



TREEHEALTHMGMT.COM  
608.223.9120

Tree Health Management  
PO BOX 14374  
Madison, WI 53708

## SAUK CREEK GREENWAY ECOLOGICAL SUMMARY

### HABITAT/SPECIES COMPOSITION

Throughout the Sauk Creek Greenway, six distinct ecological habitats were found. Summaries for each type of habitat and their locations within the property are listed below.

#### *Southern Hardwood Forest*

This habitat covers the majority of the property, though it varies considerably in age and species composition. Originally, the property was likely a savannah, which was converted to pasture, then slowly became woodland in the absence of disturbance. Scattered throughout the site are large oaks that likely date back to early European settlement. After the secession of fire and grazing, these trees reproduced, eventually creating a continuous canopy. Through this, much of the woodland represents an intact population that is original to the site prior to European settlement.

#### *Prairie/Savannah*

Though limited in geographical scope, these areas are likely nearest to the original land cover of this site. In these areas, scattered oaks allow sunlight to reach the understory. This supports a plant community of greater diversity than was found on the rest of the site. Two areas qualify as prairie/savannah. The first follows the wood's edge along High Point Road. In this area, native seed was likely introduced, which has established a fair diversity of wild flowers and native grasses. The second area encompasses the southwestern corner of Walnut Grove Park. Here, intermittent mowing has limited encroachment of woody plants, and allowed some diversity of prairie species original to the site to persist.

#### *Wet Prairie*

This habitat is also limited in size, but has some of the highest wild flower diversity on the property. There are two areas that support this community. One is a thin strip along the levy of the northern retention basin; the other is at the southern end of the southern basin. In both of these areas, mature individuals of a variety of species were observed.

#### *Floodplain Forest*

On southern end of the property, along the canal, the canopy is dominated largely by cottonwood. This species is adapted to the conditions along streams and can tolerate occasional flooding. Cottonwood is a fast-growing species that can reproduce prolifically.

#### *Pine Plantation*

Along the southwestern edge of the property is a small forest dominated by red and white pine. These trees were planted approximately 50 years ago and are now maturing. Though not original to the site, this forest offers diversity and provides winter habitat for wildlife.

### *Black Locust Clone*

The area directly behind Walnut Grove Park is dominated by black locust. This species was introduced, and is very aggressive in colonizing open areas. Black Locust has limited ecological value, and generally requires management or eradication to contain its prolific spread.

## OBSERVATIONS AND RECCOMENDATIONS

### *Oak Regeneration and Mortality*

On the majority of the property, the youngest oak trees are approximately 80-100 years old. There is considerable mortality amongst mature oaks in the woodlot.

Some of this mortality may be due to root rot. Oak wilt and other vascular disease may have also contributed to mortality of these trees. Little Oak regeneration was observed in the woodlot. On the current trajectory, the mature oaks will slowly die off without being replaced.

Oak is a light-loving species that requires direct sunlight to regenerate and be healthy. At present, most areas are too overcrowded for general health, let alone regeneration of a new cohort of young trees. Thinning or girdling less desirable species (Appendix A) and creating large openings, at least 200-300 feet across, would reinvigorate existing trees and facilitate reproduction. Restoration plantings would also be of benefit (restoration tree planting suggestions are listed in Appendix C).

### *Savannah Restoration*

While Oak savannah is one of the most diverse ecosystems in our region, it is also an imperiled habitat. In Wisconsin, less than 0.1% remains intact, with similar numbers throughout the natural range.

If desired, Oak regeneration could easily be dovetailed with savannah restoration. The same openings that support young oaks would also support the light-loving prairie species (Appendix B) found in savannah openings. This would greatly improve the health and diversity of the site and provide habitat for pollinators and other wildlife.

## FUTURE MANAGEMENT

### *Prescribed Fire*

Many of the ecological issues facing the site could primarily be managed by regular use of fire. Because of the long absence of disturbance, near annual fire for the next 10 years would be a benefit in suppressing brush and favoring oak and other desirable native species.

