamber openings awaiting food deliveries from their parents. Chicks fledge in mid-August, depart the breeding colony, and take to the open sea on their own.

Safe Dates: May 1st to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Black Guillemots forage in close proximity to their breeding colonies which makes it easy to observe this species in the appropriate breeding habitat (code **H**). Nesting occurs under rocks near shore and therefore it is fairly common to observe guillemots entering their nest site (code **ON**), i.e., disappearing under a boulder. Adults may be observed carrying food items in their bills back to nearby colony sites (code **CF**). Fledglings waiting for food by burrows may be fed out in the open. In such cases, the appropriate breeding code would be **FY**. As soon as the young birds take to the water, they disperse from the colony and breeding codes should not be used for these observations.



Atlantic Puffin: Easily the most familiar alcid species, the Atlantic Puffin is a conservation success story having been restored to some Maine islands after drastic declines. Today the bird is increasing in number and has breeding colonies on a few Maine islands. Nests in either natural cracks and crevices or in earthen burrows excavated by the birds themselves. Both parents incubate, brood, and feed their young. Young puffins are fed a diet of fish which are gathered by the parents in the waters near the nest colony. Feeding peaks during early morning and early evening.

Safe Dates: May 1st to August 1st (applicable for **H** code, and use codes in the “Probable” breeding category with caution if outside these dates).

Breeding Evidence: Atlantic Puffins forage in close proximity to their breeding colonies which makes it easy to observe this species in the appropriate breeding habitat (code **H**). Observing other breeding behaviors in this species is difficult due to the remoteness of typical colony sites, but luckily seabird researchers are annually surveying all potential puffin nesting islands along the coast of Maine and submitting their records to the atlas. Make sure to keep your distance from and do not land on the managed seabird colonies along the Maine coast as researchers there are already submitting breeding records from those islands. *The Atlantic Puffin is a state-listed Threatened Species. Keep a respectful distance of 300’ or more from nest sites and young birds and depart from the area if birds become distressed during your observations.*