

FOREST MANAGEMENT PLAN
FOR
McGAW COMMUNITY PARK



November 2016

Forest Management Plan McGaw Community Park & Seymour Johnson Neighborhood Park

Prepared for

CITY OF FITCHBURG

DEPARTMENT OF PARKS, FORESTRY, & NATURAL RESOURCES

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EXECUTIVE SUMMARY

This Forest Management Plan for the City of Fitchburg is a guiding document for the City's land stewardship activities at McGaw Park and Seymour Johnson Park. The plan provides a summary of existing conditions of the land, the regional context of the property, desired future conditions, land management objectives, and forest stewardship recommendations. Recommendations in this plan are informed by comments received during two public meetings; the 2012 McGaw Park Master Plan, and tree, wildlife, and vegetation surveys conducted by foresters, ecologists and arborists.

McGaw Park is the largest community park in the City of Fitchburg. Together with Seymour Johnson Park, it offers city residents one of the largest contiguous tracts of city-owned green space. Since the park was acquired by the city in the 1970s, most of the City's efforts within these parks has focused on development of recreational facilities. Over time, the undeveloped, formerly open areas became overgrown with invasive brush and weedy, invasive trees.

Natural regeneration of the forested areas of McGaw Park has been severely limited by invasive shrubs, trees, and ground layer plants such as garlic mustard. These plants reduce the light reaching the soil surface and suppress growth of desirable tree seedlings and saplings. Consequently, the number of desirable trees per acre is low. Left unmanaged, these parks will continue to progress to a low-diversity plant community, with limited value to wildlife.

FOREST STANDS AND OBSERVED SPECIES

McGaw Park and Seymour Johnson Park consist of 5 "stands", or areas with similar tree species (current or recommended) and/or soil conditions (Figure 1). Stands 1-3 contain few desirable trees and a dense understory of invasive brush. Stands 4-5, however, contain several large bur oak and hickory, many over 100 years old.

We observed 72 species during the tree and vegetation surveys conducted in the fall of 2015 and the summer of 2016. Fifty-four of the 72 species observed (75%) during the 2015-16 vegetation surveys are native to Wisconsin. Although 25% of the observed species are non-native, these non-native species comprise much of the cover of the ground layer and shrub layer of the natural areas.

More details on stand descriptions and observed vegetation are provided on pages 79 - 110.



Figure 1. Stand Map for the Natural Areas of McGaw Community Park and Seymour Johnson Neighborhood Park
(Adapted from wisconsinview.org NAIP 2015)



Figure 2. Desired Future Conditions for the Natural Areas of McGaw Community Park and Seymour Johnson Neighborhood Park
Oak savanna shown in yellow, oak woodland shown in green. (Adapted from wisconsinview.org NAIP 2015)

Management Plan Goals & Objectives

Goals and objectives are presented on the following pages and are elaborated further in the plan.

Desired Future Condition

A desired future condition statement is a broad statement expressing a vision of a site's future character.

Desired future condition statement for the Natural Areas of McGaw Community Park and Seymour Johnson Neighborhood Park (Figure 2):

McGaw Community Park and Seymour Johnson Neighborhood Park host native plant communities within the prairie-oak continuum, such as tallgrass prairie, oak savanna, and oak woodland, to the extent possible within the limitations associated with their size, surrounding land use, and the available resources. Non-native species abundance is minimized to protect and encourage native flora and fauna. Park visitors have safe, educational, and recreational opportunities that enhance their understanding of the cultural and natural history of the McGaw and Johnson Park natural areas.

Summary

The information collected during the 2011-16 tree and vegetation surveys indicates that the natural areas of McGaw Community and Seymour Johnson Neighborhood Parks are heavily invaded by garlic mustard, exotic shrub honeysuckle, and buckthorn. These invasive species outcompete native plants by shading out the understory and through allelopathy. Seeds and fruit from these invasive plants are of low value to wildlife. Consequently, diversity of plant and animal species is low, and tree regeneration is limited.

In spite of considerable degradation, the natural areas of McGaw and Seymour Johnson Park hold potential. The overstory of Seymour Johnson Park, dominated by oaks and hickories, provides an example of desirable oak woodland canopy structure. Open-grown bur oaks in the North Park Addition await release. Formerly species-rich savanna lies dormant amongst non-native species. High-priority management efforts in current woodlands should include phased removal of tree species not consistent with oak savannas and oak woodlands, persistent control of invasive species, natural and mechanical seeding of native plant species, prescribed burning, and continued ecological inventories and monitoring. Proper planning and action will protect the Park lands from negative influences, especially benign neglect, and rebuild ecosystem structure and function. These natural areas hold great promise of telling a story of ecological renewal and serving as a community resource.

Without action, it is expected that diversity and quality of the natural areas of McGaw Park and Seymour Johnson Park will continue to decline over time. The existing large trees will die off and will be replaced by invasive trees and brush.

GOAL 1:**McGAW COMMUNITY PARK AND SEYMOUR JOHNSON NEIGHBORHOOD PARK HOST PLANT COMMUNITIES WITHIN THE PRAIRIE-OAK CONTINUUM**

Existing native plant communities are protected and enhanced, and additional communities are established to the extent possible given the limitations of size, surrounding land use, and available resources. Non-native species abundance is minimized to protect native flora and fauna.

GOAL #1 OBJECTIVES

- 1** Stand 1 is an Oak Opening Native Plant Community
- 2** Stand 2 is an Oak Opening Native Plant Community
- 3** Stand 3 is an Oak Opening Native Plant Community
- 4** Stand 4 is an Oak Woodland Native Plant Community
- 5** Stand 5 is an Oak Woodland Native Plant Community

GOAL 2:**MULTIPLE OPPORTUNITIES FOR EDUCATION AND RECREATION ARE PROVIDED TO VISITORS**

Visitors are offered hands-on and passive educational opportunities. Volunteers are actively recruited to assist with restoration and management. Community access and recreational use compatible with natural resource protection is encouraged. Public safety is protected.

GOAL #2 OBJECTIVES

- 1** A stacked-loop trail system allows visitors access to park natural areas and facilitates a variety distances for hiking, skiing or running.
- 2** Interpretive signage describes the cultural and natural history of McGaw and Seymour Johnson Parks
- 3** Trail markers and maps assist visitors with wayfinding
- 4** Appropriate accommodations are given to visitors with canine companions
- 5** Exercise equipment is consolidated and located adjacent to multi-use trails
- 6** An interpretive nature center is located in the Park adjacent to the natural areas

**GOAL 3:
IMPACTS TO ADJOINING LANDOWNERS ARE MINIMIZED**

The City of Fitchburg strives to be a good neighbor by minimizing the impacts of ecological restoration activities and public use to nearby properties.

**GOAL 4:
UTILIZE EXTERNAL FUNDING AND PARTNERSHIPS**

Public and private funds are obtained for development, restoration, and management. Partnerships are developed with organizations and individuals.

GOAL #3 OBJECTIVES

- 1 Property boundaries are permanently marked
- 2 Non-invasive native trees and brush are retained for screening and canopy cover
- 3 Ingress and egress to trail system is on public property
- 4 Invasive plants are prevented from spreading onto adjoining properties
- 5 Prescribed burns are conducted only when air quality and smoke dispersal conditions are appropriate
- 6 Adequate firebreaks exist between the natural areas and neighboring properties

GOAL #4 OBJECTIVES

- 1 External funding is obtained
- 2 A formally-established Friends of McGaw & Seymour Johnson Parks group collaborates with City of Fitchburg efforts

INTRODUCTION

This report provides the results of the 2015 - 2016 Tree and Vegetation Survey of the wooded and shrubland areas of McGaw Community Park and Seymour Johnson Neighborhood Park and a series of restoration and management recommendations. More specifically, this report provides:

1. A description of methodology.
2. Ecological information to aid in interpreting and understanding the assessment and management recommendations.
3. Funding sources relevant to forest management and ecological restoration.
4. Results of the vegetation sampling and abiotic factors.
5. A list of all observed species, sorted by life form (tree, shrub, grass, forb, etc.), and whether they are native or exotic.
6. A detailed description of existing conditions.
7. A prioritized list of invasive species.
8. Location and status of rare, threatened, and endangered species.
9. Management recommendations designed to preserve and enhance ecological conditions, including: native plant community restoration, forestry/woodland stewardship, invasive species control, a list of trees, shrubs, and herbaceous species recommended for planting, an implementation schedule, and estimated labor and materials costs for the recommended activities for a 5 year period, 2016-2020.

Property Location

McGaw Community Park, along with Seymour Johnson Neighborhood Park, is located in Dane County in the City of Fitchburg. It is located in east-central Fitchburg, south of Lacy Road and east of South Syene Road, at 5236 Lacy Road.

More specifically, McGaw Park is Lot #2 of the Dommers View Plat and Outlot #1 of the North Park Plat, and Seymour Johnson Park is Lot #4 of the Tarpleywick Hills Plat, located in the northwest quarter of the northwest quarter of Section 14 of Township 6 North, Range 9 East.

The natural areas, which this document is mainly concerned with, are comprised of 35.2 acres of McGaw Park and 5.8 acres of S. Johnson Park (Figure 3).



Figure 3. Natural Areas of McGaw Community and Seymour Johnson Neighborhood Park
(Adapted from wisconsinview.org NAIP 2015)

METHODS

Tree & Vegetation Survey

A survey of ground layer vegetation was conducted on the following dates: 9/11/2015, 9/12/2015, 9/15/2015, 7/14/2016, and 7/15/2016. The presence and percent cover of all vegetation within thirty 1-square-meter quadrats was recorded. The quadrats were co-located with the center of the tree survey plots.

A forest inventory was conducted on the following dates: 8/5/2015 and 8/12/2015. The Parks' woodlot trees were surveyed according to accepted forest biometry methods. For each of the thirty sample plots, trees present with diameter greater than five inches were tallied, their species, merchantable height, and diameter at breast height (dbh) was recorded. Tree seedlings and saplings, as well as invasive species, were counted, and their species were recorded.

Tree and Vegetation Survey, 2011

See Appendix II for a summary of a tree and vegetation survey of McGaw and Seymour Johnson Park lands, conducted in 2011 by Biologic Environmental Consulting. Methods are not comparable between the two surveys (eg 2011 survey did not delineate forest stands), but 2011 data can further inform this management plan.

Abiotic Factors

Abiotic information was recorded during each visit and additional information was obtained from secondary sources such as the National Resources Conservation Service Soil Survey, Dane County Land Information Office, and the Wisconsin Department of Natural Resources Surface Water Data Viewer.

Relevant abiotic factors include:

1. Topography, such as slope and aspect
2. Soil type
3. Natural and cultural features, such as surface water and roads
4. Special management needs, opportunities, and concerns

Aerial Photograph Analysis

Aerial photographs provide important historical information and insights into changes in land cover and land use not observable in the field. To assess these types of changes a chronosequence of aerial photos from 1937 to 2014 was reviewed for:

1. Changes in the location and extent of vegetation types
2. Changes in infrastructure (roads, buildings) and other cultural features

BACKGROUND INFORMATION

This section places McGaw Community and Seymour Johnson Neighborhood Parks into a regional context and explains the historic and environmental factors that created its current vegetation and topography. Understanding these factors is necessary for successful management because they impose constraints and provide opportunities.

Regional Significance

Parks in the City of Fitchburg are classified as Community Parks, Area Parks, and Neighborhood Parks. Community parks are intended to serve a population living within a 2½ mile radius. Area parks serve a radius of ½ mile, and neighborhood parks serve ¼ mile.

McGaw Park is a community park, yet also serves as an area park and a neighborhood park. Seymour Johnson Park serves as a neighborhood park.

Park Acquisition

In the early 1970s, the then Town of Fitchburg found that, through its standard of 12 acres of parkland per 1,000 residents policy, the town was in a deficit of over 45 acres of parkland. Additionally, the 11 acre Greenfield Park was serving as community park, and was too small to fill that role. The Parks Department hired F.J. Brown in 1973 to inspect and appraise the Samuel McGaw property as a potential site. Sam McGaw passed away in October of 1973 and the land passed to his estate. The town purchased the land from the McGaw estate for \$80,206.32 in March of 1975.

Between 1975 and the late 1980s, the Park underwent rapid development. Recreational ball diamonds, play equipment, tennis courts, the fitness course, a cul de sac at the end of Wildheather Drive, the Park shelter, and the half mile Lacy Road entrance drive were all added during this time period. After 1990, much of Fitchburg's focus was on the new McKee Farms Community Park, and development at McGaw slowed.

More recently, in March of 2015, the size of McGaw Park was increased by 2.7 acres with the parkland dedication of Outlot #1 of the North Park development (Figure 25). McGaw and S. Johnson Parks will see additional dedications of land with the development of the agricultural lands to the west and to the south. The McGaw Neighborhood Plan estimates additions of 32 acres of land adjacent to the two parks, in the form of trail and linear connections, effective additions, and environmentally sensitive areas (Figure 24).

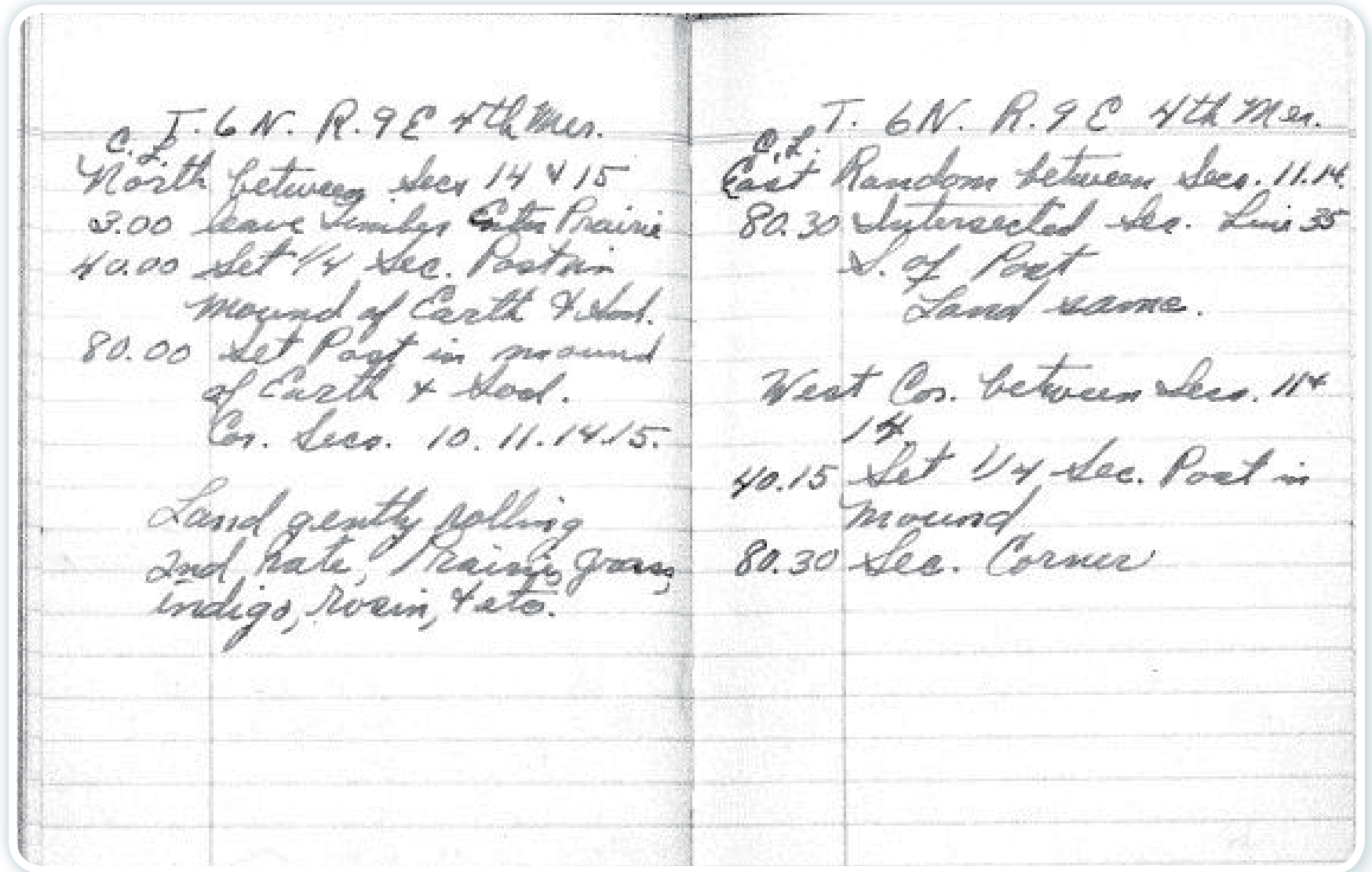


Figure 4. Survey Notes from Township 6 North, Range 9 East, between Sections 14 and 15

(Source: Wisconsin Board of Commissioners of Public Lands)

Historic Vegetation

Survey notes from the 1830s public land survey of Wisconsin reveal the presettlement vegetation to be prairie and oak opening in the lands surrounding Fitchburg.

While walking north between sections 14 and 15, during the December 1833 survey of the interior of Township 6 North, Range 9 East, surveyors reported “leaving timber, entering prairie,” three chains (198 feet) after leaving the section corner. They set the quarter section post and the section post in mounds of earth and sod, as there were no nearby trees to serve as witness trees. They describe the land as “gently rolling”, “second rate”, and report “prairie grass, indigo, rosin, etc.” (Figure 4)

On the line between sections 10 and 15, west of McGaw Park, the field notes indicate that the survey crew encountered bur oak near the section corner of 10, 11, 14, and 15. They used a 6-inch and a 15-inch diameter bur oak as witness to the corner.

An early Fitchburg historian, William Vroman wrote of the township, “It is one of the best agricultural towns in the county, with very little to no waste lands, about equally divided between prairie and oak openings (Fitchburg, a History 1).”

In the 1973 appraisal of the Sam McGaw property, F.J. Brown Jr. remarked “The property enjoys an excellent view in all direction from the top of the small hill. This includes most of the Madison skyline (Figure 8).” The report indicates that the north ten acres is lightly wooded while the rest of the property is low brush and grassland. His photographs show the open nature of the vegetation at the time (Figure 6). An aerial photograph included in the appraisal provides a view of the entire property (Figure 7).

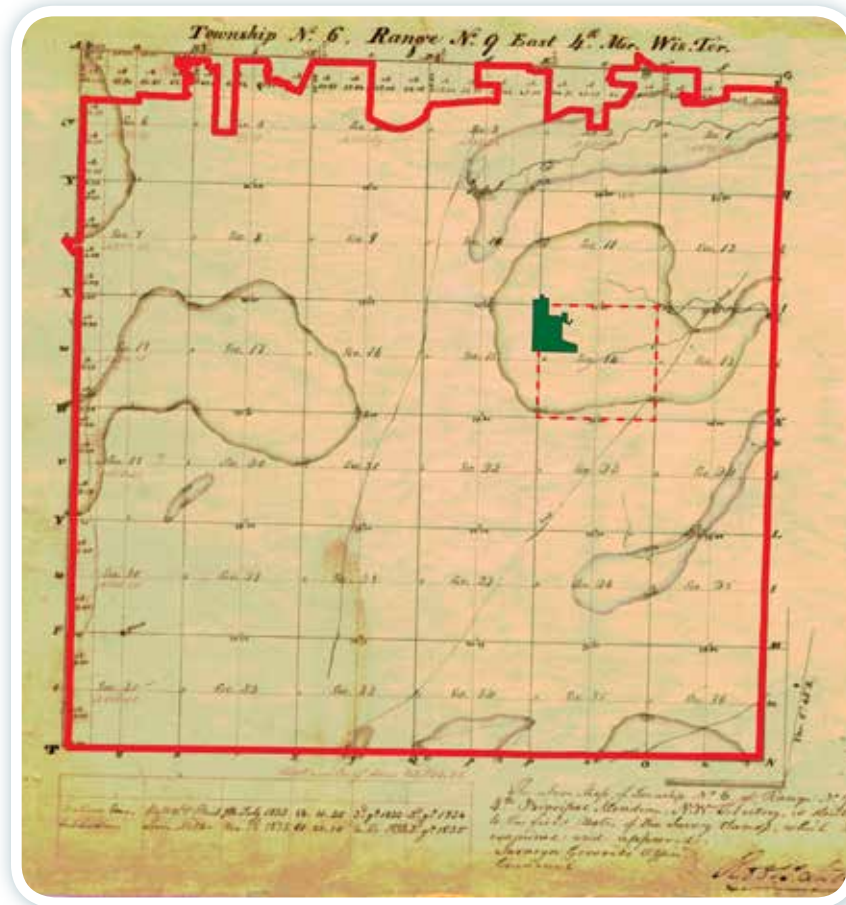


Figure 5. 1830s Plat Map of Township 6 North, Range 9 East

Fitchburg city limits shown in solid red, Section 14 shown in dashed red, and McGaw & S. Johnson Parks shown in green (adapted from Board of Commissioners of Public Lands)

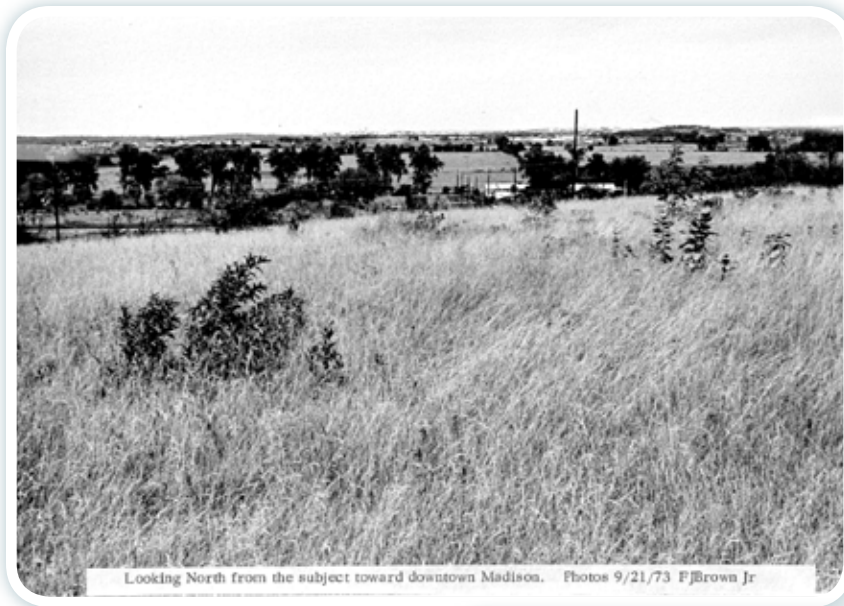


Figure 6. Samuel McGaw Property, 1973

(Source: F. J. Brown, Jr.)

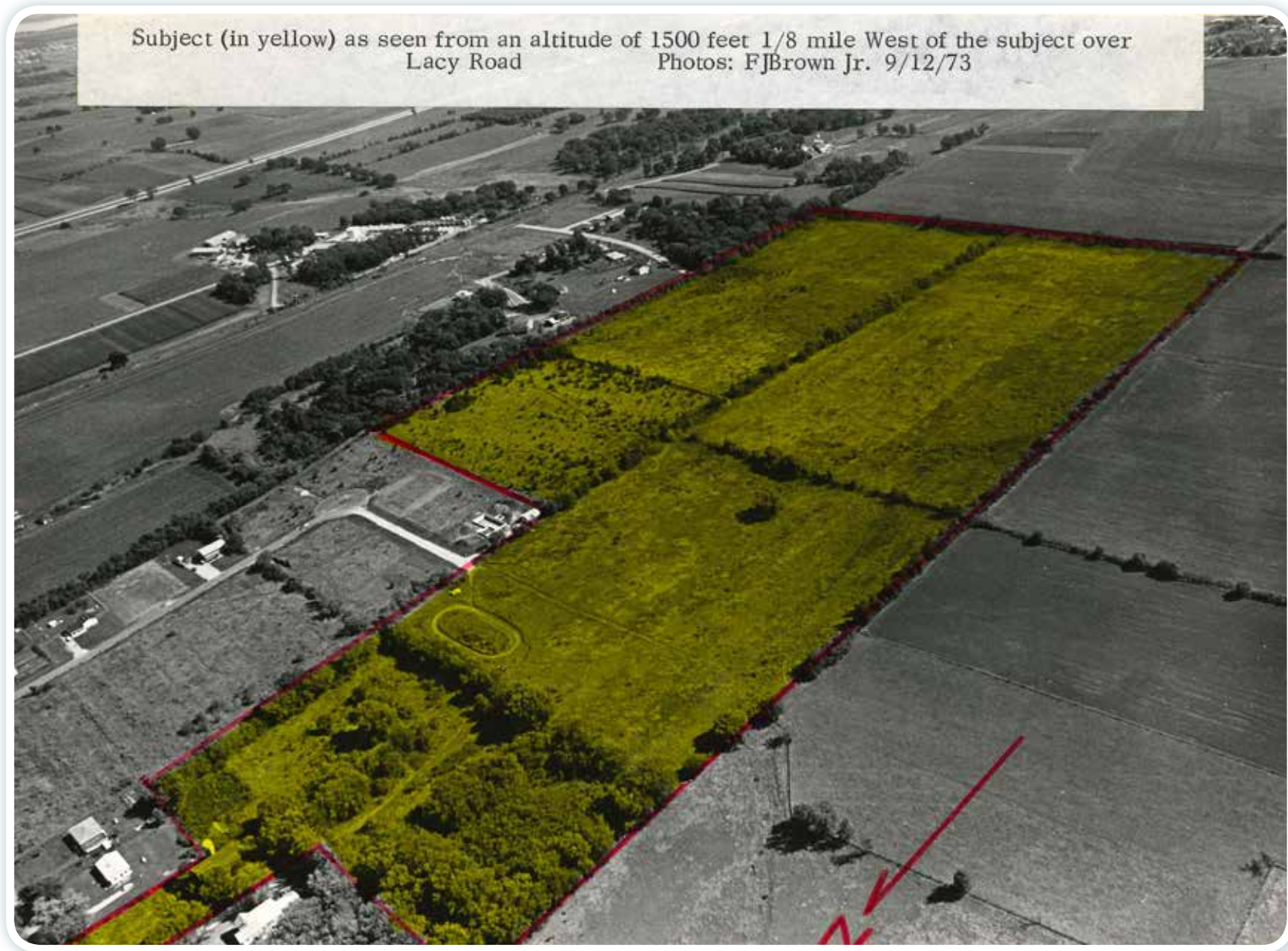


Figure 7. Aerial Photograph of Samuel McGaw Property, 1973

(Source: F. J. Brown, Jr.)

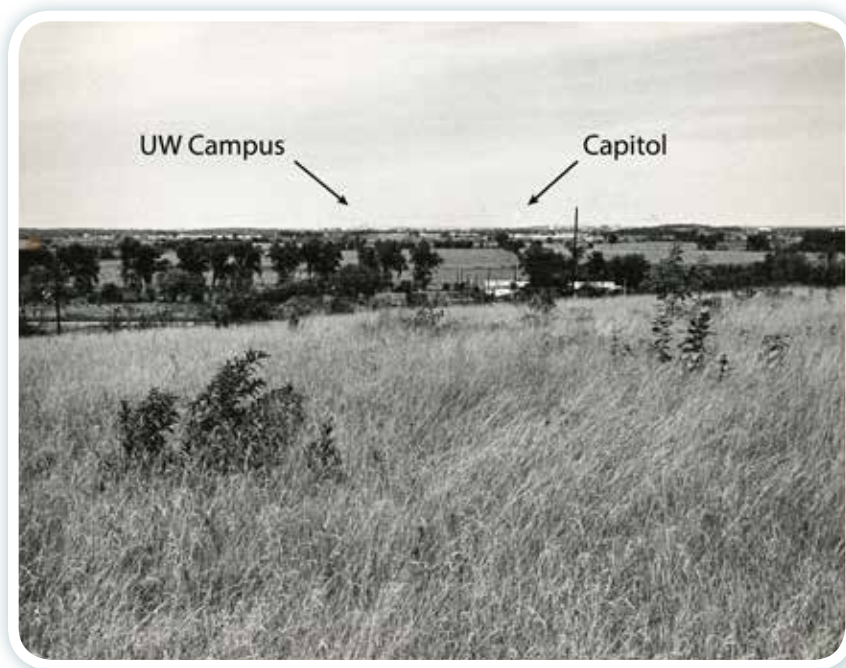


Figure 8. "Looking North from [McGaw Park] toward downtown Madison" (09/21/1973)

(Adapted from F. J. Brown Jr.)

Topography

The Wisconsin Department of Natural Resources (WDNR) divides Wisconsin into sixteen Ecological Landscapes (Figure 29), which are "Areas of Wisconsin that differ from each other in ecological attributes and management opportunities. Each landscape has unique combinations of physical and biological characteristics that make up the ecosystem, such as climate, geology, soils, water, and vegetation" (WDNR 2006).

The Parks are part of the Southeast Glacial Plain Ecological Landscape. This division is characterized by glacially sculpted topography consisting of undulating to hilly moraine, drumlin fields, and pitted outwash.

The highest point on the property is the hilltop in the northeast corner of McGaw Park (approximately 1,004 feet). The land slopes away gradually in all directions. The lowest point on the property is on the western property line, adjacent to the stormwater pond (approximately 928 feet).

In the 1973 appraisal of the Sam McGaw property, F.J. Brown Jr. remarked "The property enjoys an excellent view in all direction from the top of the small hill. This includes most of the Madison skyline (Figure 8)."



Figure 9. Topography of McGaw Community Park and Seymour Johnson Neighborhood Park
Contour interval equals 10 feet (Adapted from DCi Map)

Soils

According to the Natural Resources Conservation Service (NRCS), there are six soil types present in McGaw Community and Seymour Johnson Neighborhood Parks: Dodge silt loam, Griswold loam, McHenry silt loam, Plano silt loam, Ringwood silt loam, and Virgil silt loam (Table 1).

With the exception of the Virgil silt loam, which can be somewhat poorly drained, all soils present are very deep, and well-drained.

Dodge silt loam, Plano silt loam, Ringwood silt loam and Virgil silt loam are "areas of prime farmland". Griswold loam and McHenry silt loam are "farmland of statewide importance". These designations by the Natural Resources Conservation Service (NRCS) indicate the high fertility that once supported agricultural crops on the land.

The S. Johnson woodlot contains Dodge silt loam, McHenry silt loam, and Virgil silt loam. The North Park addition and the eastern portion of McGaw Park are made up of Griswold loam. A band of Ringwood silt loam occupies the central strip of McGaw, with Plano silt loam and Griswold loam to the west. Figure 10 shows soil locations.

The soil descriptions mapped are less accurate the closer the proximity to disturbed areas adjacent to pavement and building footprints.

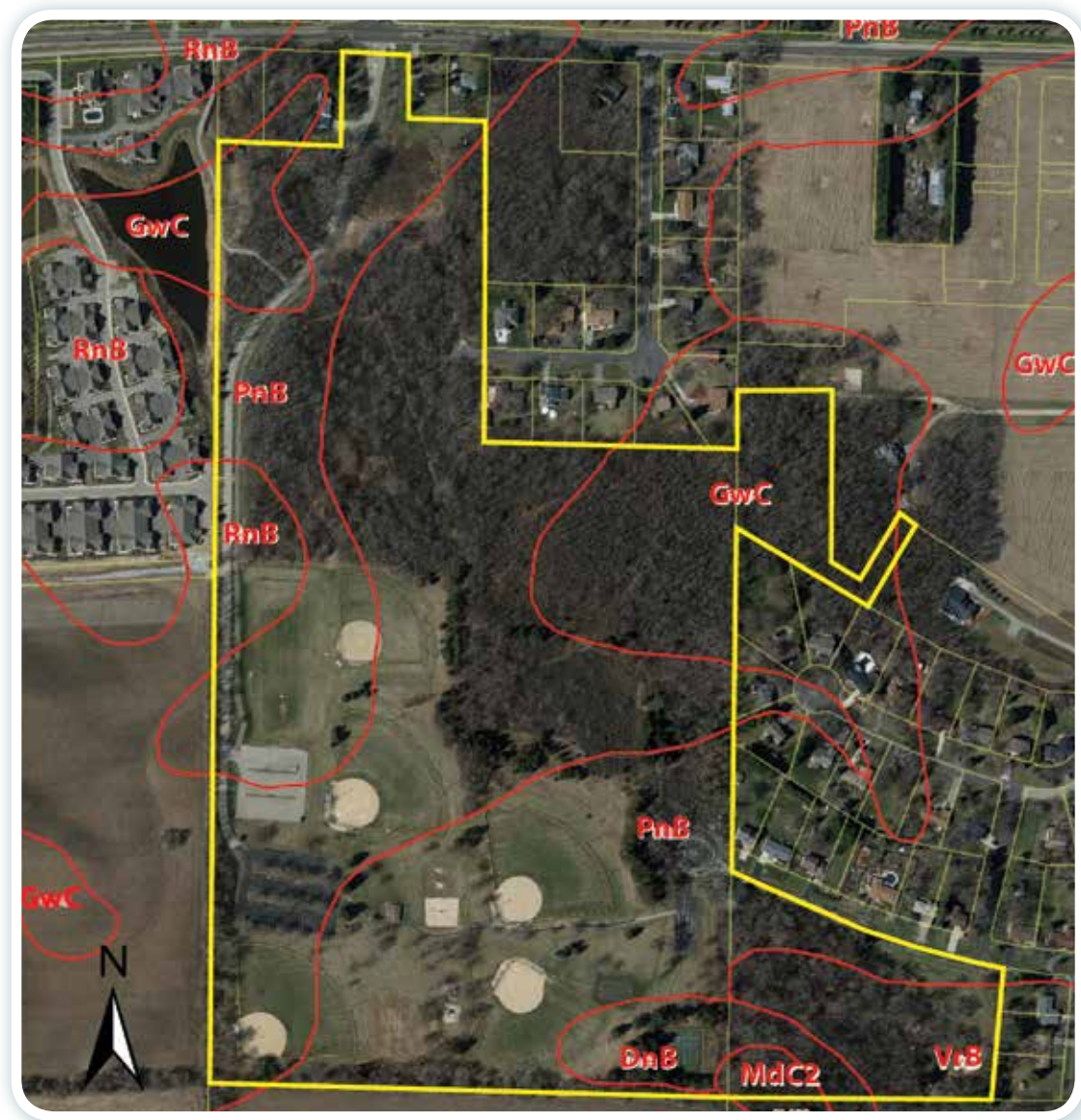


Figure 10. Soils of McGaw Community Park and Seymour Johnson Neighborhood Park
(Adapted from DCi Map)

Table 1.

SOIL TYPES OF MCGAW COMMUNITY AND SEYMOUR JOHNSON NEIGHBORHOOD PARKS					
Map Unit Symbol	Soil Series	Percent slope	Area Covered	Native Vegetation	Description
DnB	Dodge silt loam	2 to 6 %	4.0%	deciduous forest	The Dodge series consists of very deep, well-drained soils formed in loess and in the underlying till on ground moraines, end moraines, and drumlins.
GwC	Griswold loam	6 to 12%	13.6%	prairie grasses	The Griswold series consists of very deep, well drained soils formed in calcareous sandy loam till on till plains and moraines of Wisconsinan Age.
MdC2	McHenry silt loam	6 to 12%, eroded	1.1%	mixed hardwood forest	The McHenry series consist of very deep, well drained soils formed in loess or other silty material and in the underlying loamy till on moraines and till plains.
PnA	Plano silt loam	0 to 2%	39.8%	prairie grasses	The Plano series consists of very deep, well drained soils on outwash plains, stream terraces, or till plains. These soils formed in loess or other silty material and in the underlying loamy stratified outwash or sandy loam till.
PnB	Plano silt loam	2 to 6 %			
RnB	Ringwood silt loam	2 to 6 %	36.4%	prairie grasses	The Ringwood series consists of very deep, well drained soils formed in loess or other silty material and in the underlying loamy till on till plains.
VrB	Virgil silt loam	1 to 4%	5.1%	mixed grasses and trees	The Virgil series consists of very deep, somewhat poorly drained soils on outwash plains, stream terraces, or till plains. These soils formed in loess or other silty material and in the underlying loamy outwash or sandy loam till.

The Dodge series consists of very deep well-drained soils formed in loess and in the underlying till on ground moraines, end moraines, and drumlins. The potential for surface runoff ranges from negligible to high. The potential for surface runoff ranges from negligible to high. Saturated hydraulic conductivity is moderately high to high (4.23 to 14.11 micrometers per second). Permeability is moderate. Most areas of the soil are used for cropland. Common crops are corn, small grain, legumes, and canning crops. Some areas are used for pastureland or woodland. Native vegetation is primarily deciduous forest with maple-basswood and oak-hickory predominating. All areas are prime farmland in Wisconsin.

The Griswold series consists of very deep, well drained soils formed in calcareous sandy loam till on till plains and moraines of Wisconsinan Age. The potential for surface runoff is medium or low. Saturated hydraulic conductivity is moderately high to high in the upper part and moderately high to high in the lower part. Permeability is moderate in the upper part and moderate to moderately rapid in the lower part. Most areas of Griswold soils are cropped. Corn, soybeans, small grain, and meadow are the principal crops. Some areas are used for pasture. Native vegetation is prairie grass. Griswold silt loam is farmland of statewide importance.

The McHenry series consist of very deep, well drained soils formed in loess or other silty material and in the underlying loamy till on moraines and till plains. The potential for surface runoff is low to high. Saturated hydraulic conductivity is moderately high or high in the solum and high in the underlying material. Permeability is moderate in the solum and moderately rapid in the underlying material. Most areas are cropped. Corn, soybeans, and small grain are the principal crops. Some areas are used for meadow or are still in woods. Native vegetation is mixed hardwood forest. McHenry silt loam is farmland of statewide importance.

The Plano series consists of very deep, well drained soils on outwash plains, stream terraces, or till plains. These soils formed in loess or other silty material and in the underlying loamy stratified outwash or sandy loam till. The potential for surface runoff is low or medium. Saturated hydraulic conductivity is moderately high to high in the solum and moderately high and high in the underlying material. Permeability

is moderate in the solum and moderate to moderately rapid in the underlying material. Most areas of Plano soils are cultivated. Corn and soybeans are the principal crops. Native vegetation is prairie grasses. All areas are prime farmland in Wisconsin.

The Ringwood series consists of very deep, well drained soils formed in loess or other silty material and in the underlying loamy till on till plains. The potential for surface runoff is low or medium. Saturated hydraulic conductivity is moderately high or high in the solum and high in the underlying material. Permeability is moderate to moderately rapid in the solum and moderately rapid in the underlying material. Most areas are cropped. Corn, soybeans, and small grain are the principal crops. Some areas are used for meadow. Native vegetation was prairie grasses. All areas are prime farmland in Wisconsin.

The Virgil series consists of very deep, somewhat poorly drained soils on outwash plains, stream terraces, or till plains. These soils formed in loess or other silty material and in the underlying loamy outwash or sandy loam till. An intermittent apparent high water table is at a depth of 31 to 61 cm (1.0 to 2.0 feet) below the surface in most years. Saturated hydraulic conductivity is moderately high or high in the upper part of the solum and high in the lower part. Permeability is moderate in the upper part of solum and ranges moderate to moderately rapid in the lower part. The potential for surface runoff is low to medium as related to slope. Most areas are cultivated. Corn, soybeans, small grain, and forages for hay are the principal crops. Native vegetation is mixed grasses and trees. All areas are prime farmland in Wisconsin.

