

Restoring A Native Woodland Understory In Lawn Areas Of A Park

MANY urban parks in the Midwest contain large areas of mature native trees with a mown understory of lawngresses such as Kentucky bluegrass (*Poa pratensis*) or various fescues (*Festuca spp.*). These mostly shaded areas often experience relatively low usage, are costly to maintain, and difficult to mow. Naturalizing these areas by replacing the non-native lawn grasses with a seed mix of native woodland grasses, sedges, and forbs is an excellent solution to achieve maintenance reduction. In addition to maintenance savings, naturalizing these areas can serve to restore the natural functions of the land including runoff reduction, carbon sequestration, and wildlife habitat. Further, if located near a nature center or utilized as an outdoor laboratory, it can serve as an educational area for nature study and interpretation.

Finally, these areas add a unique attraction to many parks that lack natural areas.

An appropriate area for this type of restoration existed at Holliday Park in



False Sunflower and Sweet Joe-Pye Weed provide summer color.

Indianapolis, Indiana. A dense stand of native trees in the arboretum had an understory of thin lawn. The park department first decided to quit mowing the

area. However, this only resulted in considerable bare ground with scattered clumps of non-native weeds and grasses. The stewardship staff decided that a more active restoration was appropriate. The existing vegetation was killed with a glyphosate herbicide. Two applications ensured a good kill. These applications occurred in late summer and mid fall when the cool season grasses resume active growth.

The stewardship staff then formulated an appropriate seed mix and installation specifications for the area. These specifications were sent to reputable restoration professionals for bid. The project was awarded to the lowest qualified bidder.

By November, the site was ready for a dormant sowing. Dormant sowings are particularly effective for woodland mixes as the seeds moist stratify over the winter and germinate

early, prior to the leaves developing on the deciduous trees. A following mix of woodland grasses, sedges, and wildflowers was applied to the area.



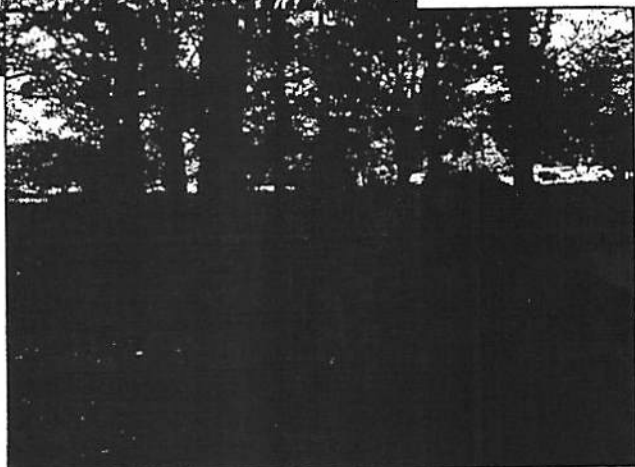
Grasses and Sedges

- 1 oz Davis Wood Sedge (*Carex davisi*)
- 2 oz Burreed Sedge (*Carex sparganoides*)
- 2 oz Wood Reed (*Cinna arundinacea*)
- 1 oz Beak Grass (*Diarrhena americana*)
- 4 oz Silky Wild Rye (*Elymus villosus*)
- 48 oz Virginia Wild Rye (*Elymus virginicus*)
- 48 oz Bottlebrush Grass (*Hystrix patula*)

Wildflowers

- 1 oz Heart-Leaved Blue Wood Aster (*Aster cordifolius*)
- 2 oz Side-Flowering Aster (*Aster lateriflorus*)
- 1 oz Short's Aster (*Aster shortii*)
- 2 oz Sweet Joe-Pye Weed (*Eupatorium purpureum*)
- 2 oz False Sunflower (*Heliopsis helianthoides*)
- 1 oz Blue-stemmed Goldenrod (*Solidago caesia*)
- 1 oz Zig-Zag Goldenrod (*Solidago flexicaulis*)

The soil on the site was rather compacted from years of mowing with heavy equipment. The ground was also covered with recently fallen leaves. In order to prepare the ground for seeding, a small tractor and disk were used to lightly disturb the soil between the trees. Care was taken to stay at least 3 feet from the trunks or exposed roots to avoid damage to the trees. The disk lightly disturbed the top inch of soil, helping to mix the fallen



Top: A carpet of green seedlings cover the area 6 months after installation. The seedlings represent a cover crop of annual ryegrass plus native wild ryes. **Inset:** Several species of woodland aster including Short's Aster, Heart-Leaved Blue Wood Aster, and Side-Flowering Aster add color in the fall.

leaves into the soil. The seeds were broadcast across the disturbed surface utilizing a couple of methods. The fluffy seeds (Wild Ryes and Bottlebrush Grass) were broadcast across the surface utilizing a Truax Seed Slinger®, a hand crank seeder especially designed for fluffy seed. The remaining seed was mixed with 5 lbs annual ryegrass per acre and broadcast utilizing a traditional hand crank seeder. The ryegrass functioned as a filler and a cover crop.

Following the broadcast seeding, most of the seeds were on top of the leaf litter. Therefore, the disk was run over the area once again following seeding. Disking lofted the leaves into the air, permitting the denser seeds to drop beneath the leaves. It is critical that the seeds be on or very near the soil surface, at less

than 1/8 inch depth to ensure germination. The seeds were now in contact with the soil, ready to germinate the following spring as soon as conditions were favorable. Signage was put in place indicating the presence of a restoration area. Placement of signage in public areas is very important to let citizens know what is happening, especially through the developmental stages of the restoration.

The following summer, the site was monitored for germination. The stand of seedlings was excellent. Many of the wild ryes flowered the first year. After 5 years, the planting continues to thrive, requiring only the typical maintenance for urban

woodlands, including removal of invasive shrubs and garlic mustard (*Alliaria petiolata*). Other maintenance includes removal of trash that blows from nearby developed areas, collecting along the edge of the planting. The naturalist at the park was a strong supporter of the project, helping to facilitate volunteer maintenance and utilizing it for interpretation. Since the majority of overstory consists of fire toler-

ant oaks, the park department has also utilized low intensity prescribed fire to encourage the woodland natives and discourage invasive woody plants.

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A final step to restoration of the woodland understory is the addition of spring ephemeral wildflowers, which are

very prominent in many Midwestern woodlands. These species were absent in the original mixture since many of the seeds are recalcitrant, meaning they cannot be stored dry. A few, such as Spring Beauty (*Claytonia virginica*) had persisted in the lawn under the trees. The timing of the herbicide application in late summer and fall spared these species as they were dormant at that time.

The most effective way to restore most ephemerals begins with collecting the seed in late spring when most species ripen. The seed should then be immediately spread across the area to be restored. If immediate sowing is not possible, the seed may be stored mixed with a moist sterile medium such as vermiculite until sowing.

When performing restoration projects in public areas, education is the key to acceptance. Before initiating a restoration project, monitor the current public usage to see what modifications may be required for compatibility. Designing in trails and interpretive signage is critical for public acceptance. Expect a few complaints during the developmental phases. As the restoration matures, reaction generally becomes quite positive as people begin to value the attractive native species.

These steps have resulted in a diverse and successful planting at Holliday Park. This planting has served to lower maintenance, create food and habitat for wildlife, and beautify a formerly barren area. **LEW**

For more information contact Kevin Tunesvick, Restoration Ecologist, Spence Restoration Nursery, phone: (765)286-7154, e-mail: kevin@spence-nursery.com.

