Natural Heritage & Endangered Species Program
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Black Gum Swamps

State Status: None
Federal Status: None

Description: This plant community is a deciduous swamp forest characterized by black gum (*Nyssa sylvatica*) as an abundant canopy tree or as the dominant. Some of these swamps contain large, very old black gum trees, due to the low commercial value of the wood. These swamps are located in small poorly drained basins with accumulations of peat or muck. They are characterized by hummocks and hollows that are seasonally flooded. Under the tree canopy, Black Gum Swamps usually have highbush blueberry in the shrub layer, cinnamon fern prominent on the hummocks and Sphagnum mosses carpeting the hollows.

Environment: Black gum trees occur in a variety of settings, including isolated shallow depressions or basin wetlands, in seepage swamps, and along fringes of ponds or shorelines. The focus of this fact sheet is the community type that occurs in small topographically defined basins.

Black gum swamps in Massachusetts occur below 1000 ft. in elevation, have relatively small watersheds, limited drainage and are usually isolated from perennial streams. They often have a small intermittent outlet channel, but usually have no defined inlet. These depressions often are perched on hillside benches or concavities in glacial till soils. Organic muck and peat soils that are saturated and/or seasonally flooded in these areas create acidic and nutrient poor conditions. Black gum swamps often function as vernal pools, providing important habitat diversity for wildlife, including amphibian breeding sites.

Characteristic Species: Black gum is often the dominant species, but it is sometimes co-dominant with red maple (*Acer rubrum*) in a fairly open tree canopy. Other associates in the canopy are white pine (*Pinus strobus*), hemlock (*Tsuga canadensis*), black ash (*Fraxinus nigra*), and red spruce (*Picea rubens*), although these are lower in abundance. The subcanopy in these forested swamps is usually well developed and includes a mixture of the canopy species and yellow birch (*Betula alleghaniensis).*

The shrub component is variable in cover and grows primarily on the tops and sides of the hummocks. Characteristic shrubs of these swamps are winterberry (*Ilex verticillata* or *I. laevigata*) and highbush blueberry (*Vaccinium corymbosum*). Other associates that may be present include maleberry (*Lyonia ligustrina*), mountain holly (*Nemopanthus mucronatus*), mountain laurel (*Kalmia latifolia*), buttonbush (*Cephalanthus occidentalis*), and wild raisin (*Viburnum nudum* var. *cassinoides*).

Illustration of black gum swamp by Libby Davidson from *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* by Elizabeth H. Thompson and Eric R. Sorenson. Vermont Department of Fish & Wildlife and The Nature Conservancy. 2000.

Cinnamon fern (*Osmunda cinnamomea*) is usually the most abundant herbaceous species present, growing primarily on the mossy hummocks. Although the herbaceous component is generally not diverse, other potential associates are royal fern (*Osmunda regalis* var. *spectabilis*), marsh-fern (*Thelypteris palustris*), goldthread (*Coptis trifolia*), beggar-ticks (*Bidens frondosa*), northern water-horehound (*Lycopus uniflorus*), swamp-dewberry (*Rubus hispidus*), marsh St. John's-wort (*Triadenum virginicum*), and Massachusetts fern (*Thelypterus simulata*). On the drier hummocks starflower (*Trientalis borealis*) and wild sarsaparilla (*Aralia nudicaulis*) may occur in small amounts. Saturated or flooded hollows carpeted with mosses (primarily *Sphagnum spp*.) and scattered three-seeded bog sedge (*Carex trisperma*) are characteristic of this community type. Silvery bog-sedge (*Carex canescens* ssp. *disjuncta*), bladder-sedge (*Carex intumescens*), tussock-sedge (*C. stricta*), or fowl meadow-grass (*Glyceria striata*) may also be present, depending upon the site.

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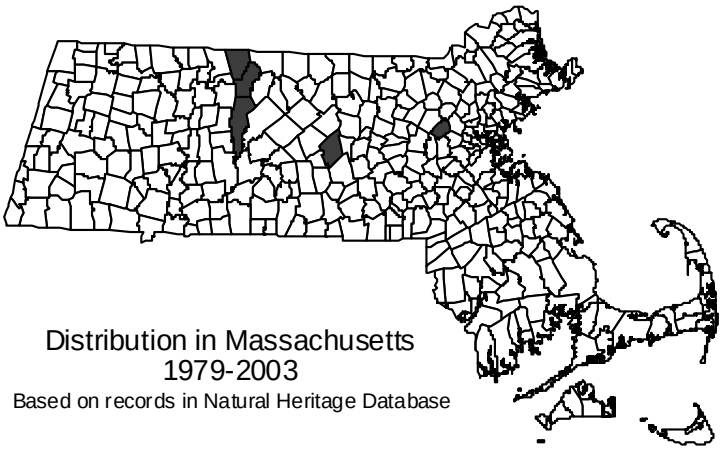

Distribution in Massachusetts
1979-2003
Based on records in Natural Heritage Database

Range: In Massachusetts this community type is not common, as black gum is near the northern extent of its range. Most of the known occurrences of this community are located in the north-central portion of the state (particularly in Franklin and Worcester Counties). More research is needed to determine the actual range and variation of Black Gum Swamps in the state.

Related Communities: Often Black Gum Swamps are located in saddles or depressions near the tops of hills and are surrounded by upland forests, as opposed to being part of a larger mosaic of wetland communities. Although there is often no mixing with other wetland communities within a site, Black Gum Swamps may exhibit similarities with some of our other wetland types.

Another forested swamp in Massachusetts that contains black gum is named the Black Gum-Pin Oak-Swamp White Oak "Perched" Swamp. This community type tends to occur only on lakebed sediments of glacial Lake Hitchcock in the Connecticut River Valley. The presence of pin oak and swamp white oak in the canopy, in addition to the topographic setting help to distinguish this type. This wetland community type is usually found at lower elevations and often nested within larger wetland systems.

Other related communities include Red Maple Swamps, Black Ash Swamps, Hemlock-hardwood Swamps, and Spruce-fir Boreal Swamps. These wetland communities often have some of the same species present in the herb or shrub layers, and black gum sometimes occurs in the subcanopy or canopy, but only as a minor component. Black gum trees also occur along the edges of vernal pools or ponds.

Management Considerations: Logging, changes in hydrology, development, pollution, and exotic species are the greatest threats to Black Gum Swamps. Logging within the swamp or even in the surrounding uplands may affect the hydrologic patterns, nutrient status, habitat integrity or species composition of these forested wetlands. Swamps that are adjacent to developed areas may be degraded by changes in hydrology, stormwater or wastewater discharges, elevated nutrient inputs, or exotic flora. Sedimentation from nearby logging or construction activities is a significant threat to the ecological integrity and composition of Black Gum Swamps. In addition to human impacts, beavers (*Castor canadensis*) can cause significant flooding and subsequent changes in community type from a forested wetland to open water, marsh or shrub swamp.

The use of undisturbed natural buffers around the best occurrences of Massachusetts Black Gum Swamps is encouraged. Natural wooded buffers reduce the potential for impacts to the swamps from surrounding changes in the environment and will help protect habitats for wildlife that are dependent upon these swamps for food, cover, breeding, or nesting sites.

Black Gum
Illustration by C.E. Faxon from *Native and Naturalized Trees of Massachusetts*, Cooperative Extension Service, University of Massachusetts, Amherst. 1978.

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Updated 2001