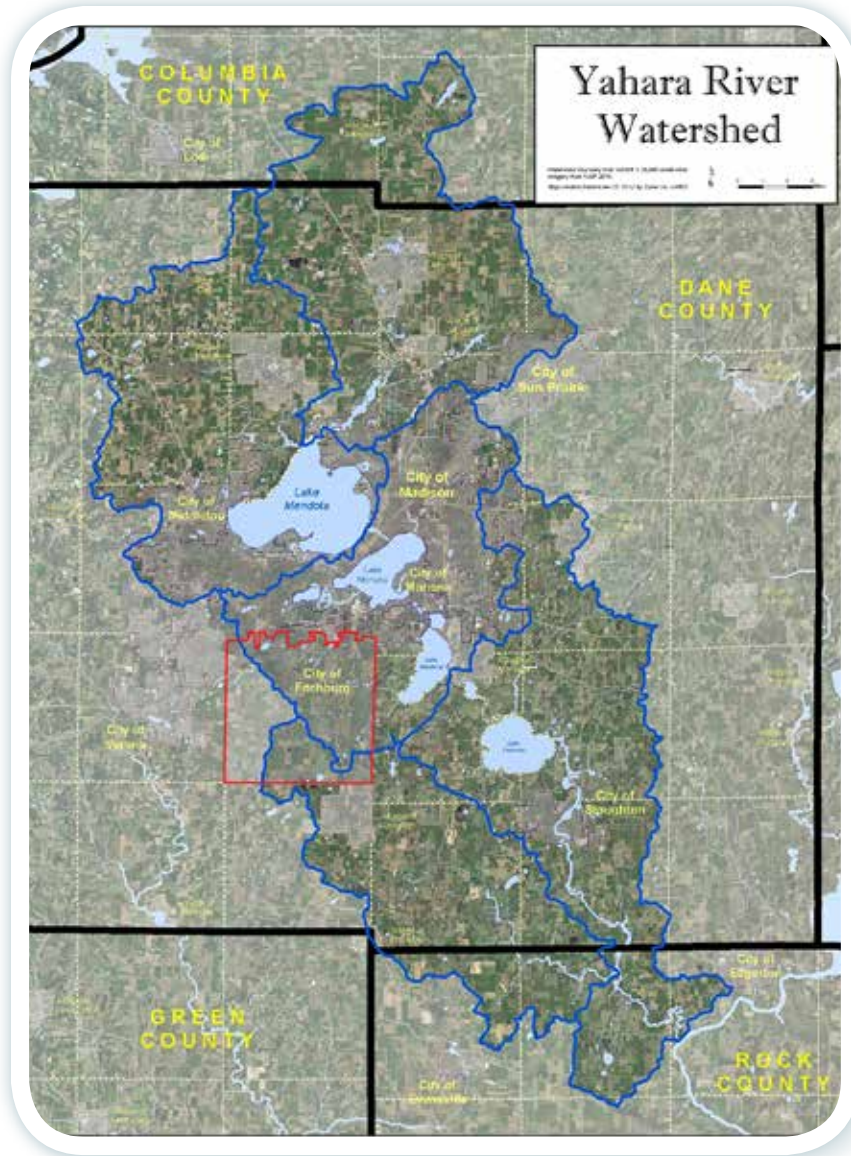


Figure 11. Yahara River Watershed

City of Fitchburg boundary shown in red, McGaw Park located approximately under "U" in Fitchburg.

(Adapted from Dane County Office of Lakes & Watersheds)

Surface Water Hydrology

An intermittent first order stream, Swan Creek, flows through the very northwest corner of McGaw Park (Figure 12). Swan Creek is a small tributary to the Yahara River that originates in sections 11 and 14 of Fitchburg and empties into the southwestern tip of Lake Waubesa.

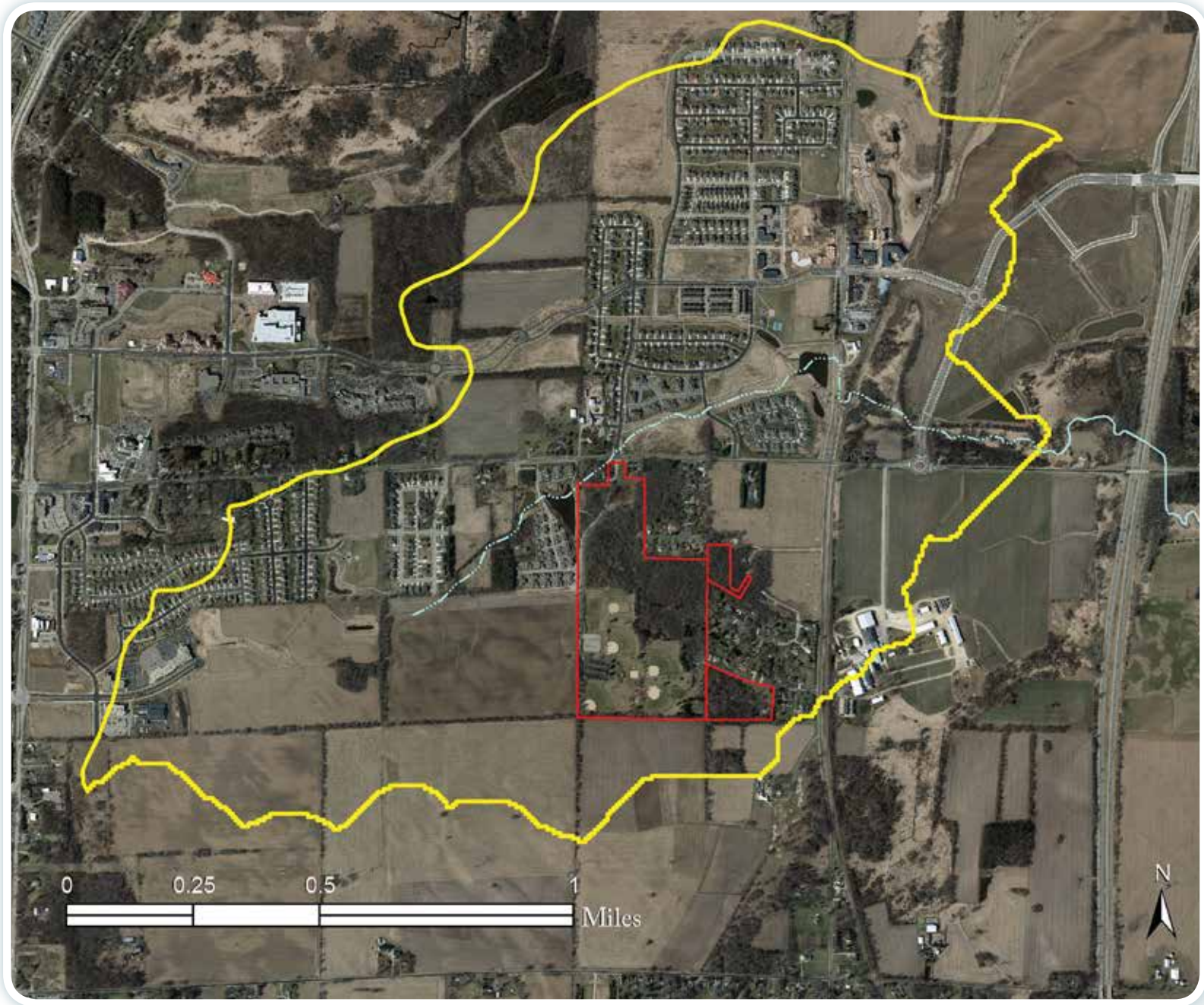
This is significant because Swan Creek, along with Murphy Creek, are the two inlets to Lake Waubesa that flow into the Waubesa Wetlands State Natural Area. Waubesa Wetlands is "one of the highest quality and most diverse wetlands remaining in southern Wisconsin" (WDNR).

McGaw and Seymour Johnson Parks are completely within the #200022538 Wisconsin Hydro Data-Plus Catchment Basin (Figure 12). This is the 1.7 square mile catchment basin of the intermittent section of Swan Creek. All surface water within this basin flows into Swan Creek, is infiltrated into groundwater, or evaporates.

Figure 12. McGaw and S. Johnson Parks Hydrologic Catchment Basin

Basin #200022538 shown in yellow, McGaw & S. Johnson Parks in red.

(Adapted from wisconsinview.org WROC DOQQ 2010)



Airphoto Analysis

Analysis of airphotos from 1937 to 2014 reveals the changes that have occurred to the landscape during this period.

The property boundary is noted in black. Boundary is approximate due to varying scale and projection of the air photos. North is at the top of all photos.

July 6, 1937

The first available photo, from the year 1937, gives a glimpse of what the land looked like close to eighty years ago.

Agriculture is the primary land use for the McGaw Property as well as surrounding parcels. The Sam McGaw home can be seen at the north end of the property. Access roads to the crop field are visible.

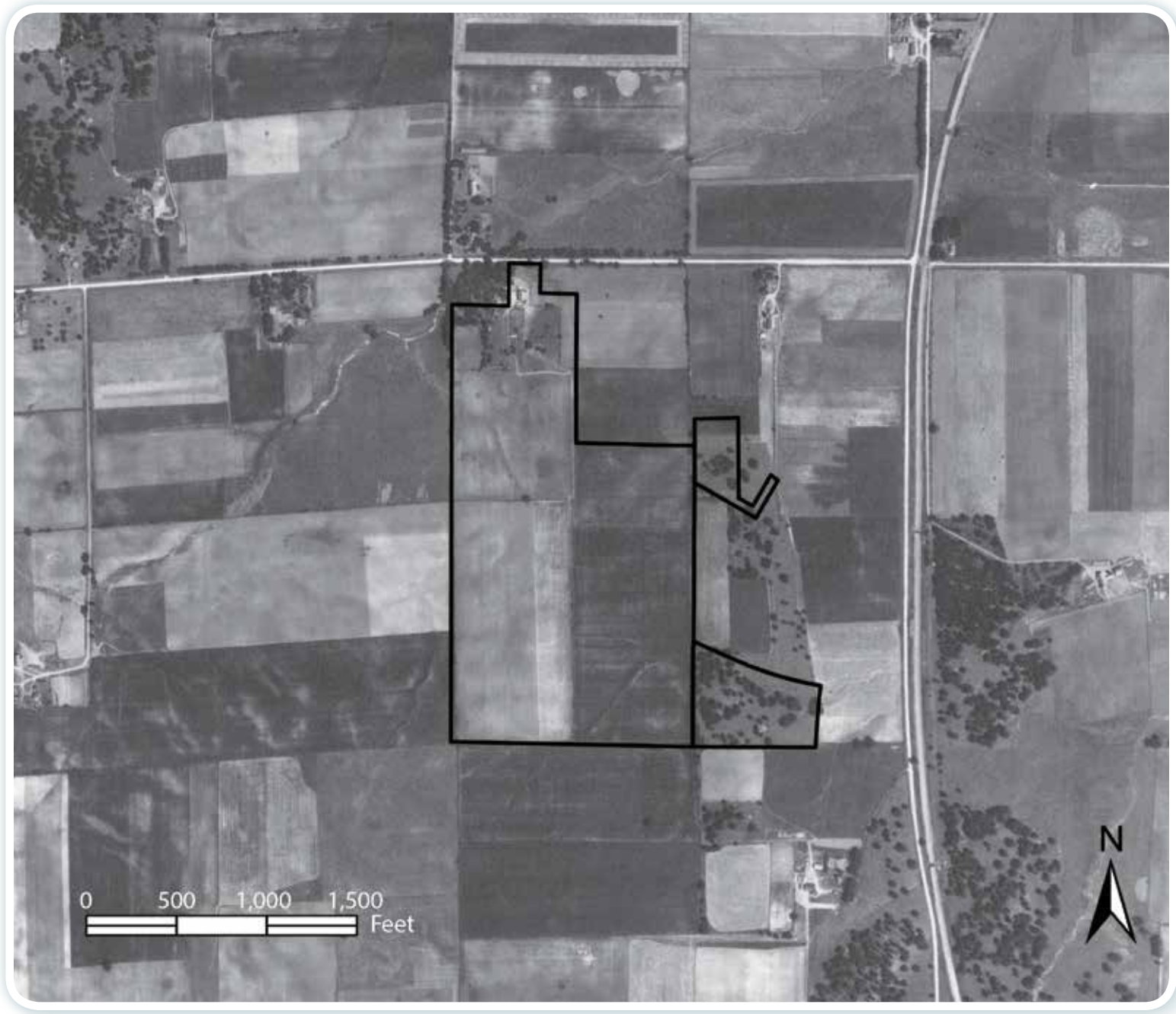
With the exception of the wooded area east of the house, very little woody vegetation can be seen on the McGaw property.

Mature trees are located to the east of the property in what is now the North Park Addition and Seymour Johnson Park. Some the large, open grown oaks that presently exist are these same trees.

Swan Creek, to the west of the property, can be seen with its natural meanders.

Figure 13. July 6, 1937 Airphoto

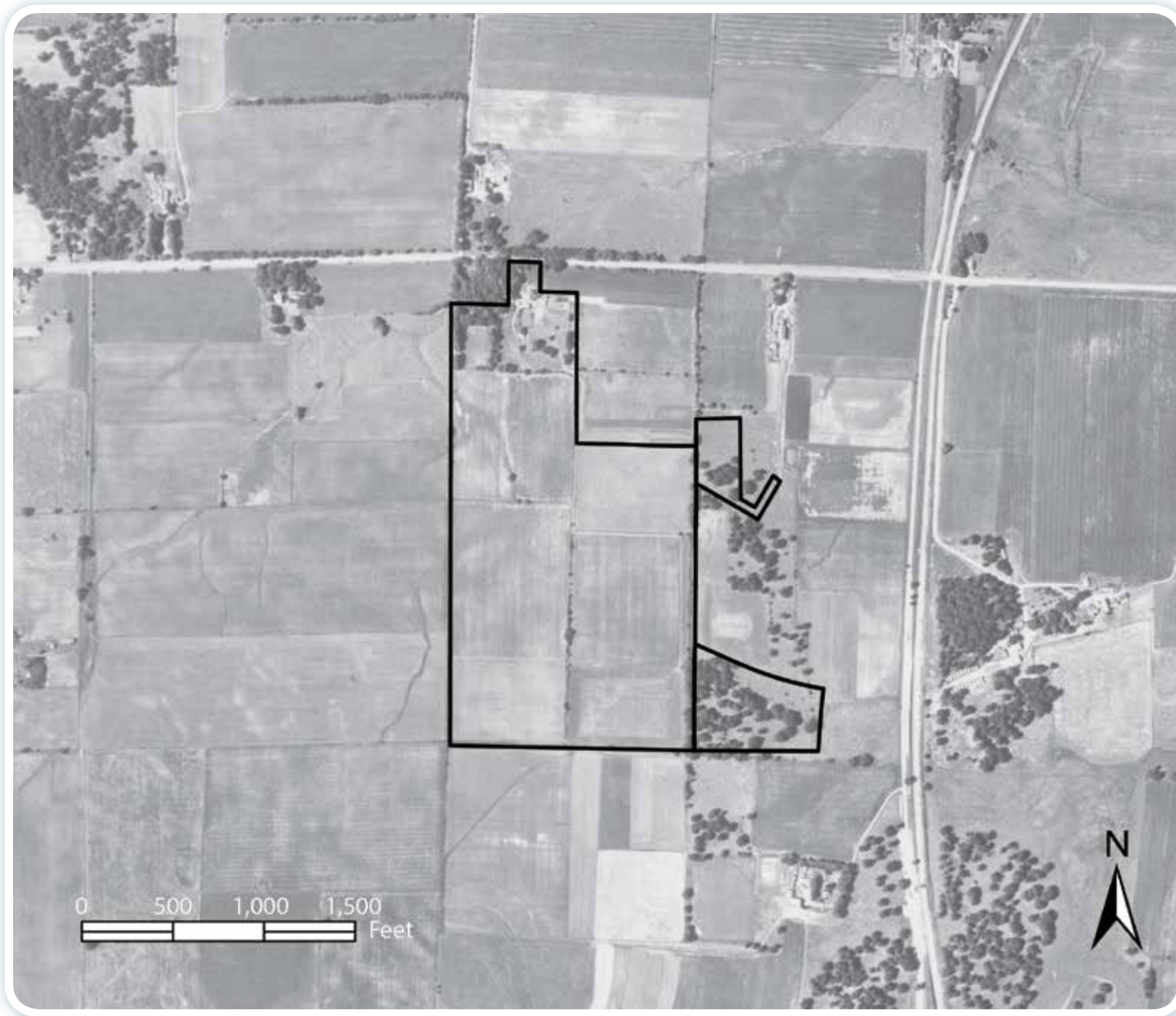
(Adapted from Wisconsin Historic Aerial Image Finder #7-547)



July 12, 1955

Woody vegetation can be seen in this photo on the north-south line down the center of the McGaw property, separating two crop fields. The understory remains open beneath the large trees in Seymour Johnson Park and the North Park addition.

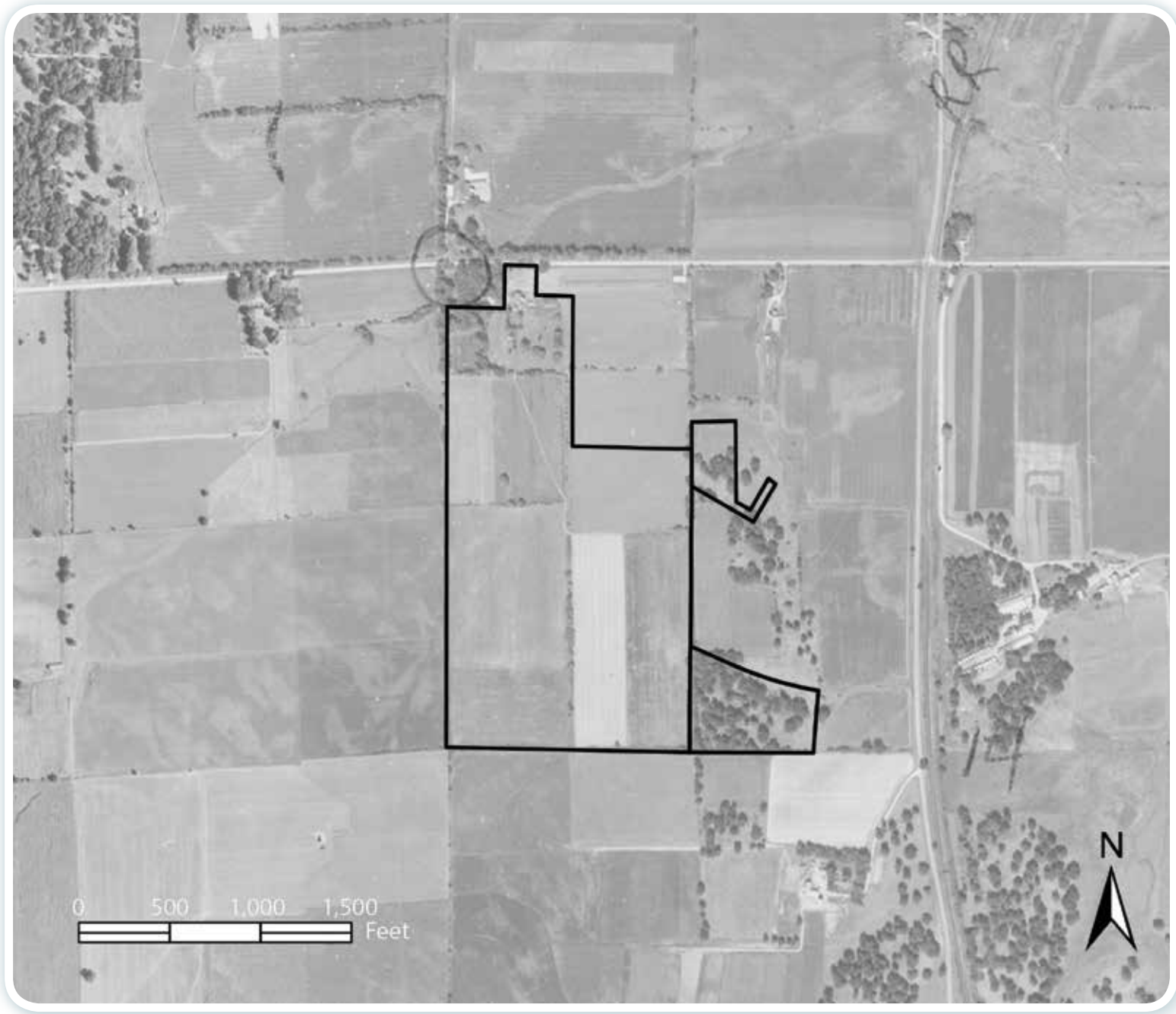
Figure 14. July 12, 1955 Airphoto
(Adapted from USDA "WU-1P-50")



September 7, 1962

At this point in 1962, the McGaw property is still being utilized for purposes of agriculture.

Figure 15. September 7, 1962 Airphoto
(Adapted from USDA "WU-3CC-218")



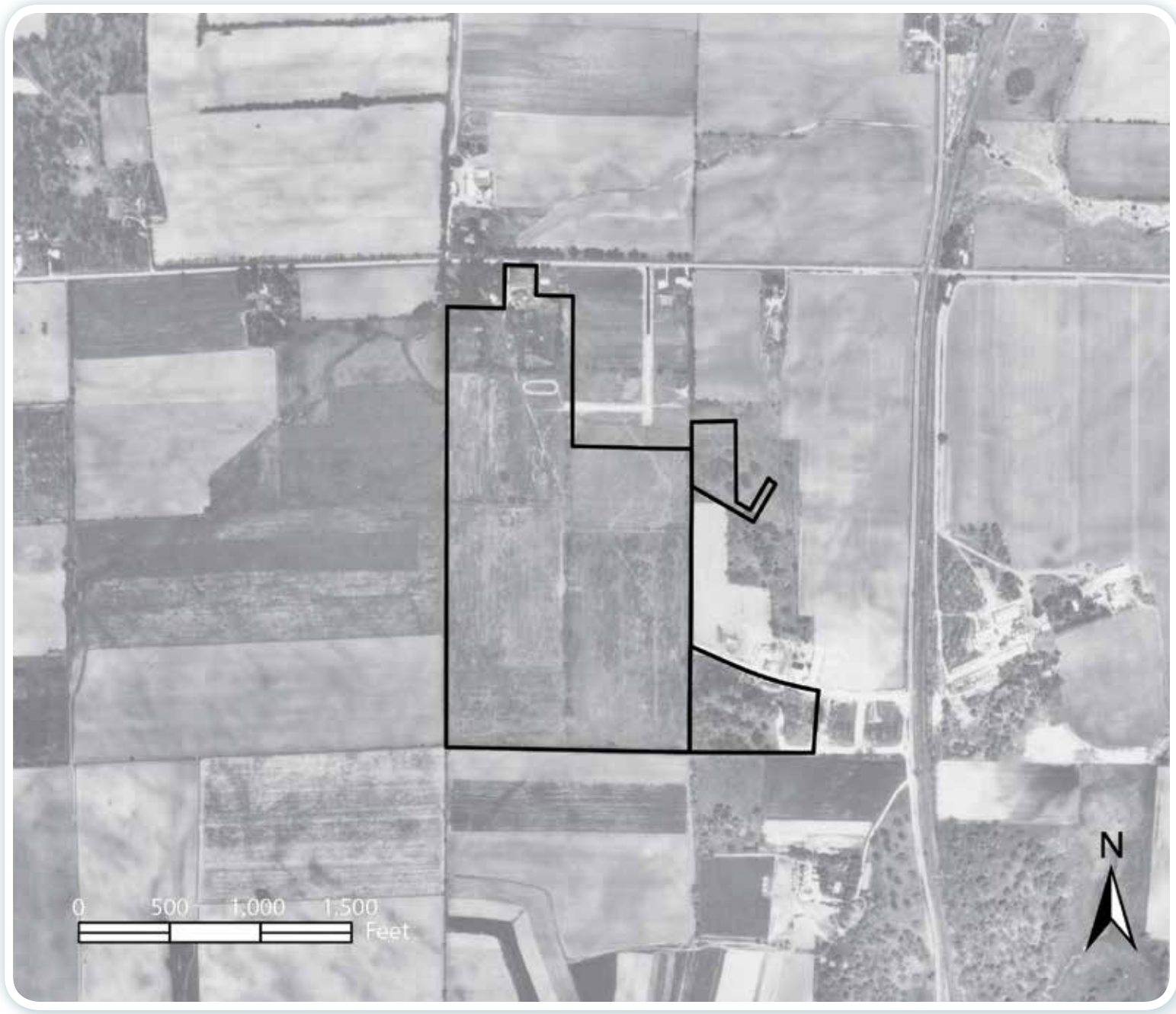
May 8, 1968

This is the first photo where the oval race track is visible, in the north portion of the McGaw property.

Development has taken place around S. Johnson Park and to the east of the McGaw Farm.

It appears that some, if not all land on the McGaw property has been taken out of agriculture at this point in time. If that is the case, this would be the about the starting point for woody brush encroachment.

Figure 16. May 8, 1968 Airphoto
(Adapted from USDA "WU-2JJ-65")



September 12, 1976

This is the first photo taken after the 1975 sale of the land to the City of Fitchburg.

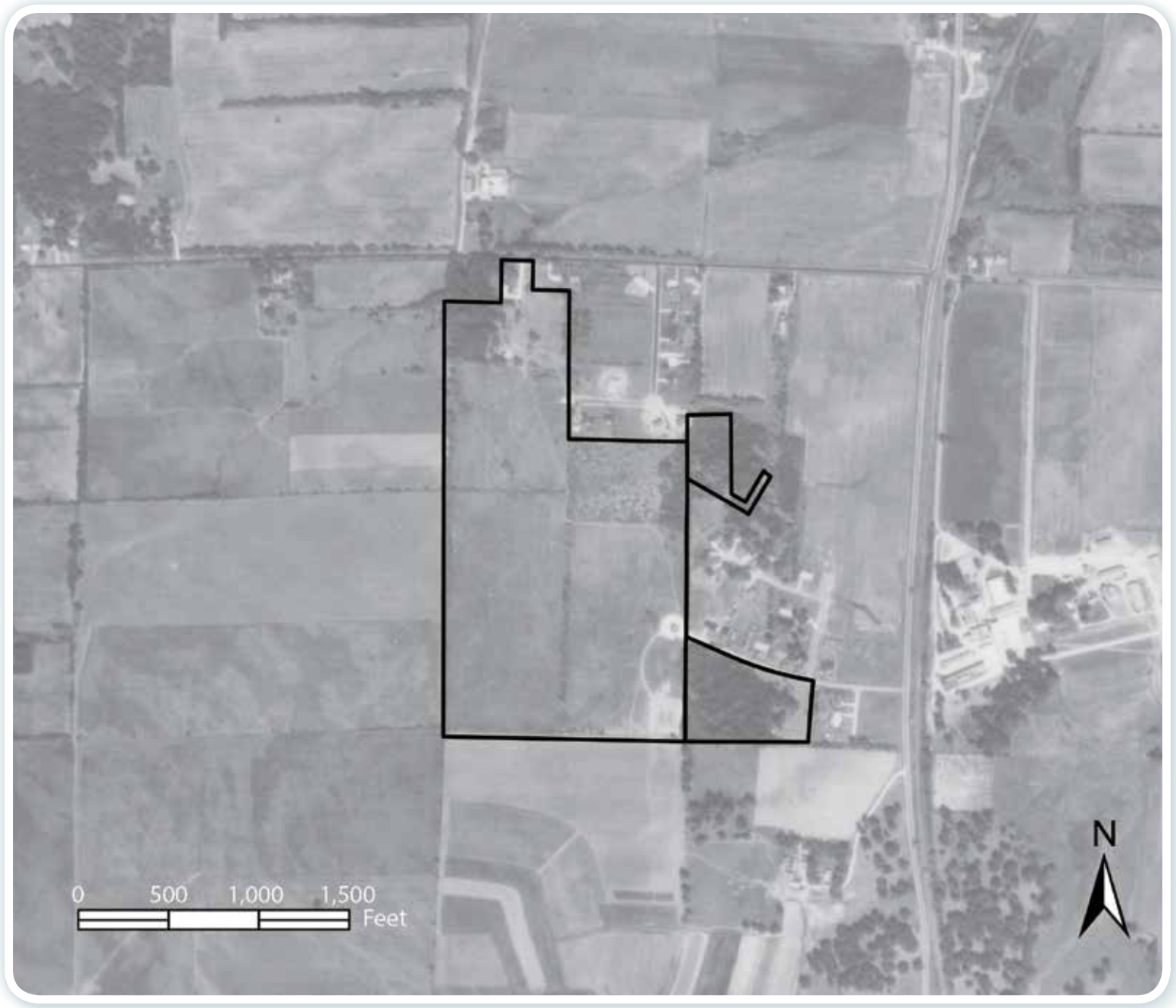
Development of the Dommers View lots east of McGaw and of the Tarpleywick Hills lots to the north of S. Johnson continues.

The appearance of woody encroachment of brush can be seen for the first time in the northern corner of the eastern half of the McGaw parcel.

Gaps in the tree canopy have filled in the S. Johnson parcel.

Figure 17. September 12, 1976 Airphoto

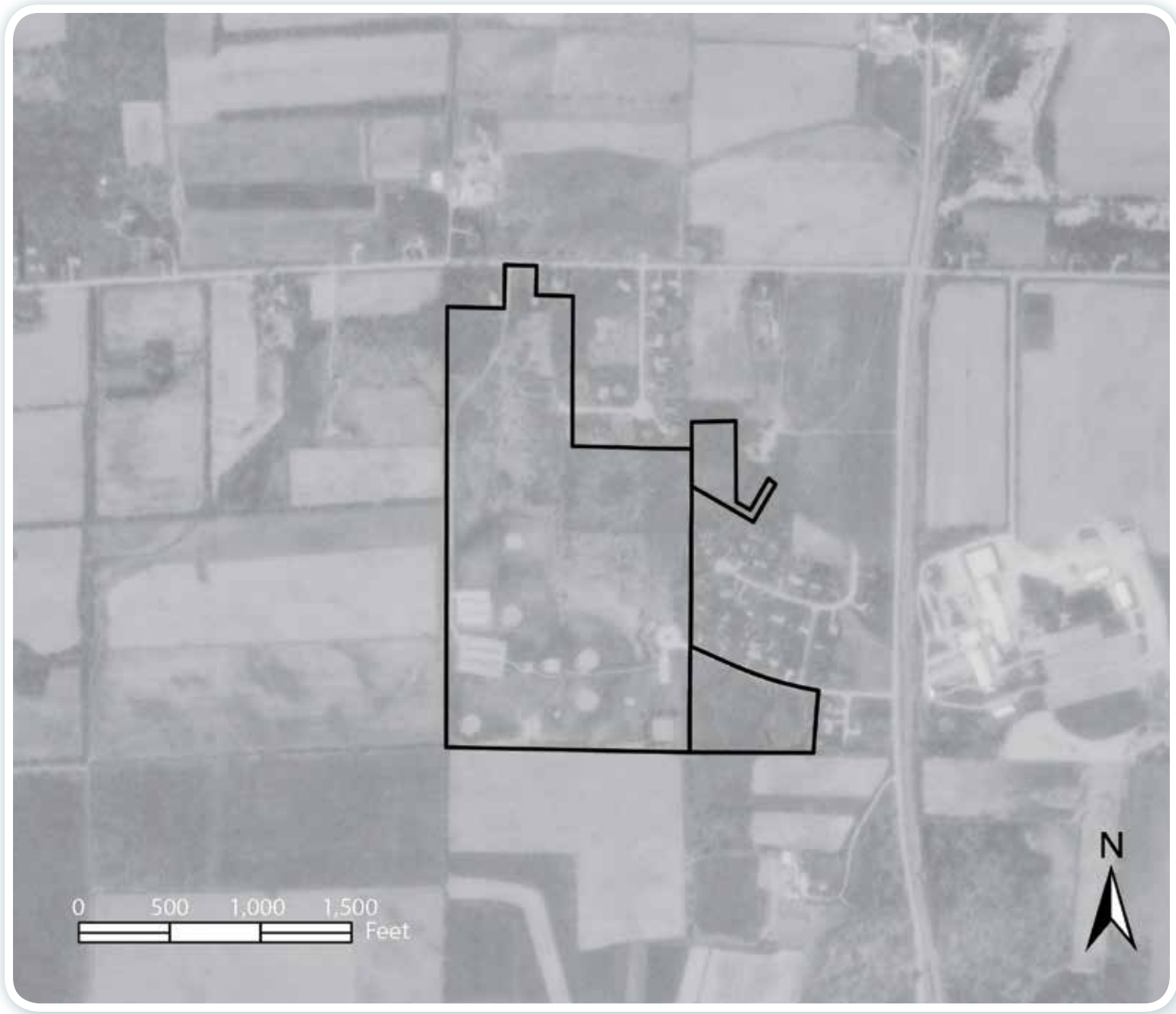
(Adapted from USDA "376-19")



April 30, 1992

This photo shows the development that has occurred in the southern portion of McGaw Park: three parking lots, and four ball diamonds can be seen.

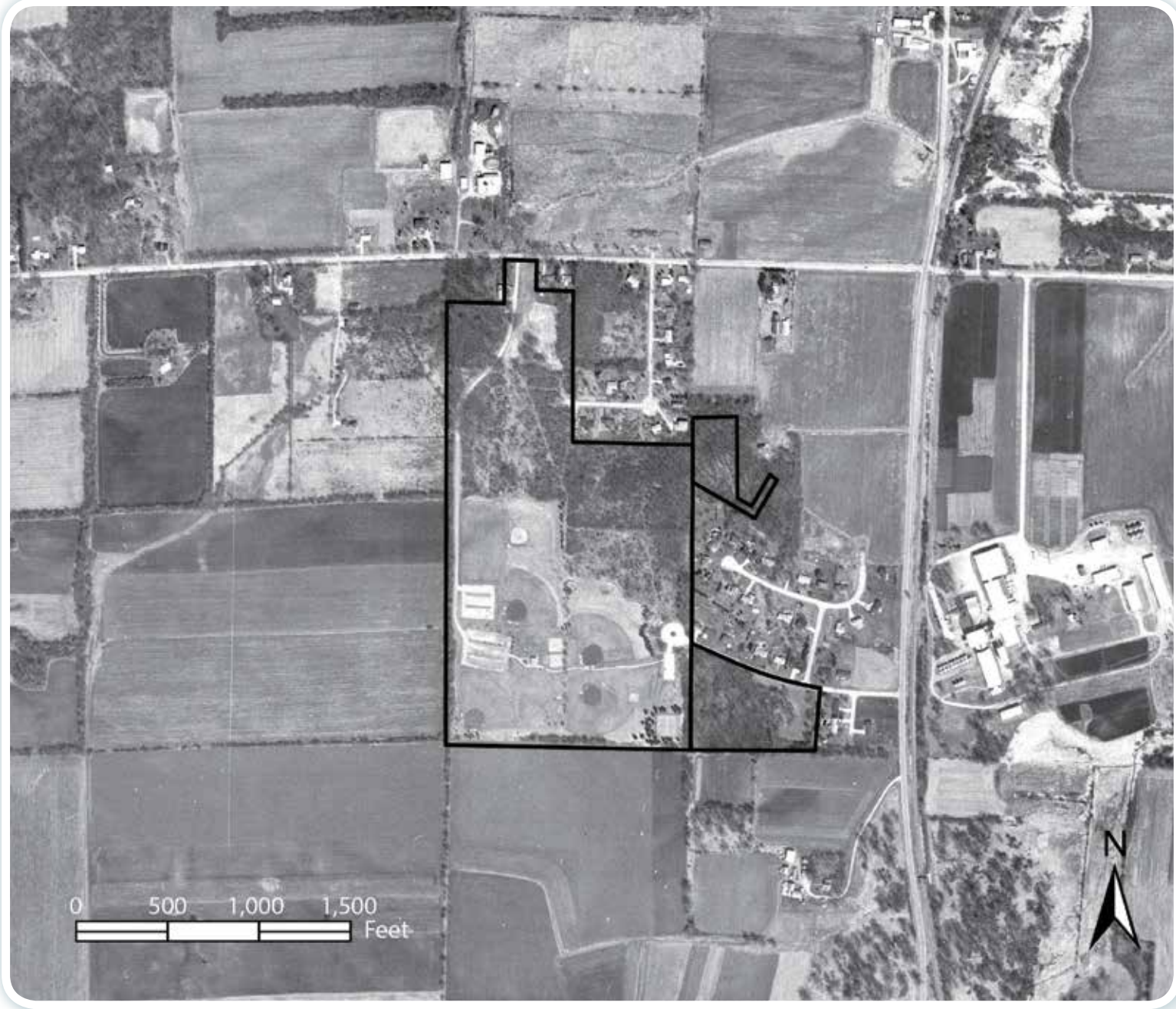
Figure 18. April 30, 1992 Airphoto
(Adapted from USDA "5410-107")



April 13, 1995

The canopy cover has increased since the 1992 photo.

Figure 19. April 13, 1995 Airphoto
(Adapted from USDA "8-12")



March 16, 2000

More evidence of woody encroachment can be seen, especially in the areas immediately north of the ballfields.

Figure 20. March 16, 2000 Airphoto

(Adapted from USDA "12-20")



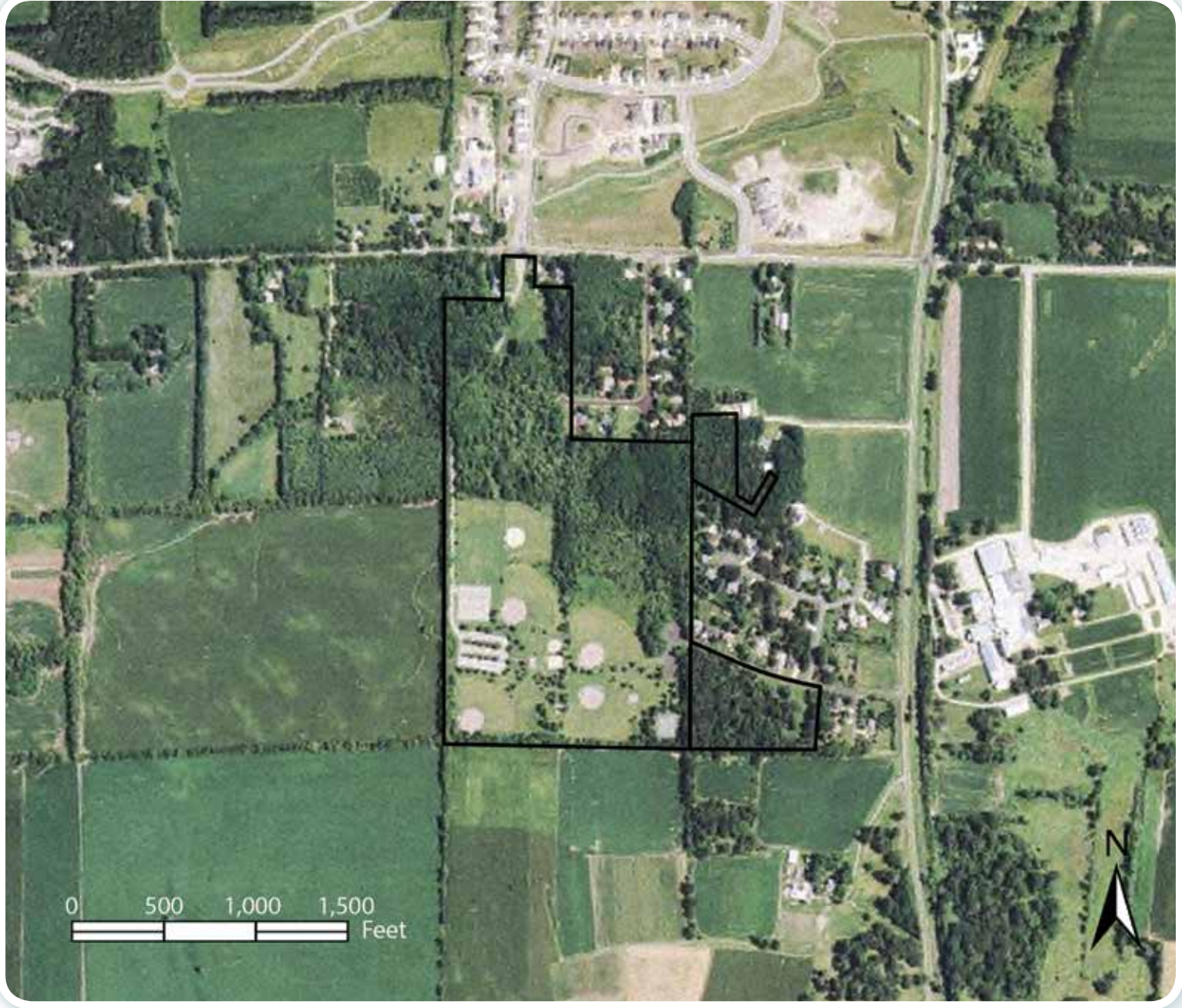
2004

Development to the north of McGaw Park can be seen: East Cheryl Parkway, the Cornerstone Village Condos, and the Northern Lights Village Condos.

