

ADIRONDACK BOREAL WETLANDS



FACTS:

Wetlands make up nearly a million acres of the Adirondack landscape. More than 600,000 acres consist of characteristically northern wetland types including Boreal-Laurentian bogs and fens and Northern Appalachian-Acadian acidic swamps.

Formed at the retreat of the last glaciation, these relict habitats have high ecological inertia and specialized adaptations to cold, wet, low nutrient conditions. Peat is the substrate of bogs, fens, and many northern swamps. In these saturated conditions, production of organic material outpaces its decomposition and the result is an accumulation of peat. Peatlands perform critical carbon storage functions.

The Adirondack Park lies at the transition between the temperate and boreal zones. As a result, our boreal wetlands are islands surrounded by temperate forest and critical to regional biodiversity. Because they are naturally disjunct in the landscape, maintaining ecological connectivity between boreal wetlands is particularly important.

Some of the rarest flora and fauna in the state are found in boreal wetlands. These include more than 20 birds considered to be Species of Greatest Conservation Need in New York including olive-sided flycatcher, rusty blackbird, spruce grouse, three-toed woodpecker, and Tennessee warbler. They are nowhere else in New York, and within the park they are confined to these special wetland types. As such, these are responsibility species for the Adirondack Park.

Boreal wetlands in the Adirondacks are important climate change refugia. Refugia are areas relatively buffered from contemporary climate change over time that enable the persistence of valued resources. Peatlands can retain high surface soil moisture and water tables and are often associated with cold-air pooling which can decouple and buffer them from regional climate patterns. Many of our peatlands are associated with lakeshores. Lakes, because of their high heat capacity, can also modify the climate of their surroundings, lending additional value to shoreline peatlands as refugia from regional temperature changes.

Climate change is the most important threat to Adirondack boreal wetlands. These high latitude systems are threatened by warmer temperatures and altered precipitation regimes that have the potential to drastically alter or transition them to new states over time. Peatlands store enormous amounts of terrestrial carbon and alterations to peatland habitats can impact their carbon storage capacity. Existing wetlands protection mechanisms do not account for inundation of peatlands by alterations to hydrology from road or dam construction. Flooding peatlands is a worst case scenario for both greenhouse gas emissions and mercury methylation.



BEST MANAGEMENT PRACTICES

For Landowners

1 To protect boreal wetland habitat in the context of planning for new development, use ecologically sensitive design approaches such as mapping and understanding wildlife and habitats present, concentrating disturbances and infrastructure at the edges of large habitat blocks, maintaining and improving connectivity features such as vegetated riparian buffers between blocks of habitat, protecting important features such as open peatland from disturbance, minimizing pavement and hardened surfaces including length and width of roads, removing non-native species and replacing with natives, learning about revenue sources such as government funded habitat management programs or well-managed forestry, and consulting foresters, estate planners and others with expertise in long-term planning.

2 To maintain water quality, hydrologic function, and carbon sequestration in boreal wetlands, minimize actions that will change what water carries and how water travels to and from peatlands, both above and below ground, maintain/restore water flow across service roads, divert polluted water sources away from peatlands, reduce fertilizer and pesticide use, avoid ditching and other hydrological alterations, remove obsolete impoundments and ditches, do not dam streams flowing into or out of peatlands, do not excavate peatlands to create waterfowl habitat, use barriers to keep livestock out of peatlands, use best practices for sediment and erosion control as well as timber harvest, and ensure that adjacent land uses or alterations do not interfere with carbon storage functionality of peatlands.

3 To protect birds and other wildlife associated with boreal habitats on private parcels, minimize outdoor lighting and use downward facing light fixtures, maintain a clean grill and store it out of reach of wildlife, do not store garbage outside overnight, make windows safer for birds during the day and night, keep housecats indoors, reduce the size of the lawn and avoid pesticides, reduce plastic usage, drink bird friendly coffee, and watch wildlife, learn about them, and share your observations.

4 To facilitate broader public appreciation and protection of boreal wetlands, learn about the importance of peatlands and threats to these special habitats, participate in citizen science opportunities such as phenological monitoring or bird surveys, and talk with friends and neighbors about actions that can protect peatlands, their associated wildlife, and their critical role in carbon storage.



The palm warbler (*Setophaga palmarum*) is a colorful warbler that is dependent on this habitat. Palm warblers spend most of the winter in the southeastern United States and Caribbean but return to the Adirondacks during the summer months for the breeding season.

Image Credit: [Brendan Wiltse Photography](#), Jeff Nadler (palm warbler)