High-energy Rivershore Meadow

Community Code: CP2A0B2410

State Rank: S2

Concept: Variably sized and occurring in about 10m-wide bands along medium to high-energy river channels, High-energy Rivershore Meadows occur in areas that are kept open by flooding and ice scouring.

Environmental Setting: High-energy Rivershore Meadows are level to gently sloping communities in frequently flooded areas just above the summer low water levels of high-energy rivers. The narrow communities extend to shrubby or tree covered uplands. Frequent flooding and occasional extreme events contribute to the occurrence and persistence of extensive High-energy Rivershore Meadow communities, although the impacts of storm events on individual rivershore meadows and plant populations are highly variable. Vegetation structure and composition vary considerably within rivershore meadows, with some zonation apparently related to differences in elevation, substrate, frequency of flooding, and degree of ice scour. Unlike more northern rivers where deep ice may accumulate annually, ice depth and persistence into early spring along the rivershore meadows in Massachusetts is apparently highly variable. Because they are along high-energy rivers, the community substrate tends to be large sediments along the river, such as cobbles, with sand and smaller materials accumulating only where water slows, often in gradients towards the upland bank. The fairly dense plants and their roots contribute to slowing flood waters, and the finer sediments collect in vegetated areas.

Vegetation Description: Rivershore meadows are dominated by perennial graminoid and forb species. Narrow, low-lying areas near the river's edge and scoured or eroded depressions with moist, mineral substrates are characterized by sparse to moderate cover of

low sedges and rushes, especially brown beak-rush (*Rhynchospora capitellata*), spike-rushes (*Eleocharis* spp.), and rush species (*Juncus* spp.). Above this zone, riverside-sedge (*Carex torta*) dominates along with hemp dogbane (*Apocynum cannabinum*); associates include groundnut (*Apios americana*), deer-tongue (*Dichanthelium clandestinum*), swamp candles (*Lysimachia terrestris*), fringed loosestrife (*L. ciliata*), field-mint (*Mentha* sp.), blue monkey-flower (*Mimulus ringens*), obedient plant (*Physostegia virginiana*), small purple-fringed orchis (*Platanthera psycodes*), Canadian burnet (*Sanguisorba canadensis*), grass-leaf flat-topped goldenrod (*Euthamia graminifolia*), and New York aster (*Symphyotrichum novi-belgii*). Higher areas are characterized by tall forbs and grasses, including big bluestem (*Andropogon gerardii*), Canada bluejoint (*Calamagrostis canadensis*), tall flat-topped white aster (*Doellingeria umbellata*), riverbank wild rye (*Elymus riparius*), spotted joe-pye-weed (*Eutrochium maculatum*), sunflower (*Helianthus* sp.), reed canary-grass (*Phalaris arundinacea*), and goldenrods (*Solidago* spp.). The highest portions of the rivershore meadows, just below the adjacent woodlands, are often dominated by ferns and shrubs, especially interrupted fern (*Osmunda claytoniana*), speckled alder (*Alnus incana*), glossy buckthorn (*Frangula alnus*), and Japanese knotweed (*Fallopia japonica*).

Differentiating Occurrences: On cobble shores along high-energy rivers, High-energy Rivershore Meadows intergrade with High-energy Riverbank and Riverside Seep communities. High-energy Rivershore Meadows are densely vegetated with a characteristic group of dominant plants (hemp dogbane, riverside-sedge and Canadian burnet) in a mix with other forbs and graminoids. Riverside Seeps occur at the base of steep riverbanks where groundwater seeps out of the bottom of the upland slope; they are wetter than associated High-energy Rivershore Meadows and High-energy Riverbank Communities. Muskflower, Canadian burnet, and golden alexanders as a group are good indicator species of Riverside Seeps. High-energy Riverbank Communities have, on average, sparser vegetation and more bare ground than do High-energy Rivershore Meadows or Riverside Seeps.

Associated Fauna: High-energy Rivershore Meadows filter water coming from surrounding uplands, improving water quality for the fish and other animals of the stream. As they are small communities, they are part of the habitat of wide-ranging riverine and upland animals.

Public Access: Gilbert A. Bliss State Forest, Chesterfield.

Threats: Invasive species, particularly large patches of *Fallopia japonica* on the upland edge, and *Lythrum salicaria*, *Phalaris arundinacea*, and *Frangula alnus* scattered throughout. Japanese Knotweed poses by far the greatest threat to rivershore meadows where it often occurs as dense monocultures, dominating continuous linear patches that extend for tens or hundreds of meters. In some instances, recent or ongoing expansion of Japanese Knotweed clones actively threatens rivershore meadows.

Management Needs: Control of invasive species, particularly *Fallopia*.

USNVC/NatureServe: CEGL006536: Northeastern Temperate Cobble Scour Rivershore (*Carex torta - Apocynum cannabinum - Cyperus* spp. Herbaceous Vegetation).