Canopy cover in McGaw and S. Johnson has increased.

Figure 21. 2004 Airphoto

(Adapted from USDA "NAIP 1-1 2NWI025")



2007

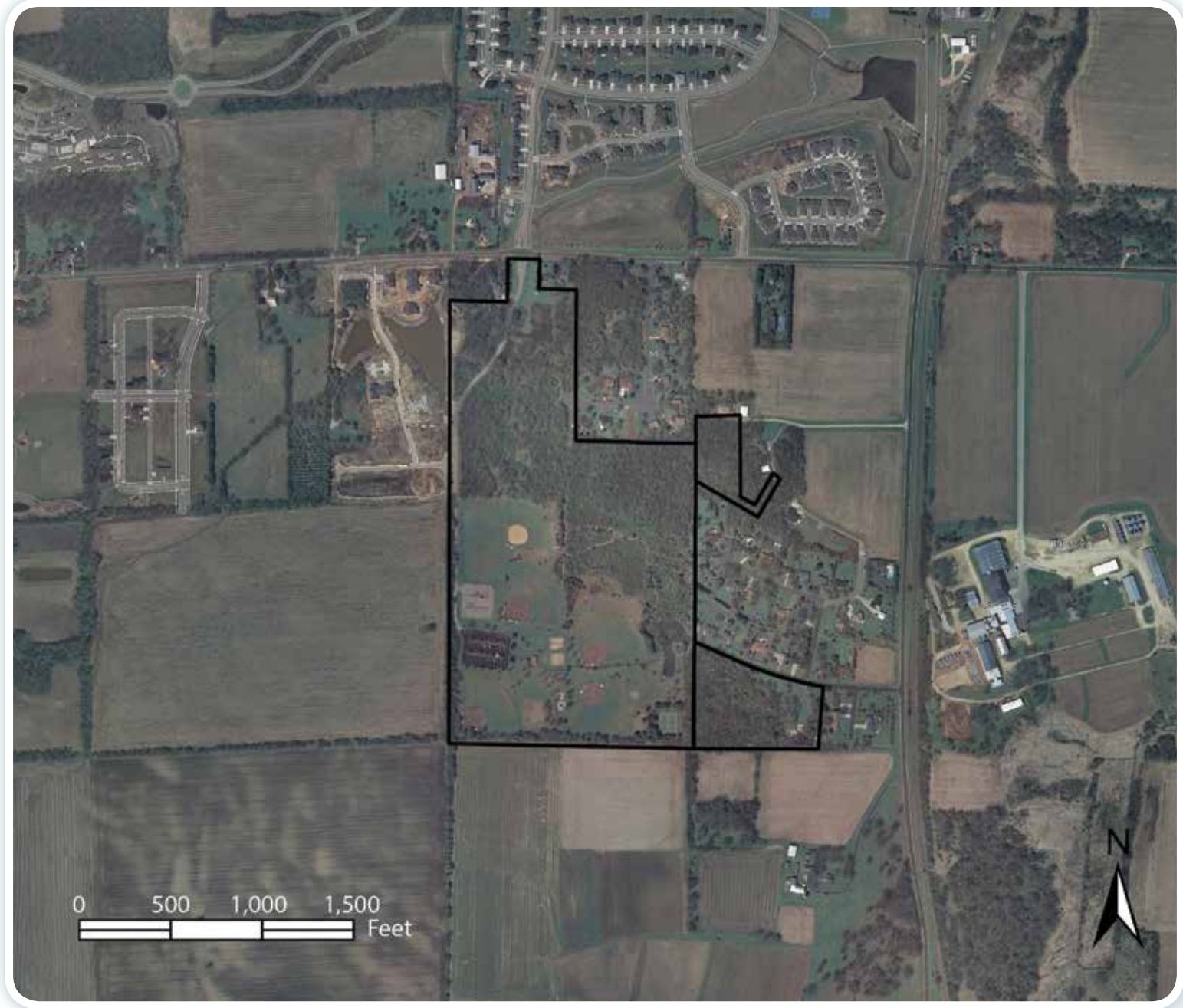
Development increases as the Crossings residence begins to the west of McGaw Park.

Three stormwater ponds can be seen in the former path of Swan Creek; one to the northeast, and two west of the Park.

Dark areas among the green grass at the north end of the park indicate the prairie planting was burned this spring.

Figure 22. 2007 Airphoto

(Adapted from USGS "16TCN303047625")



City Land Stewardship Goals and Objectives

There are three sources of information that pertain to the City of Fitchburg's Land Stewardship Goals and Objectives: the McGaw Park Master Plan (2012), the McGaw Park Neighborhood Plan (2014), and the City of Fitchburg Comprehensive Park, Open Space, and Recreation Plan (2016).

McGAW MASTER PLAN

The 2012 McGaw Park Master Plan sets goals for the Park that are accompanied by a set of objectives and policies. The formation of these goals, objectives, and policies resulted from information gathered from a visioning session held on March 24, 2011 and from a 2011 on-line community survey.

Goal 1: Continue to enhance McGaw Park, one of the City's Community Parks, as a major community-building resource through a safe and engaging environment, with a diversity of recreational opportunities and attractions.

Objective 1.1: Park improvements should be accomplished, in both location and design, with the safety of the park users in mind.

Policy 1.1.1: Provide for a diversity of park facilities, and events to encourage park use by a variety of user groups and individuals.

Policy 1.1.2: Provide street frontage to part of the future addition area.

Policy 1.1.3: Landscaping improvements will complement facilities, but recognize visibility and safety.

Policy 1.1.4: Consider pedestrian scale lighting for the major hard surfaced pedestrian ways.

Policy 1.1.5: Provide a separate off-drive walking path near the current north-south driveway.

Policy 1.1.6: Consider the establishment of additional destination facilities to enhance park activity and visits.

Objective 1.2: Recognize that as the McGaw Park Neighborhood develops McGaw Park will serve a larger population with more varied recreational needs.

Policy 1.2.1: Improve and enhance the pedestrian experience within McGaw Park through trail improvements and an enhanced trail system, allowing the trails to serve multiple

compatible linear recreation functions.

Policy 1.2.2: Plan improvements for the future that will recognize the added neighborhood park role which will McGaw Park will bear.

Policy 1.2.3: Recognize that a diversity of park users will increase as the neighborhood develops and that park planning will need to account for changing populations and recreational demands.

Policy 1.2.4: Provide suitable pedestrian and bicycle linkages between McGaw Park and other public recreation and open space in the surrounding area.

Objective 1.3: Add to the recreational base of McGaw Park by providing additional facilities and unique attractions, befitting a community park, to support a variety of ages, interests, and seasons.

Policy 1.3.1: Increased activity will benefit park users and increase the sense of safety within the park.

Policy 1.3.2: Provide flexibility and resilience in facility design and location to allow future modifications to meet changing needs and circumstances.

Policy 1.3.3: Recreation uses of facilities added to the park will be accomplished in locations suitable for the anticipated use levels, and the natural surroundings.

Policy 1.3.4: Provide a new main shelter/pavilion suitable for the intended uses of the park; in addition, provide, where necessary, ancillary shelters, possibly with restrooms.

Policy 1.3.5: Provide improvements to make McGaw Park a destination center for recreational and community building activities.

Policy 1.3.6: Balance the recreational needs of a Community Park with surrounding development patterns.

Goal 2: Balance environmental stewardship with enhanced and improved recreational opportunities.

Objective 2.1: Recognize the attraction of the existing wooded area to the McGaw Park environment.

Policy 2.1.1: Create a management plan, for approval by the Parks Commission, for control of invasive species with a desire to protect the wooded area.

Policy 2.1.2: Balance invasive species control with the attractive nature of the wooded area.

Policy 2.1.3: Improve existing wood area trails to meet a variety of recreational opportunities.

Objective 2.2: Explore environmental stewardship opportunities through recreation, education, and (where feasible) facility development.

Policy 2.2.1: Re-establish the former fitness course not only as a new fitness facility which integrates the educational benefits of fitness and the natural environment through which the course runs, but also make these areas suitable for other linear oriented recreational opportunities.

Policy 2.2.2: The woodlot management plan should work in tandem with fitness, recreational, and educational opportunities to enhance public involvement and enrich the recreation experience.

Policy 2.2.3: Consider environmental education programming and signage.

Policy 2.2.4: Explore opportunities for sustainable recreation facility development and management.

McGAW PARK NEIGHBORHOOD PLAN

The 2014 McGaw Park Neighborhood Plan, through a series of Steering Committee meetings and input from the public, defines the following goals to guide the plan:

Environmental goals:

1. Protect and rehabilitate the natural environment
2. Provide public access to unique natural areas.
3. Design the neighborhood to compliment environmental protection.

Agricultural Resource Goals:

1. To protect and maintain agriculture as a significant resource within Fitchburg.
2. Through orderly planning of McGaw Park, preserve agricultural land beyond the area as a resource for the use and benefit of current and future generations.

Economic Development Goals:

1. Encourage economic development opportunities appropriate to the resources, character, and service levels in the City.
2. Provide that retail and service areas are adequately sized and appropriately placed within neighborhoods and the community.
3. Recognize and support the changing needs and preserve agricultural based businesses as an economic opportunity.
4. Preserve and enhance resources when developing economic opportunities.

Community Character (Cultural):

5. Promote and preserve the City's cultural resource base.
6. Actively seek to strengthen strong cultural and social history and community identity.

Land Use Goals:

1. Preserve and enhance the natural and agricultural resources and features of the city.
2. Develop a compact urban community that is visually and functionally distinct from its rural and agricultural community.

Housing Goals:

1. To provide for balanced residential growth in the City with a variety of housing types, to promote decent housing and suitable living environment for all residents, regardless of age, income or family size, and to encourage an adequate supply of affordable housing in each new urban neighborhood.
2. Promote the efficient use of land for housing.

Transportation Goals:

1. Promote development in areas that encourages options to alternative transit modes.
2. Promote transit-friendly design of healthy neighborhoods with walkable, short blocks.
3. Design complete streets that promote pedestrian and bicycle movement as well as cars.
4. Carefully plan additional road capacity.
5. Consider extensions of transit including bus and rail/bus rapid transit to make neighborhood transit accessible.
6. Minimize impact on existing roadways and infrastructure by planning for multiple modes of transportation.

CITY OF FITCHBURG COMPREHENSIVE PARK, OPEN SPACE, AND RECREATION PLAN

The 2016 Comprehensive Park, Open Space, and Recreation Plan (2015-2020) identifies general Plan goals, and associated potential recommended action items, to ensure sufficient maintenance and enhancement of Fitchburg's system.

Goal 1: Distribute Fitchburg's park, open space, and recreation lands, and uses and facilities therein, in an accessible and equitable manner that reflects existing and future recreational demands and trends, and population demographics;

Goal 2: Protect Fitchburg's natural, cultural, and historical resources;

Goal 3: Develop Fitchburg's park, open space, and recreation lands, and uses and facilities therein, in a manner that provides identity and economic development opportunities for the City;

Goal 4: Integrate Fitchburg's park, open space, and recreation land, and uses and facilities therein, with a comprehensive City-wide trail/path system, stormwater management system, and environmentally sensitive area system;

Goal 5: Provide recreational program and services in an accessible and equitable manner that reflects existing and future recreational demands and trends, and population demographics;

Goal 6: Manage Fitchburg's park, open space, and recreational lands, and uses and facilities therein, in an efficient manner that optimizes benefit, minimizes cost, and provides for public safety;

Goal 7: Serve as the face of Fitchburg's park, recreation, and open space system through public interaction and service;

Recommended action items build on the aforementioned goals. These action items are summarized as follows:

1. Designate Signature Themed Parks that focus on one or a few related uses and amenities at specific City system properties;
2. Develop partnerships with private entities that enhance and

- expand the user profile of the City system;
3. Explore revision of the City system classification categories and standards, and parkland dedication and private open space requirements;
4. Assist in development and implementation of a comprehensive City trail/path plan and system;
5. Continue discussion on a potential neighborhood center in the North Fish Hatchery Road area;
6. Encourage location of community gardens on specific City system properties;
7. Explore opportunities for development of a "dog park" and related facilities, at an existing City system property;
8. Explore opportunities for addition of staff within the Parks, Recreation, and Forestry Department to address specific City system and neighborhood needs;
9. Design and landscape, and maintain and manage, existing and future City system properties in a manner that adds value to the City and its system;
10. Strengthen partnerships with other governmental entities that own or manage outdoor recreation land or facilities, or provide outdoor recreation programs and services;
11. Maintain and enhance the City's tree canopy, and forest and prairie landscapes;
12. Maintain and enhance the City's stormwater facilities and waterways;
13. Continue to explore opportunities for new recreation programs and services;
14. Monitor opportunities to implement uncompleted City system concepts, initiatives, and projects;
15. Explore opportunities for use of "non-City" financial resources to maintain and enhance the City system;

Conservation Easements and Land Use Agreements

There are five documents that indicate easements involving McGaw Community Park: #2032587, #2035765, #2311527, #5185060, and #5192046

The original deed (#1423072) and the Certified Survey Map #445 of McGaw Park are included in Appendix I.

#2032587

Document #2032587 is a right-of-way grant for underground electric. This grant allows Madison Gas and Electric Corporation (MG&E) a ten-foot-wide easement in the northwest corner of McGaw Park.

The agreement grants the utility company the right to enter the easement, to "construct, maintain, and operate" electrical transmission equipment. It grants the Company rights to "trim or remove such trees and brush as may now or hereafter interfere with or endanger" electrical transmission facilities.

The City agrees not to "erect any fence or other structures", "plant trees, inudate, or change the grade" of the easement.

#2035765

Document #2035765 is a grant of easement to Wisconsin Bell (AT&T) to "place and maintain" a "building to house telecommunications equipment", etc.

The agreement grants the Company the right "to cut down and keep cut down all trees and brush located on or immediately beside" the easement.

The McGaw Park Master Plan indicates that a telephone switching station was constructed in the later part of the 1980s west of the entry drive, south of the former McGaw farm house.

#2311527

Document #2311527 is a second right-of-way grant for underground electric in coordination with MG&E. This is a grant of a six-foot-wide easement on the east side of the park, parallel with and adjacent to the westerly line of Lot 5 of the Tarpleywick Hills Plat (5220 Wildheather Drive).

This agreement allows the Company to "enter" the easement to repair or remove electrical transmission equipment, as well as "to trim or remove such trees and brush".

The City agrees not to "erect any fences or other structures", nor "plant trees, inudate, or change the grade" of the easement.

#5185060

Document #5185060 is a private sanitary sewer and water service easement granted to the owner of 5267 Lacy Road, the former Sam McGaw residence.

The agreement grants the property owner the right to an easement for purposes of sanitary sewer and water service in the area of the entrance to McGaw Park.

In the event that repairs are needed, the grantees of the easement agree to "replace and/or repair any vegetation disturbed".

#5192046

Document #5192046 is a grant of access easement to the owner of 5267 Lacy Road, the former Sam McGaw residence, for the purposes of ingress and egress along the McGaw Park entrance.



Figure 23. MG&E electrical box in the North Park Addition

Existing Reports that Reference the Property

Existing reports that reference the property include: the 1973 Appraisal by F.J. Brown, Jr., the McGaw Park Master Plan (2012), the McGaw Park Neighborhood Plan (2014), and the City of Fitchburg Comprehensive Park, Open Space, and Recreation Plan (2016).

Historic and Current Landscape Plans

Historic and current landscape plans that reference the natural areas of McGaw and S. Johnson Parks include: a 2003 City of Fitchburg Public Lands natural Areas Management Plan, the McGaw Park Master Plan (2012), and the City of Fitchburg Comprehensive Park, Open Space, and Recreation Plan (2016).

PUBLIC LANDS NATURAL AREAS MANAGEMENT PLAN

A Management Plan for the natural areas of Fitchburg's public lands lists the following about McGaw Community Park:

Trail: A 1.5 mile trail cuts through the woodland. The trail head is located at the east parking lot.

Specific Maintenance: *Control wild parsnip on and around trails.*

Prairie: A two acre prairie area located near the northern entrance to the park was planted in 2001. Canada thistle thrives here.

Grassland: There are three acres of grassland comprised of tall turf grass in various areas of the park. They are located near the ballfields and south of the shelter. Invasive species include Canada thistle, common burdock, and crown vetch.

Woodland: A 30 acre wooded area is located mostly in the northern portion of the park. Previously used for farmland, this area is now naturally reforesting itself. Much of the vegetation includes boxelder, honeysuckle, maple, and wild parsnip.

The Plan states this about Seymour Johnson Neighborhood Park:

Trail: A trail system meandering through the wooded area of the park including an opening at the McGaw Park parking lot is planned.

Specific Maintenance: *Prevent garlic mustard from spreading on or near trail areas. Seeds are dispersed more readily near high traffic areas.*

Woodland: A four acre degraded oak savanna located in the western portion of the park and adjacent to McGaw Park is comprised of much buckthorn, honeysuckle, garlic mustard, and numerous other shade tolerant species. Oak trees are not regenerating due to lack of

sunlight.

Specific Maintenance: *Monitoring and occasional cutting of dead limbs and diseased trees overhanging the play equipment area is necessary for safety. Invasive species must be controlled.*

The management plan lists ten of the most invasive plants found in the state, and lists methods of control for each.

McGAW MASTER PLAN

The 2012 Master Plan for McGaw Park has several recommended plan elements that reference the natural areas:

- a nature center with an outdoor nature area
- a prairie restoration/rain garden is provided south of the existing Crossings residential area to provide a buffer and a natural setting with a bike path running through the prairie
- a second prairie restoration/oak opening area is provided at the southeast corner of the park near S. Johnson Neighborhood Park
- the existing wooded area will also be managed following completion of a woodlot management plan

CITY OF FITCHBURG COMPREHENSIVE PARK, OPEN SPACE, AND RECREATION PLAN

The 2016 Comprehensive Park, Open Space, and Recreation Plan (2015-2020) considers restoring trails in McGaw Park in the interest of cross-country skiing.

Current and Proposed Land Use of Adjoining Parcels

Sources for information regarding current and proposed land use of adjoining parcels include the McGaw Park Master Plan, the McGaw Neighborhood Plan, the Comprehensive Development Plans for North Park and for Fahey Fields, as well as the Conceptual Park and Open Space Proposal.

McGAW PARK MASTER PLAN (2012)

The McGaw Park Master Plan of 2012 notes two potential park additions through the process of park dedications; one to the west and one to the south.

"With the anticipated development of the McGaw Park Neighborhood, parkland dedication is a possible mechanism for expanding McGaw Park to the west and south. Persons subdividing lands within the City are required to dedicate sufficient land area to provide adequate park, playground, recreation, and open space to meet the needs to be created by and to be provided for the land development, land division, or subdivision. The City of Fitchburg Land Division Ordinance sets standards for the amount of parkland to be dedicated, which is based on the number of residential dwelling units within a development. The Land Division Ordinance also requires a developer/subdivider to pay a parkland improvement fee to be utilized for the construction of park facilities and it requires the dedication of street frontage for dedicated parkland."

The plan calls for the dedication to the west to include recreation facilities such as a picnic area, a playground, a great lawn, open recreational areas, tennis courts, and half basketball courts; and for natural environment elements such as a prairie restoration/rain garden. To the south, the plan calls for inclusion of recreation facilities such as an open recreational areas, tennis courts, and a labyrinth; and for natural environment elements such as a prairie restoration/oak opening.

McGAW PARK NEIGHBORHOOD PLAN (2014)

The 2014 update of the McGaw Park Neighborhood Plan describes existing land uses of the approximately 680 acre area:

"Agricultural use and parklands, accounting for over 91% of total acreage, highlight the land use composition for the McGaw Park Neighborhood. The neighborhood includes its namesake 49-acre McGaw Park, which includes both active and passive recreation. The remaining 9% is a mix of agricultural processing (Hartung corn processing plant), rural residential (subdivision of Tarpleywick Hills), and a scattering of large lot residential uses."

The plan proposes 32 acres of additional parkland on the west side and along the south side of both McGaw and S. Johnson parks, surrounded by residential development. A five acre environmentally sensitive area is proposed south of S. Johnson Park (fig. 24). The plan describes an environmentally sensitive area as "areas including waterways, wetlands, steep slopes and floodplains". The plan calls for no impervious development in these areas and notes that "all efforts should be made to restore and maintain these areas in their natural state."

COMPREHENSIVE DEVELOPMENT PLANS FOR NORTH PARK

The North Park development encompasses the area east of the Dommers View parcels and McGaw Park, south of Lacy Road, and west of Syene Road. The approximately 2.8 acre Outlot #1 of the North Park development was dedicated as parkland in 2015 (Figure 25).

COMPREHENSIVE DEVELOPMENT PLANS FOR FAHEY FIELDS

The Fahey Fields development is proposed for the area west of McGaw Park and south of the Crossing Condominium property. With the development will come a 10.8 acre dedication of Outlot #7 as parkland to the west side of McGaw Park as well as a strip of land set aside to be a bicycle and pedestrian connection to Quarry Hill Park to the west (Figure 26).

CONCEPTUAL PARK & OPEN SPACE PROPOSAL (2008)

The Conceptual Park & Open Space Plan of 2008 proposes a system of linked parks and open spaces "that protect Fitchburg's natural areas and create a buffer between current and future development". The highlight of the plan is the creation of a greenbelt buffer, called the Moraine Edge Park, at the southern boundary of the current urban service area that could "showcase Fitchburg's agricultural history" and "link to environmentally sensitive corridors and other significant natural features" (Figure 27).

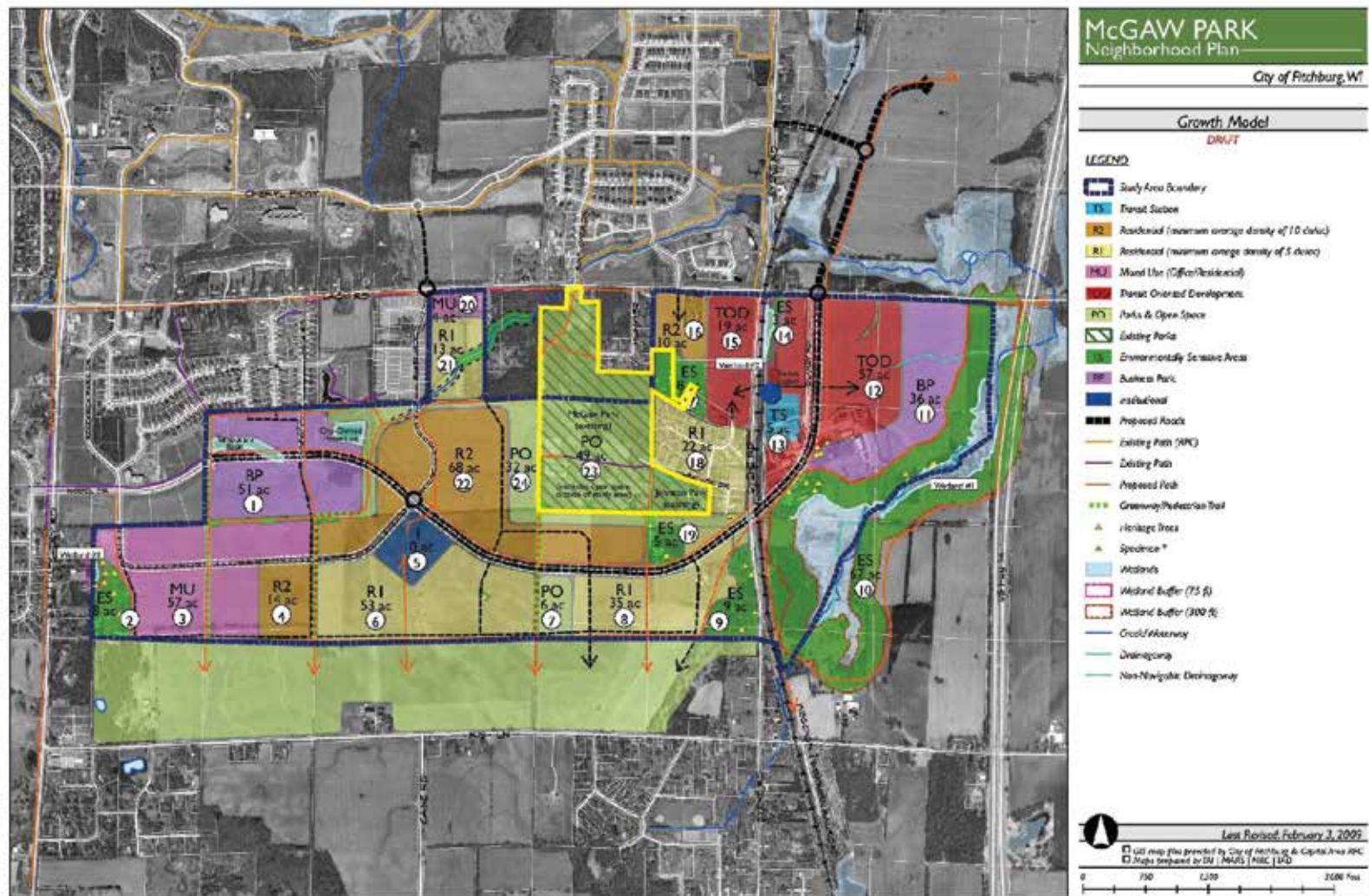


Figure 24. McGaw Park Neighborhood Proposed Growth Model (2014)

Park boundary shown in bright yellow.

(Adapted from *McGaw Park Neighborhood Plan*)



Figure 26. Fahey Fields Plat (7/9/2015)

Proposed addition to McGaw Park shown in green, existing McGaw Park in yellow.

(Adapted from D'Onofrio, Kottke, and Associates, Inc.)

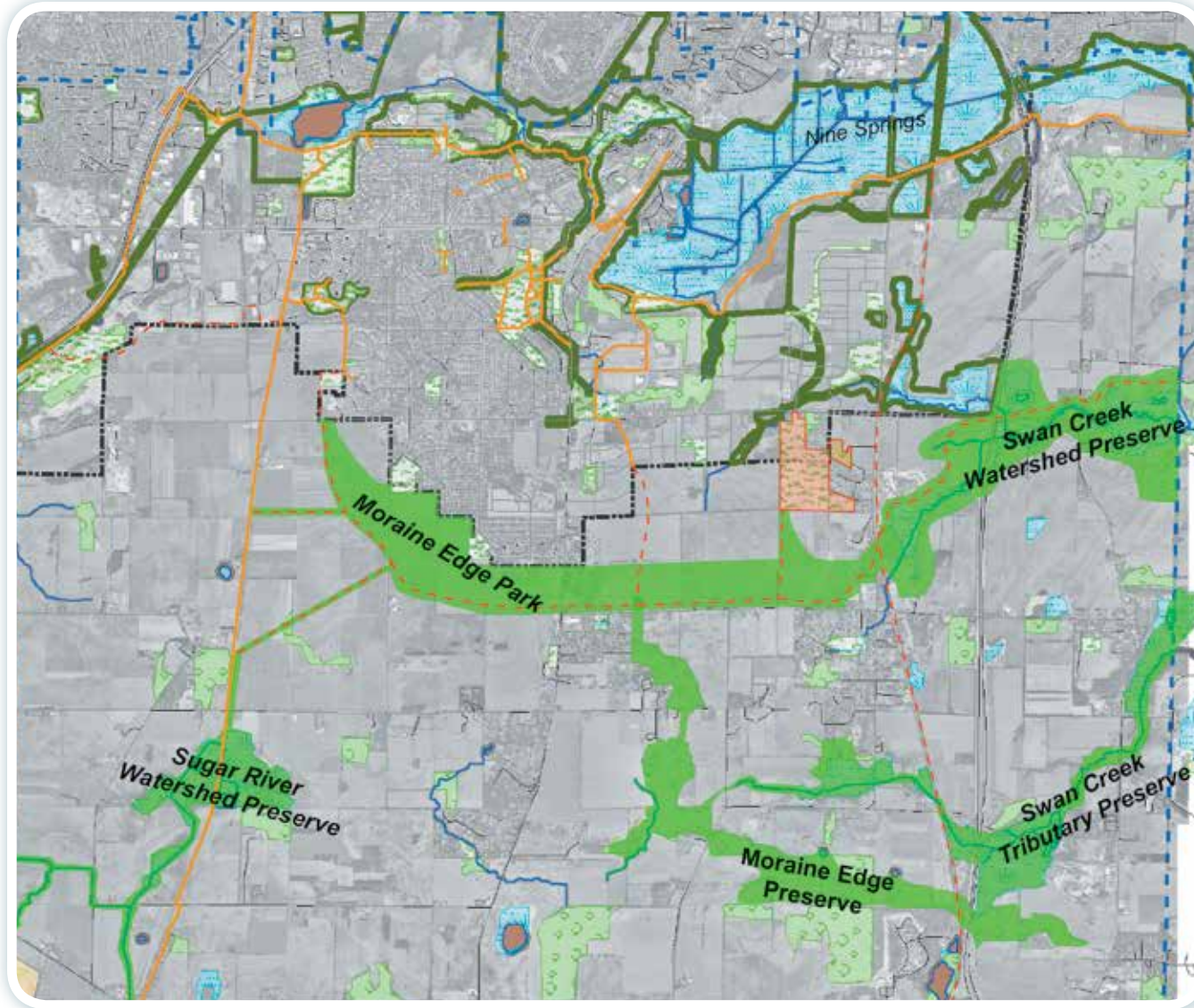


Figure 27. Proposed Conceptual Park and Open Space Plan (2008)

McGaw and S. Johnson Parks shown in red.

(Adapted from *Conceptual Park & Open Space Proposal*)

THE PLANT COMMUNITY

Plant ecology is the scientific study of how plants interact and affect each other and their environment. The information in this section will help the reader better understand this report and McGaw Community Park and Seymour Johnson Neighborhood Park's management.

The Plant Community

Most people recognize that certain plants commonly grow together, while other plants never grow side by side. Broadly speaking, groups of plants that commonly grow together are called a plant community. More specifically, a plant community is "a local assemblage of species that develops in response to site conditions, such as soil moisture and fertility, local and regional climate, slope, aspect, and disturbance patterns" (Curtis 1959).

Plant Community Structure

Most plant communities are composed of distinct layers of vegetation that define their structure. In forested communities the canopy is the uppermost layer. It is composed of the dominant (most abundant based on the amount of biomass or the species that has the strongest influence on the other plant community members) and the associate (codominant), tree species.

The canopy has a strong influence on all of the other (lower) vegetation layers because of its strong effect on light levels. Alterations in the amount of canopy closure often cause a cascading effect as lower layers of vegetation adjust to the change. This is an important relationship for land managers and restorationists to understand since their activities often alter the canopy.

Shifts in the composition of the canopy species are often associated with successional changes. Succession refers to the replacement of one species with another due to differing competitive ability, changes in the environment, and random events or disturbances, such as tornadoes, fire, or disease.

The midstory is the layer below the canopy and, like the canopy above it, has a strong effect on lower layers because of its influence on the amount of light they receive. It is often subdivided into a subcanopy layer and a shrub and seedling layer. The subcanopy is composed primarily of two classes of trees based on their ability to become part of the canopy, which is determined by their growth patterns. Some species grow quickly through the midstory and become part of the canopy. The amount of time they spend in the subcanopy before joining the canopy is related to their growth rate, shade tolerance, and the presence or absence of canopy gaps. Others species stay relatively short and remain in the midstory their entire life. The subcanopy is very important in determining the future composition of a forest or woodland because today's subcanopy is often tomorrow's canopy.

The shrub and seedling layer, the other component of the midstory, consists of various woody plants (shrubs), such as gooseberry, brambles,

and dogwood, and the young offspring (seedlings) of the canopy and midstory trees. The composition and density of the shrub layer is most closely related to canopy and soil moisture conditions, although this relationship can be altered by external factors, such as grazing and fire. Typically, there is an inverse relationship between canopy closure and shrub density such that closed canopy sites have relatively few shrubs, although shade tolerant invasive shrubs, such as buckthorn, often skew this relationship.

Prairie - Oak Continuum

From 1832 to 1866, survey crews of the Public Land Survey System marked, divided, and described the land of Wisconsin. Surveyors walked the land and documented data in their field notebooks, including suitability for agriculture, native plant communities, and tree species (Figure 28). In 1976, University of Wisconsin Geography Professor Robert W. Finley used the information from the surveyor's field notes to create a map of the Original Vegetation of Wisconsin (Figure 29). Finley's work suggests that Oak Openings covered as much as 37% of the region. More recently, Jeanine Rhemtulla, David Mladenoff, and Murray Clayton, using more modern techniques, estimate original land cover of savannas to be close to 70% of the land south of the tension zone.

An Oak Opening, as defined by John T. Curtis, is an oak-dominated savanna community in which there is at least one mature tree per acre, and less than 50% tree canopy coverage (Figure 30). These oaks have a characteristic open-grown form with broad spreading crowns and large branch scars along their trunks, where lower branches have been shaded out and eventually fall off. The groundcover that occurred in savannas was of species that are associated with tallgrass prairie. These communities occurred on wet-mesic to dry sites throughout the State south of the tension zone. Oak savanna is a transitional landscape that occurs between prairie and oak woodland. These three communities are dependent on landscape-scale disturbance, such as frequent fires of low intensity, for their maintenance of diversity and stability.

Today, it is estimated that oak savanna occupies less than 0.05% of land in Wisconsin. Oak opening communities rank as "Critically Impaired" at both State and Global level because of "extreme rarity" and because it is "extremely vulnerable to extinction". European settlers converted the savanna to cropland and pasture. A policy of fire suppression allowed the openings to succeed along the continuum to woodland and closed-canopy forest. Eventual removal of grazing animals allowed the entry of a shrub understory, particularly non-native plants.

The main issue and concerns of the region are: fragmentation and isolation

of major habitats, fire suppression and the loss of fire-dependent habitats and species, and the introduction and spread of invasive species.



Figure 28. Survey Crew of the General Land Office, 1830s

(Source: Wisconsin State Cartographer's Office)

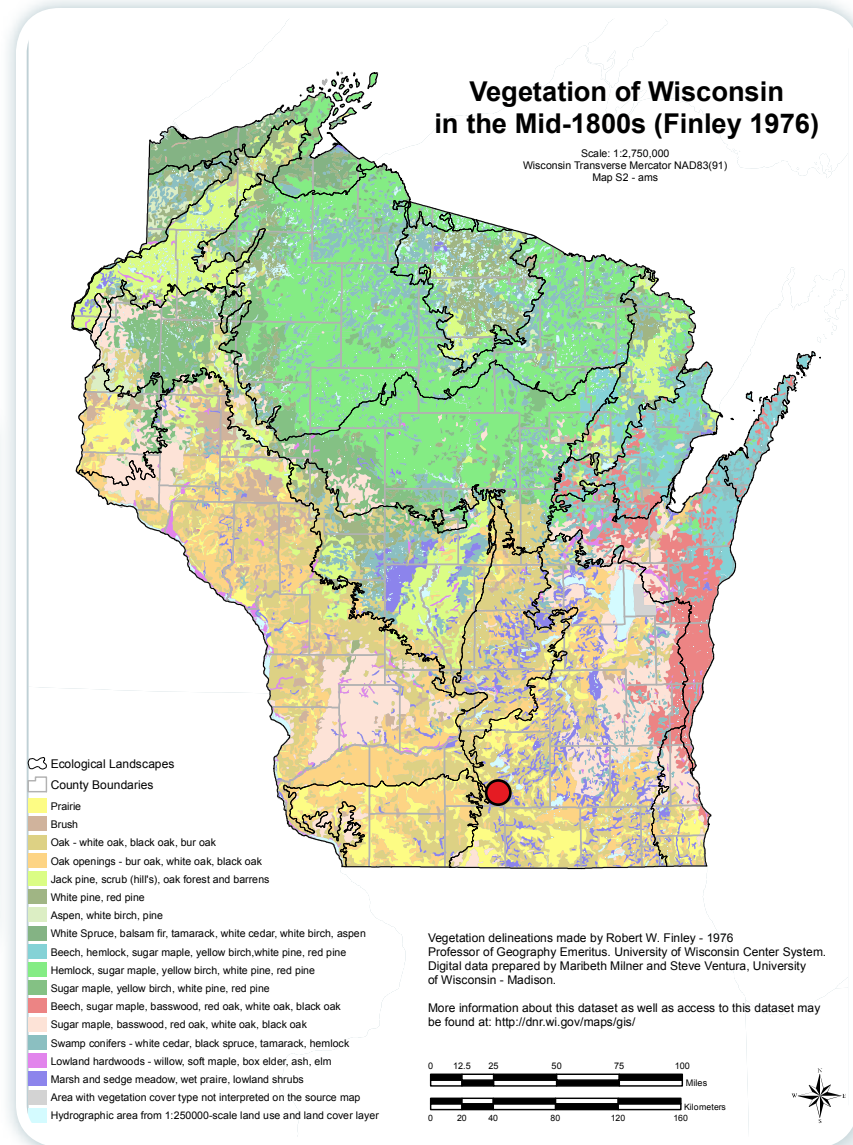


Figure 29. Vegetation of Wisconsin in the mid-1800s

(Source: Ecological Landscapes of Wisconsin)



Figure 30. Prairie - Oak Continuum
tallgrass prairie (top, left), oak savanna (center), and oak woodland (bottom, right)
(Adapted from Packard & Mutel, 2005)

Table 2.

CHARACTERISTICS OF THE MCGAW AND SEYMOUR JOHNSON PARK'S DESIRED FUTURE PLANT COMMUNITIES	
Community Type	Distinguishing Characteristics
Oak Opening/Savanna	As defined by Curtis, this is an oak-dominated savanna community in which there is less than 50% tree canopy. Historically, oak openings occurred on wet-mesic to dry sites. The few extant remnants are mostly on drier sites, with the mesic and wet-mesic openings almost totally destroyed by conversion to agricultural or residential uses, and by the encroachment of other woody plants due to fire suppression. Bur, white, and black oaks (<i>Quercus macrocarpa</i> , <i>Q. alba</i> and <i>Q. velutina</i>) are dominant in mature stands as large, open-grown trees with distinctive limb architecture. Shagbark hickory (<i>Carya ovata</i>) is sometimes present. American hazelnut (<i>Corylus americana</i>) is a common shrub, and while the herblayer is similar to those found in oak forests and prairies, with many of the same grasses and forbs present, there are some plants and animals that reach their optimal abundance in the "openings".
Oak Woodland	This "forest" community is structurally intermediate between Oak Openings and Southern Dry Forest. The tree canopy cover is high, but frequent low-intensity fires and possibly (in pre-settlement times) browsing by herbivores such as elk, bison, and deer kept the understory relatively free of shrubs and saplings. Much additional information is needed but it appears that at least some plants (certain legumes, grasses, and composites among them) reached their highest abundance here

DESCRIPTION AND ANALYSIS OF EXISTING CONDITIONS

Introduction

This section presents and interprets the information gathered during surveys and relates this information to management needs and opportunities.

