Protecting Our Waters, Yard by Yard, Together: Stream and Lake Buffers

How To Plant a Native Buffer for a Stream Bank or Lake Shore

The Barrington Area Community Foundation (BACF) funded a modest grant for a cooperative project with Citizens for Conservation (CFC), Barrington Area Conservation Trust (BACT) and Flint Creek/Spring Creek Watersheds Partnership (FC/SCWP) to create a robust native plant buffer along the bank of Flint Creek in the Pederson Preserve. The Preserve is along Lake Cook Road, across from the high school. The buffer is a "demonstration project" to show how the native plantings can stabilize the stream bank and present an example of how attractive a stream buffer can be.

The plan for the plants is described below as well as options for preparing the ground for planting and initial care. New plantings – whether natives or ornamentals – all require care until they are established. Once natives are established, the maintenance task is greatly reduced, especially in comparison to many gardens with non-native ornamentals.

What is a "buffer"? A buffer is a strip of natural vegetation along the bank of a stream, lake, pond or other water body that separates the water from developed areas such as lawns, buildings, roads, driveways, or sidewalks.

Why have a "buffer"? Buffers alongside waterways trap sediment, pollution and nutrients that wash off lawns, buildings, and impervious surfaces. Narrow buffers – 10 feet wide or so – can trap sediments, although wider buffers – as much as 20 feet or more – are needed to trap fertilizer nutrients and many pollutants, such as herbicides and pesticides, from getting into our waterways and affecting aquatic habitats. Performance also depends on the slope of the land to the water. Steeper banks require larger buffers to be effective.

Buffers also help stabilize stream and lake banks. They provide some stream shading which keeps the water cooler. Buffers can absorb more rainwater which recharges ground water supplies and ensures steadier water flow during dry periods. They slow down the flow of water which can reduce the intensity and frequency of flooding,

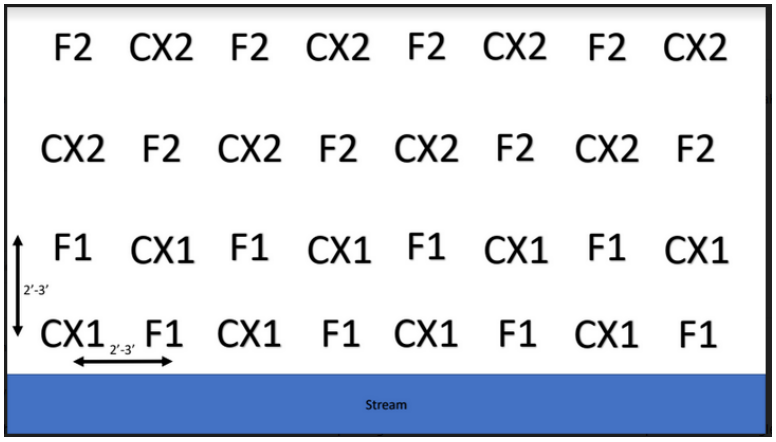
Preparing for Planting:

New plants will get their best start if they do not compete with existing vegetation or turf grass. There are two main options for preparing the ground.

1. During the fall before a planned spring planting, place opaque materials such as cardboard, along the edge of the bank; secure with opaque weed block fabric and wait for spring. The existing vegetation should die without access to sunlight. Remove the materials when it is time to plant; or
2. Have a licensed landscaper, using EPA approved herbicides that will not affect water life and are not residual, spray the vegetation at least two to three weeks prior to planting. Be sure that the spraying is done at least 24 to 48 hours before any precipitation is expected.

Planning the Planting

We (the grant Partners) bought plant plugs for the Pederson Preserve, which are more expensive than seeds, but have the advantage of establishing faster. Kevin Scheiwiller of CFC planned out the following planting schematic. For homeowners, Kevin recommends planting on 2 to 3 foot centers for the span of the buffer, and then supplementing with native seeds. For our project, we planted on approximately 1 foot centers, and will supplement with seeds this fall.



The key to the "codes" is below. There is some flexibility in choosing which of the plants go in which "square," or even using all of them. We tended to group each variety, but they can also be alternated or patterned differently within each coded square. The plants chosen can withstand periodic high water. The forbs are flowering native plants. Sedges are attractive but look more like grasses; they are very resilient.

CX1 – Carex 1 Wettest Sedges

- **Carex Lacustris (Lake Sedge)**
- **Carex aquatilis (Water Sedge)**
- **Carex stricta (Tussock Sedge)**
- **(Cyperaceae family, which includes Carex) Scirpus Tabernaemontani (Soft-stem bulrush)**

F1 – Wettest Forbs

- **Iris virginica var. shrevii (Southern Blue Flag Iris)**
- **Acorus calamus (Sweet Flag)**

CX2 – Carex 2) Wet Sedges

- **Carex pellita (Woolly Sedge)**
- **Carex sartwellii (Sartwell's Sedge)**
- **Carex atherodes (Slough Sedge)**
- **Carex trichocarpa (Hairy-Fruited Sedge)**