### *Buckthorn Removal*

One of the major issues facing the site is invasion by buckthorn. This species possesses allelopathic chemicals for many species, and suppress native understory, creating large areas with little to no diversity. Buckthorn

fruit is a diuretic, so wildlife that consume it cannot retain it as food, resulting in a net loss in calories and quick distribution of the seeds.

Within the survey, there are hundreds of mature buckthorn sampled. This buckthorn population is a major obstacle to ecological health. Removal of all buckthorn possible is recommended.

In areas where buckthorn is removed, follow up of regular prescribed fire or mechanical removal to suppress the younger individuals, preventing them from reaching maturity is recommended. If possible, retain desirable understory species like pagoda dogwood and elderberry and consider introducing other fruiting shrubs like serviceberry or hazelnut to compete with the buckthorn.

### *Garlic Mustard*

Garlic Mustard is an invasive found throughout much of the site, particularly in the floodplain. It also possesses allelopathic chemicals that suppress other plants. It seeds prolifically and creates large monocultures, with little ecological value. Unlike buckthorn it is biennial, dying after its second season. For management, the primary goal is to prevent the second year plants from seeding by either removal or herbicide.

### *Deadwood*

Standing dead trees feed a variety of insects and fungi, which in turn feed birds and other wildlife. Hollow cavities also provide nesting habitat. Downed wood adds considerable benefit as well. It is used by insects and reptiles as habitat. It also prevents erosion and helps regulate hydrology. When possible, utilize removals for trail edging or to support banks and hillsides. This can be an opportunity to provide ecological services and avoiding hauling costs. An exception is standing dead Red Oak trees that are harboring Oak Wilt fungal mats, which should be taken off site.

### *Outreach*

Through its location any project in the Sauk Creek Greenway will affect a number of people in the community. For this reason it will be important to have good outreach regarding any proposed project.

One possible issue is encroachment by homeowners onto city property. Many of the homeowners currently make use of city land to varying degrees and may have issues with any project that affects their current use.

## **Appendix A - Ranked priority of retention for common species (highest to lowest)**

Swamp White Oak  
Bur Oak  
White Oak  
Shagbark Hickory

Pin Oak  
Red Oak  
Black Oak  
Hackberry

Black Walnut  
Black Cherry

Cottonwood  
Silver Maple  
Elm  
Ash  
Mulberry  
Box Elder

Black Locust  
Buckthorn

Overall, the 0-100 score also provides a good reference regarding the priority of retaining a given tree. In general:

80 or higher should be kept if possible

70s are lower priority and trees in this range likely have some issue

60s are the lowest rating to consider retaining and likely have some serious issue

59 & lower have a serious issue and may pose some degree of risk due to possible failure.

## **Appendix B - Native species recommendations for various conditions**

### **Prairie Species**

Bee balm  
Black-eyed Susan  
False sunflower  
Pale purple coneflower  
Purple prairie clover  
Common milkweed  
Butterfly milkweed  
Stiff goldenrod  
Showy goldenrod  
New England aster  
Sky blue aster

Yarrow  
Pasture thistle  
Giant purple hyssop  
Compass plant  
Hoary vervain  
Spiderwort  
Grey headed coneflower  
Golden Alexander's  
Big bluestem  
Indian grass  
Little bluestem  
Side oats grama

### **Wet Woods**

Cardinal flower  
Blue lobellia  
Virginia bluebell

### **Wet Prairie**

Blue vervain  
Cup plant  
Swamp milkweed  
Culver's root  
Prairie blazing star  
Cord grass  
Blue joint grass

### **Woodland Species**

Columbine  
Wild geranium  
Joe-pye weed  
Jewel weed  
Zig-zag goldenrod  
Jack in the pulpit  
Bottle-brush grass  
Canada wild rye

## **Appendix C – Tree Planting Recommendations**

Swamp White Oak or cross of species  
Bur Oak or cross  
White Oak  
Chinkapin Oak  
Shagbark Hickory  
Bitternut Hickory  
Ironwood (in dense areas)  
Pagoda Dogwood  
Apple Serviceberry (in dense areas)