Cultural Features

HIKING TRAILS

McGaw Park features about 1.5 miles of trails through the shrubland and wooded areas. A trail from the southeast corner of McGaw leads east through Seymour Johnson Park (Figure 31).

Trail surface is typically bare soil with some turfgrass where enough sunlight reaches the ground. Trail width varies throughout the parks (Figure 32).

Spur trails lead to private residences on the east side of McGaw Park and in the North Park Addition (Figure 32).



Figure 31. Hiking Trails of McGaw and S. Johnson Parks, as mapped by the City of Fitchburg. Additional non-mapped trails may be present.

(Adapted from wisconsinview.org WROC DOQQ 2010)



Figure 32. Trails of McGaw and S. Johnson Parks

(upper left), erosion on the S. Johnson trail (upper right), cleared vegetation on the race track oval (lower left), and a spur trail leading to a private residence (lower right).

PARCOURSE EQUIPMENT

An exercise fitness course was established in the early 1980s. The equipment is constructed of pressure-treated wood timbers with metal hardware. Over thirty years of exposure to the weather has left the course in a state of decay, with most of the stations unusable (Figure 33, Figure 34).



Figure 33. Dilapidated timbers of parcourse equipment



Figure 34. Dilapidated timbers of parcourse equipment.

RACE TRACK OVAL

An oval can be seen on airphotos starting in 1968., near the northeast corner of McGaw Park. The 1973 F.J. Brown, Jr. appraisal indicates that this feature is a race track used by "local youngsters for mini-bike" riding.

A path from Dommers Drive leads to the oval, which has been cleared of brush (Figure 35).



Figure 35. Race Track Oval

Cleared brush on the race track oval (top), and 2005 aerial imagery showing oval west of Dommers Drive (bottom) (Source: NAIP DOQQs 2005).

Vegetation Survey

INTRODUCTION

The purpose of this vegetation survey was to determine the ground layer species composition within the wooded and shrubland areas of McGaw Community Park and Seymour Johnson Neighborhood Park, including the new McGaw Park dedication from the North Park subdivision (Figure 37). The species composition will be compared to the results from the June 2011 Tree and Vegetation Survey (Appendix II) prepared by Mike Healy and Luke Saunders of BioLogic Environmental Consulting to obtain an understanding of the changes, if any, that have occurred in these parks over the last five years.



Figure 36. Vegetation Survey in Seymour Johnson Neighborhood Park
September 2015

METHODS

Survey points used for the Forest Inventory Report were utilized for the Vegetation Survey. A handheld GPS unit was used to navigate to each survey point. One square meter quadrats were placed at the center of each tree plot and used to estimate vegetation cover. Surveyors identified and estimated the percent cover of all herbaceous and woody plant material within the quadrat. Estimates of the absence of cover (bare soil, coarse woody debris, moss, etc.) were made. Additionally, the time and date that each plot was visited was noted, a digital photo was taken of each plot, and the presence of any tree or shrub species above the quadrat was noted. Plots were visited over three days in September of 2015 and over two days in July of 2016.



Figure 37. Vegetative Sampling Points

McGaw Community and Seymour Johnson Neighborhood Parks.
(Adapted from wisconsinview.org WROC DOQQ 2010)

VEGETATION SURVEY RESULTS

A total of 55 species were observed (Table 3) during the vegetation surveys of fall 2015 and summer 2016. Table 6 has an list of all species observed during the tree and vegetation surveys of 2011 and 2015-16. The table notes whether the species is native to Wisconsin and whether it is invasive. The survey that the plant was observed (May 2011, September 2015, July 2016) is given, as well as the park that it was observed in (McGaw or S. Johnson).

Forty-one of the 55 species observed (75%) during the 2015-16 vegetation surveys are native to Wisconsin. It is important to note that the number or percentage of native species does not fully reveal an area's health or diversity. Rather, it's important to also consider the *density* (number of individuals) and *cover* (the amount of horizontal space a plant occupies when viewed from directly above) of the non-native and native species. This is because it is typically better to have many different non-native species each with low density and low cover, than it is to have a few non-native species each with a high density and high cover. High non-native species density and cover typically decreases native species diversity. Table 5 lists the three species that comprise the most coverage, as well as the coverage of bare soil, rock, debris, and leaf litter.

The vast majority of vegetation survey points were located in shrubland and forested areas, with only two sample points in open areas (McGaw #3 and #20). These open-area points contained some of the most species-rich plots within the survey. The species composition and location of these areas suggests that they are not prairie remnants, but were seeded with prairie vegetation sometime within the last 20 years.

The most diverse plots contained nine to ten species (McGaw #2, #3, #20, and #21); the least diverse plots contained only one to two species (McGaw #11, #15, #19, and #22). Fifty percent of plots contained four or less species.

The most prevalent species occurring on the groundlayer is common buckthorn (*Rhamnus cathartica*), occurring in 32 of the 60 sample plots (53%). Buckthorn is a tall understory shrub or a small tree capable of



Figure 38. Common buckthorn (top)



Figure 39. Garlic mustard (bottom)



Figure 40. Exotic shrub honeysuckle leaves (top)

Figure 41. Exotic shrub honeysuckle mature bark (bottom).



growing to 25 feet tall. Buckthorn is considered to be invasive by the Wisconsin Department of Natural Resources and appears on the NR-40 List as “Restricted”. Buckthorn is an ecological threat because it invades oak forests, riparian woods, savannas, prairies, old fields, and roadsides. It is tolerant of a broad range of environmental conditions and can leaf out very early in the spring and retains its leaves late into the growing season, giving it an advantage over native plants. Where established, it creates dense shade, eliminating regeneration of tree and understory species (WDNR). Common buckthorn occurred in 30 of the McGaw plots (65%) and 2 of the S. Johnson plots (14%). Buckthorn canopy occurred above 16 of the McGaw plots (35%), but only above four of the plots (29%) in S. Johnson Park. On average, it covered 8.2% of the ground layer of McGaw plots.

The second most prevalent species occurring on the groundlayer are garlic mustard (*Alliaria petiolata*) and white avens (*Geum canadense*), each occurring in 24 of the 60 sample plots (40%).

Garlic mustard is an herbaceous perennial considered to be invasive by the Wisconsin Department of Natural Resources and appears on the NR-40 List as “Restricted”. Garlic mustard is an ecological threat because it invades high quality upland and floodplain forests and savannas, as well as disturbed areas, such as yards and roadsides. It most often grows in areas with some shade. Native herbaceous cover has been shown to decline at sites invaded by garlic mustard, perhaps due to the antifungal chemicals that are exuded into the soil by the invasive garlic mustard. These chemicals disrupt associations between mycorrhizal fungi and native plants, suppressing native plant growth (WDNR). Garlic mustard occurred in 12 of the McGaw plots (26%) and 12 of the S. Johnson plots (86%). Garlic mustard accounted for 5.7% of the coverage of McGaw plots and 7.7% of the Johnson plots.

White avens is an herbaceous perennial native to the state of Wisconsin. In favorable sites, this plant can spread aggressively and is somewhat weedy. White avens is able to grow underneath black walnut trees (*Juglans nigra*) because of its tolerance to the phytotoxic chemicals that are released by the fallen leaves and roots of this tree (Illinois Wildflowers).

In Wisconsin, white avens has a Coefficient of Conservatism value of 2, meaning “taxa found in a wide variety of plant communities and very tolerant of disturbance” (Bernthal 5). White avens occurred in 18 of the McGaw plots (39%) and six of the S. Johnson plots (43%).

The third most prevalent species occurring on the groundlayer is Virginia creeper (*Parthenocissus quinquefolia*), occurring in 22 of the 60 sample plots (37%). Virginia creeper is a woody, deciduous vine that can be climbing or trailing. It climbs by means of tendrils with disks that fasten to bark or rock. Virginia creeper is native to the state of Wisconsin. It has a Coefficient of Conservatism value of 5, meaning “taxa typically associated with a specific plant community, but tolerant of moderate disturbance” (Bernthal 5). Virginia creeper occurs in 30% of McGaw plots and 58% of S. Johnson plots.

Honeysuckle (*Lonicera* spp.) is a species that occurred on the groundlayer in 13 of the McGaw plots (28%) and occurred in the canopy above 31 McGaw plots (67%). Surveyors noted needing to travel through very dense understory of honeysuckle enroute to sample plots on eight occasions. “Very dense” was described as unwalkable; travel through these thickets required climbing over or crawling under the shrub layer. Honeysuckle was not found on the ground layer in any of the Seymour Johnson plots, but was observed in the canopy above three of the plots there.

There are four exotic shrub honeysuckles considered invasive in the State of Wisconsin: Amur honeysuckle (*Lonicera maackii*), Bell’s honeysuckle (*Lonicera x bella*), Morrow’s honeysuckle (*Lonicera morrowii*), and Tatarian honeysuckle (*Lonicera tatarica*). These invasive exotics are medium to large-sized, deciduous, multi-stemmed shrubs capable of growing to 15 feet in height. They are fast growing and shallow rooted, forming dense colonies when they invade woodlands. Shrub honeysuckle appears on the Wisconsin NR-40 List as “Restricted”.

Exotic shrub honeysuckles are an ecological threat because they are capable of invading a broad range of habitats, including forest edges, open woods, fens, bogs, lakeshores, roadsides, pastures, and old fields, displacing native understory vegetation. These shrubs alter habitats by decreasing light availability, depleting soil moisture and nutrients, and possibly



Figure 42. Box elder seeds (top)

Figure 43. White mulberry leaves (bottom)





Figure 44. Black locust thorn (top)

Figure 45. Oak seedling (bottom).



releasing allelopathic chemicals that inhibit growth of other plants. They cause long-term decline of forests by leafing-out early and holding leaves late in the season, shading out native species and out-competing them for nutrients. These invasive shrubs may degrade wildlife habitat by competing with native plants for pollinators, thus reducing seed set of native plants. They do not serve as a source of high-fat, nutrient-rich fruit for migrating birds (WDNR). As a percent coverage, honeysuckle was 5.5% of McGaw plots.

In a column above the sample plots, in the tree canopy, box elder (*Acer negundo*), black walnut (*Juglans nigra*), mulberry (*Morus alba*), black cherry (*Prunus serotina*), and black locust (*Robinia psuedoacacia*) were among the species observed.

Box elder is a Wisconsin tree species native to wet, deciduous forests of the southern portion of the state. It has become a common invader of a wide variety of disturbed upland sites, including abandoned fields, open ground in cities, rights-of-way and fence rows (UWGB Herbarium). During the vegetation survey, box elder was observed in the canopy above 15 of the McGaw plots and nine of the S. Johnson plots.

White mulberry is a tree native to China that is an ecological threat to open forests, woodland edges, prairies, fields, and disturbed areas (WDNR). It appears on the Wisconsin NR-40 List as “Restricted”. These trees were observed in the canopy above seven of the McGaw plots and one of the S. Johnson plots.

Black cherry and black walnut are trees native to Wisconsin that grow in a variety of upland habitats. The wood from these trees are highly valued for furniture (UWGB). Both are considered a component of the Central Hardwoods cover type, however, are not a component of fire-dependent communities such as oak woodland and oak openings (WDNR). Above the McGaw vegetation survey plots, black cherry shows up twelve times, black walnut, two. Cherry is above eight of the S. Johnson plots.

Black locust is a tree native to the Appalachian region of the eastern United States. In Wisconsin, it invades forests, upland prairies and savannas, pastures, old fields, and roadsides. It spreads vegetatively,

forming extensive, dense groves of clones that exclude native vegetation (WDNR). The branches and seedlings of black locust have sharp, paired thorns. On a positive note, the lumber from black locust is rot-resistant and can be an alternative to pressure-treated lumber in uses such as fence posts and decking. Black locust appears above 13 of the McGaw plots, especially concentrated in the North Park Addition and the northeast corner of McGaw Park.

Additionally, shagbark hickory (*Carya ovata*) and oak (*Quercus* spp.) were observed in the canopy above the vegetation survey plots. These are native trees historically associated with oak savanna and oak woodlands. White oak (*Q. alba*), bur oak (*Q. macrocarpa*), red oak (*Q. rubra*), and black oak (*Q. velutina*) were documented above the plots, however, only one seedling was recorded on the ground layer of a plot; a red oak in the recently forestry-mowed area on the northeast corner of McGaw Park.

Table 3.

VEGETATION SURVEY - NUMBER OF SPECIES OBSERVED			
Life Form	Number of Species		
	Native	Exotic	Total
Ferns	0	0	0
Forbs	18	9	27
Graminoids	2	1	3
Shrubs	12	3	15
Trees	6	1	7
Vines	3	0	3
Total	41	14	55

Table 4.

VEGETATION SURVEY - INVASIVE SPECIES BY PRESENCE			
Common Name	Scientific Name	McGaw	S. Johnson
common buckthorn	<i>Rhamnus cathartica</i>	15	1
honeysuckle	<i>Lonicera</i> spp.	7	0
garlic mustard	<i>Alliaria petiolata</i>	6	6
Total Number of Plots		23	7

Table 5.

VEGETATION SURVEY - INVASIVE SPECIES BY PERCENT COVER			
Common Name	Scientific Name	McGaw	S. Johnson
common buckthorn	<i>Rhamnus cathartica</i>	8.2%	1.0%
garlic mustard	<i>Alliaria petiolata</i>	5.7%	7.7%
honeysuckle	<i>Lonicera</i> spp.	5.5%	0.0%
coarse woody debris and leaf litter		32.9%	40.6%
bare soil and rock		15.2%	24.7%
moss and fungi		12.6%	0.0%

Tree Survey

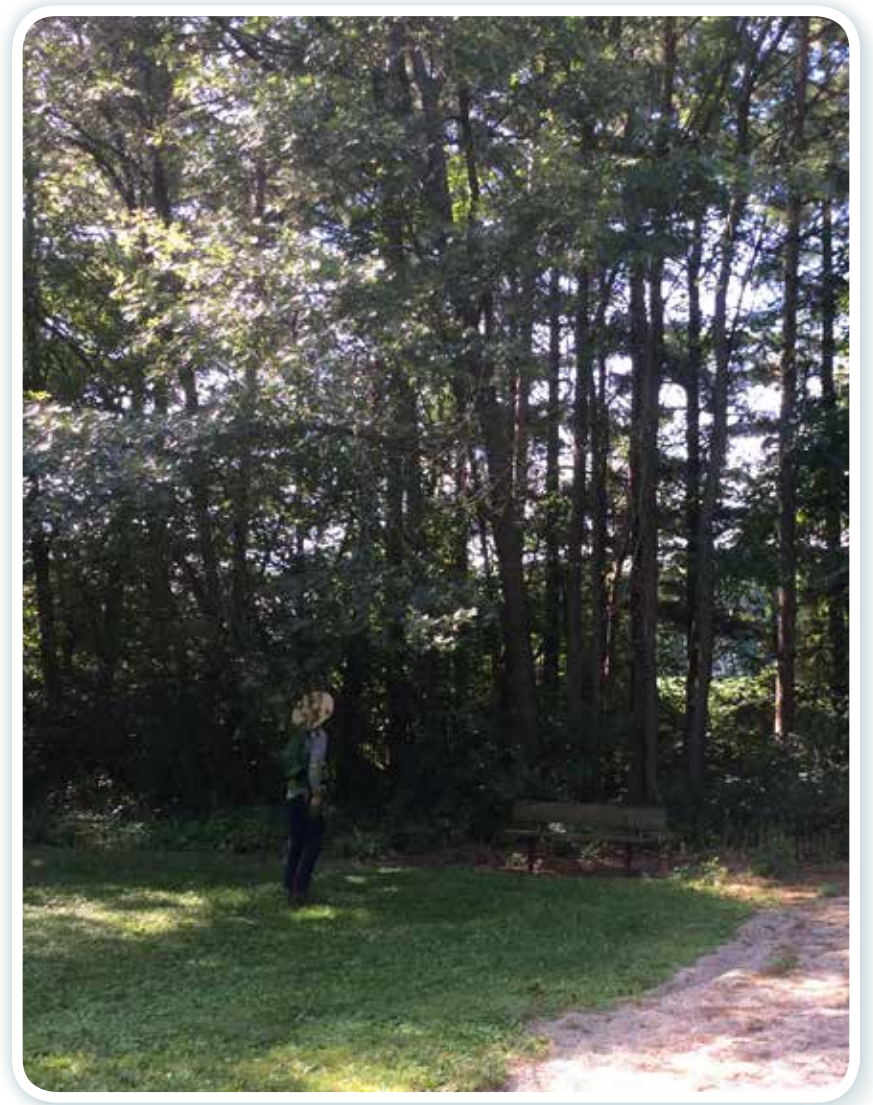


Figure 46. Tree surveyor in Seymour Johnson Park.

METHODS

The City of Fitchburg's McGaw Park and S. Johnson Park woodlot trees were surveyed according to accepted forest biometry methods. Including the new addition of land in the northeast, forest stand acreage in McGaw Park was estimated to be 35.2 acres. S. Johnson Park forest was estimated to be 5.8 acres. twenty-three sample plots in McGaw Park, and seven sample plots in S. Johnsons Park were laid out in a grid using QGIS, a geographic information systems open-source software. A Garmin GPSMAP 62 unit was used to navigate to plot centers, and all plots were marked in the field (Figure 47). Trees were tallied using a prism with a basal area factor (BAF) of 10, meaning that each tree over 5 inches in diameter at breast height (dbh) tallied as "in" signifies 10 square feet of trunk area per acre. Field data was entered into Forest Metrix software on an iPad Mini unit. Tree species and diameter at breast height (dbh) were recorded. Trees were also assessed for merchantability, by estimating number of sawlogs and/or pulp sticks contained in each tree, where applicable. Not all trees are merchantable, and these measures are only a reference, and do not imply silvicultural recommendations. Data on soil type, slope, aspect, invasive species and canopy cover was also recorded at each plot. Additionally, all specimen trees (those of good vigor, appropriate species for site, and dbh greater than 15") were marked using the GPS unit.

Foresters combine areas of land with similar vegetative and non-vegetative characteristics for management purposes and call these areas "stands". This plan distinguishes five distinct forested stands, which can be viewed in the forest stand map in Appendix III.



Figure 47. Tree Survey Sampling Points

McGaw Community and Seymour Johnson Neighborhood Parks
(Adapted from wisconsinview.org WROC DOQQ 2010)

STAND 1: NORTHWEST ENTRANCE SAVANNA, 7.6 ACRES

Primary Timber Type: Central Hardwoods 5-11 ² (moderate stocking of central hardwood poletimber)

Secondary Timber Type: Central Hardwoods 15+ ¹ (thin stocking of central hardwood large sawtimber)

Understory Type: Miscellaneous Deciduous 0-5 ¹ (very thin stocking of black locust and mulberry seedlings and saplings)

Average Basal Area (square feet/acre): 66

Trees per acre: 163

Board feet per acre: 710

Cords per acre: 5.6



Figure 48. McGaw Community Park Northwest Savanna (Stand #1)

(Adapted from wisconsinview.org NAIP 2015)

Stand 1 of McGaw Park is in the northwest corner of the property, spanning either side of the entrance road to the park. This area was once likely covered by mesic, tallgrass prairie with prairie forbs and/or tall warm season grasses under occasional open-grown oak trees. European settlement converted its rich soils to agricultural crop fields. Under passive management upon becoming a park, Stand 1 now is dominated by pioneer tree species and dense non-native woody invasive shrubs, supporting very little native vegetation at the time of conducting the forest inventory.

The most common tree species in Stand 1 are silver maple (58% of basal area per survey of 5 forest inventory plots), followed by black cherry (36%) and black walnut (6%). Poletimber (trees with diameters at breast height (dbh) of 5-11 inches) is the most common size class, dominated by silver maple in varying states of decline. Because of the variability in this stand, several other tree species are present, but were not captured in sampling during the forest inventory. Other tree species present in low densities include black locust, big tooth aspen, American elm, slippery elm, black oak, bur oak, hackberry, mulberry, box elder. Still other tree species may occur in very low densities in Stand 1, but were not noted. The overall mean stand diameter at breast height (dbh) is 8.6 inches, with very few large trees present. Some silver maples to the north of Stand 1 are open grown and quite large. With the exception of non-native black locust and mulberry, virtually no tree regeneration occurs amidst the dense understory of Stand 1. Very isolated specimens of black oak seedlings and saplings occur at the southwest corner of Stand 1, where its few oaks are concentrated.

Stand 1 has low diversity of tree species composition, and the tree-covered areas are dominated by species that were not likely present here pre-European settlement. Many maples have snapped off above ground, or lost limbs, with considerable epicormic branching indicative of considerable stress. Samples of stressed tissue and leaves will be taken in early August and submitted to lab testing through the WDNR Forest Health team, to identify which insects and fungal diseases may be present and contributing to the poor health of the stand. Meanwhile, in a triangle of about 0.5 acres, the City of Fitchburg crew has removed all trees

(except four black walnuts and one black oak) and invasive woody plants, to mitigate risk from declining trees falling on the adjacent entrance road and walking path.

Invasive species are well-established throughout Stand 1, in some places creating nearly impenetrable thickets. Common buckthorn was present at all inventory plots, and is vigorous throughout the stand, both as seedlings and saplings. Eurasian honeysuckles are also present at levels ranging from very heavy to light where buckthorn has outcompeted it. Garlic mustard is also present in Stand 1. Other invasive plant species with low occurrence include motherwort and common dandelion, especially on the edges of the degraded prairie in the northeast of Stand 1.

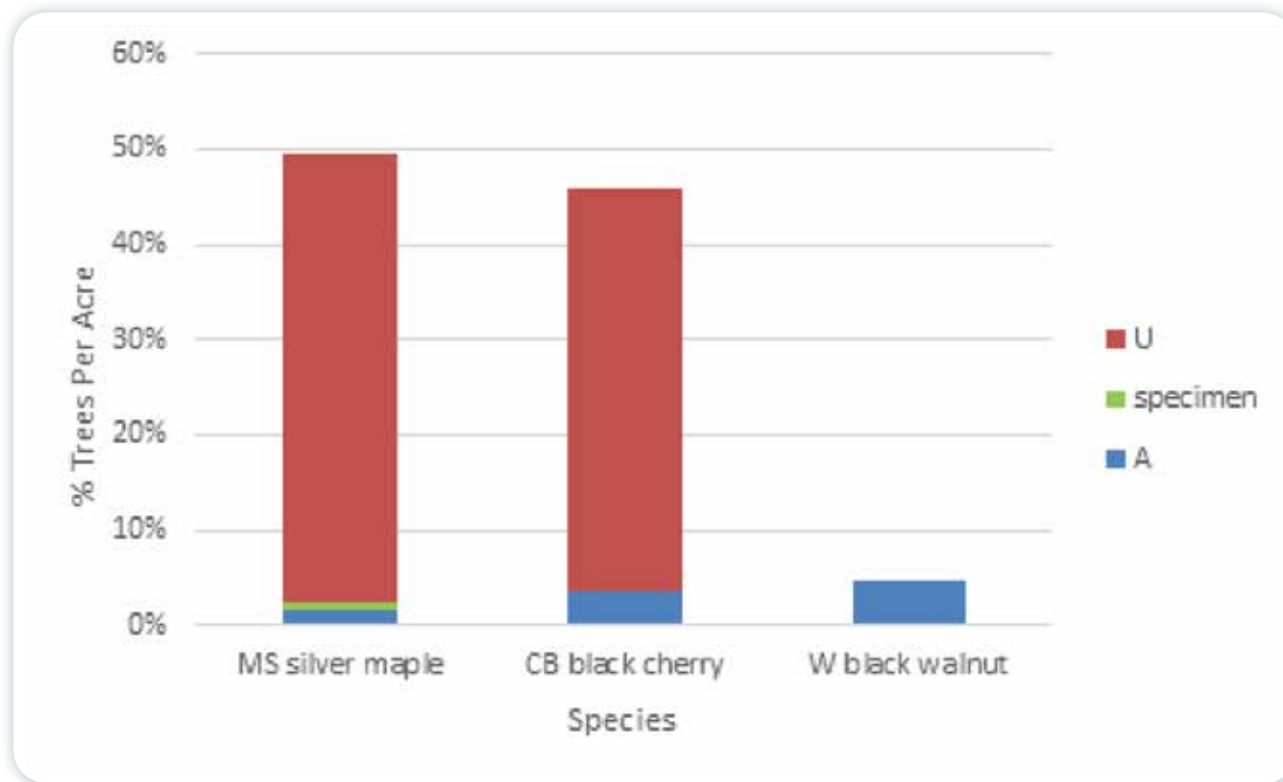


Figure 49. McGaw Park Stand 1 Species Distribution of Trees (in terms of percent of total trees per acre, by species)

“U” indicates undesirable trees, “specimen” indicates notable large trees, “A” indicates acceptable trees, given recommended management practices.

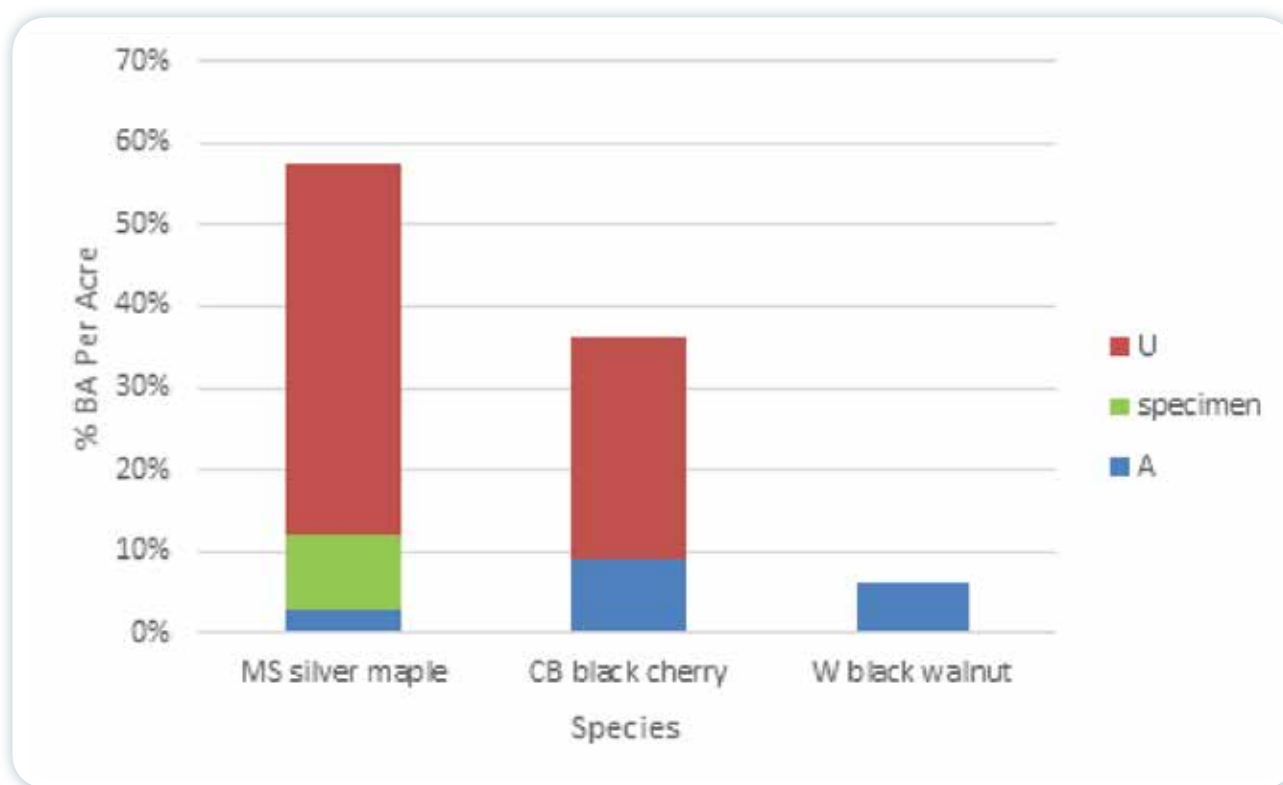


Figure 50. McGaw Park Stand 1 Species Distribution of Trees (in terms of percent of basal area, by species)

“U” indicates undesirable trees, “specimen” indicates notable large trees, “A” indicates acceptable trees, given recommended management practices.

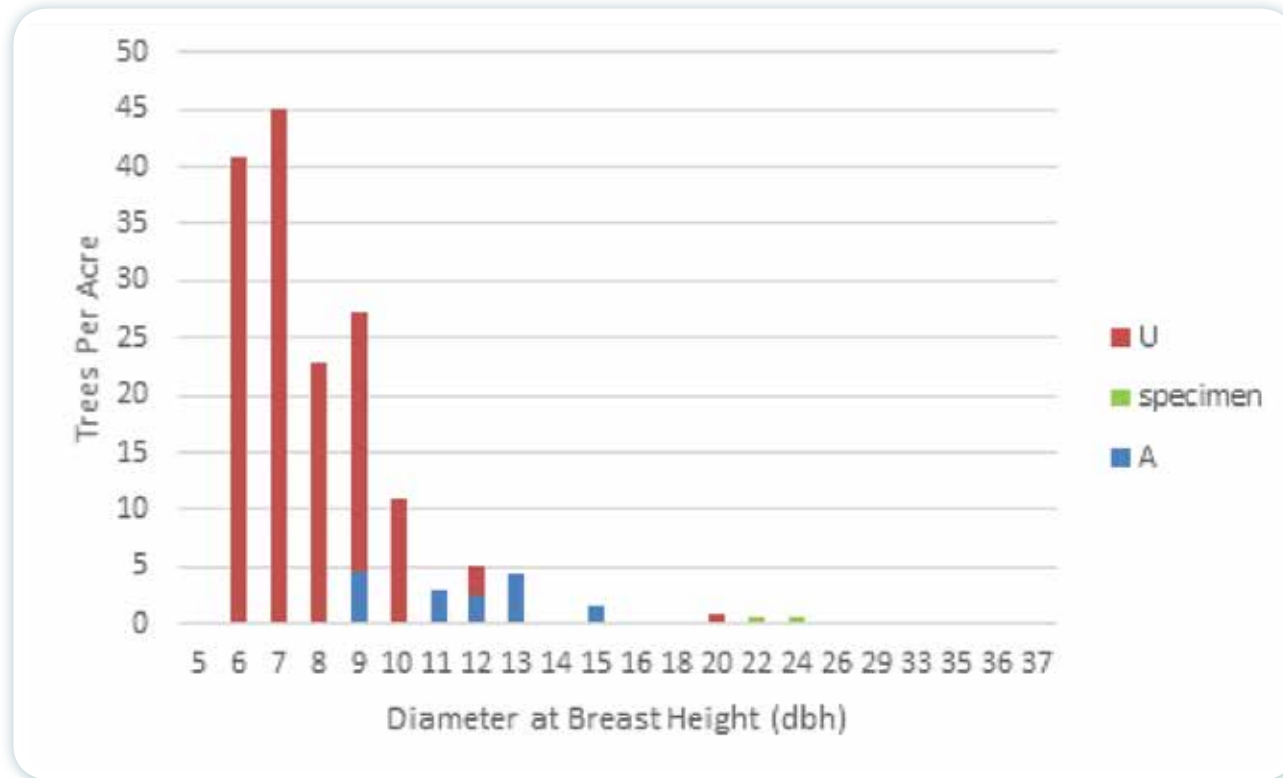


Figure 51. McGaw Park Stand 1 Diameter Distribution of Trees (in terms of trees per acre, by diameter at breast height (dbh) in inches)
 “U” indicates undesirable trees, “specimen” indicates notable large trees, “A” indicates acceptable trees, given recommended management practices.



Figure 52. Representative photo of existing conditions in Stand 1.

STAND 2: CENTRAL SAVANNA, 17.4 ACRES

Primary Timber Type: Miscellaneous Deciduous 5-11¹ (thin stocking of boxelder, mulberry poletimber)

Secondary Timber Type: Central Hardwoods 5-11¹ (thin stocking of black cherry, oak, elm poletimber)

Understory Type: Miscellaneous Deciduous 0-5¹ (very thin stocking of boxelder, cherry saplings)

Average Basal Area (square feet/acre): 50

Trees per acre: 128

Board feet per acre: 275

Cords per acre: 3.9

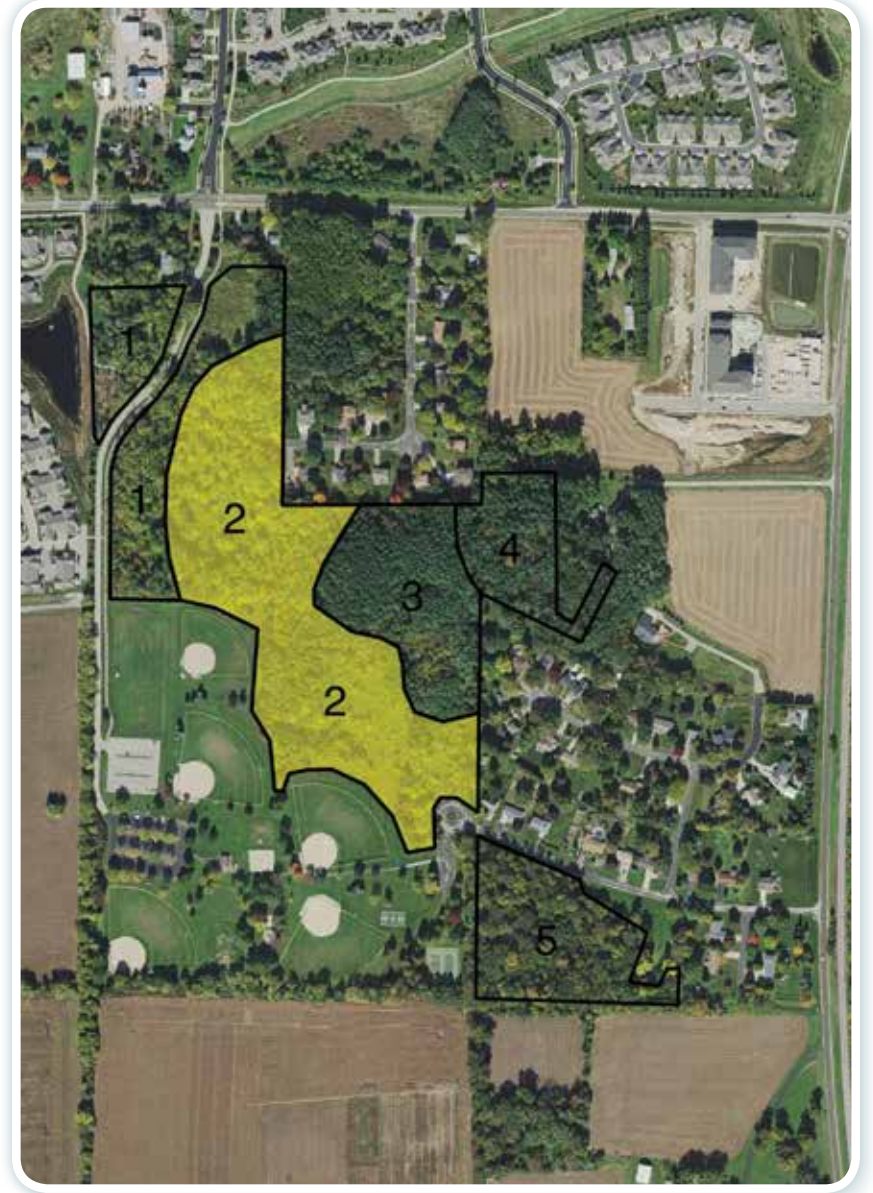


Figure 53. McGaw Community Park Central Savanna (Stand #2)

(Adapted from wisconsinview.org NAIP 2015)

Stand 2 of McGaw Park lies between Stand 1 (Northwest Entrance Savanna) to the west, playing fields to the west and south, residential areas to the east, and Stand 3 (Northeast Savanna) to the east. Stand 2 was once likely covered by mesic, tall grass prairie with prairie forbs and/or tall warm season grasses under occasional open-grown oak trees. European settlement converted its rich soils to agricultural crop fields. Under passive management upon becoming a park, Stand 2 now is dominated by pioneer tree species and dense non-native woody invasive shrubs, supporting very little native vegetation at the time of conducting the forest inventory.

Stand 2 is distinguishable from Stand 1 by its soil type and corresponding slightly different tree cover, being more dominated by black cherry, versus the silver maple-dominated canopy to the west, and the black locust-dominated Stand 3 to the east.

The most common tree species in Stand 2 is black cherry (25% of basal area per survey of 11 forest inventory plots), followed by box elder (20%), silver maple (18%) Norway spruce (13%) and mulberry (12%). Poletimber (trees with diameters at breast height (dbh) of 5-11 inches) is the most common size class, of generally poor form and vigor, but with greater species diversity than Stand 1. Other tree species present in low densities include black locust, American elm, slippery elm, black oak, red oak, black walnut, white pine, white spruce and eastern red cedar. Still other tree species may occur in sporadic low densities in Stand 1. The overall mean stand diameter at breast height (dbh) is 8.5 inches, with very few large trees present. Very little tree regeneration occurs amidst the dense understory of Stand 1; seedlings are virtually absent, and the majority of sparse saplings are box elder or black cherry.

Stand 2 has greater diversity of tree species composition than surrounding Stands, but the tree-covered areas are dominated by species that were not likely present here pre-European settlement. Many areas have sparse tree canopies due to carrying capacity levels of woody invasive species. Black cherry trees tend to have poor form (multiple stem stumps, open-grown, low branches and crooked stems), due to pioneering in open ground, then competing with the dense thicket of honeysuckle and buckthorn

prevalent in Stand 2. As in Stand 1, many maples have snapped off above ground, or lost limbs, with considerable epicormic branching indicative of considerable stress. Oaks occur in isolated areas of Stand 2, especially to its south, where woody invasives are not quite as prevalent and multiple conifer species have also been planted.

Invasive species are well-established throughout Stand 2, in some places creating nearly impenetrable thickets. Eurasian honeysuckles are at their worst in Stand 2, preventing any movement off the park trails in most areas except the southern portion. Common buckthorn was present in most inventory plots, but in much of Stand 2 is a secondary species to the honeysuckle. Other invasive plant species with lower occurrence include garlic mustard, crown vetch, wild parsnip, Queen Anne's lace, motherwort and common dandelion.

