



# Natural Heritage & Endangered Species Program

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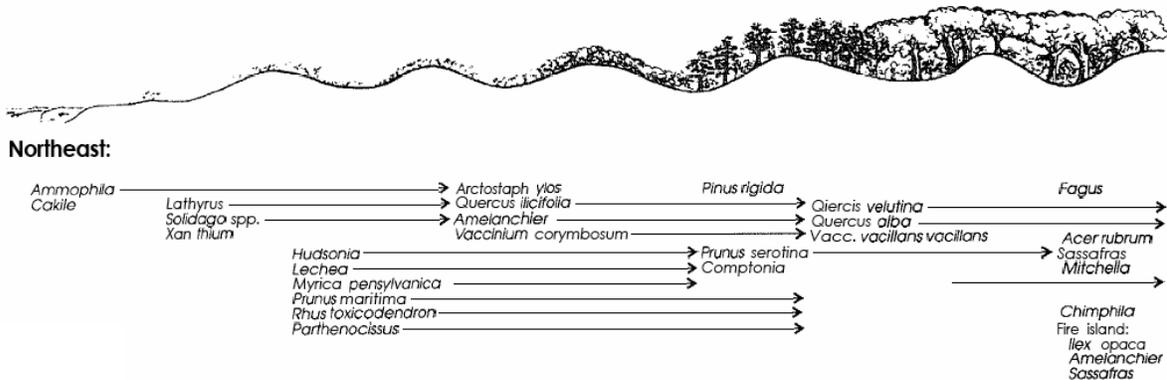
## Natural Community Fact Sheet Coastal Forests, Maritime Forests, and Maritime Shrublands

### Community Descriptions

Coastal and maritime communities occur very near the ocean. Coastal and maritime forests and maritime shrublands are within the northeastern oak and oak-pine forest, and are variants of those prevailing forest types. Species of these communities are species of the oak forest, including species with southern distributions, such as American holly (*Ilex opaca*) and tupelo (*Nyssa sylvatica*), the result of the more moderate temperatures along the coast. The coastal vegetation of the state includes a variety of fairly distinct, but repeated, plant groupings that can be classed separately as distinct associations within the community types. The differences among the communities and associations are often gradual, making differentiation on the ground difficult at times.



Maritime forest behind beach and salt marsh, with shrubs, Juniper and deciduous trees behind. T. Huguenin photo.



From Godfrey, 1976b, in Bellis, 1995. Ecology of Maritime Forests of the Southern Atlantic Coast: A Community Profile. USNBS.

The heights of **Coastal Forests** are variable but often 10-20m (about 30 to 60 feet); not as tall as further inland, but taller than maritime forests. Coastal forests have a dense to open shrub layer, some vines in openings and along edges, and a normally scattered herbaceous layer.

Often **Maritime Forests** are less than 10m (about 30 feet) tall. The more exposed to maritime influences, the shorter the vegetation tends to be. **Maritime Shrublands** are up to 2-3m (about 6-10 feet) tall and very dense, with one or several species very dominant. Maritime communities usually have a sparse herbaceous layer, but grasses or sedges can be abundant. Vines are often very abundant in maritime communities, forming impenetrable barriers particularly on their edges.

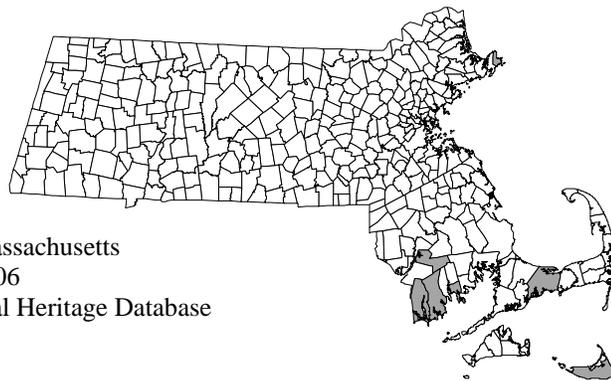
Maritime and coastal forests and shrublands grade into each other and other community types, such as wetlands in interdunal swales, dry shrubby dunes, and more inland oak forests. Maritime forests are tracked by MNHESP as Priority Natural Communities.

### **Environment**

All coastal and maritime communities occur in the moderated climate of near shore environments, with warmer winters and cooler summers than more inland areas. Although these communities often occur on sand or bedrock that doesn't hold water, fog and increased precipitation can produce more available water than further inland. These communities are exposed to the direct influences of salt and constant ocean wind, which strongly stress plants and select for stress-tolerant species. The species of maritime and coastal communities do not withstand flooding by salt water, but they tolerate, or recover from, salt deposits on their leaves. Fire was an important part of this environment prior to the establishment of fire suppression regimes in settled areas.

**Maritime communities** (forests and shrublands) occur along the coast within the area of direct influence of the ocean and salt spray, such as on barrier beach dunes, next to tidal marshes, or on bluffs. Offshore islands can have extensive areas of maritime forest. When shrubs predominate without a tree canopy above them (some seaside bluffs, exposed portions of dune systems, rocky headlands, and islands exposed to wind and salt spray) the association is called a **Maritime Shrubland Community**.

**Coastal forests** are found in more protected areas along the coast, such as behind dunes and on slopes away from the water and behind maritime forests, continuing inland for a few miles from the coast. Much of the forest areas on larger islands such as Martha's Vineyard, are coastal types.