F2 – Wet Forbs

- **Helenium autumnale (Sneezeweed* Aster)**
- **Lobelia siphilitica (Great Blue Lobelia)**
- **Lobelia cardinalis (Cardinal Flower)**
- **Filipendula rubra (Queen of the Prairie)**
- **Liatris spicata (Blazing Star)**
- **Pycanthemum virginiana (Virginia Mountain Mint)**
- **Physostegia virginiana (Obedient Plant)**
- **Mimulus ringens (Allegheny Monkeyflower)**

***So called "sneezeweed" for the former use of its dried leaves in making snuff, inhaled to cause sneezing to supposedly rid the body of evil spirits.*

After Planting Care

Just like all new plantings, new native plants require frequent watering, at least 1 inch per week, either by rain or by hand. During the first year, the planting will look fairly sparse, and care will be needed to be sure no invasive weeds take root. By the second year, one will be amazed by how much the plugs (or seeds) have progressed, although there will still be the need to monitor for weeds, but not very frequently. By the third year, the natives should have a strong, vibrant presence.

If you are on a waterway on which neighbors have invasive phragmites or purple loose strife or reed canary grass, more vigilance will be needed, as those invasive plants can spread when just fragments break off from the adult plants.

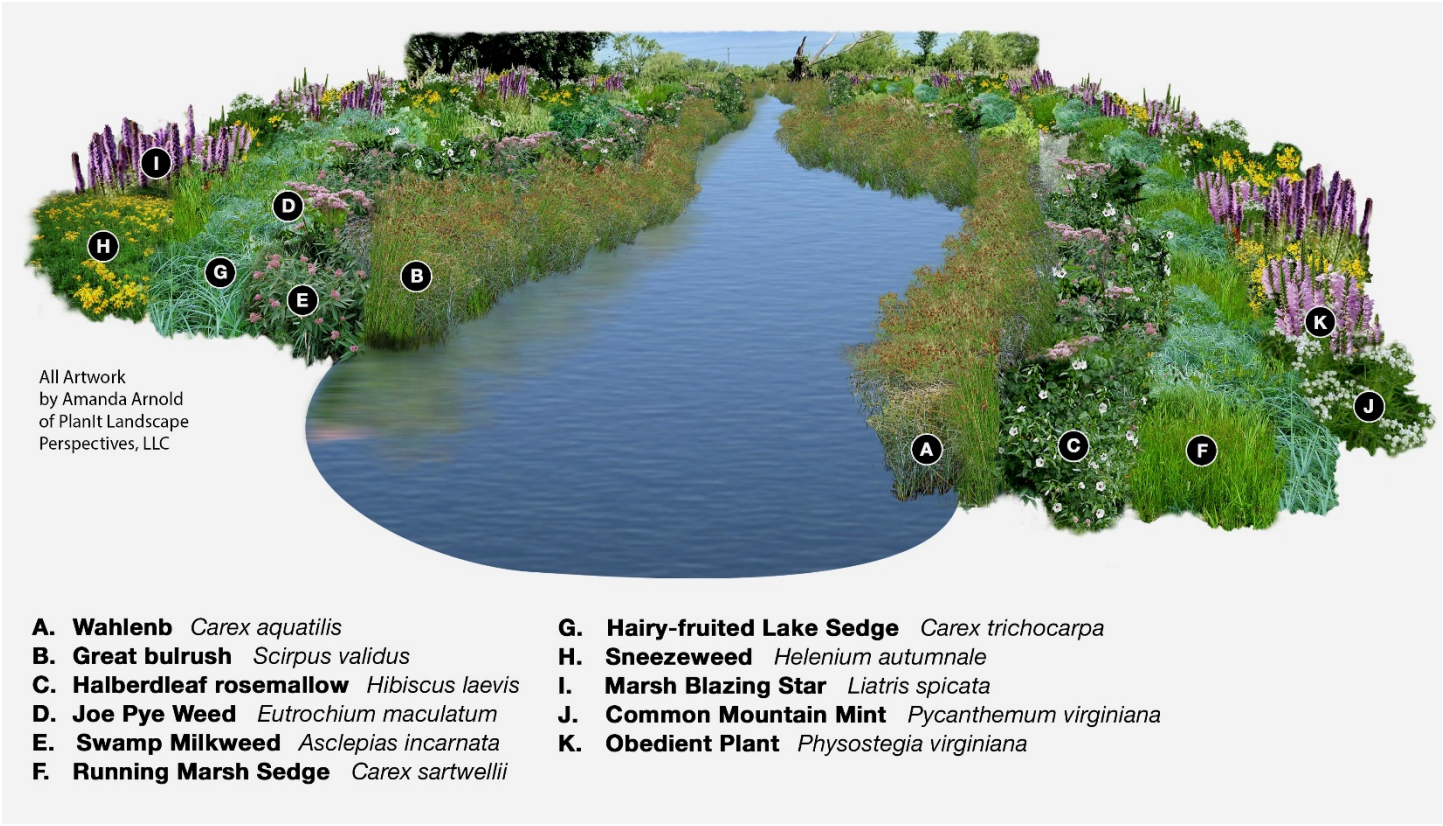
Following is a suggested Three Year and Long-Term Maintenance schedule for buffers (adapted from schedules used by Applied Ecological Services [AES], the firm restoring Flint Creek by the High School and Park District in Barrington). We do recommend a professional service be used these first years unless the homeowner is knowledgeable about natives.