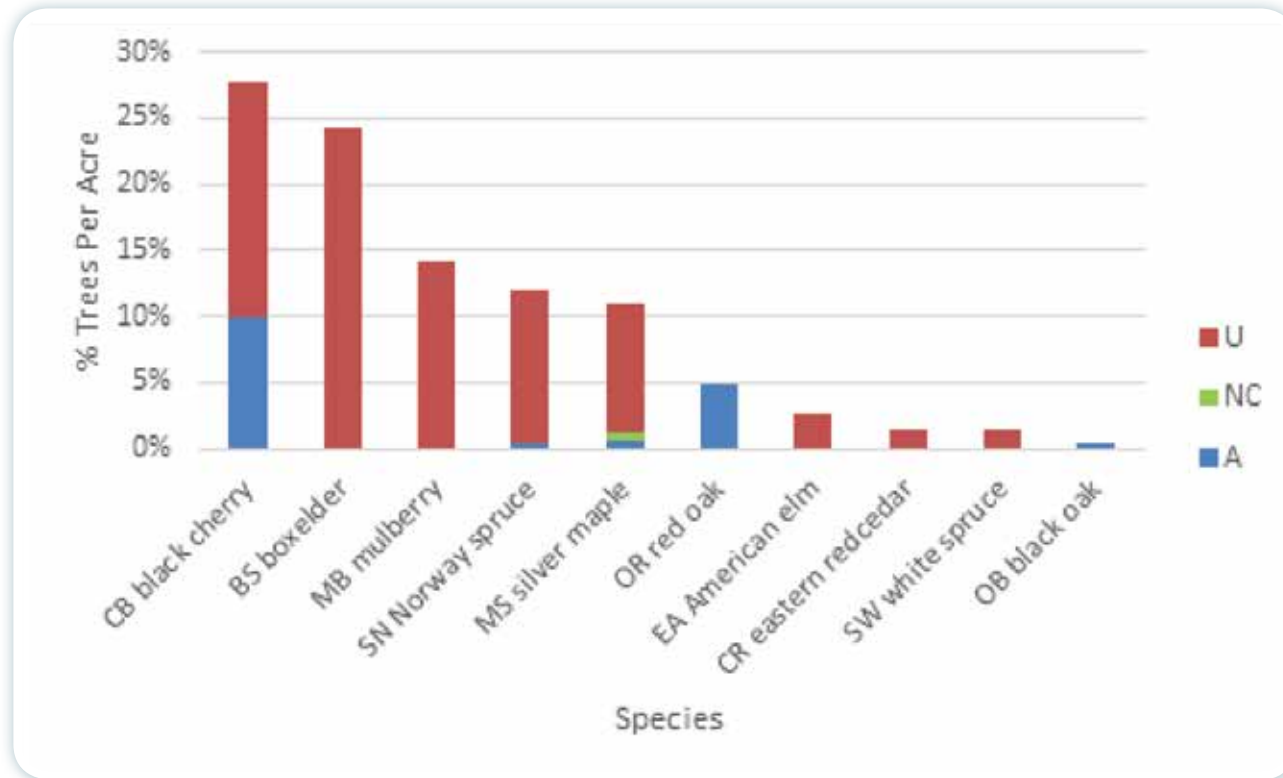


Figure 54. McGaw Park Stand 2 Species Distribution of Trees (in terms of percent of total trees per acre, by species)

“U” indicates undesirable trees, “NC” indicates notable large trees, “A” indicates acceptable trees, given recommended management practices.

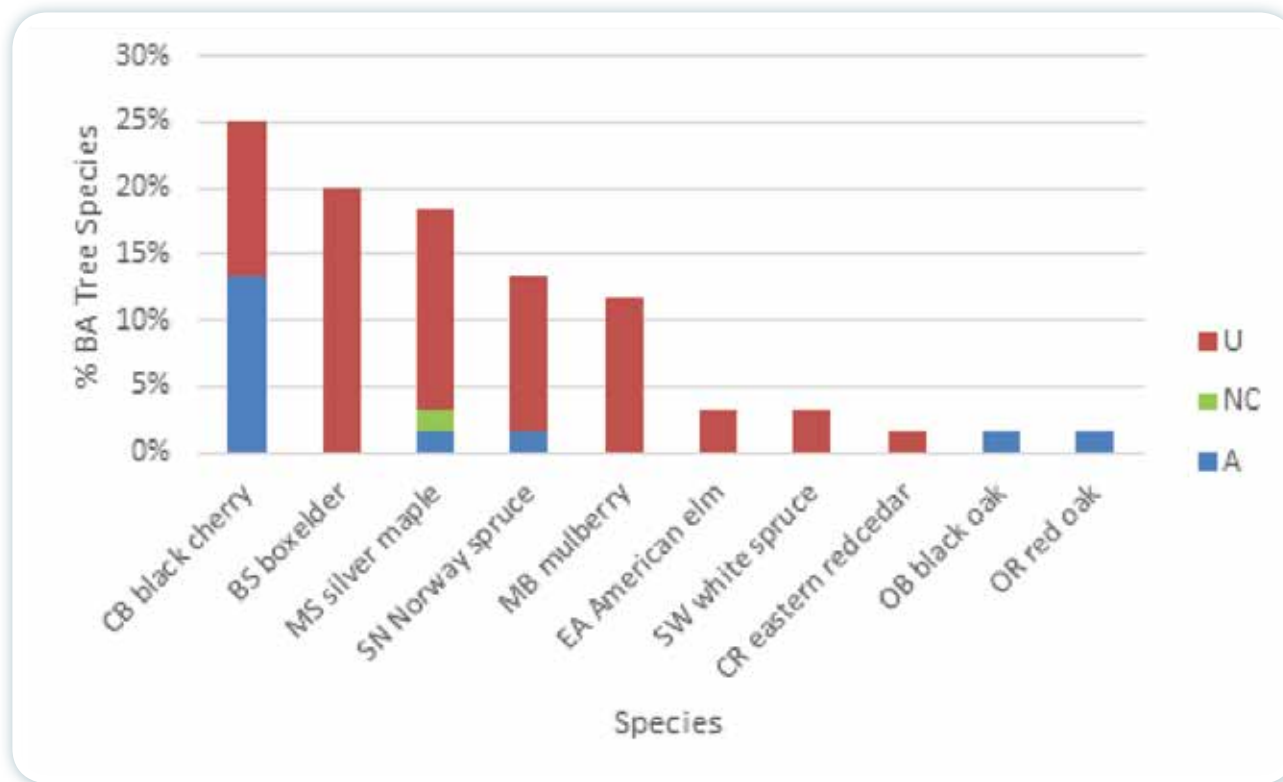


Figure 55. McGaw Park Stand 2 Species Distribution of Trees (in terms of percent of basal area, by species)

“U” indicates undesirable trees, “NC” indicates notable large trees, “A” indicates acceptable trees, given recommended management practices.

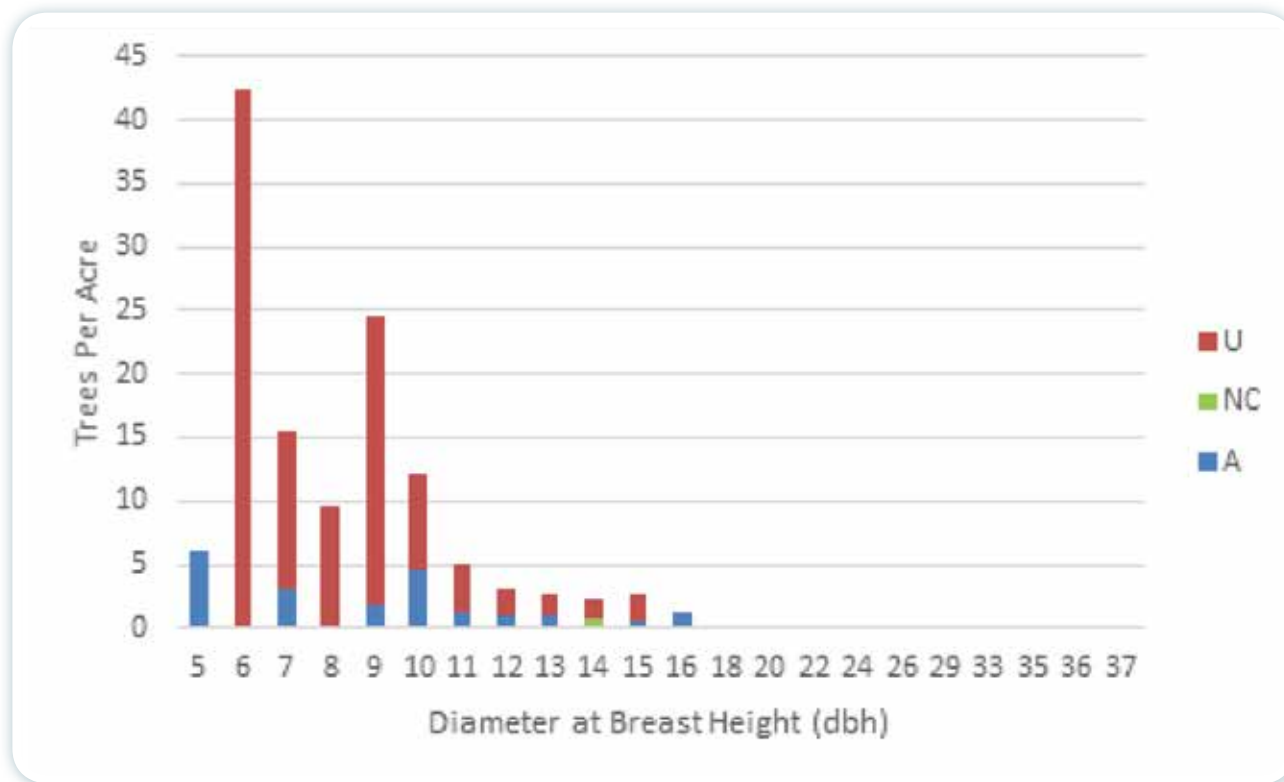


Figure 56. McGaw Park Stand 2 Diameter Distribution of Trees (in terms of trees per acre, by diameter at breast height (dbh) in inches)
 “U” indicates undesirable trees, “NC” indicates notable large trees, “A” indicates acceptable trees, given recommended management practices.



Figure 57. Representative photo of existing conditions in Stand 2.

STAND 3: NORTHEAST SAVANNA, 6.5 ACRES

Primary Timber Type: Miscellaneous Deciduous 5-11³ (moderate stocking of black locust poletimber)

Secondary Timber Type: Central Hardwoods 11-15¹ (thin stocking of black cherry, black locust small sawtimber)

Understory Type: Miscellaneous Deciduous 0-5¹ (very thin stocking of mulberry, boxelder, silver maple seedlings and saplings)

Average Basal Area (square feet/acre): 130

Trees per acre: 405

Board feet per acre: 285

Cords per acre: 12.6



Figure 58. McGaw Community Park Northeast Savanna (Stand #3)

(Adapted from wisconsinview.org NAIP 2015)

Stand 3 of McGaw Park lies between Stand 2 (Central Savanna) to the west and Stand 4 (North Park Woodland) to the east. Stand 3 was once likely covered by mesic, tall grass prairie with prairie forbs and/or tall warm season grasses under occasional open-grown oak trees. European settlement converted its rich soils to agricultural crop fields. Under passive management upon becoming a park, pioneer tree species (especially black locust) and dense non-native woody invasive shrubs now dominate Stand 3, allowing growth of very little native vegetation at the time of conducting the forest inventory.

The most common tree species in Stand 3 is black locust (82% of basal area per survey of 3 forest inventory plots), followed by black cherry (13%) and box elder (5%). High density of black locust distinguishes Stand 3 from surrounding Stands in McGaw Park. Poletimber (trees with diameters at breast height (dbh) of 5-11 inches) is the most common size class. Other tree species present in low densities include mulberry and apple. Still other tree species may occur in sporadic low densities in Stand 1, but this Stand is largely a monotype of black locust. The overall mean stand diameter at breast height (dbh) is 7.7 inches, with very few, if any, large trees present. Very little tree regeneration occurs under the dense canopy and amidst the dense understory of Stand 1; seedlings are virtually absent, and the majority of sparse saplings are mulberry, with a few silver maple and box elder.

Stand 3 has very little diversity of tree species composition compared even to surrounding degraded Stands, and its black locust and other pioneer species were not present here pre-European settlement.

Invasive species are well-established throughout Stand 3. Common buckthorn is vigorous throughout the stand, mostly as saplings. Eurasian honeysuckles are also present at levels ranging from very heavy to light where buckthorn and black locust are more dense. Garlic mustard is also present in Stand 3.

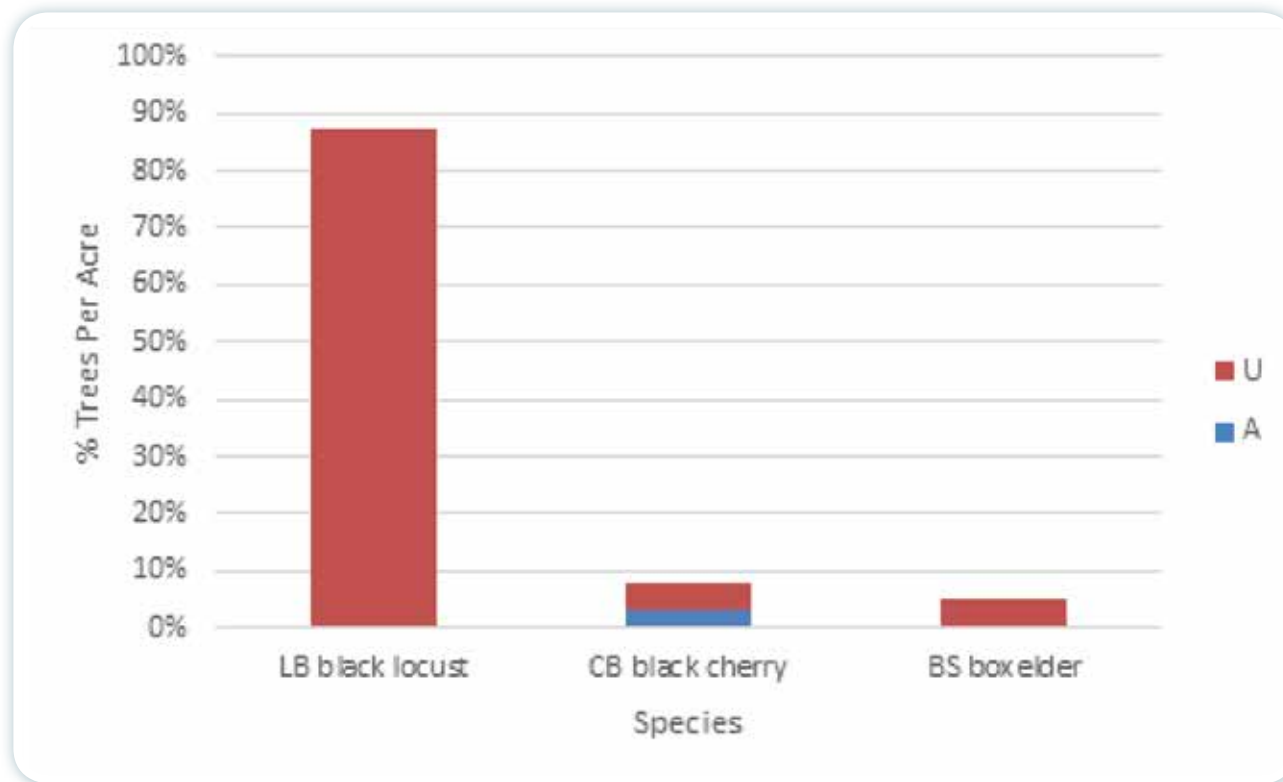


Figure 59. McGaw Park Stand 3 Species Distribution of Trees (in terms of percent of total trees per acre, by species)

“U” indicates undesirable trees, “A” indicates acceptable trees, given recommended management practices.

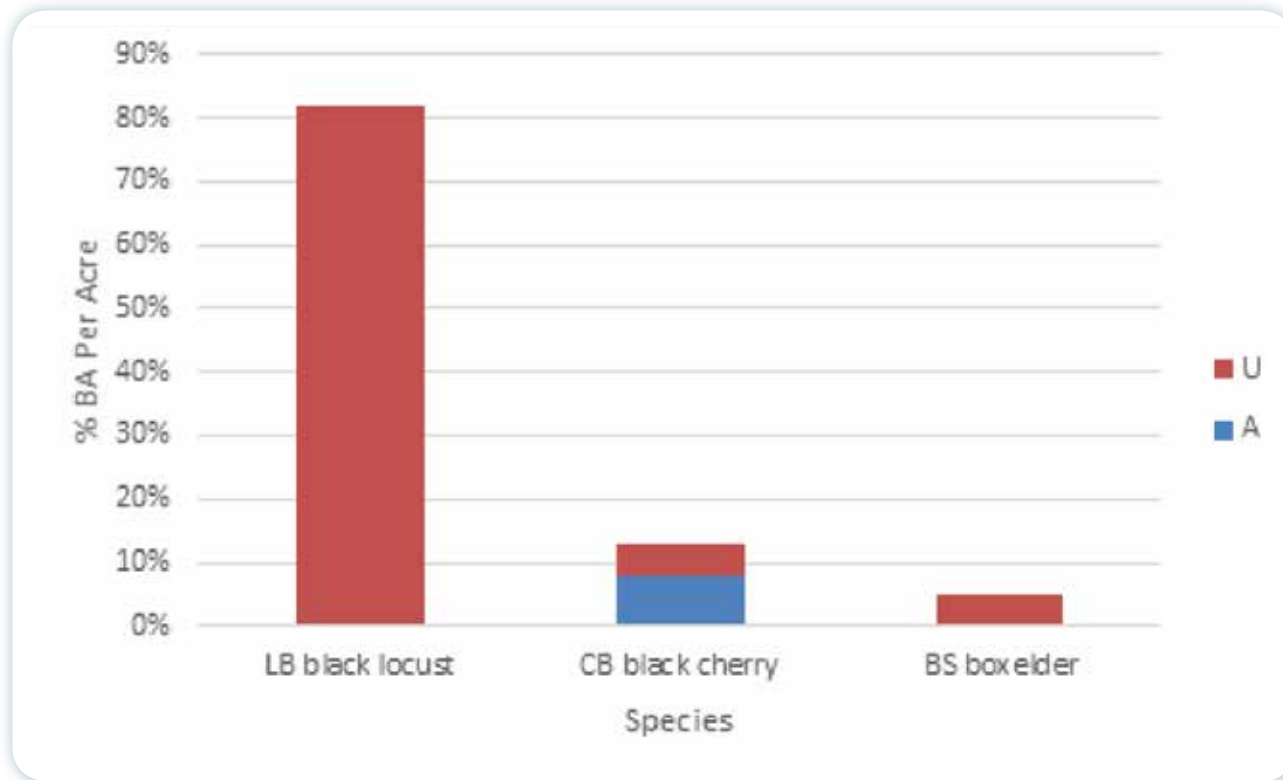


Figure 60. Figure 86. McGaw Park Stand 3 species distribution of trees, in terms of percent of basal area, by species. “U” indicates undesirable trees, “A” indicates acceptable trees, given recommended management practices.

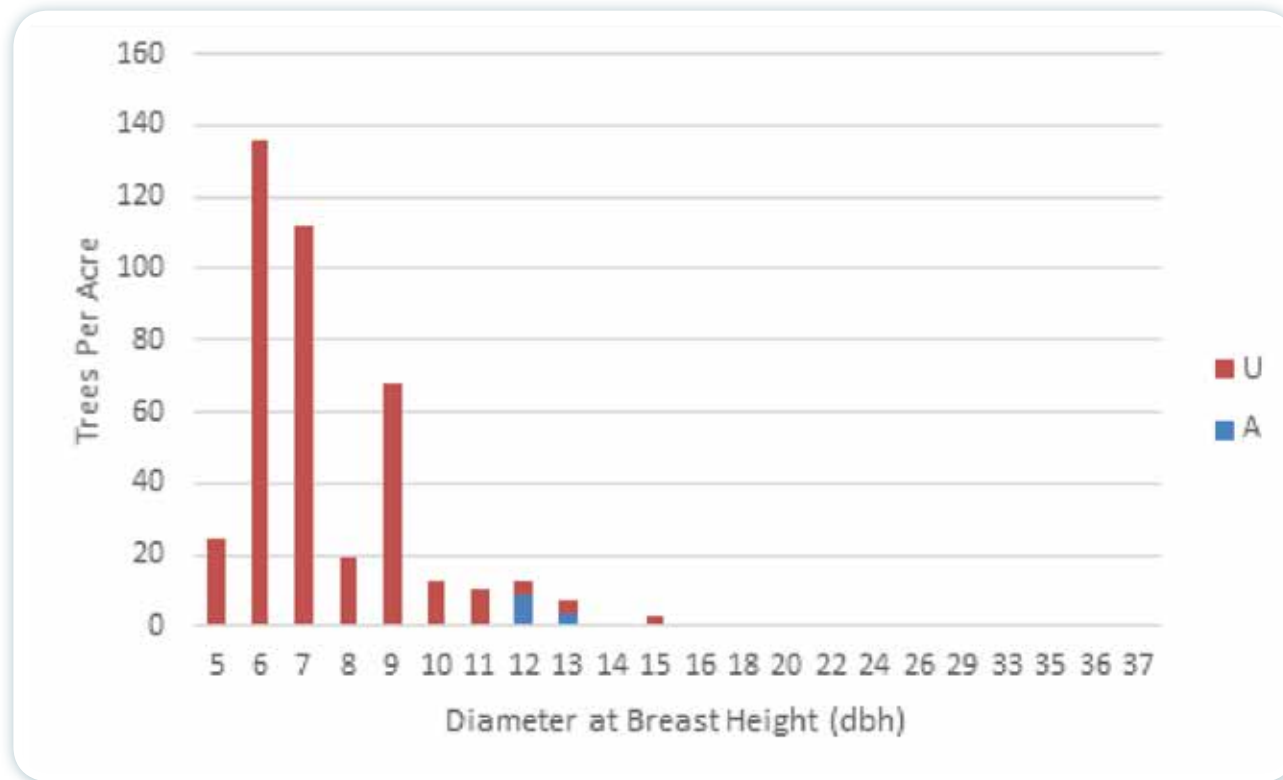


Figure 61. McGaw Park Stand 3 Diameter Distribution of Trees (in terms of trees per acre, by diameter at breast height (dbh) in inches)

“U” indicates undesirable trees, “A” indicates acceptable trees, given recommended management practices.



Figure 62. Representative photo of existing conditions in Stand 3.

STAND 4: NORTH PARK WOODLAND, 3.7 ACRES

Primary Timber Type: Oak 15+² (thin-moderate stocking of oak large sawtimber)

Secondary Timber Type: Miscellaneous Deciduous 11-15² (thin-moderate stocking of black locust and box elder small sawtimber)

Understory Type: Central Hardwoods 0-5¹ (very thin stocking of central hardwood seedlings and saplings)

Average Basal Area (square feet/acre): 127

Trees per acre: 164

Board feet per acre: 2,290

Cords per acre: 12.6



Figure 63. McGaw Community Park North Park Woodland (Stand #4)

(Adapted from wisconsinview.org NAIP 2015)

Stand 4 of McGaw Park includes the North Park addition, added to the Park in 2015. Stand 4 was once an oak opening or savanna, with diverse forb and grass species under large open-grown oak trees. The large bur oaks visible in the earliest aerial imagery of 1937 (Figure 13) are the same trees still standing; many are still alive but declining in vigor. European settlement likely converted this area to pasture. Under passive management upon becoming a park, pioneer tree species (especially black locust and box elder) and dense non-native woody invasive shrubs now dominate Stand 4, allowing growth of very little native vegetation at the time of conducting the forest inventory.

The most common tree species in Stand 4 is black locust (55% of basal area per survey of 3 forest inventory plots), followed by box elder (24%) and bur oak (18%). Stand 4's large bur oaks distinguish it from neighboring Stand 3 to the west. Other tree species present in low densities include mulberry. Still other tree species may occur on the edges of Stand 4 where it borders residential lots. The overall mean stand diameter at breast height (dbh) is 11.9 inches, notably larger than the majority of McGaw Park. Not only does the canopy boast legacy large bur oaks (mean dbh of 30.3"), but both black locust and box elder also tend to be larger in Stand 4, indicating a longer period since the last disturbance/management, in this case grazing. Very little tree regeneration occurs under the dense canopy and amidst the dense understory of Stand 1; seedlings are mostly hackberry and elm, and saplings are mostly mulberry and box elder. No oak regeneration was observed.

Stand 4 has low tree species diversity, and its black locust and other pioneer species were not present here pre-European settlement.

Invasive species are well-established throughout Stand 4. Garlic mustard density is high throughout most of Stand 4, especially in relatively open areas of the stand. Common buckthorn and Eurasian honeysuckles are also present at levels ranging from very heavy to light depending on openness of the canopy.

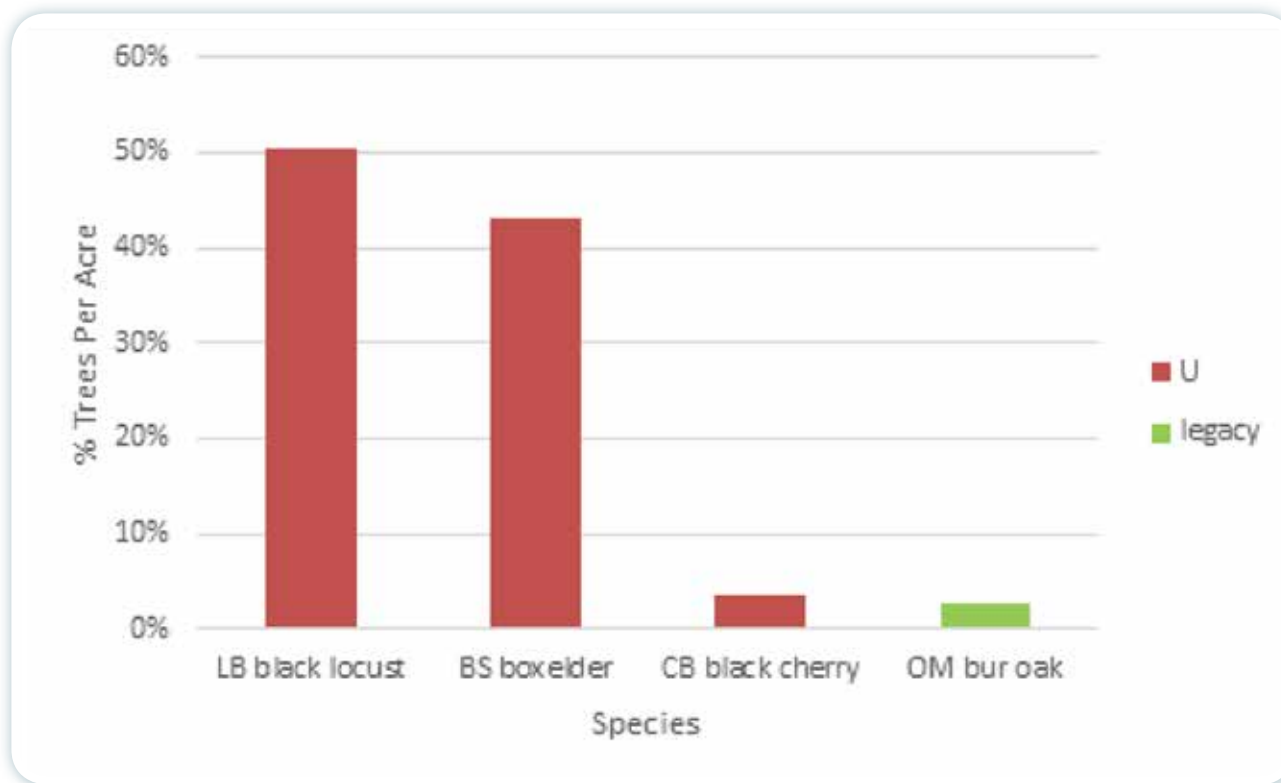


Figure 64. McGaw Park Stand 4 Species Distribution of Trees (in terms of percent of total trees per acre, by species)

“U” indicates undesirable trees, “legacy” indicates exceptional trees, given recommended management practices.

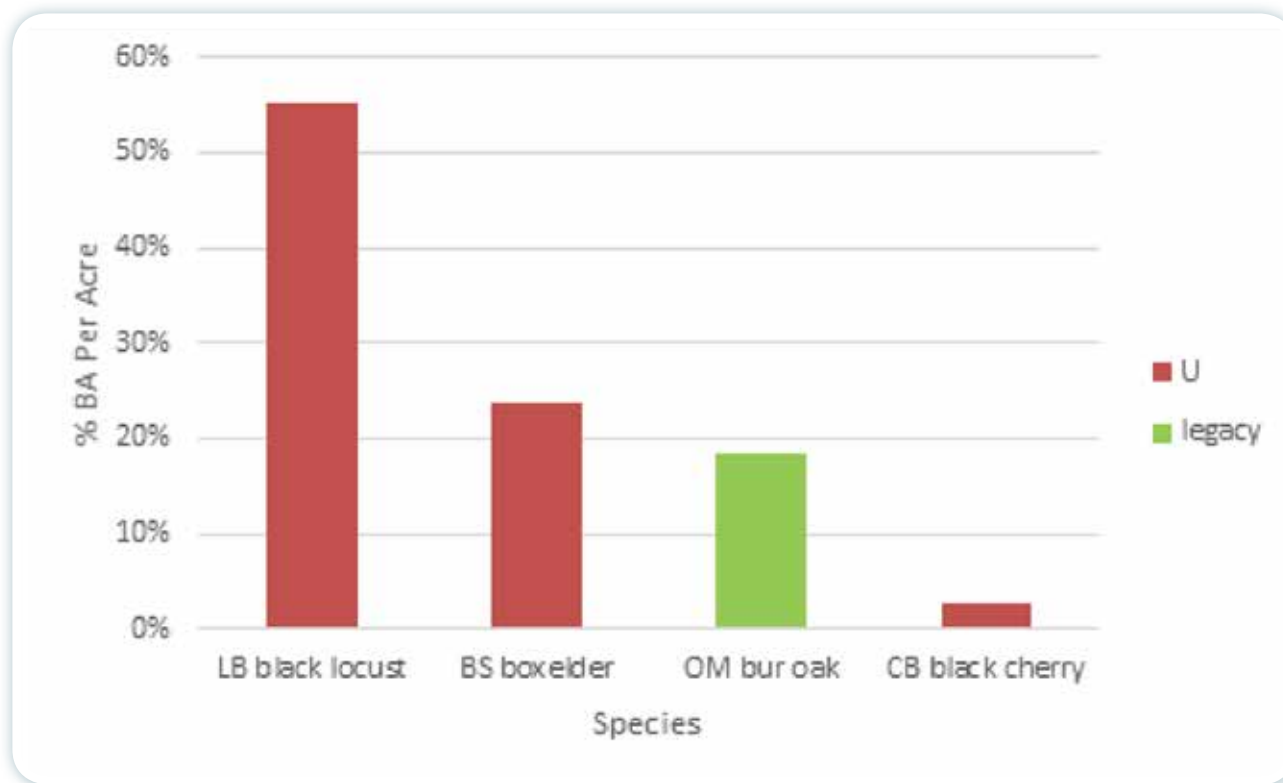


Figure 65. McGaw Park Stand 4 species distribution of trees, in terms of percent of basal area, by species. “U” indicates undesirable trees, “legacy” indicates exceptional trees, given recommended management practices.

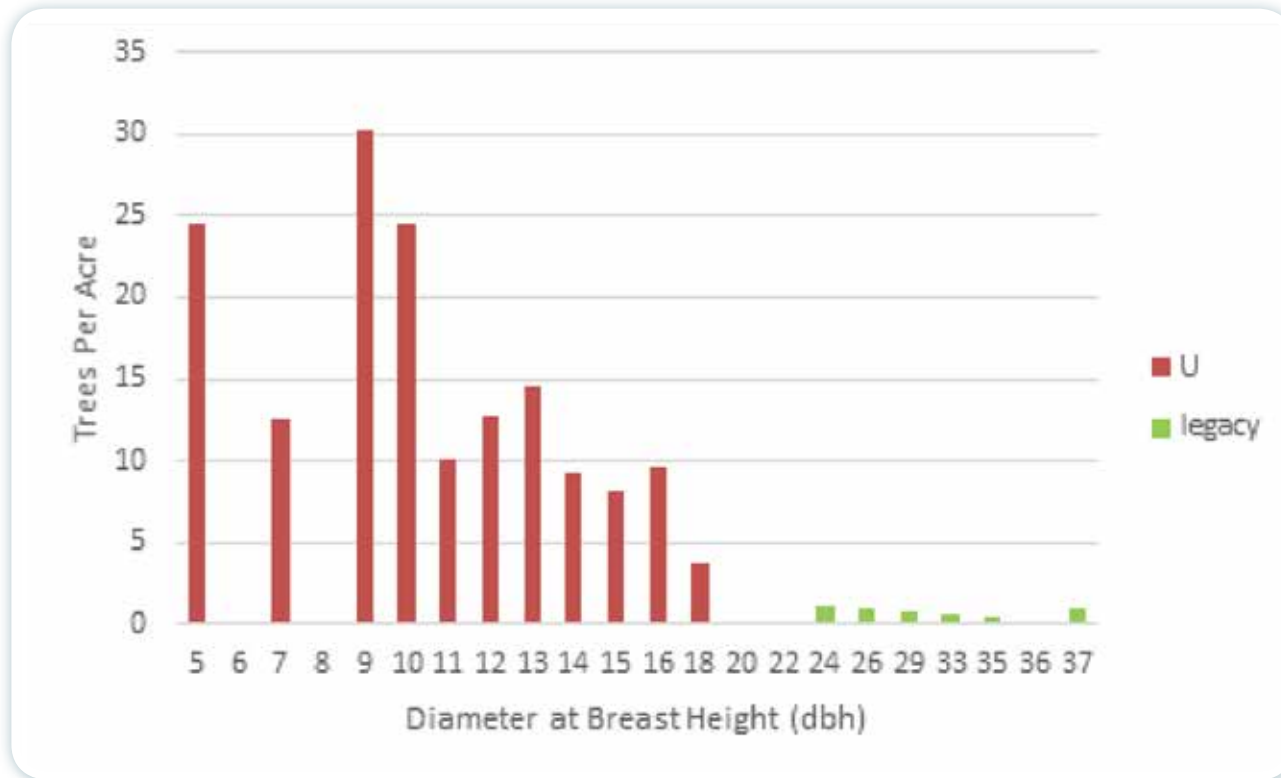


Figure 66. McGaw Park Stand 4 Diameter Distribution of Trees (in terms of trees per acre, by diameter at breast height (dbh) in inches)

“U” indicates undesirable trees, “legacy” indicates exceptional trees, given recommended management practices.



Figure 67. Representative photo of existing conditions in Stand 4

STAND 5: SEYMOUR JOHNSON OAK WOODLAND, 5.8 ACRES

Primary Timber Type: Oak 15+² (moderate stocking of oak large sawtimber)

Secondary Timber Type: Central Hardwoods 11-15¹ (thin stocking of central hardwood small sawtimber)

Understory Type: Miscellaneous Deciduous 0-5¹ (very thin stocking of boxelder, norway maple, hackberry, cherry seedlings and saplings)

Average Basal Area (square feet/acre): 89

Trees per acre: 101

Board feet per acre: 5,040

Cords per acre: 3.0



Figure 68. Seymour Johnson Neighborhood Park Woodland (Stand #5)

(Adapted from wisconsinview.org NAIP 2015)

The forested area of Seymour Johnson Park comprises Stand 5 of the McGaw Park plan. Stand 5 boasts some very large trees characteristic of an oak woodland on rich silt loam soils. The large bur oaks visible in the earliest aerial imagery of 1937 (Figure 13) are the same trees still standing; some are dying or declining, but many have sustained growth and vigor. European settlement likely converted this area to pasture, but it retained a relatively closed canopy. Under passive management upon becoming park land, shade tolerant, fire-intolerant species such as box elder and dense non-native woody invasive shrubs have invaded the ground and mid-canopy layers of Stand 5, hindering growth of native vegetation. Nonetheless, Seymour Johnson's forested area boasts the greatest diversity of desirable canopy in the park; only 29% of its basal area was deemed "undesirable growing stock", considering recommended management practices.

The most common tree species in Stand 5 is bur oak (27% of basal area per survey of 7 forest inventory plots), followed by black cherry (23%), shagbark hickory (23%) and box elder (15%). Other tree species present include white oak, American elm, silver maple, hackberry and mulberry. Tree species diversity is artificially high near the playground at the southeast corner of Stand 5, where tree species not seen elsewhere in the stand include bigtooth aspen, black oak, green ash, red pine and white pine. Still other tree species may occur in Stand 5, but were not noted. Stand 5's overall mean stand diameter at breast height (dbh) is 12.7 inches. Not only does the canopy boast legacy large bur oaks (mean dbh of 28.9"), but also some large white oak, shagbark hickory and black cherry. Near the edge of the playground, one bur oak measured 57" dbh.

Though its canopy is impressive, the health of Stand 5 is being threatened from the ground level. Very little tree regeneration occurs under the closed canopy and amidst the dense understory of Stand 1; seedlings and saplings are mostly box elder, hackberry, Norway maple, black cherry and elm. No oak regeneration was observed. Without the inherent advantage of regular fire intervals, oak cannot compete with these shade tolerant, fire-intolerant trees species and the corresponding increase in invasive species.

Invasive species are well-established throughout Stand 5. Common buckthorn was present in all survey plots, sometimes in high densities. Eurasian honeysuckles levels range from very heavy to light depending on openness of the canopy and competition with buckthorn. Garlic mustard is well established, and multiflora rose is also present.

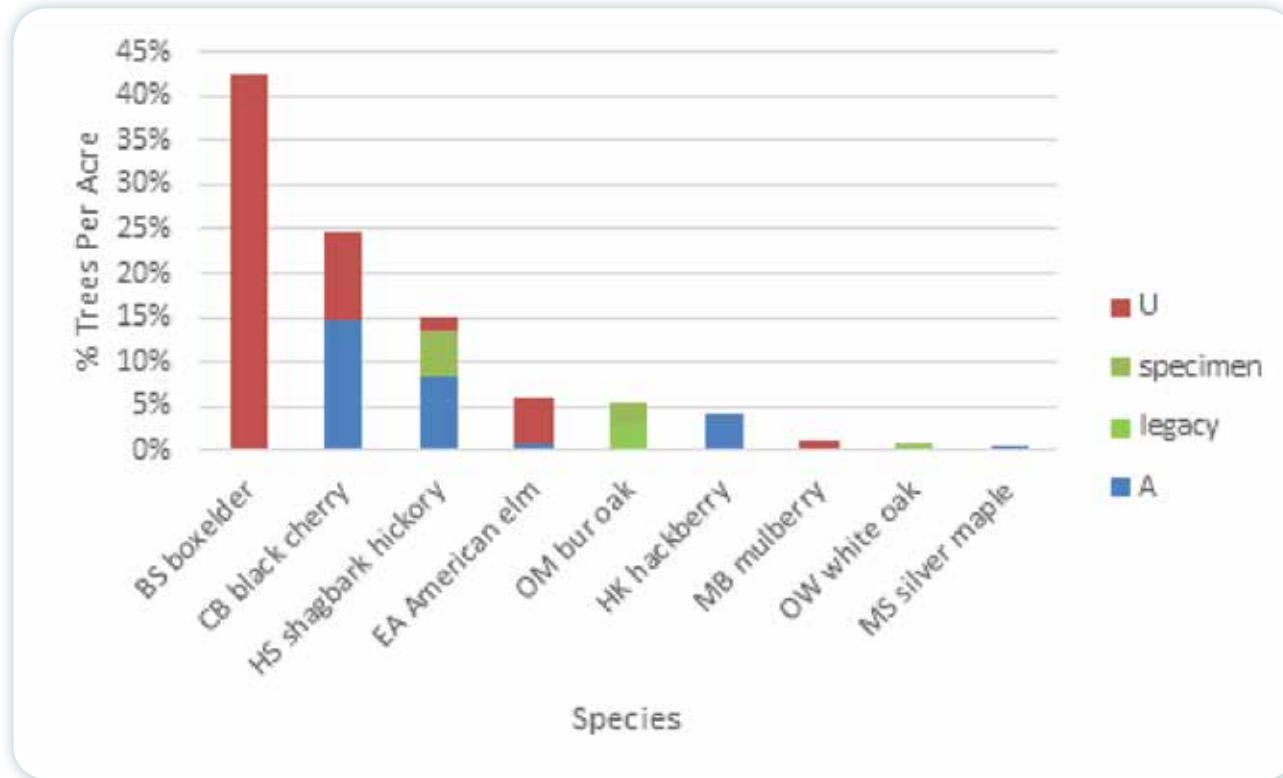


Figure 69. McGaw Park Stand 5 Species Distribution of Trees (in terms of percent of total trees per acre, by species)

“U” indicates undesirable trees, “specimen” indicates notable large trees, “legacy” indicates exceptional trees, “A” indicates acceptable trees, given recommended management practices.

