Maritime Forest/Woodland

Community Code: CT1A2A1000

State Rank: S2

Concept: Deciduous or mixed deciduous/evergreen forest/woodland within the salt spray zone near the ocean. The trees tend to be short, <10 m (~ 30 ft.).

Environmental Setting: Maritime communities occur near the ocean on exposed bluffs, the back or inland side of dunes, interdunal areas, and salt marsh borders, in mosaics of vegetation structure and species mixes. Strong winds, shifting sands, and flooding with saltwater create a dynamic system that maintains a variety of stages of early successional vegetation. Maritime Forest/Woodlands have a mixture of deciduous and evergreen trees in the canopy that is lower than typical in more inland areas, averaging about 30 feet (10m) tall. Many trees are multiple-stemmed and contorted from pruning by winds carrying salt and sand. Soils are usually sands with a surface layer of organic material that can slow moisture infiltration and keep the areas moister than more exposed surroundings. In addition, groundwater may be close to the surface in some low interdunal areas. Such low interdunal areas may be quite mesic and support relatively high species diversity. Where groundwater is lower, plant species are limited to those with deep-delving root systems. While sandy soils are generally acidic and low in nutrients, these soils may have higher pH and nutrient levels than expected due to the accumulation of leaf litter, fragments of sea shells, and input from salt spray (which can, of course, produce conditions too salty for many plants).

Vegetation Description: Trees are usually short relative to interior forests. Black oak (*Quercus velutina*), scarlet oak (*Q. coccinea*), white oak (*Q. alba*), other oaks, hickories (*Carya* spp.), American holly (*Ilex opaca*), sassafras (*Sassafras albidum*), black gum (*Nyssa sylvatica*), black cherry (*Prunus serotina*), and red maple (*Acer rubrum*) are

commonly present. American beech (*Fagus grandifolia*) is often present and occasionally dominant, sometimes in almost mono-dominant stands on moraines or areas near freshwater ponds. Basswood (*Tilia americana*) is in several occurrences. Pitch pine (*Pinus rigida*) and red cedar (*Juniperus virginiana*) occur in variable, generally low, amounts. One occurrence is dominated by hackberry (*Celtis occidentalis*) and sassafras. Vines may be dense, especially on the edges of openings; vines include greenbrier (*Smilax rotundifolia*), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quinquefolia*), grape (*Vitis aestivalis*), and the non-native Oriental bittersweet (*Celastrus orbiculatus*). The shrub and herbaceous components can be diverse and include species usually found in less acidic areas. Shrubs include bayberry (*Morella pensylvanica*), inkberry (*Ilex glabra*), winged sumac (*Rhus copallinum*), shadbush (*Amelanchier spp.*) and sweet pepper-bush (*Clethra alnifolia*). The understory often includes non-native shrubs that can form dense thickets of Japanese barberry (*Berberis thunbergii*), Japanese honeysuckle (*Lonicera japonica*), Morrow honeysuckle (*L. morrowii*), common buckthorn (*Rhamnus cathartica*), and/or multiflora rose (*Rosa multiflora*). The herbaceous layer is also highly variable and includes bracken fern (*Pteridium aquilinum*), Canada mayflower (*Maianthemum canadense*), partridgeberry (*Mitchella repens*), starflower (*Lysimachia borealis*), Pennsylvania sedge (*Carex pensylvanica*), and other sedges and grasses. Microtopography and local conditions strongly influence the species assemblage. Low (but not as wet as swales) interdunal areas often include species of wetlands such as swamp azalea (*Rhododendron viscosum*), viburnums (*Viburnum* spp.), winterberry (*Ilex verticillata*), and highbush blueberry (*Vaccinium corymbosum*). The herbaceous layer of these wetter areas sometimes includes species usually associated with rich, moist sites such as columbine (*Aquilegia canadensis*), starry Solomon's seal (*Maianthemum stellatum*), painted trillium (*Trillium undulatum*), and skunk meadow-rue (*Thalictrum revolutum*).

Differentiating Occurrences: Maritime Forests/Woodlands usually occur in a mosaic with other barrier beach, maritime, and/or coastal communities. Communities grade into other types in the mosaic, maturing and being reset to earlier successional stages by disturbance from storms, movement of sand, flooding, and drought. Maritime Forests/Woodlands are very near the ocean, receive regular salt spray, and have stunted canopies of mixed tree species. Maritime Pitch Pine Woodlands on Dunes are dominated by pitch pine, have sparser canopies, and are usually more exposed and closer to the ocean. Maritime Juniper Woodland/Shrublands are dominated by red cedar, and also usually closer to the ocean. Maritime Shrublands are dominated by shrubs and have <25% tree canopy. Coastal Forest/Woodlands are further from the coast and are not affected by salt spray on a daily basis. They have taller trees and a shrub layer consisting primarily of lowbush blueberry (*Vaccinium angustifolium*) and black huckleberry (*Gaylussacia baccata*). Determining actual boundaries among the communities in a maritime mosaic is difficult and may require arbitrary assignments. Patches that are <5000 sq. ft. should be noted in descriptions, but considered to be part of the variation of the surrounding community.

Associated Fauna: There are no animal species known to be restricted to Maritime Forests/Woodlands. Animal species are those of typical coastal oak areas such as the birds Eastern Towhee (*Pipilo erythrophthalmus*), Gray Catbird (*Dumetella carolinensis*), Common Yellowthroat (*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 Massachusetts forests. Moths, butterflies, and other insects of the southeastern oak and oak-pine forest occur in 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 sources. High white-tailed deer (*Odocoileus virginianus*) densities may have an impact on the abundance of native species, particularly woody seedlings such as oaks, as well as on herbaceous plants.

Public Access: Cape Cod National Seashore, Wellfleet; Sandy Neck Beach Conservation Area, Barnstable; Demarest Lloyd State Park, Dartmouth; Salisbury Salt Marsh WMA and Carr Island Wildlife Sanctuary, Salisbury; Parker River National Wildlife Refuge, Newburyport.

Threats: Exotics, such as Morrow's honeysuckle (*Lonicera morrowii*), dune stabilization, roads through the dunes. Over-abundant deer populations can strongly impact which species survive to reproduce.

Management Needs: Exotic control on the best examples.

USNVC/NatureServe: A2032 *Quercus velutina - Fagus grandifolia - Ilex opaca* Maritime Forest Alliance - *Quercus stellata - Quercus velutina/Morella pensylvanica/Deschampsia flexuosa* Forest (CEGL006373); A0237 *Prunus serotina - Amelanchier* spp. - *Juniperus virginiana* Maritime Scrub Forest Alliance - *Prunus serotina - Sassafras albidum - Amelanchier canadensis - Quercus velutina/Smilax rotundifolia* Forest (CEGL006145).