Initial Maintenance

YEAR 1: Establishment: Mow buffer areas to a height of 6 to 12 inches in May, July, and September. Spot herbicide non-native/invasive species throughout site in late May and again in August or September.

YEAR 2: Mow buffer areas to a height of 12 inches in June and August. Spot herbicide non-native/invasive species throughout site in May, and again in Aug./Sept.; Target thistle, reed canary grass, common reed, purple loosestrife, phragmites, and all emerging woody saplings. Plant additional native plugs if needed or reseed any failed areas in fall.

YEAR 3: Spot herbicide non-native/invasive species throughout site in May and again in Aug./Sept. Target thistle, reed canary grass, common reed, purple loosestrife, phragmites, and all emerging woody saplings.



A. Wahlenb *Carex aquatilis*
B. Great bulrush *Scirpus validus*
C. Halberdleaf rosemallow *Hibiscus laevis*
D. Joe Pye Weed *Eutrochium maculatum*
E. Swamp Milkweed *Asclepias incarnata*
F. Running Marsh Sedge *Carex sartwellii*
G. Hairy-fruited Lake Sedge *Carex trichocarpa*
H. Sneezeweed *Helenium autumnale*
I. Marsh Blazing Star *Liatris spicata*
J. Common Mountain Mint *Pycanthemum virginiana*
K. Obedient Plant *Physostegia virginiana*

Long Term Maintenance Recommendations (3 Year Cycles)

Year 1: Mow to height of 12 inches in November (Can also burn in the Spring as an alternative to mowing). Spot herbicide problematic non-native/invasive species throughout the buffer site in mid-August. Specifically target thistle, reed canary grass, common reed, phragmites, and emerging woody saplings such as willow, cottonwood; buckthorn, and box elder.

Year 2: Spot herbicide problematic non-native/invasive species throughout the buffer site in mid-August. Specifically target thistle, reed canary grass, common reed, phragmites, and emerging woody saplings such as willow, cottonwood, buckthorn, and box elder. Mow buffer area to a height of 6 to 12 inches in November.

Year 3: Spot herbicide problematic non-native/invasive species throughout the buffer site in mid-August. Specifically target thistle, reed canary grass, common reed, phragmites, and emerging woody saplings such as willow, cottonwood; buckthorn, and box elder. Cutting and painting herbicide on stumps of some woody saplings may also be needed.

Repeat Cycle.

Following are pictures of what a stream or lake buffer following this plan should look like by Year 3. Included are two views, one from the landowner's side and one from the "across the stream" neighbor's perspective for a lake or stream.

To the left is a view of a Barrington property with frontage on Bakers Lake. This view indicates the shoreline has some erosion due to lake wind-driven wave action.

Below is the artist's rendition of how the shoreline might appear with the addition of a buffer planting of native plants.

These plants can withstand occasional flooding, and once established, would slow the erosion of the lake shore as well as reducing runoff from the land.

The buffer to the right is estimated to cover about 10 to 15 feet in depth and can provide a panoply of textures and colors throughout the year.

It will reduce runoff, although a wider buffer would be more effective in capturing pollutants, such as herbicides, fertilizers, and debris from impervious surfaces.

To the left is a view of a Flint Creek riverbank, seen from the opposite bank. Flint Creek can experience substantial variation in river levels, and flows range from very fast to very slow, depending on precipitation. The river banks show the effects, as the bank is eroding and is being undercut; eventually part of the bank can fall in, slowly reducing the back yard of the property and adding silt.

To the right is an artist's rendition of how a stream buffer might look to an across-the-creek neighbor, as well as creating a defense to slow or stop bank erosion.

For the BACF project, we bought our plugs from Midwest Groundcovers, LLC (Native Section) www.midwestgroundcovers.com . A good resource for native seeds is Prairie Moon Nursery, www.prairiemoon.com which offers mail-order from Wisconsin. BACT used Matt Hokanson of Woods to Wetlands for the herbicide applications, matt.hokanson@woodstowetlands.com. Other good resources include: AES's Taylor Creek Nurseries, https://taylorcreeknurseries.com, Bluestem Ecological Services, www.bluestemeco.com, Eubanks Environmental, https://eubanksenvironmental.com, Pizzo Native Plant Nursery, www.pizzogroup.com/native-plant-nursery, PlanIt Landscape Perspectives, LLC, https://www.planit.land, Possibility Place Nursery, www.possibilityplace.com, Red Buffalo Nursery, www.redbuffalonursery.com, Tallgrass Restoration, LLC, www.tallgrassrestoration.com, and Trillium Native Landscapes, Inc., www.trilliumlandscapes.com.