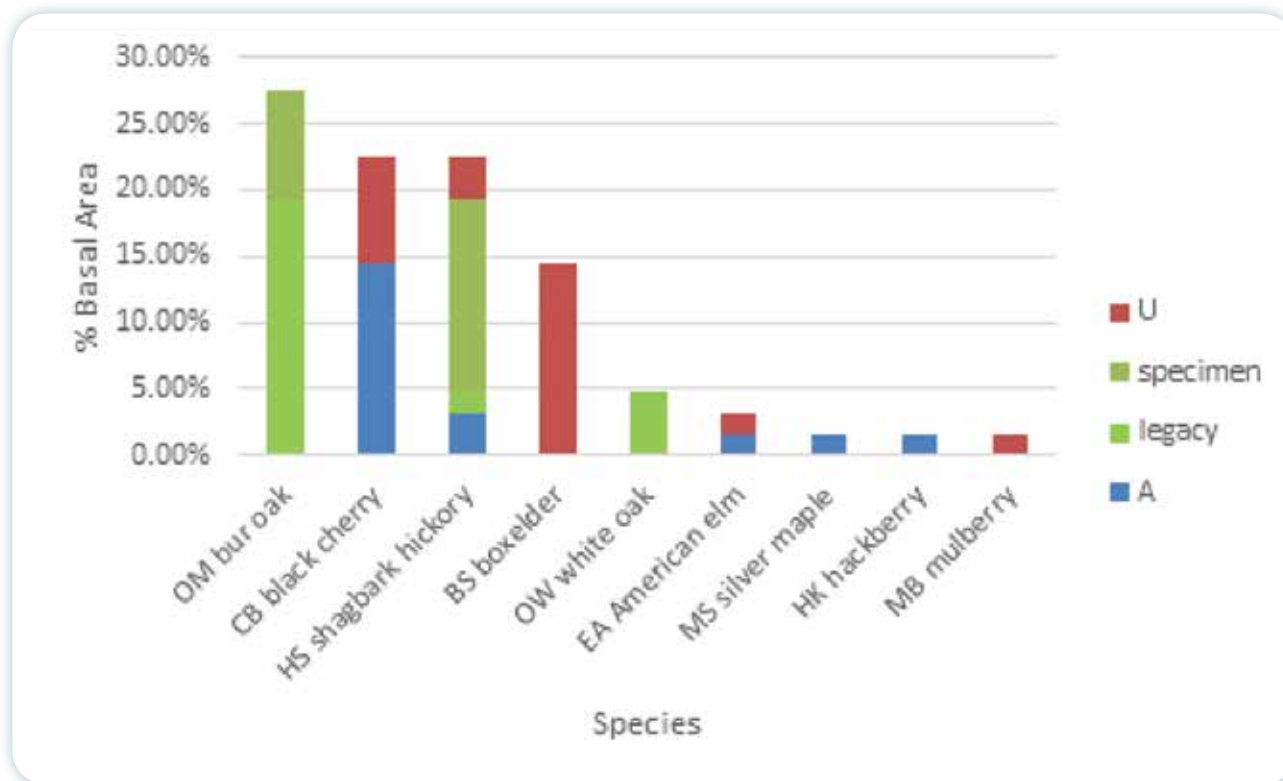


Figure 70. McGaw Park Stand 5 Species Distribution of Trees (in terms of percent of basal area, by species)

“U” indicates undesirable trees, “specimen” indicates notable large trees, “legacy” indicates exceptional trees, “A” indicates acceptable trees, given recommended management practices.

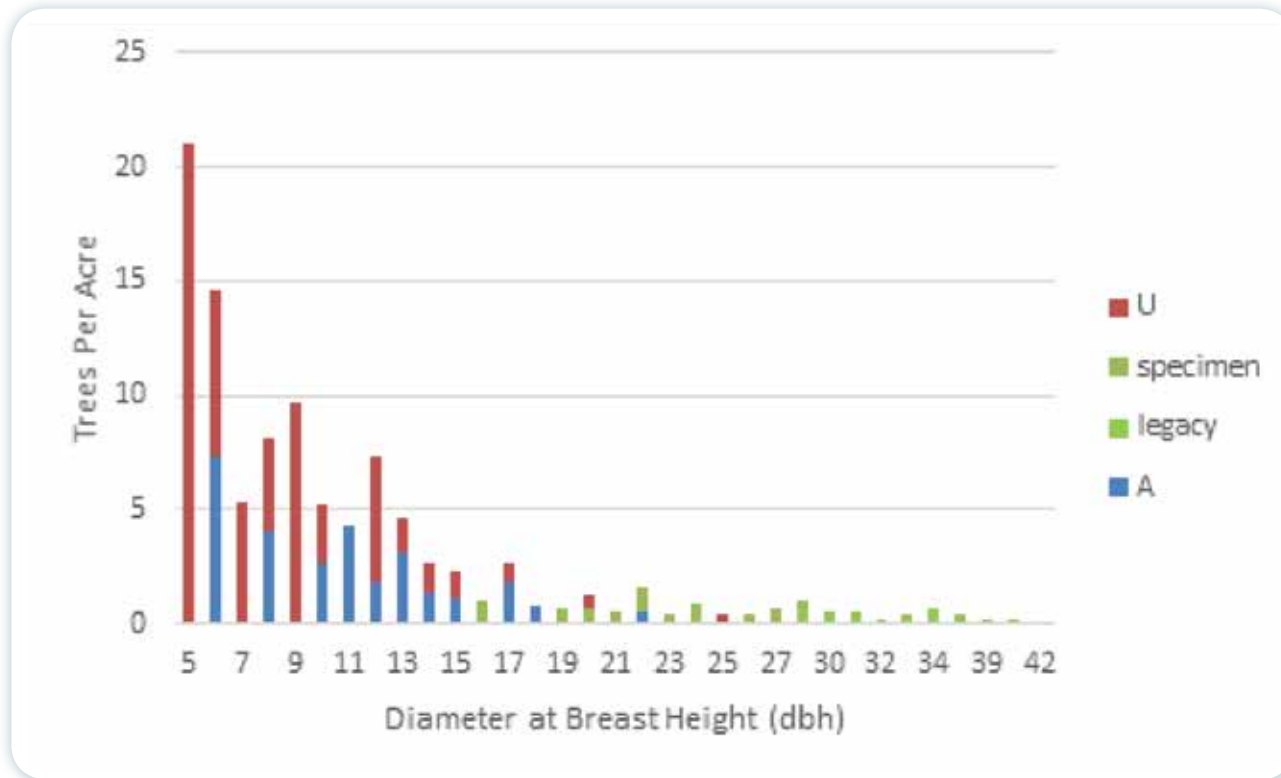


Figure 71. McGaw Park Stand 5 Diameter Distribution of Trees (in terms of trees per acre, by diameter at breast height (dbh) in inches)

“U” indicates undesirable trees, “specimen” indicates notable large trees, “legacy” indicates exceptional trees, “A” indicates acceptable trees, given recommended management practices.

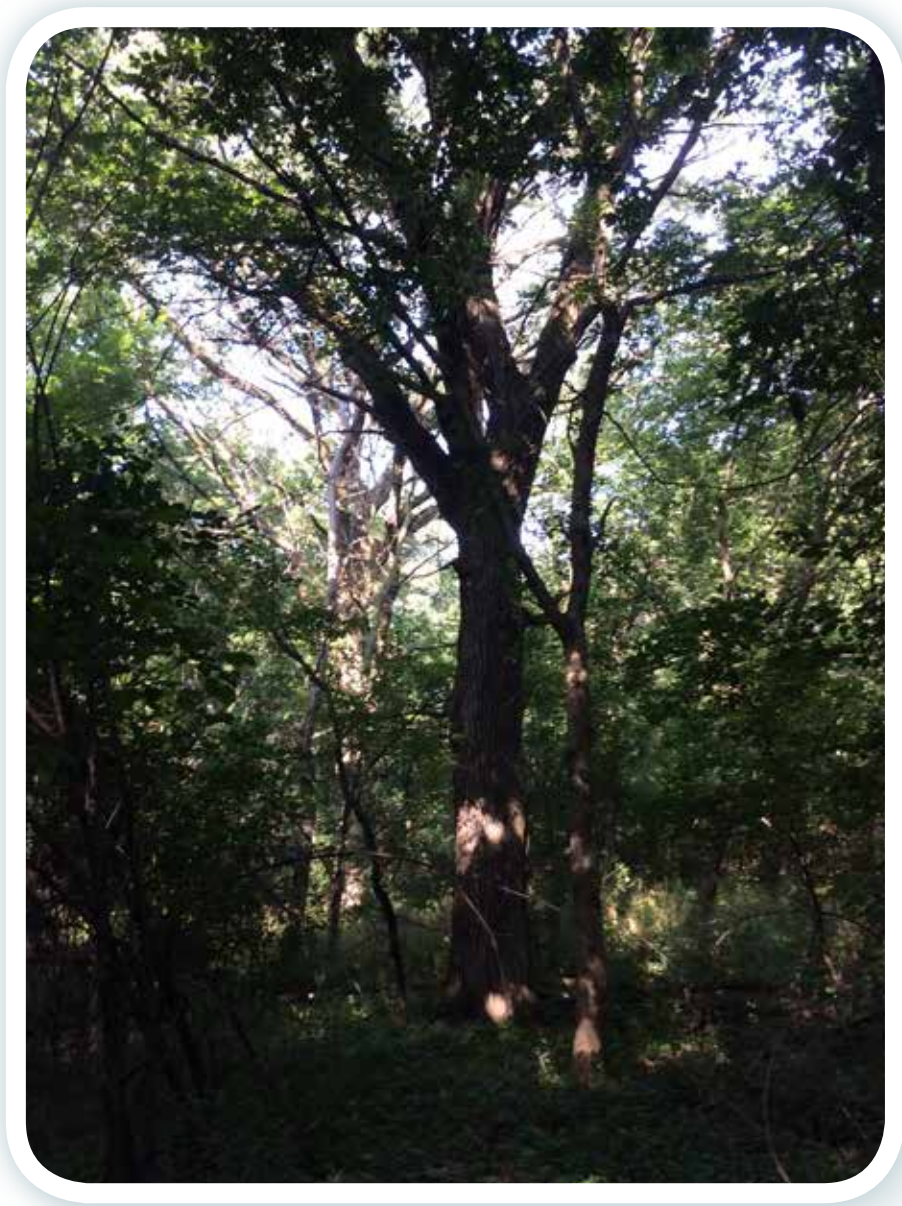


Figure 72. Representative photo of existing conditions in Stand 5

Table 6.

LIST OF OBSERVED SPECIES									
Common Name	Scientific Name	Status		McGaw Community Park			Seymour Johnson Neighborhood Park		
		Native	Invasive	May 2011	Sept. 2015	July 2016	May 2011	Sept. 2015	July 2016
FERNS AND CLUB MOSSES									
lady fern	<i>Athyrium filix-femina</i>	native				*			
trailing ground-pine	<i>Diphasiastrum digitatum</i>	native			*				
FORBS									
common yarrow	<i>Achillea millefolium</i>	native		X					
garlic mustard	<i>Alliaria petiolata</i>		invasive	X	X	X	X	X	X
thimbleweed	<i>Anemone cylindrica</i>	native		*					
clasping dogbane	<i>Apocynum cannabinum</i>	native				X			
burdock	<i>Arctium minus</i>		invasive	X	X				
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	native				X	X	X	X
biennial thistle	<i>Carduus</i> spp.		invasive		*				
enchanter's nightshade	<i>Circaea lutetiana</i>	native		X		X	X		X
Canada thistle	<i>Cirsium arvense</i>		invasive		*				
field thistle	<i>Cirsium discolor</i>	native		*		*			
lily-of-the-valley	<i>Convallaria majalis</i>		invasive				*		
Queen Anne's lace	<i>Daucus carota</i>		invasive	X	X	X			
shooting star	<i>Dodecatheon meadia</i>	native		X					
pale purple coneflower	<i>Echinacea pallida</i>	native		X		*			
fleabane	<i>Erigeron canadensis</i>	native		X					
daisy fleabane	<i>Erigeron strigosus</i>	native				X			
showy orchid	<i>Galearis spectabilis</i>	native				X			

LIST OF OBSERVED SPECIES									
Common Name	Scientific Name	Status		McGaw Community Park			Seymour Johnson Neighborhood Park		
		Native	Invasive	May 2011	Sept. 2015	July 2016	May 2011	Sept. 2015	July 2016
bedstraw	<i>Galium aparine</i>	native		X					
sweet-scented bedstraw	<i>Galium triflorum</i>	native		X	X	X			
white avens	<i>Geum canadense</i>	native		X	X	X	X	X	X
creeping charlie	<i>Glechoma hederacea</i>		invasive	X		X			
downy rattlesnake plantain	<i>Goodyera pubescens</i>	native		*		*			
stickseed	<i>Hackelia virginiana</i>	native		*		X			X
sawtooth sunflower	<i>Helianthus grosseserratus</i>	native		*					
day lily	<i>Hemerocallis fulva</i>		invasive	X					
dame's rocket	<i>Hesperis matronalis</i>		invasive	*					
Kalm's St. John's-wort	<i>Hypericum kalmianum</i>	native				*			
jewelweed	<i>Impatiens capensis</i>	native		X					
motherwort	<i>Leonurus cardiaca</i>		invasive	*					
bird's-foot trefoil	<i>Lotus corniculata</i>		invasive			*			
false Solomon's seal	<i>Mainthemum racemosa</i>	native				X	X	X	X
black medic	<i>Medicago lupulina</i>					X			
bee balm	<i>Monarda fistulosa</i>	native		X		*			
common yellow oxalis	<i>Oxalis stricta</i>	native				X			
wild parsnip	<i>Pastinaca sativa</i>			X	X				
foxglove beardtongue	<i>Penstemon digitalis</i>	non-native		X					
orange hawkweed	<i>Pilosella aurantiaca</i>			X	X				
American pokeweed	<i>Phytolacca americana</i>	native				*			
common plantain	<i>Plantago major</i>					X			

LIST OF OBSERVED SPECIES

Common Name	Scientific Name	Status		McGaw Community Park			Seymour Johnson Neighborhood Park		
		Native	Invasive	May 2011	Sept. 2015	July 2016	May 2011	Sept. 2015	July 2016
Solomon's seal	<i>Polygonatum biflorum</i>	native		*					
mayapple	<i>Podophyllum peltatum</i>	native					*		
self-heal	<i>Prunella vulgaris</i>	native				X			
yellow coneflower	<i>Ratibida pinnata</i>	native		X	X			*	
black-eyed Susans	<i>Rudbeckia hirta</i>	native		X					
crown vetch	<i>Securigera varia</i>		invasive					*	
nightshade	<i>Solanum nigrum</i>			X					
Canada goldenrod	<i>Solidago canadensis</i>	native	invasive	X					X
showy goldenrod	<i>Solidago speciosa</i>	native		X					
smooth aster	<i>Symphyotrichum laeve</i>	native				X			
calico aster	<i>Symphyotrichum lateriflorum</i>	native							X
New England aster	<i>Symphyotrichum novae-angliae</i>	native					X		X
common dandelion	<i>Taraxacum officinale</i>		invasive	X	X				X
Japanese hedge parsley	<i>Torilis japonica</i>		invasive				*		*
Ohio spiderwort	<i>Tradescantia ohioensis</i>	native		X					
stinging nettle	<i>Urtica dioica</i>	native		*					
tall white violet	<i>Viola canadensis</i>	native		X		X			
common blue violet	<i>Viola sororia</i>	native							X
heart-leaved golden Alexanders	<i>Zizia aptera</i>	native		X					

LIST OF OBSERVED SPECIES

Common Name	Scientific Name	Status		McGaw Community Park			Seymour Johnson Neighborhood Park		
		Native	Invasive	May 2011	Sept. 2015	July 2016	May 2011	Sept. 2015	July 2016
GRAMINIODES (GRASSES, SEDGES, AND RUSHES)									
sedge	<i>Carex</i> spp.	native			X		*		
path rush	<i>Juncus tenuis</i>	native				X			
switchgrass	<i>Panicum virgatum</i>	native		X					
reed canarygrass	<i>Phalaris arundinacea</i>		invasive	X	*	*			
Timothy	<i>Phleum pratense</i>			X					
bluegrass	<i>Poa</i> spp.		invasive	X	X	X			
SHRUBS									
pagoda dogwood	<i>Cornus alternifolia</i>	native				X			X
silky dogwood	<i>Cornus amomum</i>	native				X			
grey dogwood	<i>Cornus racemosa</i>	native		X	X	X			
honeysuckle	<i>Lonicera</i> spp.		invasive	X	X	X	X		
common ninebark	<i>Physocarpus opulifolius</i>	native						*	*
common buckthorn	<i>Rhamnus cathartica</i>		invasive	X	X	X	X	X	*
smooth sumac	<i>Rhus glabra</i>	native		*					
(currant)	<i>Ribes</i> spp.	native				X		X	X
prickly gooseberry	<i>Ribes cynosbati</i>	native				X			
gooseberry	<i>Ribes missouriense</i>	native					X	X	
multiflora rose	<i>Rosa multiflora</i>		invasive	*	X				
(brambles)	<i>Rubus</i> spp.	native				X			
Allegheny blackberry	<i>Rubus allegheniensis</i>	native						X	

LIST OF OBSERVED SPECIES

Common Name	Scientific Name	Status		McGaw Community Park			Seymour Johnson Neighborhood Park		
		Native	Invasive	May 2011	Sept. 2015	July 2016	May 2011	Sept. 2015	July 2016
blackberry	<i>Rubus idaeus</i>	native		X	X				
elderberry	<i>Sambucus canadensis</i>	native		*					
American highbush cranberry	<i>Viburnum opulus</i> var. <i>americanum</i>	native				X		X	
TREES									
box elder	<i>Acer negundo</i>	native	invasive	X	X		X	X	
silver maple	<i>Acer saccharinum</i>	native		X	X		X	X	
shagbark hickory	<i>Carya ovata</i>	native				X	X	X	X
common hackberry	<i>Celtis occidentalis</i>	native				X	X	X	
green ash	<i>Fraxinus pennsylvanica</i>	native							X
black walnut	<i>Juglans nigra</i>	native		X					
eastern redcedar	<i>Juniperus virginiana</i>	native		X	X				
apple	<i>Malus</i> spp.			X					
mulberry	<i>Morus alba</i>		invasive	X	X		X	X	
Norway spruce	<i>Picea abies</i>			X	X				
white spruce	<i>Picea glauca</i>	native		X	X				
red pine	<i>Pinus resinosa</i>	native					X		
white pine	<i>Pinus strobus</i>	native		X					
aspen	<i>Populus</i> spp.	native							
big tooth aspen	<i>Populus grandidentata</i>	native					X		
black cherry	<i>Prunus serotina</i>	native		X	X	X	X	X	
white oak	<i>Quercus alba</i>	native							X

LIST OF OBSERVED SPECIES

Common Name	Scientific Name	Status		McGaw Community Park			Seymour Johnson Neighborhood Park		
		Native	Invasive	May 2011	Sept. 2015	July 2016	May 2011	Sept. 2015	July 2016
bur oak	<i>Quercus macrocarpa</i>	native			X		X	X	
red oak	<i>Quercus rubra</i>	native		X	X	X	X		
black oak	<i>Quercus velutina</i>	native			X				
black locust	<i>Robinia pseudoacacia</i>	non-native	invasive	X	X	*			
elm	<i>Ulmus spp.</i>	native		X	X		X	X	
American elm	<i>Ulmus americana</i>	native						X	
slippery elm	<i>Ulmus rubra</i>	native						X	
VINES									
bindweed	<i>Calystegia sepium</i>	native		X					
Virginia creeper	<i>Parthenocissus quinquefolia</i>	native		X	X	X	X	X	X
poison ivy	<i>Toxicodendron radicans</i>	native			X	X			
riverbank grape	<i>Vitis riparia</i>	native		X	X	X	X		

"X" indicates that a species was observed within a vegetative survey or a forest inventory plot

"*" indicates that a species was observed enroute to survey points

INVASIVE SPECIES

Invasive species nearly always warrant special management because of the damage they cause. The best approach is to prevent a small number of plants from becoming a major infestation through regular monitoring and prompt control.

Table 6 lists the invasive status of any species observed during the 2011 and the 2015-16 tree and vegetation surveys; Table 7 ranks the observed invasive species by priority.

Most notable are garlic mustard, honeysuckle, buckthorn, and black locust because their great abundance, density, and cover.

Reed canary grass, Canada thistle, and crown vetch are notable because they have the ability to invade prairies and overwhelm new plantings if not kept in check.

Japanese hedge parsley was not observed during the 2011 surveys, and did not show up in any of the 2015-16 survey plots, but was observed en route to points during those surveys; near point #1 (Figure 37) in the fall of 2015, and in the proximity of point #10 (Figure 37) during the summer of 2015.

Much like garlic mustard, hedge parsley can invade the forest ground layer and out-compete native species. The seeds of this species are spread by sticking to the fur of animals or the clothing of people. This is a good example of small population that should be prevented from becoming a major infestation.

The invasive species are individually discussed and illustrated following Table 7.

Table 7.

PRIORITIZED LIST OF INVASIVE SPECIES				
Common Name	Scientific Name	WDNR Status	Growth Form	Comments
HIGH PRIORITY				
box elder	<i>Acer negundo</i>	not listed	tree	native; fast growing
garlic mustard	<i>Alliaria petiolata</i>	restricted	forb	herbaceous biennial; allelopathic
burdock	<i>Arctium minus</i>	not listed	forb	herbaceous biennial
Canada thistle	<i>Cirsium arvense</i>	restricted	forb	herbaceous perennial; rhizomatous
bull thistle	<i>Cirsium vulgare</i>	not listed	forb	herbaceous biennial
dame's rocket	<i>Hesperis matronalis</i>	restricted	forb	herbaceous biennial
motherwort	<i>Leonurus cardiaca</i>	not listed	forb	herbaceous perennial
honeysuckle	<i>Lonicera</i> spp.	restricted	shrub	woody perennial; allelopathic
bird's-foot trefoil	<i>Lotus corniculata</i>	non-restricted	forb	herbaceous perennial
mulberry	<i>Morus alba</i>	restricted	tree	fast growing woody perennial
wild parsnip	<i>Pastinaca sativa</i>	restricted	forb	monocarpic perennial; phytophototoxic
reed canarygrass	<i>Phalaris arundinacea</i>	non-restricted	grass	perennial; rhizomatous
common buckthorn	<i>Rhamnus cathartica</i>	not listed	shrub/tree	woody perennial; allelopathic
black locust	<i>Robinia pseudoacacia</i>	restricted	tree	fast growing; clonal
multiflora rose	<i>Rosa multiflora</i>	restricted	shrub	perennial; thicket-forming
crown vetch	<i>Securigera varia</i>	restricted	forb	herbaceous perennial; rhizomatous
Japanese hedge parsley	<i>Torilis japonica</i>	restricted	forb	herbaceous herbaceous biennial
MEDIUM PRIORITY				
Queen Anne's lace	<i>Daucus carota</i>	non-restricted	forb	herbaceous biennial
orange hawkweed	<i>Pilosella aurantiaca</i>	non-restricted	forb	herbaceous perennial
Canada goldenrod	<i>Solidago canadensis</i>	not listed	forb	native; perennial; rhizomatous

Invasive Species of Highest Priority

BOX ELDER (*Acer negundo*)

Siberian elm is a fast growing tree that grows to be 50-70 feet tall. The bark is gray-brown bark with furrows at maturity. Twigs and leaves are nearly hairless, with black hairs on the bud scales. It tolerates a wide variety of growing conditions including extreme temperatures, nutrient-poor soils and low moisture. It can be found along roadsides, in pastures and grasslands, stream banks, and prairies. Due to fast development and germination of seeds, dense thickets form rapidly, displacing native vegetation and reducing forage for native fauna.



Figure 73. Box elder

GARLIC MUSTARD (*Alliaria petiolata*)

Garlic mustard is an herbaceous biennial with stems 2-4 feet tall. First-year plants form a basal rosette that remains green through the winter. Second-year plants produce one to several flowering stems. It invades high quality upland and floodplain forests and savannas, as well as disturbed areas, such as yards and roadsides. It is sometimes found in full sun, though most often grows in areas with some shade, and does not do well in acidic soils. Native herbaceous cover has been shown to decline at sites invaded by garlic mustard. Garlic mustard exudes antifungal chemicals into the soil that disrupt associations between mycorrhizal fungi and native plants, suppressing native plant growth.



Figure 74. First-year garlic mustard

BURDOCK (*Arctium minus*)

Lesser burdock is a biennial that can reach five feet in height. This plant invades roadsides and disturbed sites. Burdock fruits mature into round bristled burrs which stick tenaciously to fur and clothing. Native to Eurasia, this species has become naturalized across North America.



Figure 75. Burdock second-year flower heads

CANADA THISTLE (*Cirsium arvense*)

Canada thistle is an herbaceous perennial, 2-6.5 feet tall with upright, grooved stems that branch near top of plant. The stems are hairy. It invades undisturbed areas such as prairies, savannas, glades, dunes, streambanks, sedge meadows, and forest openings. Also invades croplands, pastures, lawns, gardens, roadsides, ditches, and waste sites. Once it has established it spreads quickly, forming monocultures.



Figure 76. Canada thistle before flowering

BULL THISTLE (*Cirsium vulgare*)

Bull thistle is an annual herbaceous plant that can grow up to 7 feet in height. It can invade almost any type of disturbed area, such as forest clearcuts, riparian areas and pastures. Plants can form dense thickets, displacing other vegetation. The spiny nature of the plant renders it unpalatable to wildlife and livestock and reduces the forage potential of pastures. Bull thistle is native to Europe, western Asia, and northern Africa. It is thought to have been introduced to the eastern United States during colonial times and the western United States in the late 1800s. It is currently found in all 50 states.



Figure 77. Bull thistle basal rosette

DAME'S ROCKET (*Hesperis matronalis*)

Dame's rocket is a showy, short-lived perennial or biennial, 3-4 feet tall. Flowering stalks emerge in spring. It invades moist and mesic woodlands, on woodland edges, and along roadsides, and in open areas. Dame's rocket is thought by many to be a native wildflower and is found in wildflower seed mixes and planted as an ornamental. It quickly escapes cultivation because of its prolific seed set.



Figure 78. Dame's rocket basal rosette

MOTHERWORT (*Leonurus cardiaca*)

Motherwort is a perennial herbaceous plant in the mint family. It grows 2 to 4 feet in height. It spreads by rhizomes, creating colonies. Motherwort is often found at woodland edges, however, will grow in sun, shade, wet or dry soil, and invades disturbed sites. It is native to Asia.



Figure 79. First-year motherwort foliage

EXOTIC SHRUB HONEYSUCKLE (*Lonicera* spp.)

Honeysuckle are dense, multi-stemmed shrubs, deciduous shrub that is 6-12 feet tall. Young stems are slightly hairy and light brown while older stems may have shaggy, peeling bark and are often hollow between the nodes. Four species of exotic shrub honeysuckle can be found in Wisconsin: Amur honeysuckle (*Lonicera maackii*), Bell's honeysuckle (*Lonicera x bella*), Morrow's honeysuckle (*Lonicera morrowii*), and Tatarian honeysuckle (*Lonicera tatarica*). They invade a broad range of habitats, including forest edges, open woods, fens, bogs, lakeshores, roadsides, pastures, and old fields. Honeysuckles alter habitats by decreasing light availability, depleting soil moisture and nutrients, and possibly releasing allelopathic chemicals that inhibit growth of other plants. Eurasian bush honeysuckles have been widely planted as ornamentals and for wildlife habitat. Commercial propagation continues with many cultivars available from nurseries.



Figure 80. Respouts of exotic shrub honeysuckle

BIRD'S-FOOT TREFOIL (*Lotus corniculatus*)

Bird's-foot trefoil is a perennial, fine-stemmed, leafy legume. It grows 6-24 inches in height. It reproduces by seed, rhizomes and above ground runners that form fibrous mats. Bird's-foot trefoil creates tangled mats of dense growth that can choke out other plants. It spreads to threaten the diversity of native plants.



Figure 81. Bird's-foot trefoil distribution on a path in McGaw

WHITE MULBERRY (*Morus alba*)

White mulberry is a deciduous tree that grows 30-50 feet tall. Leaves have variable shape from simple to deeply lobed, with edible fruits ranging from white to red to black as they ripen. Mulberry invades open forests, woodland edges, prairies, fields, and disturbed areas. It outcompetes and hybridizes with the native mulberry, replacing those populations.



Figure 82. White mulberry foliage and buds

WILD PARSNIP (*Pastinaca sativa*)

Wild parsnip is an herbaceous, monocarpic perennial. It grows as a rosette with upright leaves, persisting for at least one year. Flowering stems are stout, hollow, grooved, and up to 5 feet tall. Parsnip invades prairies, oak savannas, and fens as well as roadsides, old fields, and pastures. Sap from wild parsnip is phytophototoxic; it can cause severe rashes, blisters, and discoloration of the skin when in the presence of sunlight.



Figure 83. First-year wild parsnip plants

REED CANARY GRASS (*Phalaris arundinacea*)

Reed canary grass is 2-9 foot tall. The stem is hairless and stands erect. It is one of the first grasses to sprout in the spring. It forms dense, persistent monospecific stands in wetlands, moist meadows, and riparian areas that outcompete desirable native plants. Reed canary grass dominates a significant number of wetlands in the Midwest.



Figure 84. Reed canary grass

COMMON BUCKTHORN (*Rhamnus cathartica*)

Common buckthorn is a tall understory shrub or small tree up to 20-25 feet tall, often with several stems arising from the base, and spreading crown. It has gray to brown bark with prominent light-colored lenticels, similar to native plums and cherries. Plants are either male or female. Cut bark exposes yellow sapwood and orange heartwood. Twigs often end in stout thorns. Buckthorn invades oak forests, riparian woods, savannas, prairies, old fields, and roadsides. It thrives particularly on well-drained soils. It has a broad environmental tolerance. It leafs out very early and retains its leaves late into the growing season, giving them a longer growing season than native plants. These shrubs create dense shade, eliminating regeneration of tree seedlings and understory species. It is alleopathic; it produces chemical compounds that inhibit the growth of other vegetation.



Figure 85. Common buckthorn

BLACK LOCUST (*Robinia pseudoacacia*)

Siberian elm is a fast growing tree that grows to be 50-70 feet tall. The bark is gray-brown bark with furrows at maturity. Twigs and leaves are nearly hairless, with black hairs on the bud scales. It tolerates a wide variety of growing conditions including extreme temperatures, nutrient-poor soils and low moisture. It can be found along roadsides, in pastures and grasslands, stream banks, and prairies. Due to fast development and germination of seeds, dense thickets form rapidly, displacing native vegetation and reducing forage for native fauna.



Figure 86. Black locust growth less than one year after forestry mowing

MULTIFLORA ROSE (*Rosa multiflora*)

Multiflora rose is a thorny, thicket-forming shrub with wide, arching or climbing canes and stiff, curved thorns. They can reach 10-15 feet tall and 9-13 feet wide. They are typically more spreading than erect. Multiflora rose invades open woodlands, forest edges, old fields, roadsides, savannas, and prairies. It can tolerate a wide range of soil and environmental conditions and full or partial sun. It does best on well-drained soils. It is extremely prolific and can form impenetrable thickets that exclude native plants species. Introduced from Japan in 1886 as rootstock for cultivated roses, it has been planted widely to curb soil erosion, as a living fence, and as a source of food and cover for wildlife. This shrub produces up to 500,000 seeds per year. Seeds remain viable in the soil for 10 to 20 years.



Figure 87. Multiflora rose foliage and thorn

CROWN VETCH (*Securigera varia*)

Crown vetch is an herbaceous perennial in the legume family. It has creeping stems that form dense colonies, growing 2-6 feet long. In winter and early spring, crown vetch can be easily recognized as large, brown patches. It is difficult to control and rapidly reproduces vegetatively via rhizomes that can grow up to ten feet per year. One plant may grow to completely cover 70-100 square feet. Its seeds can remain viable in the soil for more than 15 years. Crown vetch prefers sunny, open areas, but also has a broad environmental tolerance. It can grow in full to partial sun, is drought tolerant, and colonizes a wide range of soil types. It invades a variety of ecosystems including prairies, grasslands, dunes, floodplains, forest edges, agricultural lands, and roadsides. Crown vetch alters native ecosystems through nitrogen fixation, enhancing soil fertility. It can climb over and smother shrubs and small trees as well as shade-out native herbaceous vegetation. Invasion of crown vetch can also change fire behavior by increasing fuel loads. Crown vetch has historically been planted for erosion control and is widely distributed throughout the state.



Figure 88. Crown vetch

JAPANESE HEDGEPARSLEY (*Torilis japonica*)

Japanese hedgeparsley is an herbaceous biennial in the carrot family, with white umbel flowers and parsley-like leaves. Flowering plants are branched and grow 2-6 feet tall. Hedgeparsley invade forests, grassland, hedgerows, and roadsides. Pets, such as dogs, and other animals appear to be spreading Japanese hedgeparsley quickly throughout the state.



Figure 89. Japanese hedge parsley foliage

Invasive Species of Medium Priority

QUEEN ANNE'S LACE (*Daucus carota*)

Queen Anne's lace is an erect herbaceous biennial in the carrot family growing 2-4 feet in height. The plant produces a succession of flowering stalks until it dies with the first frost. Fruits have hooked spines that attach to clothing or animal fur and aid in dispersal. One plant can produce 1,000 to 40,000 seeds. Queen Anne's lace invades open waste ground, competing for resources with native grasses and forbs. It can be a threat to recovering grasslands and prairies where it occurs because it matures faster and grows larger than many native species. It tends to appear after prescribed burning, however, it may decline as native grasses and herbaceous plants become established. Plant leaves can cause skin irritation in some people and can cause cows to produce off-tasting milk after eating large quantities.



Figure 90. Queen Anne's lace

ORANGE HAWKWEED (*Pilosella aurantiaca*)

Orange hawkweed is a fibrous rooted perennial herb in the Aster family. It grows 10-36 inches in height. Each flower produces 12-30 tiny seed that are cylindrical, elongated, longitudinally ridged, barbed and bristled. Seeds can be dispersed by wind, water, or “hitch-hiking”, and are often moved in contaminated soil associated with transplanting new plants into gardens and flowerbeds. Seeds remain viable in soil for up to 7 years. It invades different habitats including urban sites, moist meadows, pasture, hay fields, roadsides, gravel pits, forested areas, tree plantations and riparian areas. Orange hawkweed reproduces and spreads through prolific seed production as well as vegetatively through stolons, and rhizomes. Under ideal conditions, one plant can spread and infest an area 2-3 feet in diameter in its first year of growth. It forms extensive mats that can compete with forest understory plants. It is an aggressive competitor for space, light, and soil nutrients. It has been reported to be allelopathic, producing phytotoxic chemicals in pollen grains that inhibit seed germination, seeding emergence, or regeneration of other plants.



Figure 91. Orange hawkweed

CANADA GOLDENROD (*Solidago canadensis*)

Canada goldenrod is a Wisconsin native plant that invades prairie and savanna landscapes. This goldenrod is a very effective colonizer, with its windblown seed, capable of establishing in bare soil or where competition from other plants is light, and then spreading through rhizomes. They can quickly become one of the dominant species in old fields or prairie restorations.



Figure 92. Canada goldenrod flowers

Endangered, Threatened, and Special Concern Species

During the May 2011 vegetation survey, pale purple coneflower (*Echinacea pallida*) was observed in one of the survey plots. Pale purple coneflower is considered a threatened species in Wisconsin. It is believed that pale purple coneflower is on the edge of its historic range in southern Wisconsin. The observed plant may have been planted during restoration efforts in the planting near the McGaw Park entrance.

No endangered, threatened, or special concern species were observed during the 2015-16 vegetation survey.



Figure 93. Pale purple coneflower in the planted prairie at Briarwood Neighborhood Park.

Bird Survey

METHODS

The wildlife survey was completed in two components: a bird survey and a trail camera set-up.

The bird survey was conducted using a point count method. The observer navigated to pre-determined, non-random points (Figure 94) using GPS, and recorded all birds heard or seen within a five minute period at each point. The points represented the types of bird habitat present at McGaw and Seymour Johnson Parks. These include open, mowed areas with scattered trees, woodland edge, old fencerow/thicket, open, unmowed area, and closed-canopy woodland (Table 8).

The bird survey occurred twice; on the mornings of October 18, 2015, and June 3, 2016. The point count was conducted by a trained ecologist with over 15 years of birding experience. Visual identification of birds was aided by a pair of 8x42 binoculars.

To encourage citizen reporting of bird use of the park, we created a birding hotspot for McGaw Park in eBird (ebird.org), a website that allows users to record the birds they see, keep track of bird lists, explore dynamic maps and graphs, share sightings with others, and contribute to science and conservation. Results of the point count were uploaded to e-bird.

Table 8.

PARK BIRD SURVEY LOCATION INFORMATION	
Point	Description
1	field edge and overgrown fenceline with box elder and mulberry 10-40' tall, with 50' tall pin oak and sugar maple nearby
2	thicket at west edge of main woodlot, adjacent to ball field
3	trail in thick honeysuckle with black cherry and Norway spruce
4	thick honeysuckle 6-10' tall with Norway spruce, black locust, red oak, black cherry
5	black locust with honeysuckle, buckthorn and apple understory
6	bur oak overstory with black cherry, mulberry and black locust understory up to 50' tall
7	mature silver maple with canopy gaps, thick honeysuckle and buckthorn in understory
8	old field at entrance surrounded by silver maple
9	recently forestry-mowed area with scattered black walnut, black cherry, silver maple, and pole-sized snags; within view of pond on adjacent property
10	bur oak overstory with buckthorn, box elder and black cherry in understory
11	east woodland edge adjacent to mowed grass and playground, with mature ash and bur oak



Figure 94. Bird Point Count Locations

McGaw Community and Seymour Johnson Neighborhood Parks
 (Adapted from wisconsinview.org WROC DOQQ 2010)

BIRD SPECIES OBSERVED

Fifteen species were observed in the October 2015 point survey and twenty species in the June 2016 survey. Tables 9&10 indicate how many individuals of each species were recorded.

Eight species (American crow, American goldfinch, American robin, black-capped chickadee, blue jay, downy woodpecker, northern cardinal, and red-bellied woodpecker) were observed in both counts.

No species were observed that are listed on the Wisconsin Endangered and Threatened Species List.

According to the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, all species observed have a Conservation Status of "Least Concern" (*All About Birds*).

Table 9.

MCGAW COMMUNITY PARK BIRD SURVEY #1 - OCTOBER 18, 2015	
Common Name	Count
American crow	8
American goldfinch	8
American robin	20
black-capped chickadee	12
blue jay	11
dark-eyed junco	6
downy woodpecker	4
European starling	15
golden-crowned kinglet	1
northern cardinal	4
red-bellied woodpecker	3
red-tailed hawk	1
white-breasted nuthatch	6
white-throated sparrow	6
yellow-rumped warbler	1
total species observed	15

Table 10.

MCGAW COMMUNITY PARK BIRD SURVEY #2 - JUNE 3, 2016	
Common Name	Count
American crow	15
American goldfinch	4
American robin	17
black-capped chickadee	6
blue-gray gnatcatcher	1
blue jay	7
brown-headed cowbird	2
chipping sparrow	4
common yellowthroat	1
downy woodpecker	4
eastern wood-pewee	5
gray catbird	1
house finch	7
house sparrow	1
house wren	5
mourning dove	2
northern cardinal	9
northern flicker	1
red-bellied woodpecker	1
song sparrow	2
total species observed	20

Trail Camera Survey

METHODS

We placed a Reconyx Hyperfire HC600 trail camera in three locations within the parks (Figure 95): in the northeast corner of McGaw Park in the new North Park Addition (#1), in Seymour Johnson Park (#2), and again in McGaw Park (#3), just north of the northernmost ball field. Cameras were placed approximately 4 feet from ground level, facing established hiking trails or game trails. The camera spent approximately two weeks in each location, from mid-October, 2015 to early January, 2016.