Distribution in Massachusetts  
1980-2006  
Based on records in Natural Heritage Database

### **Characteristics Plant Species in Massachusetts**

Tree Oaks, except red oak, are the dominant species of the **coastal oak forest** and several of the maritime forest associations. Scarlet, black, and white oaks (*Quercus coccinea*, *Q. velutina*, and *Q. alba*) are typical with post oak (*Q. stellata*) also occurring particularly south of Boston. Red maple (*Acer rubrum*), sassafras (*Sassafras albidum*), black cherry (*Prunus serotina*), tupelo (*Nyssa sylvatica*), pitch pine (*Pinus rigida*), and white pine (*Pinus strobus*) commonly occur, usually in low percentages, but are occasionally abundant. American Holly (*Ilex opaca*) is a regular associate in the southeastern Massachusetts occurrences of the coastal oak forest (where holly is abundant, the association may be called a **coastal oak – holly forest**). Red cedar (*Juniperus virginiana*) occurs in low percentages in the forests and sometimes as a dominant in woodland thickets. A low-shrub heath layer dominated by low bush blueberries (*Vaccinium pallidum*, *V. angustifolium*) and black huckleberry (*Gaylussacia baccata*) is very characteristic. The herbaceous layer is typically sparse, with Pennsylvania sedge (*Carex pensylvanica*), bracken fern (*Pteridium aquilinum*), wintergreen (*Gaultheria procumbens*) and wild sarsaparilla (*Aralia nudicaulis*) being typical. Openings in the canopy produce a greater diversity of the herbaceous layer, where little blue-stem grass (*Schizachyrium scoparium*), Canadian rockrose (*Helianthemum canadense*), bush clovers (*Lespedeza* spp.), milkworts (*Lechea* spp.) and bearberry (*Arctostaphylos uva-ursi*) occur. Most occurrences of maritime and coastal forests have many vines, at least on the edges and in openings of the forest. Poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), grape (*Vitis* spp.), and greenbriars (*Smilax* spp.) may make dense curtains along the edges and up the trees. Poison ivy is particularly robust in maritime forests and shrublands.

Maritime forests and coastal forests share many of the same species, but **Maritime Forests** occasionally include species considered less adapted to the surrounding acidic conditions. The herbaceous layer of maritime forests sometimes contain such unexpected species as Wild Geranium (*Geranium maculatum*), skunk meadow-rue (*Thalictrum revolutum*), wild columbine (*Aquilegia canadensis*), and starry false solomon's seal (*Maianthemum stellata*, formerly *Smilacina stellata*), all species not associated with the surrounding acidic oak forest. In these protected, older interdunal areas moisture and nutrients are relative abundant, allowing the development of forests with less drought tolerant species, including coastal basswood (*Tilia americana* var. *neglecta*). The canopy in those cases is usually only as high as the surrounding dunes (salty wind over the dunes prunes any growth above those heights).

**Maritime Forests** with pitch pine as a dominant species occur on dunes that are somewhat active and in areas of past great soil disturbance (such as areas bulldozed and then abandoned). In the dunes, the ground between pines is bare with patches of beach heather (*Hudsonia tomentosa*) and lichens, and a few of the other salt tolerant species mixed in. On areas where the forest was completely removed in the past and the soil mixed, the pitch pine may form a dense canopy, with few other species present, and the ground covered predominately by Pennsylvania sedge.

In the **Maritime shrubland community** blueberries, black huckleberry, bayberry (*Myrica pensylvanica*), black cherry, black chokeberry (*Aronia melanocarpa*), and red cedar are some

of the shrubs that occur either mixed or with any one dominant in small or large patches. Interdunal wetlands with cranberry (*Vaccinium macrocarpon*) can occur between open, shrubby, or forested dunes.

### **Characteristic Animal Species in Massachusetts**

There are no animal species known to be restricted to coastal or maritime forests. Animal species are those of typical coastal oak areas such as the birds Rufous-sided Towhees (*Pipilo erythrophthalmus*), Gray Catbirds (*Dumetella carolinensis*), Common Yellowthroats (*Geothlypis trichas*), Ovenbird (*Seiurus aurocapillus*) and Black-and-white Warbler (*Mniotilta varia*). Small mammals such as meadow voles (*Microtus pennsylvanicus*), white footed mice (*Peromyscus leucopus*), and gray squirrels (*Sciurus carolinensis*) are common in all types of Massachusetts' forests. Moths, butterflies, and other insects of southeastern oak and oak pine forest occur in the coastal and maritime forests. Generally, in more salt influenced environments, fewer animals will be expected. As in all communities on peninsulas such as Cape Cod, or on islands, the more remote occurrences have fewer species than those closer to the mainland.

### **Rare Plant Species in Massachusetts**

Crane fly orchid (*Tipularia discolor*) (E) occurs in coastal forests, now only on Martha's Vineyard, although formerly also on Cape Cod. Post oak (*Quercus stellata*) (WL) is an uncommon but widespread component of Oak-Pine forest on Martha's Vineyard, and also occurs on Cape Cod, Nantucket, and the Buzzard's Bay coastal area. Coastal basswood (*Tilia americana* var. *neglecta*) (WL) is currently recognized as a variety of American basswood, and occurs in Massachusetts only in maritime forests.

### **Rare Animal Species in Massachusetts**

No rare animal species are restricted to coastal or maritime forests. However, the rare species of any oak or pine/oak forests, such as Eastern box turtles (*Terrapene carolina*) (SC) and several protected butterfly and moth species are known from some of the community occurrences.

E=State Endangered, T=State Threatened, SC = State Species of Special Concern, WL = on unofficial Watch List

Originated: 1999  
Updated: 2006