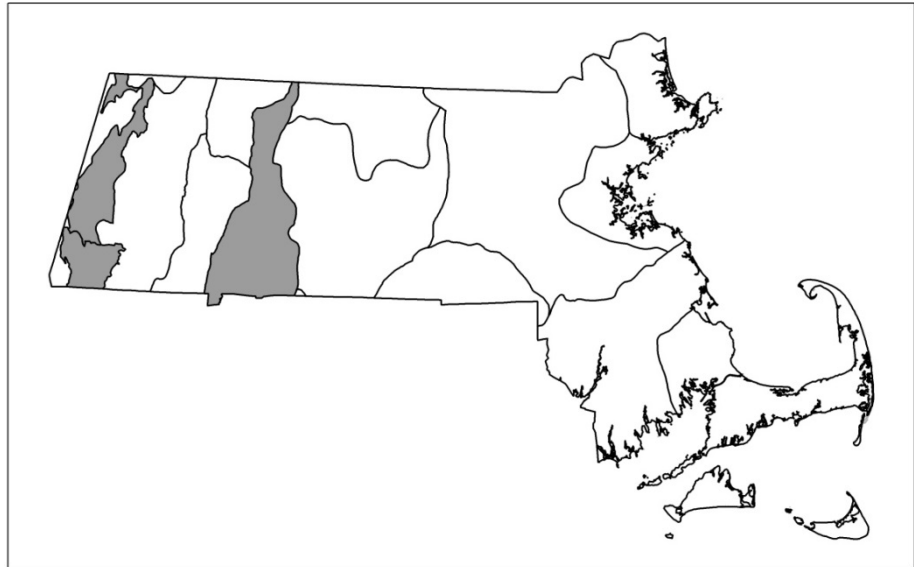




Major-river Floodplain Forest

Community Code: CP1A2B1000

State Rank: S2



Concept: Silver maple-dominated forest community of alluvial floodplains of the Connecticut, Deerfield and Housatonic Rivers.

Environmental Setting: Floodplain forests are deciduous forested wetland communities, which develop next to rivers and streams and receive annual (or semi-annual) overbank flooding and alluvial silt deposition. Three floodplain forest communities can be viewed as points on a continuum from most severely scoured and well-drained (major-river type) to least severely scoured and poorly drained (small-river type). Major-river Floodplain Forests occur along mainstem sections of large rivers (the Connecticut, Housatonic, and Deerfield Rivers in Massachusetts). Soils are predominantly sandy loams without soil mottles and without a surface organic layer. Flooding at these sites occurs annually and is usually severe. An island variant of Major-river Floodplain Forests (Type I in Kearsley, 1998) occurs on elevated sections of riverine islands and riverbanks of major rivers, where there are high levels of both natural and human disturbance.

Vegetation Description: All floodplain forest communities in Massachusetts have silver maple (*Acer saccharinum*) as the defining tree, but associated plant species vary depending on the intensity and duration of flooding and on geographic location. Major-river Floodplain Forests have silver maple (*Acer saccharinum*) strongly dominant in the overstory (>60% cover) mixed with lesser amounts of cottonwood (*Populus deltoides*). American elm (*Ulmus americana*) and/or slippery elm (*U. rubra*) occur in the subcanopy. Shrubs are generally lacking. The herbaceous layer is usually dominated by a 3-6 ft. (1-2 m) tall, dense cover of wood-nettles (*Laportea canadensis*). Ostrich fern (*Matteuccia struthiopteris*) is sometimes abundant. White



cut-grass (*Leersia virginica*) is consistently represented, but in low amounts (typically <5% cover). Other regular associates are common woodreed (*Cinna arundinacea*) and jack-in-the-pulpit (*Arisaema triphyllum*). An island variant of Major-river Floodplain Forests (Type I in Kearsley, 1998) has similar species, but silver maple is not dominant in the overstory and the herbaceous layer is typically strongly dominated by ostrich fern. The overstory is an even mix of silver maple, cottonwood, sycamore (*Platanus occidentalis*), and American ash (*Fraxinus americana*), with box elder (*Acer negundo*) and hackberry (*Celtis occidentalis*) common in the subcanopy on the Housatonic River. Species typical of disturbed areas, such as staghorn sumac (*Rhus typhina*) and the non-native bittersweet (*Celastrus orbiculatus*), are also common in this variant, as are the vines riverbank grape (*Vitis riparia*) and Virginia creeper (*Parthenocissus quinquefolia*).