TRAIL CAMERA SURVEY RESULTS

Other than hikers and their canine companions, only two species were observed: white-tail deer (Figure 96) and eastern gray squirrel.



Figure 95. Trail Cam Locations, McGaw Community and Seymour Johnson Neighborhood Parks.

(Adapted from wisconsinview.org WROC DOQQ 2010)



Figure 96. White-tailed deer observed in Seymour Johnson Park on November 11, 2015.

DESIRED FUTURE CONDITION STATEMENT AND MANAGEMENT GOALS AND OBJECTIVES

Introduction

Sound land management is based on an understanding of current conditions, a set of management objectives, and numerous ecological principles. The ecological principles used to formulate the management recommendations are discussed below.

1. It is best not to think of the land as the “prairie” or the “woodland,” and so on. Rather, it is far better to remember that the site functions as a whole and to consider how individual areas influence each other and can be managed in concert to achieve larger, property-wide goals that could not be achieved by managing on a unit-by-unit basis.
2. Management for one species or habitat type is nearly always management against other species or habitat types. For instance, one plot of land cannot be simultaneously managed for grassland birds and forest birds. Therefore, effective management attempts to produce as diverse a spectrum of habitat types as possible in order to attract as many species as possible within the constraints imposed by the site. It is sometimes necessary and best to select and manage for one habitat type.
3. A large tract of a given plant community is better than a smaller tract. This is because many species, especially wildlife, require large areas of relatively homogenous habitat. Also, one large tract is better than two smaller tracts even if the total acreage is the same because it has a lower proportion of edge relative to interior. Tracts with a high proportion of edge are more susceptible to invasion by weeds and therefore harder to sustain.
4. Historically, natural ecological processes, such as fire, maintained the landscape and promoted ecological health without human intervention. Currently, many natural ecological processes do not properly function because the landscape is too fragmented. Consequently, human intervention in the form of directed management is required. Benign neglect generally creates more problems than it solves and results in the loss of species and their habitats.

Desired Future Condition

A desired future condition statement is a broad statement expressing a vision of a site's future character.

Desired future condition statement for the Natural Areas of McGaw Community Park and Seymour Johnson Neighborhood Park (Figure 2):

McGaw Community Park and Seymour Johnson Neighborhood Park host plant communities within the prairie-oak continuum, such as tallgrass prairie, oak savanna, and oak woodland, to the extent possible within the limitations associated with its size, surrounding land use, and the available resources. Non-native species abundance is minimized to protect and encourage native flora and fauna. Visitors to the natural areas of the parks have safe, educational, and recreational opportunities that enhance their understanding of the cultural and natural history of the McGaw and Johnson Park lands.

Goals, Objectives, and Recommendations

Goals are concise, broad statements describing a specific component of a site's desired future condition. They are the basis for developing objectives.

Objectives are descriptions of an end point. They are time-neutral, measurable, and they do not reference a starting point. They are the basis for developing recommendations.

Recommendations are specific actions undertaken to achieve an objective. They can be short- or long-term and can be either ongoing or completed in a single event.

Objectives and recommendations for the Natural Areas of McGaw Community Park and Seymour Johnson Neighborhood Park are first presented in outline form to provide an overview. Recommendations are then presented and discussed in detail in the following section.

**GOAL 1:
MCGAW COMMUNITY PARK AND SEYMOUR JOHNSON
NEIGHBORHOOD PARK HOST PLANT COMMUNITIES
WITHIN THE PRAIRIE-OAK CONTINUUM**

Existing native plant communities are protected and enhanced, and additional communities are established to the extent possible given the limitations of size, surrounding land use, and available resources. Non-native species abundance is minimized to protect native flora and fauna.

GOAL #1 OBJECTIVES

- 1** Stand 1 is an Oak Opening Native Plant Community
- 2** Stand 2 is an Oak Opening Native Plant Community
- 3** Stand 3 is an Oak Opening Native Plant Community
- 4** Stand 4 is an Oak Woodland Native Plant Community
- 5** Stand 5 is an Oak Woodland Native Plant Community

**GOAL 2:
MULTIPLE OPPORTUNITIES FOR EDUCATION AND
RECREATION ARE PROVIDED TO VISITORS**

Visitors are offered hands-on and passive educational opportunities. Volunteers are actively recruited to assist with restoration and management. Community access and recreational use compatible with natural resource protection is encouraged. Public safety is protected.

GOAL #2 OBJECTIVES

- 1** A stacked-loop trail system allows visitors access to park natural areas and facilitates a variety distances for hiking, skiing or running.
- 2** Interpretive signage describes the cultural and natural history of McGaw and Seymour Johnson Parks
- 3** Trail markers and maps assist visitors with wayfinding
- 4** Appropriate accommodations are given to visitors with canine companions
- 5** Exercise equipment is consolidated and located adjacent to multi-use trails
- 6** An interpretive nature center is located in the Park adjacent to the natural areas

**GOAL 3:
IMPACTS TO ADJOINING LANDOWNERS ARE MINIMIZED**

The City of Fitchburg strives to be a good neighbor by minimizing the impacts of ecological restoration activities and public use to nearby properties.

GOAL #3 OBJECTIVES

- 1 Property boundaries are permanently marked
- 2 Views onto adjacent properties are screened
- 3 Ingress and egress to trail system is on public property
- 4 Invasive plants are prevented from spreading onto adjoining properties
- 5 Prescribed burns are conducted only when air quality and smoke dispersal conditions are appropriate
- 6 Adequate firebreaks exist between the natural areas and neighboring properties

**GOAL 4:
UTILIZE EXTERNAL FUNDING AND PARTNERSHIPS**

Public and private funds are obtained for development, restoration, and management. Partnerships are developed with organizations and individuals.

GOAL #4 OBJECTIVES

- 1 External funding is obtained
- 2 A formally-established Friends of McGaw & Seymour Johnson Parks group collaborates with City of Fitchburg efforts

McGaw Community Park & Seymour Johnson Neighborhood Park

MANAGEMENT RECOMMENDATIONS

Management Plan Limitations

Forest management plans must be flexible because the resources they manage constantly change, new information is often acquired, new technologies are developed, new insights are reached, and available resources fluctuate. Neither this nor any other management plan should be viewed as conclusive or absolute. Instead, this plan should be viewed for what it is: a blueprint providing information, guidance, and a starting point for the ongoing process of ecologically based, thoughtful land stewardship designed to protect and enhance the woodland's natural character and biodiversity for present and future generations.

Successful land management requires monitoring to provide feedback on the effectiveness of the activities and to discover new information. Careful and diligent monitoring and evaluation allows appropriate and necessary management plan revisions, a process known as adaptive management. Changes should be made in consultation with all interested parties and a qualified ecologist or forester.

GOAL 1:**McGAW COMMUNITY PARK AND SEYMOUR JOHNSON NEIGHBORHOOD PARK HOST PLANT COMMUNITIES WITHIN THE PRAIRIE-OAK CONTINUUM**

Existing native plant communities are protected and enhanced, and additional communities are established to the extent possible given the limitations of size, surrounding land use, and available resources. Non-native species abundance is minimized to protect native flora and fauna.

Objective 1: Stand 1 is an Oak Opening Native Plant Community**Recommendations:**

- Refer to Stand 1 as “Northwest Savanna” or “Entrance Savanna”.
- **Grade and seed the treated triangle east of the pond.** When dry soil conditions allow, grade the upturned soil to a smooth surface, and seed with appropriate native plants (Table 12). The species composition may include forbs, grasses, shrubs and trees appropriate to the goals for management of the park.
- **Install a native tree nursery in the treated triangle east of the pond.** This nursery may provide trees to be sourced throughout the restoration of the remaining Stands in McGaw Park, with white oaks, bur oaks, swamp white oaks, and shagbark hickories among the preferred species that may be planted (Table 12 and Table 13).
- **Remove and control woody invasive plants.** Removal of non-native woody plant species such as buckthorn, black locust and honeysuckle is critical to reduce competition for native forbs and grasses, restore soil health and maintain access for management activities. These invasive species are best controlled in Stand 1 by use of a forestry mower, with repeated follow-up chemical foliar treatment of resprouting stems.
- **Remove majority of trees and coarse woody debris:** This tree removal will remove nearly all trees in Stand 1, either in phases, or at one time. Under the phased approach, some black cherries, black walnuts and silver maples of superior vigor may be left standing (up to 30% of the canopy in Stand 1), to act as surrogate trees in the short term. However, the ideal option economically and ecologically may be to remove all non-savanna tree species from Stand 1. Great care should be taken to retain all oak of any species within Stand 1, but this removal will dramatically change the appearance of much of Stand 1, resulting in open areas with scattered, dispersed trees. Wood removed during this practice will not be merchantable, but local firewood operations may remove downed logs at no cost. Alternatively, chips could be used as mulch for trails, the proposed tree nursery in Stand 1, or other tree plantings and projects throughout the City of Fitchburg. This practice may also include the removal of down coarse wood debris in Stand 1.
- **Control spread of invasive, herbaceous non-native plants by spraying and pulling before plants go to seed.** These efforts will require annual repetition to deplete the seed bank of these species. Garlic Mustard, in particular, will continue to be a threat in Stand 1. Many other invasives are present nearby and may pioneer into the open spaces created by removal of shrub and tree layer.
- **Seed remaining areas with native forbs and grasses, initially to compete with non-natives and to carry fire.** Later interseeding will increase diversity (Table 12).
- **Implement a regular prescribed fire regime.** Install and maintain fire breaks on property boundaries and to divide Stand 1 from adjacent Stands. When necessary, hire professional fire crews to plan and carry out prescribed burns. Implementing a prescribed fire regime will depend on success of invasive control, fuel loads, weather, and density of oak seedlings.
- **Remove all remaining black walnut and black cherry trees.** Delaying this removal until later is less desirable ecologically, but may spread out some costs, and mitigate public reaction to the changing aesthetics inherent with restoring a degraded woodland to prairie. Some of these trees, especially the walnut, may be commercially viable.

- Survey the approximately one-acre entrance prairie that was planted in 2001 to determine management requirements.

Objective 2: Stand 2 is an Oak Opening Native Plant Community

Recommendations:

- Refer to Stand 2 as “Central Savanna” or “McGaw Savanna”.
- **Remove and control woody invasive plants.** Removal of non-native woody plant species such as buckthorn, black locust and honeysuckle is critical to reduce competition for native forbs and grasses, restore soil health and maintain access for management activities. These invasive species are best controlled in Stand 2 by use of a forestry mower, with repeated followup chemical foliar treatment of resprouting stems.
- **Remove majority of trees and coarse woody debris:** This tree removal will remove nearly all trees in Stand 2, either in phases, or at one time. Under the phased approach, some black cherries and silver maples of superior vigor may be left standing (up to 30% of the canopy in Stand 2), to act as surrogate savanna trees in the short term. However, the ideal option economically and ecologically may be to remove all non-savanna tree species from Stand 2. An exception may be made in the southern portion of Stand 2, where selected planted conifer species may not be harvested in order to retain visual barriers and aesthetic diversity. Great care should be taken to retain all oak of any species within Stand 2, but this removal will dramatically change the appearance of much of Stand 2, resulting in open areas with scattered, dispersed trees. Wood removed during this practice will not be merchantable, but local firewood operations may remove downed logs at no cost. Alternatively, chips could be used as mulch for trails, the proposed tree nursery in Stand 1, or other tree plantings and projects throughout the City of Fitchburg. This practice may also include the removal of down coarse wood debris in Stand 1.
- **Control spread of invasive, herbaceous non-native plants by spraying and pulling before plants go to seed.** These efforts will require annual repetition to deplete the seed bank of these species. Garlic Mustard,

in particular, may become a threat in Stand 2. Many other invasives are present nearby and may pioneer into the open spaces created by Practices 2 and 3.

- **Seed remaining areas with native forbs and grasses, initially to compete with non-native plant species and to carry fire.** Later interseeding will increase diversity (Table 12).
- **Implement a regular prescribed fire regime.** Install and maintain fire breaks on property boundaries and to divide Stand 1 from adjacent Stands. When necessary, hire professional fire crews to plan and carry out prescribed burns. Implementing a prescribed fire regime will depend on success of invasive control, fuel loads, weather, and density of oak seedlings.
- **Remove remaining non-savanna trees.** Delaying this removal until Practice 7 is less desirable ecologically, but may spread out some costs, and mitigate public reaction to the changing aesthetics inherent with restoring a degraded site to prairie. Managers may make decisions on which trees to remove based on aesthetics and updated progress of the prairie restoration.

Objective 3: Stand 3 is an Oak Opening Plant Community

Recommendations:

- Refer to Stand 3 as “Northeast Savanna”.
- **Remove and control woody invasive plants.** Removal of non-native woody plant species such as buckthorn and honeysuckle is critical to reduce competition for native forbs and grasses, restore soil health and establish access for management activities. These invasive species are best controlled in Stand 3 by use of a forestry mower, with repeated followup chemical foliar treatment of resprouting stems.
- **Remove majority of trees and coarse woody debris:** This tree removal will remove nearly all trees in Stand 3, either in phases, or at one time. Under the phased approach, some black cherries of superior vigor may be left standing to act as surrogate trees in the short term.

This removal will dramatically change the appearance of much of Stand 3, resulting in open areas with scattered, dispersed trees. Wood removed during this practice will not likely be merchantable, but local firewood operations may remove downed logs at no cost. Black locust may be merchantable due to its rot resistant properties; use in Stand 3 would be mostly limited to fence posts, due to small average diameter of trees. Alternatively, chips could be used as mulch for trails, the proposed tree nursery in Stand 1, or other tree plantings and projects throughout the City of Fitchburg.

- **Control spread of invasive, herbaceous non-native plants by spraying and pulling before plants go to seed.** These efforts will require annual repetition to deplete the seed bank of these species. Garlic Mustard, particularly, may become a threat in Stand 3. Many other invasives are present nearby and may pioneer into the open spaces created by Practices 2 and 3.
- **Control undesirable tree resprouts by foliar spraying.** These efforts may require annual repetition to address pioneering black locust stems, especially.
- **Seed remaining areas with native forbs and grasses, initially to compete with non-native plant species and to carry fire.** Later interseeding will increase diversity (Table 12).
- **Plant Savanna tree saplings.** Using trees grown in the prospective nursery in Stand 1, consider planting white oaks, bur oaks and swamp white oaks (Table 12) at least 25 feet spacing between each tree, with irregular patterns. These trees will require mulching, watering, and possibly protection from rodent and deer browse.
- **Implement a regular prescribed fire regime.** Install and maintain fire breaks on property boundaries and to divide Stand 1 from adjacent Stands. When necessary, hire professional fire crews to plan and carry out prescribed burns. Implementing a prescribed fire regime will depend on success of invasive control, fuel loads, weather, and density of oak seedlings.
- **Remove remaining non-savanna trees.** Delaying this removal until

Practice 9 is less desirable ecologically, but may spread out some costs, and mitigate public reaction to the changing aesthetics inherent with restoring a degraded site to prairie. Managers may make decisions on which trees to remove based on aesthetics and updated progress of the prairie restoration.

Objective 4: Stand 4 is an Oak Woodland Plant Community

Recommendations:

- **Refer to Stand 4 as “North Park Oak Woodland”.**
- **Remove and control woody invasive plants.** Removal of non-native woody plant species such as buckthorn and honeysuckle is critical to reduce competition for native forbs and grasses, restore soil health and establish access for management activities. These invasive species could be controlled in Stand 4 by either use of a forestry mower, with repeated followup chemical foliar treatment of resprouting stems, or cutting and treating woody stems with hand power tools such as chainsaws and brushsaws.
- **Remove majority of trees and coarse woody debris:** This tree removal will remove all non-oak trees in Stand 4. This removal will dramatically change the appearance of much of Stand 4, exposing the large legacy bur oaks and creating dappled light conditions on the soil surface. Wood removed during this practice will not likely be merchantable, but local firewood operations may remove downed logs at no cost. Black locust may be merchantable due to its rot resistant properties; use in Stand 4 for black locust might include both fence posts and decking for park boardwalks here or at other City of Fitchburg properties. Alternatively, chips could be used as mulch for trails, the proposed tree nursery in Stand 1, or other tree plantings and projects throughout the City of Fitchburg.
- **Control spread of invasive, herbaceous non-native plants by spraying and pulling before plants go to seed.** These efforts will require annual repetition to deplete the seed bank of these species. Garlic Mustard, particularly, may become a threat in Stand 4. Many other invasives

are present nearby and may pioneer into the open spaces created by Practices 2 and 3.

- **Control undesirable tree resprouts by foliar spraying.** These efforts may require annual repetition to address pioneering black locust stems, especially.
- **Seed remaining areas with native forbs and grasses, initially to compete with non-native plant species and to carry fire.** Later interseeding will increase diversity (Table 13).
- **Plant Savanna tree saplings.** Using trees grown in the prospective nursery in Stand 1 or nursery stock, consider planting white oaks, bur oaks, black oaks, swamp white oaks and shagbark hickories (Table 13). These trees will require mulching, watering, and possibly protection from rodent and deer browse.
- **Implement a regular prescribed fire regime.** Install and maintain fire breaks on property boundaries and to divide Stand 1 from adjacent Stands. When necessary, hire professional fire crews to plan and carry out prescribed burns. Implementing a prescribed fire regime will depend on success of invasive control, fuel loads, weather, and density of oak seedlings.

Objective 5: Stand 5 is an Oak Woodland Plant Community

Recommendations:

- **Refer to Stand 5 as “Seymour Johnson Oak Woodland”.**
- **Remove and control woody invasive plants.** Removal of non-native woody plant species such as buckthorn and honeysuckle is critical to reduce competition for native forbs and grasses, restore soil health and establish access for management activities. These invasive species could be controlled in Stand 5 by either use of a forestry mower, with repeated followup chemical foliar treatment of resprouting stems, or cutting and treating woody stems with hand power tools such as chainsaws and brushsaws.
- **Remove undesirable trees and some coarse woody debris:** This tree

removal will remove mostly box elder, mulberry and poorly formed elm, black cherry and shagbark hickory trees in Stand 5. Basal area after the removal would be about 50-70 square feet per acre, with most removals being smaller trees. Great care should be taken to retain all oak of any species within Stand 2. This operation will result in sporadic openings, but immediate aesthetics will be less drastic than recommendations elsewhere in the park. Wood removed during this practice will not likely have high enough volumes to be merchantable, but local firewood operations may remove downed logs at no cost. Alternatively, chips could be used as mulch for trails, the proposed tree nursery in Stand 1, or other tree plantings and projects throughout the City of Fitchburg.

- **Control spread of invasive, herbaceous non-native plants by spraying and pulling before plants go to seed.** These efforts will require annual repetition to deplete the seed bank of these species. Garlic Mustard particularly threatens Stand 5. Many other invasives are present nearby and may pioneer into the open spaces created by Practices 2 and 3.
- **Control undesirable tree resprouts by foliar spraying.** These efforts may require annual repetition until satisfactory results are achieved.
- **Seed remaining areas with native forbs and grasses, initially to compete with non-native plant species and to carry fire.** Later interseeding will increase diversity (Table 13).
- **Implement a regular prescribed fire regime.** Install and maintain fire breaks on property boundaries and to divide Stand 1 from adjacent Stands. When necessary, hire professional fire crews to plan and carry out prescribed burns. Implementing a prescribed fire regime will depend on success of invasive control, fuel loads, weather, and density of oak seedlings.



Figure 97. Interpretive sign in the recently forestry-mowed area of Stand 1.

GOAL 2: MULTIPLE OPPORTUNITIES FOR EDUCATION AND RECREATION ARE PROVIDED TO VISITORS

Visitors are offered hands-on and passive educational opportunities. Volunteers are actively recruited to assist with restoration and management. Community access and recreational use compatible with natural resource protection is encouraged. Public safety is protected.

Objective 1: A stacked-loop trail system allows visitors access to the native plant communities

Recommendations:

- **Expand existing trail system.** There are currently about 1.5 miles of trails in the two parks; a stacked loop system gives park visitors options for varied routes. A loop in the northern portion of Stand 1 will allow visitors on a base loop of the central prairie access to the Entrance Prairie. A second loop through the North Park Savanna can be stacked on the Central Prairie loop. Trails can be expanded into the northern section of Seymour Johnson.
- **Create trails that double as firebreaks;** by creating trails around the perimeter of a management unit, or in between units, allows those trails to serve as firebreaks during prescribed burns. This reduces the work needed to be done before such a management event.
- **Keep trails to one mower-width or less.**
- **Encourage winter use of the park;** groom some trails for cross-country skiing and reserve others for hikers, dog walkers, and snowshoer.

Objective 2: Interpretive signage describes the cultural and natural history of McGaw and Seymour Johnson Parks

Recommendations:

- **Install interpretive signage.** Enhancing visitors' understanding of the cultural history, natural features, and management of McGaw and S. Johnson Park will enrich their visit. Interpretive signs are one way to

accomplish this. Interpretive signs may also allay concerns about tree and shrub removal by explaining why it's being done and the benefits that will result.

Objective 3: Trail markers and maps assist visitors with wayfinding

Recommendations:

- **Install trail wayfinding signs.** A stacked loop system of trails, with its variety of options, will be better served if there are trail maps or wayfinding signs to guide visitors through the natural communities. These can be combined with interpretive signage.

Objective 4: Appropriate accommodations are given to visitors with canine companions

Recommendations:

- **Accommodate dog walkers.** Many of the trail users are dog walkers. Accommodate these visitors and their four-legged friend by providing refuse bins with waste bags at major trail entrances. Consider signage that states the City policy regarding leash requirements.

Objective 5: Exercise equipment is consolidated and located adjacent to multi-use trails

Recommendations:

- **Remove existing parcourse equipment** from the natural areas of McGaw Park.
- **Explore options for installation of equipment** in a consolidated location that can be easily accessed from the paved, multi-use trails.

Objective 6: An interpretive nature center is located in the Park adjacent to the natural areas

Recommendations:

- **Continue plans for the 2012 McGaw Master Plan recommendation of including a nature center** that "will provide educational opportunities and will serve as an additional shelter for the eastern side of the park" and "will provide a learning environment complimentary to the woods, prairies, and other natural features of the park".

GOAL 3: IMPACTS TO ADJOINING LANDOWNERS AND UTILITY PARTNERS ARE MINIMIZED

The City of Fitchburg strives to be a good neighbor by minimizing the impacts of ecological restoration activities and public use to nearby properties.

Objective 1: Property boundaries are permanently marked

Recommendations:

- **Contract with a professional surveyor to locate property and utility easement boundaries** (see page 51-2). This would include the following: the southern property lines of the four parcels along Lacy Road in the northern portion of McGaw, the western edge of Lot 2 (CSM 10040) and the two parcels in the Dommers View Plat (Lots 7 and 6), the southern edge of the Dommers View Plat (Lots 6, 5, 4, 3, and 2), the entire perimeter of the North Park Addition, the western edge of the Tarpleywick Hills Plat (Lots 26, 25, 24, and 5), and the western edge of the three parcels along Curly Oaks Lane (Lots 3, 2, and 1) east of S. Johnson.
- **Contract with a professional surveyor to locate utility easements** (page 49).
- **Mark property lines of parcels adjoining natural areas** as new dedications of parkland occur with the development of land surrounding McGaw, Permanently marking the property borders allows land managers to decide upon the most suitable location of trails and firebreaks, without encroaching onto adjacent properties. Additionally, vegetation management practices such as herbicide treatment can be confined to the City property.
- **Use appropriate material for signs.** Material used for signage should be durable and easy to protect during prescribed burn events. Marking utilities easements can aid the planning the use of those areas, and will avoid the chance that any planted vegetation is disturbed.

Objective 2: Views onto adjacent properties are screened*Recommendations:*

- **Plant screening on the western edge of Stand 1, north of the walking path, to obstruct views of the Crossings Residence from park visitors.** Species should be a mix of large and small trees and shrubs that are not likely to invade prairie landscape. A list of appropriate species can be found in Table 11
- **Install a small tree nursery in the recently forestry-mowed east of the pond.** This nursery may provide trees to be sourced throughout the restoration of the remaining Stands in McGaw Park, with white oaks, bur oaks, swamp white oaks, and shagbark hickories among the preferred species that may be planted (Table 12 and Table 13). These nursery trees will also serve as screening in the short term.
- **Consolidate tree and shrub plantings of savanna and oak woodland species along the perimeter edges of Stands 3, 4, and 5, providing screening of views from the park to adjoining properties.** A list of appropriate species can be found in Table 12 and Table 13.

Objective 3: Ingress and egress to trail system is on public property*Recommendations:*

- **Close spur trails.** Several spur trails join the McGaw and S. Johnson trail system and lead onto private residences. This occurs on the eastern side of McGaw (Stands 2 and 3), the North Park Addition (Stand 4), and on the eastern corner of S. Johnson (Stand 5). Close these trails to respect the privacy of adjoining landowners and to protect park visitors from trespassing.
- **Provide access to the trail system from points within the Park or from public road access such as the eastern terminus of Dommers and Wildheather Drives.**

Objective 4: Invasive plants are prevented from spreading onto adjoining properties*Recommendations:*

- **Undertake vegetation management practices set forth in the recommendations for Goals 1 and 2 that reduce the invasive plants' ability to set seed.** This mainly requires timing mechanical and chemical treatments with the life cycle of a particular plant. Reduction of the abundance of an invasive species will bring with it a reduced ability to spread onto neighboring properties.

Objective 5: Prescribed burns are conducted only when air quality and smoke dispersal conditions are appropriate*Recommendations:*

- **Plan prescribed fire activities during weather windows where air quality conditions are moderate or better, and smoke dispersal conditions are fair, good or excellent.** This will limit the chance of putting smoke onto adjacent roads and into private residences.

Objective 6: Adequate firebreaks exist between the natural areas and neighboring properties*Recommendations:*

- **Install and maintain firebreaks.** Firebreaks are borders around planned burn units that limit a prescribed fire's ability to move into an adjacent area.

GOAL 4:**UTILIZE EXTERNAL FUNDING AND PARTNERSHIPS**

Public and private funds are obtained for development, restoration, and management. Partnerships are developed with organizations and individuals.

Objective 1: External funding is obtained*Recommendations:*

- Contact organizations and programs providing cost-sharing and grants for habitat restoration, interpretation, and forest management, to determine their interest in assisting with plan implementation. Examples: Wisconsin DNR Community Forest Program (provides technical assistance and nursery stock), U.S. Fish and Wildlife Partners for Fish and Wildlife Program (provides cost-sharing for prairie and savanna restoration), C.D. Besadny Conservation Grants (small grant program providing assistance with restoration and interpretation projects), John. C. Bock Foundation (grant program promoting conservation and old-growth forest), Madison Community Foundation (general grant program, typically larger grants), Dane County Environmental Council (grants ranging from \$250-\$2500 for conservation projects).
- Develop a database of relevant grants and grant deadlines, with the goal of obtaining multi-year funding for implementing plan recommendations. Update database annually.
- Ensure adequate staff time and budget is allotted for grantwriting, grant progress reporting and final reports to external funding partners.

Objective 2: A formally-established Friends of McGaw & Seymour Johnson Parks group collaborates with City of Fitchburg efforts*Recommendations:*

- Encourage development of a 501(c)(3) non-profit Friends group to

provide volunteer labor, assist in fundraising, help in planning, and advocate on behalf of the Park.

- Establish a memorandum of understanding between the Friends group and the City, noting responsibilities and scope of involvement of each party.



Figure 98. Bur oak foliage and mast

RECOMMENDED SPECIES FOR PLANTING

Table 11.

SHRUBS AND TREES RECOMMENDED FOR SCREENING	
Common Name	Scientific Name
SHRUBS	
black chokeberry	<i>Aronia melanocarpa</i>
American hazelnut	<i>Corylus americana</i>
dwarf bushhoneysuckle	<i>Diervilla lonicera</i>
common ninebark	<i>Physiocarpus opulifolius</i>
nannyberry	<i>Viburnum lentago</i>
downy arrowwood viburnum	<i>Viburnum rafinesquianum</i>
SMALL TREES	
downy serviceberry	<i>Amelanchier arborea</i>
cockspur hawthorn	<i>Crataegus crus-galli</i>
fleshy hawthorn	<i>Crataegus macrantha</i>
downy hawthorn	<i>Crataegus mollis</i>
prairie crabapple	<i>Malus ioensis</i>
blackhaw viburnum	<i>Viburnum prunifolium</i>
LARGE TREES	
shagbark hickory	<i>Carya ovata</i>
white oak	<i>Quercus alba</i>
swamp white oak	<i>Quercus bicolor</i>
bur oak	<i>Quercus macrocarpa</i>
black oak	<i>Quercus velutina</i>

Introduction

The following tables provide suggested species for each plant community, as well as species appropriate for screening.

Table 12.

SPECIES RECOMMENDED FOR PLANTING IN SAVANNA	
Common Name	Scientific Name
GRASSES, SEDGES, AND RUSHES	
big bluestem	<i>Andropogon gerardii</i>
side-oats grama	<i>Bouteloua curtipendul</i>
fringed brome	<i>Bromus ciliatus</i>
hairy wood chess	<i>Bromus pubescens</i>
graceful sedge	<i>Carex gracillima</i>
field oval sedge	<i>Carex molesta</i>
spreading oval sedge	<i>Carex normalis</i>
common oak sedge	<i>Carex pensylvanica</i>
curly-styled wood sedge	<i>Carex rosea</i>
long-beaked sedge	<i>Carex spengelii</i>
wood reed grass	<i>Cinna arundinacea</i>
bottlebrush grass	<i>Elymus hystrix</i>
silky wild rye	<i>Elymus villosus</i>
virginia wild rye	<i>Elymus virginicus</i>
leafy satin grass	<i>Muhlenbergia mexicana</i>
little bluestem	<i>Schizachyrium scoparium</i>
Indian grass	<i>Sorghastrum nutans</i>
FORBS	
doll's eyes	<i>Actaea pachypoda</i>
red baneberry	<i>Actaea rubra</i>
purple giant hyssop	<i>Agastache scrophulariaefolia</i>

SPECIES RECOMMENDED FOR PLANTING IN SAVANNA	
Common Name	Scientific Name
lead plant	<i>Amorpha canescens</i>
thimbleweed	<i>Anemone cylindrica</i>
tall thimbleweed	<i>Anemone virginiana</i>
dog bane	<i>Apocynum cannabinum</i>
wild columbine	<i>Aquilegia canadensis</i>
poke milkweed	<i>Asclepias exaltata</i>
wood mint	<i>Blephilia hirsuta</i>
tall bellflower	<i>Campanula americana</i>
spring beauty	<i>Claytonia virginiana</i>
dodder	<i>Cuscuta gronovii</i>
shooting star	<i>Dodecatheon meadia</i>
pale purple coneflower	<i>Echinacea pallida</i>
grass-leaved goldenrod	<i>Euthamia graminifolia</i>
woodland joe-pye weed	<i>Eutrochium purpureum</i>
northern bedstraw	<i>Galium boreale</i>
biennial gaura	<i>Gaura biennis</i>
cream gentian	<i>Gentiana flavida</i>
wild geranium	<i>Geranium maculatum</i>
woodland sunflower	<i>Helianthus divaricatus</i>
pale-leaved Sunflower	<i>Helianthus strumosus</i>
false-sunflower	<i>Heliopsis helianthoides</i>
prairie alumroot	<i>Heuchera richardsonii</i>
Virginia waterleaf	<i>Hydrophyllum virginianum</i>
round-headed bushclover	<i>Lespedeza capitata</i>

SPECIES RECOMMENDED FOR PLANTING IN SAVANNA

Common Name	Scientific Name
fringed loosestrife	<i>Lysimachia ciliata</i>
wild bergamot	<i>Monarda fistulosa</i>
common evening primrose	<i>Oenothera biennis</i>
hairy sweet cicely	<i>Osmorhiza claytonii</i>
may apple	<i>Podophyllum peltatum</i>
Solomon's seal	<i>Polygonatum biflorum</i>
prairie cinquefoil	<i>Potentilla arguta</i>
common mountain mint	<i>Pycnanthemum virginianum</i>
yellow coneflower	<i>Ratibida pinnata</i>
black-eyed Susan	<i>Rudbeckia hirta</i>
sweet black-eyed Susan	<i>Rudbeckia subtomentosa</i>
branching black-eyed Susan	<i>Rudbeckia triloba</i>
late figwort	<i>Scrophularia marilandica</i>
blue-eyed grass	<i>Sisyrinchium campestre</i>
false Solomon's seal	<i>Smilacina racemosa</i>
zigzag goldenrod	<i>Solidago flexicaulis</i>
Dyer's weed	<i>Solidago nemoralis</i>
elm-leaved goldenrod	<i>Solidago ulmifolia</i>
arrow-leaved aster	<i>Symphotrichum cordifolium</i>
Drummond's aster	<i>Symphotrichum drummondii</i>
smooth aster	<i>Symphotrichum laeve</i>
calico aster	<i>Symphotrichum lateriflorum</i>
New England aster	<i>Symphotrichum novae-angliae</i>
sky-blue aster	<i>Symphotrichum oolentangiense</i>

SPECIES RECOMMENDED FOR PLANTING IN SAVANNA

Common Name	Scientific Name
frost aster	<i>Symphotrichum pilosus</i>
Short's aster	<i>Symphotrichum shortii</i>
germander	<i>Teucrium canadense</i>
early meadowrue	<i>Thalictrum dioicum</i>
common spiderwort	<i>Tradescantia ohioensis</i>
hoary vervain	<i>Verbena stricta</i>
white vervain	<i>Verbena urticifolia</i>
common ironweed	<i>Vernonia fasciculata</i>
Culver's root	<i>Veronicastrum virginicum</i>
heart-leaved golden alexander	<i>Zizia aptera</i>
golden alexander	<i>Zizia aurea</i>
TREES	
shagbark hickory	<i>Carya ovata</i>
bur oak	<i>Quercus macrocarpa</i>

Table 13.

SPECIES RECOMMENDED FOR PLANTING IN WOODLAND	
Common Name	Scientific Name
GRASSES, SEDGES, AND RUSHES	
fringed brome	<i>Bromus ciliatus</i>
hairy wood chess	<i>Bromus pubescens</i>
graceful sedge	<i>Carex gracillima</i>
curly-styled wood sedge	<i>Carex rosea</i>
long-beaked sedge	<i>Carex sprengei</i>
wood reed grass	<i>Cinna arundinacea</i>
bottlebrush grass	<i>Elymus hystrix</i>
silky wild rye	<i>Elymus villosus</i>
FORBS	
doll's eyes	<i>Actaea pachypoda</i>
red baneberry	<i>Actaea rubra</i>
purple giant hyssop	<i>Agastache scrophulariaefolia</i>
wild leek	<i>Allium tricoccum</i>
tall thimbleweed	<i>Anemone virginiana</i>
wild columbine	<i>Aquilegia canadensis</i>
American spikenard	<i>Aralia racemosa</i>
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>
poke milkweed	<i>Asclepias exaltata</i>
tall bellflower	<i>Campanula americana</i>
spring beauty	<i>Claytonia virginiana</i>
honewort	<i>Cryptotaenia canadensis</i>

SPECIES RECOMMENDED FOR PLANTING IN WOODLAND	
Common Name	Scientific Name
large-bracted tick-trefoil	<i>Desmodium cuspidatum</i>
Dutchman's britches	<i>Dicentra cucularia</i>
shooting star	<i>Dodecatheon meadia</i>
trout lily	<i>Erythronium albidum</i>
woodland joe-pye weed	<i>Eutrochium purpureum</i>
wild geranium	<i>Geranium maculatum</i>
pale-leaved Sunflower	<i>Helianthus strumosus</i>
false-sunflower	<i>Heliopsis helianthoides</i>
Virginia waterleaf	<i>Hydrophyllum virginianum</i>
Indian tobacco	<i>Lobelia inflata</i>
hairy sweet cicely	<i>Osmorhiza claytonii</i>
Jacob's ladder	<i>Polemonium reptans</i>
sweet black-eyed Susan	<i>Rudbeckia subtomentosa</i>
branching black-eyed Susan	<i>Rudbeckia triloba</i>
early figwort	<i>Scrophularia lanceolata</i>
blue-eyed grass	<i>Sisyrinchium campestre</i>
false Solomon's seal	<i>Smilacina racemosa</i>
zigzag goldenrod	<i>Solidago flexicaulis</i>
elm-leaved goldenrod	<i>Solidago ulmifolia</i>
arrow-leaved aster	<i>Symphotrichum cordifolium</i>
Drummond's aster	<i>Symphotrichum drummondii</i>
smooth aster	<i>Symphotrichum laeve</i>
calico aster	<i>Symphotrichum lateriflorum</i>
New England aster	<i>Symphotrichum novae-angliae</i>

SPECIES RECOMMENDED FOR PLANTING IN WOODLAND

Common Name	Scientific Name
Short's aster	<i>Symphyotrichum shortii</i>
early meadowrue	<i>Thalictrum dioicum</i>
bellwort	<i>Uvularia perfoliata</i>
common ironweed	<i>Vernonia fasciculata</i>
Culver's root	<i>Veronicastrum virginicum</i>

TREES

shagbark hickory	<i>Carya ovata</i>
white oak	<i>Quercus alba</i>
bur oak	<i>Quercus macrocarpa</i>
swamp white oak	<i>Quercus bicolor</i>
red oak	<i>Quercus rubra</i>



Figure 99. Shooting star in Briarwood Neighborhood Prairie

McGaw Community Park & Seymour Johnson Neighborhood Park

MANAGEMENT ACTIVITY SCHEDULE

Introduction

As previously discussed, land management requires adaptability and flexibility because of natural fluctuations, random events, the somewhat unpredictable results of prior management activities, and other factors beyond human control.

Table 14 provides a suggested five-year schedule for previously outlined management and restoration activities.

Table 14.

