Level Bog

State Rank: S3 - Vulnerable

Level Bog with rhodora in flower, leatherleaf and scattered larch. Photo: Steven Roble, NHESP.

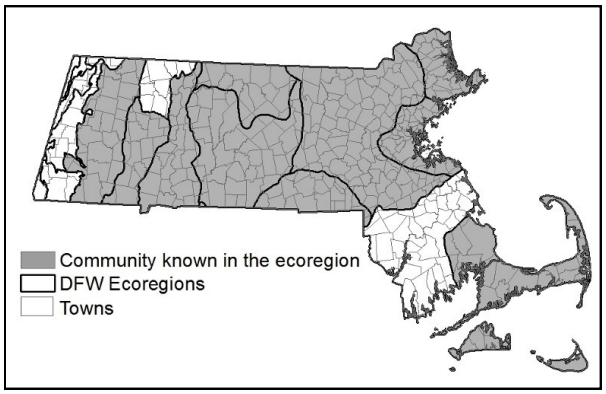
Level Bogs are dwarf-shrub peatlands, generally with pronounced hummocks and hollows in sphagnum moss. These wetland communities are very acidic and nutrient-poor because the peat isolates them from nutrients in groundwater and streams.

Description: Level Bogs are peatlands - wetlands with incompletely decomposed plant material (peat) that accumulates when saturated year round by water that is cool, acidic, poorly oxygenated, and low in nutrients. They receive little or no stream flow and they are isolated from the water table, making them the most acidic (pH ~3 to 4), and nutrient-poor of peatland communities. Level bogs develop along pond margins, at the headwaters of streams, and in pockets within large basins. The word "level" is used to differentiate Massachusetts' bogs from the raised bogs of more northern latitudes where peat becomes so thick that the only way nutrients enter the system is through precipitation. Massachusetts' climate is not cold enough for raised bogs to develop.

Characteristic Species: Sphagnum is the most common plant in all acidic peatlands, forming a mat that the vascular plants grow on, and producing most of the peat that underlies the community. Level Bogs are characterized by a mixture of tall and short shrubs that are predominantly in the heath family. Leatherleaf is dominant with other shrubs typically including rhodora, sheep laurel, bog laurel, bog rosemary, Labrador tea, highbush blueberry, and low-growing large and small cranberry. Scattered, stunted trees (primarily tamarack and black spruce, with red maple saplings) occur throughout. A mixture of specialized bog plants grow on the hummocky sphagnum surface, including carnivorous pitcher plants and sundews.

Differentiating from Related Communities: Natural communities on acidic peatlands all occur on sphagnum peat. The depth, density, and strength of the underlying peat control the structure and composition of each type of peatland community through the extent that plants growing on it are isolated from nutrients carried by ground water. In Level Bogs the sphagnum peat tends to be deep and well developed, graminoids may be present but not dominant, and shrubs are dominated by leatherleaf. Kettlehole Level Bogs are a subset of Level Bogs that occur in kettleholes in sandy glacial outwash. They are typically small (<3 acres), round, and they lack inlets and outlets. Atlantic White Cedar Bogs have sparse canopy cover of Atlantic white cedar trees over sphagnum on peat. Acidic Graminoid Fens are dominated by graminoid and herbaceous species and lack extensive shrubs. Sea-level Fens occupy the interface between estuarine marshes and upland, and include both estuarine and palustrine species. Interdunal Marsh/Swales occur as part of a coastal dune system. Some are fen-like on shallow peat, but occurring in dune systems is the defining characteristic. Acidic Shrub Fens (ASF) are composed primarily of low-growing, interwoven shrubs. ASF are wetter with a less well-developed sphagnum mat than other acidic peatlands. Spruce-Tamarack Bogs are acidic forested peatlands with an overstory of black spruce and tamarack.

Cranberry on a sphagnum mat. Photo: Steven Roble, NHESP.



Habitat for Associated Fauna: Acidic peatlands are inhospitable to many animal species. Winged animals and large terrestrial animals can use peatlands as part of their habitat. Moose and white-tailed deer use acidic peatlands for browsing and grazing, and their trails are often evident across the peat mat. Bears are attracted to the cranberries and blueberries in season. The acidity and low oxygen content of Level Bogs make them poor habitat for most amphibians and reptiles, although some species can breed in the shallow pools that form among the sphagnum hummocks. Many species of dragonflies and damselflies inhabit acidic peatlands, especially where there is adjacent open water.

Examples with Public Access: Bog surfaces are damaged by trampling; sites with boardwalks are best suited to visitation such as Ponkapoag Bog (DCR), Canton; Poutwater Pond (DCR), Sterling; Black Pond Nature Preserve (TNC), Norwell; Hawley Bog, Hawley.

Level Bog hummocks and hollows with larch. Photo: Steven Roble, NHESP.

From: *Classification of Natural Communities of Massachusetts* http://www.mass.gov/nhesp/
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