Differentiating Occurrences: Floodplain forest communities occur within the zone of active flooding of rivers and streams on mineral soils that receive annual silt deposition. They differ in the size of river on which they occur and in the severity of flooding. Small-river, Transitional, and Major-river Floodplain Forests can be viewed as points on a continuum from least severely scoured and poorly drained (small-river type) to most severely scoured and well-drained (major-river type). Mixes of floodplain forest communities can occur as a riparian community complex at a single site. For example, a Major-river Floodplain Forest might occur on a level floodplain with small-river vegetation along tributaries entering the major-river floodplain, High-terrace Floodplain Forests on abandoned river terraces above the active floodplain, and Alluvial Red Maple Swamps in poorly drained, seasonally flooded depressions within the level floodplain, with associated High-energy Riverbanks on well-scoured, riverine gravel bars. Major-river Floodplain Forests occur along mainstem sections of large rivers (the Connecticut, Housatonic, and Deerfield Rivers in Massachusetts). Soils are predominantly sandy loams without soil mottles and without a surface organic layer. Flooding at these sites is usually severe. Transitional Floodplain Forests occur on third-order or smaller tributaries of the Connecticut River, on portions of the Housatonic River, and in depressions within Major-river Floodplain Forests of the Connecticut and Deerfield Rivers. Soils are intermediate in severity of flooding, soil texture, and drainage between Major-river and Small-river Floodplain Forests. Soils are either silt loams or very fine sandy loams, and soil mottling is generally present within 60 cm (2 ft.) of soil surface. A surface organic layer is typically absent. Small-river Floodplain Forests occur on third-order or smaller tributaries of the Connecticut and Nashua Rivers, on small rivers of eastern Massachusetts where banks are low and overbank flooding occurs (Ipswich, Assabet, Concord, Shawsheen, and Three Mile rivers), and on edges of riverine islands of the Merrimack River. Annual flooding occurs, but the water volume and degree of scour are much less than in Major-river Floodplain Forests. Soils are hydric silt loams and fine sandy loams with soil mottling within the top 60 cm (2 ft.) and sometimes with a surface organic layer. Major-river Floodplain Forests are the least likely type of floodplain forest to have shrubs, or even saplings of the canopy trees. The herbaceous layer of the major-river types is often essentially a monoculture of wood nettles, sometimes with dense ostrich fern. Other species are



scattered. Occurrences of High-terrace Floodplain Forests tend to be relatively small narrow forests on high alluvial terraces that flood only occasionally (not annually) and for a shorter duration than other types of floodplain forests. They are sometimes seen as a hybrid between floodplain and upland forests, and include upland species lacking in other types of floodplain forest. They have more litter accumulated than other floodplain forests. Alluvial Red Maple Swamps along low-gradient rivers flood annually and are slow to drain. Silver maple is often a codominant with red maple. They have dense shrub and diverse herbaceous layers. Alluvial Hardwood Flats are along small streams that have multiple short flooding events throughout the year after storms. Black cherry and white pine are usually abundant in the canopy with red maple, but not silver maple.

Associated Fauna:

Floodplain forests are often part of the habitat of wide-ranging riverine and upland animals, providing sheltered riverside corridors for deer and migratory songbirds. Floodplain forests are insect-rich habitats that attract warblers, thrushes, and other songbirds. Raptors such as Bald Eagles use riverbank trees as nest and perch sites. In spring floods, Wood Ducks and Hooded Mergansers like the shady edges of floodplain forests and the interior meander scar pools. Eastern comma butterflies feed on elm, nettles, and hops, and the shady riverbanks are patrolled by several dragonfly species such as ocellated and fawn darners. Where vernal pools occur in floodplain forests, such as in meander scars or backwater sloughs, leopard, pickerel and green frogs, American toads, and mole salamanders can be found. Changes in water quality and quantity alter herbaceous, and eventually tree, species, changing habitat for birds and browsers such as deer and rabbits.

Public Access:

Fannie Stebbins Memorial Wildlife Refuge, Longmeadow; Rainbow Beach WMA, Northampton; Robinson State Park, Agawam; George L. Darey Housatonic Valley WMA, Pittsfield; Canoe Meadows Wildlife Sanctuary (Massachusetts Audubon Society), Pittsfield.

Threats:

Current threats include alteration of natural hydrology through damming, loss of vegetated buffer, disturbance by trail cutting and the subsequent invasion of non-native plant species. In a 1997 statewide floodplain forest community inventory, non-native plant species were observed at all floodplain forest sites surveyed, but they appeared to be localized to areas where the canopy was opened, the herbaceous layer was cleared, and the soil was disturbed. Non-native plant species were most abundant in the island variants of Major-river Floodplain Forests that are heavily used by campers and boaters for recreation. Japanese knotweed (*Fallopia japonica*) currently poses the greatest threat to Major-river Floodplain Forests because of its ability to spread rapidly and shade out all other herbaceous plants.

Management Needs:

The natural hydrologic regime that created these special communities and their natural closed-canopy forest structure must be maintained. It is extremely difficult and time-consuming to eradicate Japanese knotweed once it has established. The best way to avoid its spread is to prevent its establishment by avoiding all clearing and disturbance within floodplain forest areas, particularly on the sandier banks.



USNVC/NatureServe:

Acer saccharinum Temporarily Flooded Forest Alliance -- *Acer saccharinum*-*Populus deltoides*/*Matteuccia struthiopteris* Forest [CEGL006147].