

Establishing Plugs in Streambank Situations

One of the most challenging situations faced in restoration is the establishment of vegetation on the banks of perennial streams. Unpredictable changes in water levels, unconsolidated substrates, and the erosive power of flowing water make correct installation and species selection imperative.

While flooding can and does occur throughout the year in the Midwest, the highest frequency of flooding is in the late winter and early spring when soils are typically saturated. Therefore, installation of plugs in these environments after the middle of September is not recommended as they may be insufficiently rooted to remain in place during dormant season high water events. Mid spring to early summer installation is ideal for flowing water situations. In higher velocity situations, heavy blankets such as those composed of jute may be necessary to hold the plugs in place. For large streams and rivers with significant velocity, pre vegetated coir logs may be necessary.

Species selection is very critical in flowing water situations. For large rivers with significant current, Water Willow (*Justicia americana*) is one of the best species for the shallow water or water's edge. Riverbank Tussock Sedge (*Carex emoryi*) is also an outstanding species for riparian edges. Both have tenacious root systems when established that are highly resistant to erosive scour. Other species that can grow in areas with significant current include Three-square Bulrush (*Schoenoplectus pungens*), and Creeping Spikerush (*Eleocharis erythropoda*).

Species that grow well in low velocity areas and small watercourses include Sweet Flag (*Acorus americanus*), Blue Flag (*Iris virginica var shrevei*), Lake Sedge (*Carex lacustris*), Lizard's Tail (*Saururus cernuus*), Prairie Cordgrass (*Spartina pectinata*), Bluejoint Grass (*Calamagrostis canadensis*), and Rice Cutgrass (*Leersia oryzoides*).

Plant Feature: Riverbank Tussock Sedge (*Carex emoryi*)

This versatile species is equally at home in riverbank stabilizations, vegetated swales, or urban streetscape rain gardens. Riverbank Tussock Sedge is an outstanding utilitarian solution to all sorts of flowing water and storm water situations. Growing to about 30 inches in height, it has attractive bluish-green foliage throughout the season. It spreads rapidly by rhizomes to colonize available moist habitat, forming large monocultures.

Riverbank Tussock Sedge is an outstanding plant for streambank stabilization and vegetated swales where it is very tolerant of flooding, strong currents, and drying between rain events. It is also an excellent plant for storm water BMPs where a relatively uniform monoculture is desired. Appropriate associates in streambank applications include water willow (*Justicia americana*), lizard's tail (*Saururus cernuus*), three-square bulrush (*Scirpus pungens*), and creeping spikerush (*Eleocharis erythropoda*).

