

**STATE
THREATENED**

Atlantic Puffin

(Fratercula arctica)

Description

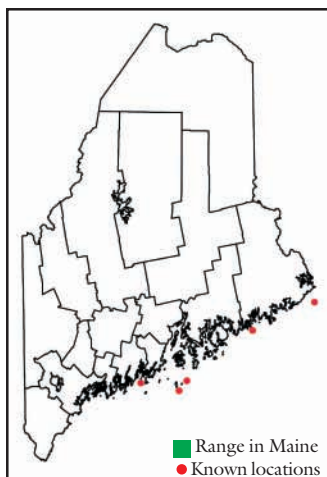
Although few people have seen a puffin, this comical-looking seabird is familiar to most Maine citizens and is one of the state's most popular wildlife species. It is a short (12 inches long), chunky seabird with short, stubby wings. During the summer breeding period, the adult has black wings, back, and tail, a white belly, gray and white cheek patches, and a colorful beak. The bill is triangular in shape with alternating stripes of bright red-orange, blue-gray, and yellow. The forehead, crown, and nape are black, extending in a collar across the throat. The legs and feet are bright orange. After breeding season, puffins lose their colorful summer dress. They shed the outer sheaths of the bill and horny ornaments around the eye, leaving the bill small and gray. The white face patch is lost, the belly becomes gray, and the legs turn to a dull yellow.

Range and Habitat

The Atlantic puffin breeds in arctic and subarctic marine waters from Maine, eastern Canada, Greenland, and Iceland to northern Europe and Russia. It is one of the most abundant seabirds in the North Atlantic (16 million birds), and over half of the population nests in Iceland.

Nesting populations in the Gulf of Maine comprise less than 1 percent of the total population and are at the extreme southern edge of the species' range.

Puffins nest on rocky, isolated islands, although they occasionally nest on mainland headlands if mammalian predators are absent. Islands must have suitable nesting surfaces, either rocks or boulders with suitable crevices, or a



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peat-like sod of adequate depth to enable nesting birds to dig burrows. In Maine, puffins have been recorded nesting on seven islands, with the largest colonies on Matinicus Rock, Eastern Egg Rock, and Seal Island. There is also a large colony on Machias Seal Island on the Maine-New Brunswick border. Outside of the breeding season, puffins are pelagic, spending most of the winter at sea along pack ice areas of the North Atlantic.

Life History and Ecology

Puffins have an entirely pelagic existence until they mature at 4-6 years of age. Adult birds return to a breeding colony in mid-April. Young birds spend their first 2-3 years at sea, and subadults begin to return to colonies in early summer to look for prospective mates and nest sites. Puffins usually return to the same breeding colony where they were born and retain the same burrow and mate year after year.

Nest burrows end in an enlarged nesting chamber. Between April and July, a single egg is laid in the chamber on bare rock or bare soil. Seaweed, grass, feathers, and other material may be used to support the egg to keep it dry and protect it from being damaged. Incubation ranges from 40-45 days and both parents share responsibility. If the egg is destroyed, the female may lay a replacement egg. Peak hatching occurs the last week of June to the first week of July. The newly hatched chick is brooded continuously for the first 6-7 days until it can maintain its own body

temperature. The chick is then left alone while both parents search for food.

The adult diet is primarily fish, although crustaceans are also taken. Small fishes that are taken include Atlantic herring, sand lance, capelin, smelt, and various species of cod. Adults return to the colony typically with 5-12 small fish in their beaks, but they can carry over 20, depending on size! Chicks grow slowly, and fledging occurs at 38-41 days. When abandoning the colony, chicks leave at night to avoid gull predation, and travel far from the colony site before morning. After fledging, chicks are independent of their parents.

In Maine, most puffins leave breeding colonies by mid-August. Puffins are long-lived and may attain 20-30 years of age. One banded puffin lived to be 34 years old.

Threats

Puffins were never abundant in Maine at the southern edge of their nesting range. Historically, they declined from overharvest for food, feathers, and eggs. These ground-nesting birds were particularly vulnerable to introduced predators (rats and other mammals). In the last 50 years, expanding populations of great black-backed and herring gulls became serious predators of puffins, their chicks, and eggs. The presence of gulls prevents puffins from recolonizing former nesting areas. Unmanaged human disturbance on nesting islands diminishes feeding rates of young. Fluctuations in food supply also affect breeding success. Accidental capture of puffins in gill nets as they chase prey underwater is a serious problem in some areas. Oil pollution and spills can kill large numbers of birds.

Conservation and Management

Several hundred pairs of puffins nested on eight Maine islands prior to 1860. Hunting, egg collecting, and introduction of sheep to nesting islands nearly extirpated the species from the state by 1900. Puffins persisted in the Gulf of Maine on Matinicus Rock and Machias Seal Island where they were protected by lighthouse keepers. In 1977, there were 125 pairs breeding on Matinicus Rock. In the 1980s, the National Audubon Society established a puffin restoration program in Maine and pioneered seabird restoration techniques. Scientists spent years transferring hundreds of chicks from Newfoundland and attracting birds using decoys and sound recordings. Approximately 250 pairs of puffins now nest on four islands in Maine. An additional 1000 pairs nest on Machias Seal Island. Puffins were listed as threatened in Maine in 1997 because of their small population size and limited distribution.

All nesting islands (Petit Manan Island, Matinicus Rock, Seal Island, and Eastern Egg Rock) are intensively managed for seabird restoration. Herring and great black-backed gulls have been removed or populations reduced. Terns, laughing gulls, guillemots, eiders, and petrels share these managed nesting islands and benefit from the lack of gull predation. Biologists protect and observe puffin colonies during the nesting season. Puffins draw thousands of bird watchers each summer on puffin cruises. On-shore visits are prohibited on most islands and are highly regu-

lated on Machias Seal Island. All puffin islands in Maine are in conservation ownership and protected by Significant Wildlife Habitat provisions of the Natural Resource Protection Act or as Protection Fish and Wildlife areas under provisions of the Land Use Regulation Commission.

Recommendations:

- ✓ Protect seabird nesting islands and adjacent waters from further development, especially human dwellings, fishing piers, docks, and aquaculture facilities. Review Essential Habitat maps and guidelines prior to development near roseate tern islands. Consult with a biologist from MDIFW and the U.S. Fish and Wildlife Service to assist with planning.
- ✓ Municipalities should strive to prevent development of seabird nesting islands and adjacent waters and identify these areas in comprehensive plans. Consider protecting a ¼ mile buffer around seabird nesting islands.
- ✓ Use voluntary agreements, conservation easements, conservation tax abatements and incentives, and acquisition to protect important habitat for threatened and endangered species.
- ✓ Stay off seabird nesting islands during the nesting season (April 1 to August 15). If visitation is approved (e.g., commercial tours to a seabird island), remain on designated paths and in blinds to minimize disturbance.
- ✓ Keep boat activity more than 660 feet from seabird nesting islands. If birds flush from the island, you're too close.
- ✓ Keep all pets off islands. Do not introduce mammalian predators.
- ✓ Locate aquaculture facilities farther than ¼ mile from seabird nesting islands.
- ✓ Avoid overfishing and polluting nursery areas for herring, hake, and other fish stocks important as food for seabirds.
- ✓ Do not use gill nets near seabird islands or known feeding areas.
- ✓ Do not dump oil, litter, or waste overboard. Even small amounts of oil can kill birds. Seabirds are often injured by eating plastic particles from trash that are mistaken for food.
- ✓ Avoid overboard discharge of fish waste or bait. Predatory gull populations have increased because of this readily available supply of food. 🐦