MANAGEMENT RECOMMENDATION IMPLEMENTATION SCHEDULE		
Management Unit	Fall 2016	Winter 2016-17
Stand #1: Northwest Entrance Savanna		seed recently forestry-mowed triangle
		forestry mow remainder of brush
Stand #2: Central Savanna		
Stand #3: Northeast Savanna		
Stand #4: North Park Woodland		
Stand #5: Seymour Johnson Woodland	remove non-savanna tree species and invasive brush, treat stumps	

MANAGEMENT RECOMMENDATION IMPLEMENTATION SCHEDULE				
Management Unit - Year One	Spring 2017	Summer 2017	Fall 2017	Winter 2017-18
entire natural areas	survey property lines			
	permanently mark property lines			
	remove parcourse equipment			
Stand #1: Northwest Entrance Savanna	prescribed burn in "Entrance Prairie"			
	plant trees and shrubs along west property line			
	manage herbaceous invasives in planted prairie			
	treat brush resprouts and herbaceous invasives in forestry mowed area			
	mow new planting as necessary for weed control			
	create trails that double as firebreaks			
	remove large, non-savanna tree species, treat stumps			
Stand #2: Central Savanna				
Stand #3: Northeast Savanna				
Stand #4: North Park Woodland				
Stand #5: Seymour Johnson Woodland	prescribed burn			
	manage brush resprouts and herbaceous invasives			
	create trails that double as firebreaks			

MANAGEMENT RECOMMENDATION IMPLEMENTATION SCHEDULE				
Management Unit - Year Two	Spring 2018	Summer 2018	Fall 2018	Winter 2018-19
Stand #1: Northwest Entrance Savanna	manage brush resprouts and herbaceous invasives			
	create trails that double as firebreaks			seed savanna forbs and grasses
Stand #2: Central Savanna		select, mark, and clear around any trees or shrubs to be kept		
				forestry mow brush in entire stand
Stand #3: Northeast Savanna				
Stand #4: North Park Woodland				
Stand #5: Seymour Johnson Woodland		prescribed burn		
	manage brush resprouts and herbaceous invasives			seed woodland forbs and grasses

MANAGEMENT RECOMMENDATION IMPLEMENTATION SCHEDULE				
Management Unit - Year Three	Spring 2019	Summer 2019	Fall 2019	Winter 2019-20
Stand #1: Northwest Entrance Savanna	manage herbaceous and woody invasives			
	mow new planting as necessary			
Stand #2: Central Savanna		select, mark, and clear around any trees or shrubs to be kept		
	create trails that double as firebreaks			
Stand #3: Northeast Savanna			remove large, non-savanna tree species, treat stumps	
			remove non-savanna tree species and invasive brush, treat stumps	
Stand #4: North Park Woodland				
Stand #5: Seymour Johnson Woodland	prescribed burn			
	manage brush resprouts and herbaceous invasives			
Management Unit - Year Four	Spring 2020	Summer 2020	Fall 2020	Winter 2020-21
Stand #1: Northwest Entrance Savanna	manage herbaceous and woody invasives			
Stand #2: Central Savanna	manage herbaceous and woody invasives			
				seed savanna forbs and grasses
Stand #3: Northeast Savanna	plant savanna tree species			
	manage herbaceous and woody invasives			
	create trails that double as firebreaks			
Stand #4: North Park Woodland			remove non-savanna tree species and invasive brush, treat stumps	
Stand #5: Seymour Johnson Woodland	prescribed burn			
	manage brush resprouts and herbaceous invasives			

MANAGEMENT RECOMMENDATION IMPLEMENTATION SCHEDULE				
Management Unit - Year Five	Spring 2021	Summer 2021	Fall 2021	Winter 2021-22
Stand #1: Northwest Entrance Savanna	manage herbaceous and woody invasives			
	prescribed burn in entire stand			
Stand #2: Central Savanna	manage herbaceous and woody invasives			
	mow new planting as necessary			
Stand #3: Northeast Savanna	manage herbaceous and woody invasives			
				seed savanna forbs and grasses
Stand #4: North Park Woodland	manage brush resprouts and herbaceous invasives			
	create trails that double as firebreaks			
Stand #5: Seymour Johnson Woodland	prescribed burn			
	manage brush resprouts and herbaceous invasives			

McGaw Community Park & Seymour Johnson Neighborhood Park

ESTIMATED LABOR AND MATERIALS COSTS

Introduction

Table 15 provides a cost estimate for the materials and activities that are expected to be required during the next five years, assuming the implementation schedule (Table 14) is followed.

The information is based on 2016 pricing and assumes that contractors will be doing all of the work.

Table 15.

ESTIMATED LABOR AND MATERIALS COSTS FOR THE RECOMMENDED ACTIVITIES FOR A FIVE YEAR PERIOD						
Stand #1: Northwest Prairie (7.6 acres)	(Fall 2016)	Year One (2017)	Year Two (2018)	Year Three (2019)	Year Four (2020)	Year Five (2021)
sow native seed	\$1,157		\$11,165			
forestry mow	\$9,093					
prescribed fire		\$395				\$1,185
tree and shrub planting		\$5,928				
woody and herbaceous invasives management		\$13,656	\$9,104	\$9,104	\$9,104	\$9,104
mow new plantings		\$87		\$1,117		
tree removal		\$5,593				
totals	\$10,250	\$51,318	\$20,269	\$10,221	\$9,104	\$10,289
Stand #2: Central Prairie (17.4 acres)	(Fall 2016)	Year One (2017)	Year Two (2018)	Year Three (2019)	Year Four (2020)	Year Five (2021)
forestry mow			\$22,620			
sow native seed					\$26,953	
woody and herbaceous invasives management				\$31,268	\$20,845	\$20,845
tree removal				\$13,903		
mow new plantings						\$2,558
totals	\$0	\$0	\$22,620	\$45,171	\$47,798	\$23,403
Stand #3: Northeast Savanna (6.5 acres)	(Fall 2016)	Year One (2017)	Year Two (2018)	Year Three (2019)	Year Four (2020)	Year Five (2021)
tree and brush removal				\$18,194		
sow native seed						\$11,183
tree planting					\$12,038	
woody and herbaceous invasives management					\$11,681	\$7,787
totals	\$0	\$0	\$0	\$18,194	\$23,719	\$18,970

ESTIMATED LABOR AND MATERIALS COSTS FOR THE RECOMMENDED ACTIVITIES FOR A FIVE YEAR PERIOD

Stand #4: North Park Woodland (3.7 acres)	(Fall 2016)	Year One (2017)	Year Two (2018)	Year Three (2019)	Year Four (2020)	Year Five (2021)
tree and brush removal					\$10,356	
woody and herbaceous invasives management						\$6,649
totals	\$0	\$0	\$0	\$0	\$10,350	\$6,649
Stand #5: Seymour Johnson Woodland (5.8 acres)	(Fall 2016)	Year One (2017)	Year Two (2018)	Year Three (2019)	Year Four (2020)	Year Five (2021)
tree and brush removal	\$16,234					
sow native seed			\$9,979			
woody and herbaceous invasives management		\$10,422	\$6,948	\$6,948	\$6,948	\$6,948
prescribed fire		\$1,185	\$1,185	\$1,185	\$1,185	\$1,185
totals	\$16,234	\$11,607	\$18,112	\$8,133	\$8,133	\$8,133
Entire Natural Areas	(Fall 2016)	Year One (2017)	Year Two (2018)	Year Three (2019)	Year Four (2020)	Year Five (2021)
survey property lines & utility easements		\$3,500				
permanently mark property lines		\$2,241				
remove parcourse equipment		\$882				
totals	\$0	\$6,623	\$0	\$0	\$0	\$0
totals	(Fall 2016)	Year One (2017)	Year Two (2018)	Year Three (2019)	Year Four (2020)	Year Five (2021)
totals	\$26,484	\$69,548	\$61,001	\$81,719	\$99,104	\$67,444

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APPENDIX I

Original Deed and Certified Survey Map

DOCUMENT NO. **1423072**
 VOL. **562** PAGE **472**

THIS INDENTURE, Made this 18 day of March, A. D. 1975, between DONALD MCGAW, personal representative of the estate of Samuel McGaw, a.k.a. Sam McGaw, deceased,

part Y of the first part and TOWN OF FITCHBURG, Dane County, Wisconsin part Y of the second part,

Witnesseth, That the said part Y of the first part, for and in consideration of the sum of EIGHTY THOUSAND (\$80,206.32) TWO HUNDRED & SIX DOLLARS AND THIRTY-TWO CENTS

Dollars, to him in hand paid by the said part Y of the second part, the receipt whereof is hereby confessed and acknowledged, has given, granted, bargained, sold, remised, released and quit-claimed, and by these presents do ES give, grant, bargain, sell, remise, release and quit-claim unto the said part Y of the second part, and to its SUCCESSORS forever, the following described real estate, situated in the County of Dane, State of Wisconsin, to-wit:

Part of Lot Two (2) of Certified Survey Map No. 445, recorded on December 1, 1970, in Volume 2 of Certified Survey Maps, pages 236 and 237, as Document No. 1278521, in the office of the Register of Deeds for Dane County, Wisconsin, located in the Northwest 1/4 of Section 14, Town 6 North, Range 9 East, (Town of Fitchburg), Dane County, Wisconsin, described as follows; to wit: Commencing at the Northwest corner of said Section 14; thence S 88° 34' 50" E, 316.84 feet to the point of beginning; thence continuing S 88° 34' 50" E, 166.04 feet; thence S 00° 12' 34" W, 200.00 feet; thence S 88° 34' 50" E, 200.00 feet; thence S 00° 12' 34" W, 810.00 feet; thence S 88° 34' 50" E, 660.02 feet; thence S 00° 12' 34" W, 1,698.56 feet; thence N 88° 21' 22" W, 1,341.99 feet; thence N 00° 11' 16" E, 2,417.82 feet; thence S 88° 34' 50" E, 316.73 feet; thence N 00° 12' 34" W, 285.51 feet to the point of beginning.

It is the intention of party of the first part to convey to party of the second part all remaining lands in said Town of Fitchburg in which decedent had an interest at the time of his death, and to correct all errors in the description of said real estate described in the inventory filed in the estate of said decedent.

This deed is exempt from transfer tax under Wisc. Stats. 77.25 (2).

To Have and To Hold the same, together with all and singular the appurtenances and privileges thereunto belonging or in anywise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever of the said part Y of the first part, either in law or equity, either in possession or expectancy of, to the only proper use, benefit and behoof of the said part Y of the second part, its SUCCESSORS here and assigns forever.

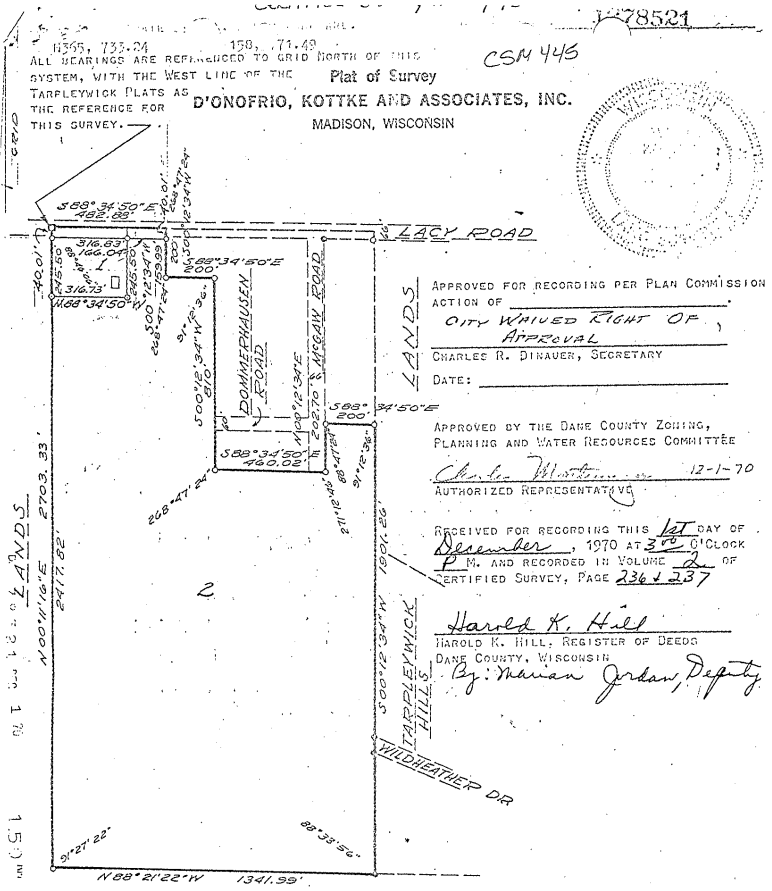
In Witness Whereof, part Y of the first part ha S hereunto set his hand and seal this 18 day of March, A. D. 1975.

SIGNED AND SEALED IN PRESENCE OF

DEED OF PERSONAL REPRESENTATIVE
 STATE OF WISCONSIN—FORM 11
 Office of Register of Deeds }
 Dane County, Wisconsin } ss
 Received for Record March 19
 1975 at 11:45 o'clock A.M.
 and recorded in vol. 562
 of Records on page 472
Harold K. Brown
 Register
 THIS SPACE RESERVED FOR RECORDING DATA
 RETURN TO
E. E. K. I. C.

STATE OF WISCONSIN, # 2 (SEAL)
 DANE County } ss. EXEMPT
 Personally came before me, this 18 day of March, A. D. 1975 the above named Donald McGaw, personal representative of the estate of Samuel McGaw, a.k.a. Sam McGaw and personal representative to me known to be the person 1 who executed the foregoing instrument and acknowledged the same.
Tom C. Brown
 Tom C. Brown
 Notary Public, Dane County, Wis.
 My Commission (Expires) (Is) permanent
 This instrument drafted by Tom C. Brown, atty.
 (Section 59.31 (1) of the Wisconsin Statutes provides that no instrument to be recorded shall have plainly printed or typewritten thereon the names of the grantors, grantees, witnesses and notary.)
 QUIT CLAIM DEED—STATE OF WISCONSIN, FORM NO. 11
 FURNISHED BY **Dane County Title Company**
 TITLE INSURANCE ABSTRACTS MICROFILM

4/3
 1423072
 Personal Representative
 Mc - 29
 1 of 49
 Office of Register of Deeds }
 Dane County, Wisconsin } ss
 Received for Record March 19
 1975 at 11:45 o'clock A.M.
 and recorded in vol. 562
 of Records on page 472
Harold K. Brown
 Register
 VOL. 562 PAGE 473
 P.D. 0



1278521

CSM 445



APPROVED FOR RECORDING PER PLAN COMMISSION ACTION OF CITY WAIVED RIGHT OF APPROVAL
 CHARLES R. DIKAUER, SECRETARY
 DATE: _____

APPROVED BY THE DANE COUNTY ZONING, PLANNING AND WATER RESOURCES COMMITTEE
 Charles M. ... 12-1-70
 AUTHORIZED REPRESENTATIVE

RECEIVED FOR RECORDING THIS 1st DAY OF December, 1970 AT 3:00 O'CLOCK P.M. AND RECORDED IN VOLUME 2 OF CERTIFIED SURVEY, PAGE 236 & 237

Harold K. Hill
 HAROLD K. HILL, REGISTER OF DEEDS
 DANE COUNTY, WISCONSIN
 By: Newman Jordan, Deputy

LANDS
 PART OF THE NW 1/4 OF SECTION 14, T5N. R9E. TOWN OF FITCHBURG, DANE COUNTY, WISCONSIN, TO-WIT: BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 14; THENCE S88°34'50"E, 402.60 FEET; THENCE S70°12'34"W, 200.00 FEET; THENCE S88°34'50"E, 200.00 FEET; THENCE S00°12'34"W, 410.00 FEET; THENCE S88°34'50"E, 470.02 FEET; THENCE N00°12'34"E, 202.70 FEET; THENCE S88°34'50"E, 300.00 FEET; THENCE S00°12'34"W, 1,901.26 FEET; THENCE N88°21'22"W, 1,341.99 FEET; THENCE N00°11'10"E, 2,703.33 FEET TO THE POINT OF BEGINNING.

142-8600-07
 8590
 CSM 445

I HEREBY CERTIFY THAT I HAVE COMPLIED WITH CHAPTER 236.34 OF THE WISCONSIN STATUTES.

I hereby certify that I have made a survey according to the description furnished to me and that the plat drawn above is a true representation of that survey.

David M. Kottke

• Iron Stake Found
 • Iron Stake Placed
 Scale: 1 INCH = 400 FEET
 Date: OCT. 22, 1970
 No. _____

1278521

Plat of Survey
 D'ONOFRIO, KOTTKE AND ASSOCIATES, INC.
 MADISON, WISCONSIN

OWNER'S CERTIFICATE

AS OWNER, I HEREBY CERTIFY THAT I CAUSED THE LAND DESCRIBED ON THIS CERTIFIED SURVEY TO BE SURVEYED, DIVIDED, AND MAPPED AS REPRESENTED ON THIS CERTIFIED SURVEY.

WITNESS THE HAND AND SEAL OF SAID OWNER THIS 17th DAY OF Nov, 1970.

IN THE PRESENCE OF:
 [Signatures] SAMUEL MCGAM

STATE OF WISCONSIN }
 COUNTY OF DANE }

PERSONALLY CAME BEFORE ME THIS 17th DAY OF November, 1970, THE ABOVE NAMED OWNER TO ME KNOWN TO BE THE PERSON WHO EXECUTED THE FOREGOING INSTRUMENT AND ACKNOWLEDGED THE SAME.

BY COMMISSION [Signature] NOTARY PUBLIC, DANE COUNTY, WISCONSIN

"RESOLVED THAT THIS CERTIFIED SURVEY MAP, WHICH HAS BEEN DULY FILED FOR APPROVAL OF THE COMMON COUNCIL OF THE CITY OF MADISON, DANE COUNTY, WISCONSIN, BE AND THE SAME IS HEREBY APPROVED."

I HEREBY CERTIFY THAT THE ABOVE IS A TRUE AND CORRECT COPY OF A RESOLUTION ADOPTED BY THE COMMON COUNCIL OF THE CITY OF MADISON ON THE _____ DAY OF _____, 19____.

CITY WAIVED RIGHT OF APPROVAL
 ELDON L. HOEL, CITY CLERK

• Iron Stake Found
 • Iron Stake Placed
 Scale: _____
 Date: _____
 No. _____

I hereby certify that I have made a survey according to the description furnished to me and that the plat drawn above is a true representation of that survey.

APPENDIX II

Tree and Vegetation Survey, June 7, 2011

Tree and Vegetation Survey

Prepared for:
Ed Bartell, City Forester
City of Fitchburg
5520 Lacy Road
Fitchburg, WI 53711

Prepared by:
Mike Healy, *Ecologist*
Luke Saunders, *Forester*
BioLogic Environmental Consulting
1882 State Road 92
Mount Horeb, WI 53572

**McGaw Park &
S. Johnson Woodlands**
June 7, 2011

Introduction:

The purpose of this tree and vegetation survey was to determine the tree, shrub and ground layer species composition within the wooded and shrubland areas of McGaw Park and S. Johnson woodlots (Fig. 1). The McGaw Park and S. Johnson woodlands comprise approximately 37 acres of undeveloped area within the City of Fitchburg. The woodlands are surrounded by developed park land, residential neighborhoods, and agricultural fields.



Figure 1: McGaw Park Woodland and S. Johnson woodlot survey areas, outlined in green and red. (Airphoto credit City of Fitchburg)



Where Science & Stewardship Meet
1882 State Road 92, Mount Horeb, Wisconsin 53572
P: 608.277.9960 F: 608.832.6008 www.gobiologic.com
BioLogic Environmental Consulting is a division of Adaptive Recreation LLC

Methods:

Tree survey – McGaw Park Woodland

We conducted the tree survey using the City of Fitchburg’s Emerald Ash Borer Readiness and Response Plan tree survey protocol. This protocol calls for one plot per acre for stands of less than 15 acres. The S. Johnson woodlot was treated as a single “Stand” for the purposes of this survey. These fixed area sample plots represent 0.1 acres, with a radius of 37.25 feet per plot. In addition to collecting species and diameter at breast height (dbh) information, we estimated the volume and basal area at each survey point, according to accepted forest biometry methods. Since the McGaw Park survey area was greater than 15 acres, we surveyed approximately one plot per 2 acres. We surveyed one plot per acre within the smaller, 6-acre S. Johnson Woodlot (Table 1).

We established a plot center via GPS navigation. All trees greater than 1 inch in diameter within the plot boundary were tallied, and we recorded tree species and dbh. We also assessed trees for merchantability, by estimating number of sawlogs, sawbolts and/or pulp sticks contained in each tree, where applicable. Not all trees were merchantable, and these measures should serve only as reference, and by no means imply silvicultural recommendations.

Vegetation survey – McGaw Park Woodlands

To obtain a sample of vegetation within the woodlots, we established a grid containing north-south transects approximately 200 meters apart. We randomly determined the initial survey point. Each survey point was approximately 300 meters apart along each transect. We used a Garmin GPS III+ unit to navigate to each survey point. We used 0.25m² quadrats to estimate vegetation cover. We identified and estimated the percent cover of all vascular plant and shrub species with leaves or stems within or above the quadrat. In addition, we estimated the absence of cover (e.g. bare soil, leaf litter, moss). We placed the quadrat at the center of each tree survey plot.

Table 1: Stand acreage and plots surveyed

Stand	Acreage	Plots surveyed	Plots/acre
McGaw Park Woodland	31	20	0.65
S. Johnson Woodlot	6	6	1

Results:

Tree survey – McGaw Park

The McGaw Park Woodland is composed of several smaller distinct stands which were not treated individually for the purpose of this inventory. Black cherry is the most prevalent overstory tree, but most trees are of poor quality and vigor. Silver maple dominates the overstory in the small acreage to the west of the park entrance road. Silver maple is also present sporadically in the stand interior, where the stand is dominated by dense honeysuckle, along with prevalent buckthorn, which was not sampled as part of this survey, but represents a significant portion of low overstory in many parts of the stand. Black Locust dominates the portion of the stand immediately south of McGaw Road, blending into mulberry saplings as the stand becomes more open to the south. Box elder is present throughout the stand, but especially in the black locust-dominated portions.

According to estimates from this inventory, the McGaw Park Woodland has 202 trees per acre (estimated 5,949 total trees), and an average basal area of 35 square feet per acre. Tree density is variable throughout the woodlot, but very low overall for an early successional forest. Cherry is the most prevalent species in the woodlot, representing 21.8 % of trees. Mulberry species make up 19.2% of the stand, followed by black locust (18.3%), silver maple (16.9%) and box elder (14.5%) (Fig. 2). Older apple trees are dispersed throughout the stand, but are a minor component. At stand edges, conifers such as white pine, Norway spruce and white spruce were found, along with red oak, elm and black walnut. Other species (i.e. burr oak) may be present in the stand, but were not sampled.

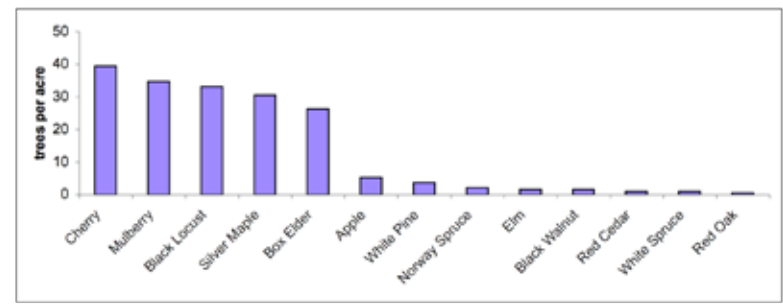


Figure 2: Tree species composition of McGaw Park woodlot, per BioLogic Environmental Consulting inventory, 5/28/2011.

Most trees in McGaw Park Woodland are of sapling and pole size, and of poor form and vigor. The most prevalent size class is diameter at breast height (dbh) of 4-6 inches, with nearly a quarter of all trees, followed closely by trees with dbh 2-4 inches. Trees of dbh less than 6" compose just over half of the stand, while less than 7% of all trees are greater than 12 inches dbh (Fig. 3). Few "Specimen Trees" exist in the stand.

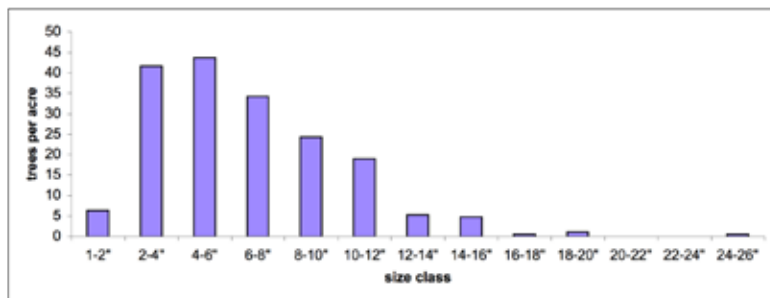


Figure 3: Tree diameter distribution of McGaw Park woodlot, per BioLogic Environmental Consulting inventory, 5/28/2011.

The inventory estimates only 626 board feet per acre in standing trees, along with 6.8 cords per acre in lesser quality material. This assessment of utilization potential shows a stand with very little merchantable-quality timber, and what does exist is not of high quality. Merchantability estimates such as this may be used as a baseline for future growth of the stand, even where conventional harvests are not likely to occur.

Vegetation survey – McGaw Park

The majority of our vegetation survey was conducted in shrubland and forested areas. Two of our sample points were within open areas of the park supporting prairie vegetation. These areas are located north of the ballfields and northeast of the entrance, and they contained the most species-rich plots within our survey. The species composition and location of these areas suggests that they are not prairie remnants, but were seeded with prairie vegetation sometime within the last 20 years.

The most diverse plot contained 13 species; the least diverse plot contained 2 species (Fig. 4). Most plots contained fewer than 4 species. The dominant plant in the understory was a non-native bush honeysuckle (*Lonicera x bella*), occurring in at least 75 percent of all plots, with an average cover of 58 percent.



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This plant is considered invasive by the Wisconsin Department of Natural Resources (WDNR 2011). The second most common plant observed was common buckthorn (*Rhamnus cathartica*), occurring in 55 percent of the plots, with an average cover of 19.5 percent (Fig. 5). *Rhamnus cathartica* is also considered invasive by the Wisconsin Department of Natural Resources (WDNR 2011).

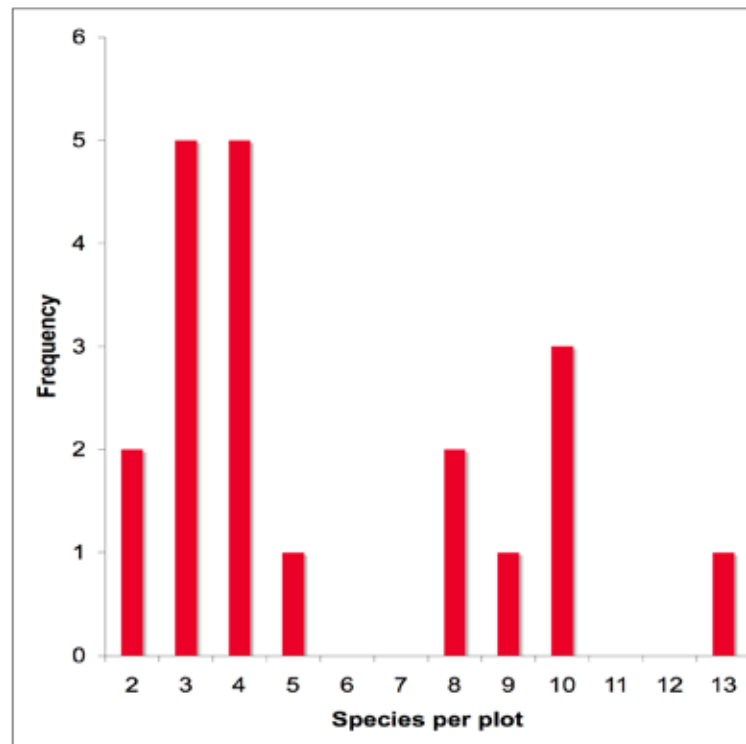


Figure 4: Distribution of species per plot within McGaw Park woodlands, surveyed 5/28/2011.

Two-thirds of the 44 species observed were native (Table 2). However, the park contains at least 3 native invasive species, including black locust, Canada goldenrod, and box elder. We did not observe any federally or state-designated rare, threatened or endangered vascular plant species (Table 3).



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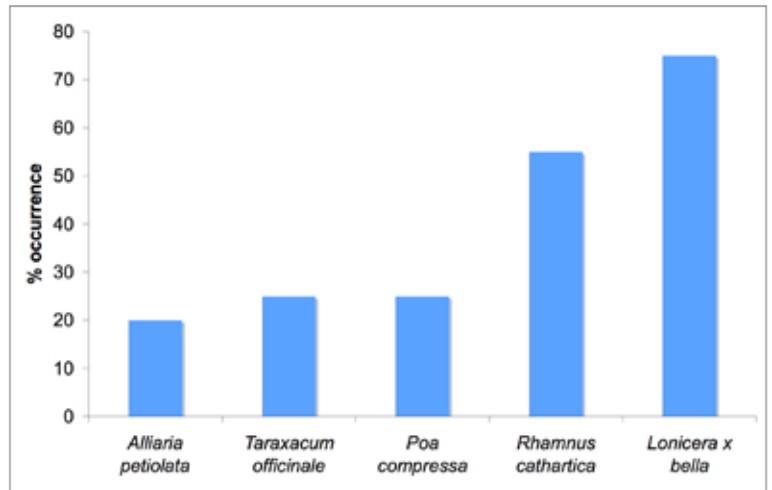


Figure 5: Percent occurrence of the five most frequently sampled species in McGaw Park woodlands. All of these species are non-native, and at least three are considered invasive.

While en-route to our sample points, we observed 9 native species not captured in our sample: thimbleweed (*Anemone cylindrica*), Solomon’s seal (*Polygonatum biflorum*), elderberry (*Sambucus canadensis*), field thistle (*Cirsium discolor*), stickseed (*Hackelia virginiana*), sawtooth sunflower (*Helianthus grossesseratus*), smooth sumac (*Rhus glabra*), downy rattlesnake plantain (*Goodyera pubescens*), and stinging nettle (*Urtica dioica*). We also observed 3 non-native species: multiflora rose (*Rosa multiflora*), dame’s rocket (*Hesperis matronalis*), and motherwort (*Leonorus cathartica*). Multiflora rose and dame’s rocket are considered invasive by the Wisconsin Department of Natural Resources under their NR 40 invasive species identification, classification and control rule (WDNR 2011).

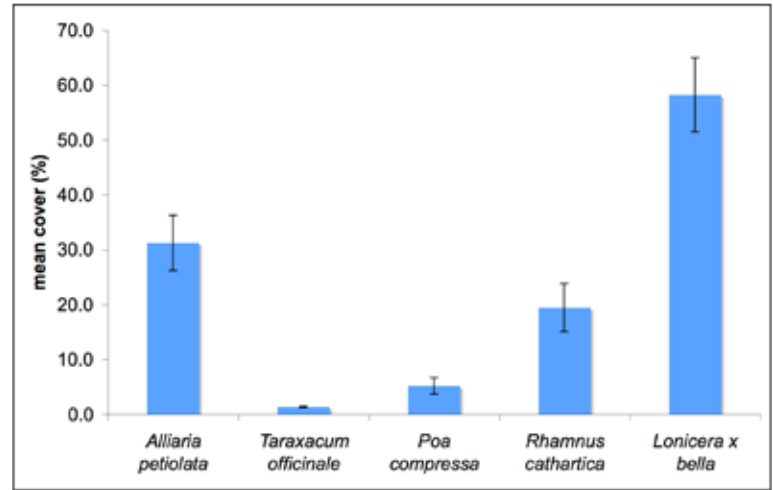


Figure 6: Mean cover of the five most frequently sampled species in McGaw Park, ± 1 Standard Error (SE).

Table 2: Summary native, non-native and invasive species sampled

Total species	Native	Non-Native	Invasive
44	29	15	12

Table 3: List of all vascular flora sampled during McGaw Park tree and vegetation survey, 5/28/11.

Scientific name	Common name	Native	Invasive
<i>Acer negundo</i>	Box elder	y	y
<i>Acer saccharinum</i>	Silver maple	y	
<i>Achellia millifolium</i>	Yarrow	y	
<i>Alliaria petiolata</i>	Garlic mustard	n	y
<i>Arctium minus</i>	Burdock	n	
<i>Calystegia sepium</i>	Bindweed	y	
<i>Circaea lutetiana</i>	Enchanter’s nightshade	y	
<i>Conyza canadensis</i>	Fleabane	y	
<i>Cornus racemosa</i>	Gray dogwood	y	
<i>Daucus carota</i>	Queen Anne’s lace	n	

Scientific name	Common name	Native	Invasive
<i>Dodecatheon meadia</i>	Shooting star	y	
<i>Echinacea pallida</i>	Pale purple coneflower	y	
<i>Galium aparine</i>	Bedstraw	y	
<i>Galium triflorum</i>	Sweet-scented bedstraw	y	
<i>Geum canadense</i>	White avens	y	
<i>Glechoma hederacea</i>	Creeping charlie	n	
<i>Hemerocallis fulva</i>	Day lily	n	y
<i>Hieracium caespitosum</i>	Field hawkweed	n	
<i>Impatiens capensis</i>	Jewelweed	y	
<i>Juglans nigra</i>	Black walnut	y	
<i>Lonicera x bella</i>	Honeysuckle	n	y
<i>Monarda fistulosa</i>	Bee balm	y	
<i>Morus alba</i>	Mulberry	n	y
<i>Panicum virgatum</i>	Switchgrass	y	
<i>Parthenocissus quinquefolia</i>	Virginia creeper	y	
<i>Pastinaca sativa</i>	Wild parsnip	n	y
<i>Penstemon digitalis</i>	Penstemon	n	
<i>Phalaris arundinacea</i>	Reed canarygrass	n	y
<i>Phleum pratense</i>	Timothy	n	
<i>Poa compressa</i>	Canada bluegrass	n	y
<i>Prunus serotina</i>	Black cherry	y	
<i>Ratibida pinnata</i>	Gray-headed coneflower	y	
<i>Rhamnus cathartica</i>	Common buckthorn	n	y
<i>Robinia pseudoacacia</i>	Black Locust	y	y
<i>Rubus idaeus</i>	Blackberry	y	
<i>Rudbeckia hirta</i>	Black-eyed Susans	y	
<i>Solanium nigra</i>	Nightshade	n	
<i>Solidago canadensis</i>	Canada goldenrod	y	y
<i>Solidago speciosa</i>	Showy goldenrod	y	
<i>Taraxacum officinale</i>	Dandelion	n	y
<i>Tradescantia ohiensis</i>	Ohio spiderwort	y	
<i>Viola canadensis</i>	Tall white violet	y	
<i>Vitis riparia</i>	Frost grape	y	
<i>Zizia aptera</i>	Heart-leaved golden Alexanders	y	

Tree survey -- S. Johnson Woodland

The S. Johnson woodlot has 240 trees per acre (estimated 1,452 total trees), and an average basal area of 90 square feet per acre. Tree density is relatively constant throughout the woodlot, with the exception of an area of higher density of smaller box elder and cherry along the southern edge of the stand. Box elder is the most prevalent species in the woodlot, representing 36.1% of trees. Black cherry (21.5%) and elm (20.8%) are also major components of the stand; black cherry is co-dominant in the canopy throughout the stand (Fig. 7). Though burr oak and shagbark hickory compose only just over 10% of individual trees, they dominate the overstory of this oak-hickory forest, and include many Specimen and Heritage trees, with several burr oaks measuring over 30 inches dbh. Mulberry, silver maple, hackberry, red pine, aspen and red oak were sampled as minor stand components. Other species (i.e. butternut) may be present in the stand, but were not sampled. Ash is present around the playground and open areas in the southeast portion of the stand.

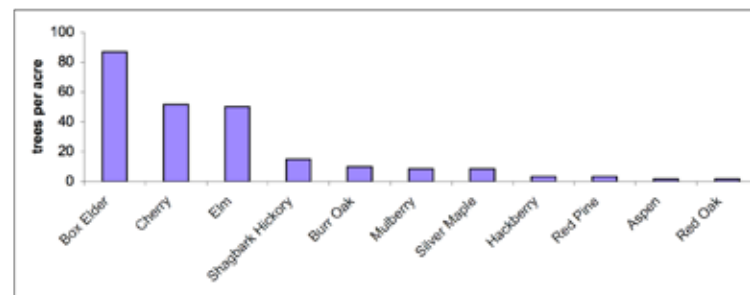


Figure 7: S. Johnson woodlot tree species composition.

The most prevalent size class in the S. Johnson woodlot is at diameter at breast height (dbh) of 2-4 inches, with more than a quarter of all trees, followed by trees with dbh 1-2 inches (14.6%) of trees (Fig. 8). Most of these small trees are box elders, though some are black cherry and notably, shagbark hickory of good form. Trees of dbh between 4-8 inches compose another quarter of the stand; most of these trees are box elder, elm and black cherry. Many Specimen Trees exist in the stand, including potential Heritage Trees among the best of the large burr oaks. Some of these burr oaks appear to be declining, with die back and frost cracks, but many are of high vigor.

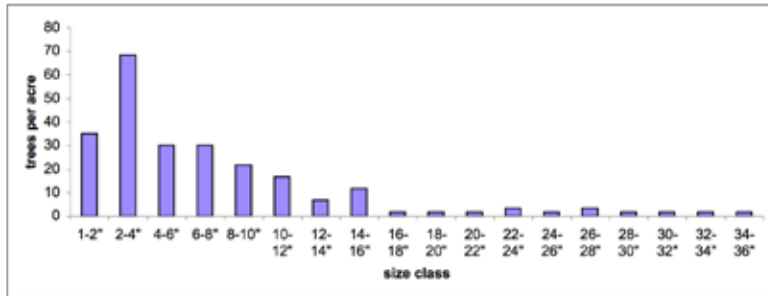


Figure 8: S. Johnson tree diameter at breast height (dbh) distribution

The inventory estimates nearly 8,000 board feet per acre in standing trees, along with 11 cords per acre in lesser quality material. This assessment of utilization potential reflects a stand with some very large trees, especially burr oaks, with merchantable-quality timber. One exceptional burr oak was estimated to contain 900 board feet. Though these trees likely have much greater value as standing trees, merchantability estimates such as this may be used as a baseline for future growth of the stand, even where conventional harvests are not likely to occur.

Vegetation survey – S. Johnson

Within the six sample plots, we observed 11 species: 8 native species and 3 non-native species (Table 4). All of the non-native species observed are considered invasive by the Wisconsin Department of Natural Resources. While en-route to our sample points, we also observed 3 additional native species: two sedges (*Carex sp.*), and mayapple (*Podophyllum peltatum*). We also observed one additional non-native species, European Lily-of-the-Valley (*Convallaria majalis*). This species is considered invasive by the Wisconsin Department of Natural Resources (WDNR 2011).

We observed an average of 4.5 ±0.4 species per sample plot. Garlic mustard (*Alliaria petiolata*) was the most frequently observed species; we found it in 100 percent of the survey plots (Fig. 9). The mean cover of garlic mustard was 44.5 (± 11.5), nearly four times the cover of the most frequently occurring native forb, White Avens (*Geum canadense*), which had an average cover of 10.8 (± 4) percent (Fig. 10). White avens is a common native understory plant in southern Wisconsin (Rodgers et. al. 2008)

Table 4: Summary native, non-native and invasive species sampled

Total species	Native	Non-Native	Invasive
11	8	3	3

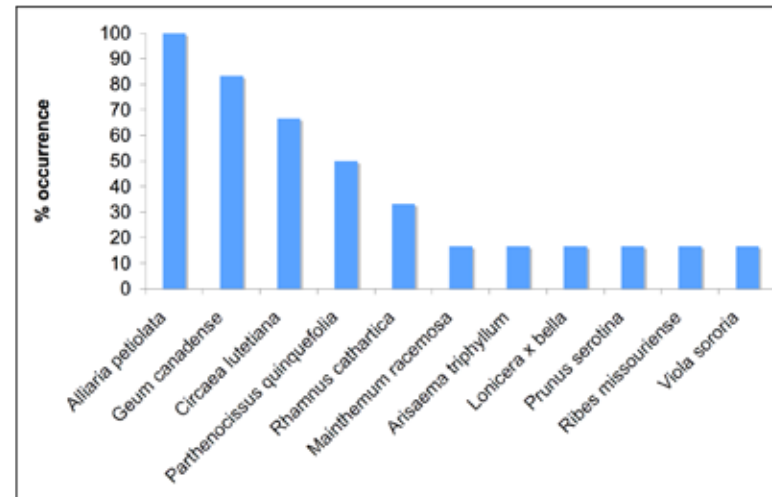


Figure 9: Frequency of occurrence of species sampled in S. Johnson Woodlot, 5/31/2011.

Table 5: List of all vascular flora sampled during S. Johnson tree and vegetation survey, 5/31/11.

Scientific name	Common name	Native	Invasive
<i>Alliaria petiolata</i>	Garlic mustard	n	y
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	y	
<i>Circaea lutetiana</i>	Enchanter's nightshade	y	
<i>Geum canadense</i>	White avens	y	
<i>Lonicera x bella</i>	Honeysuckle	n	y
<i>Mainthemum racemosa</i>	False Solomon's aeal	y	
<i>Parthenocissus quinquefolia</i>	Virginia creeper	y	
<i>Prunus serotina</i>	Black cherry	y	
<i>Rhamnus cathartica</i>	Common buckthorn	n	y
<i>Ribes missouriense</i>	Gooseberry	y	
<i>Viola sororia</i>	Violet	y	



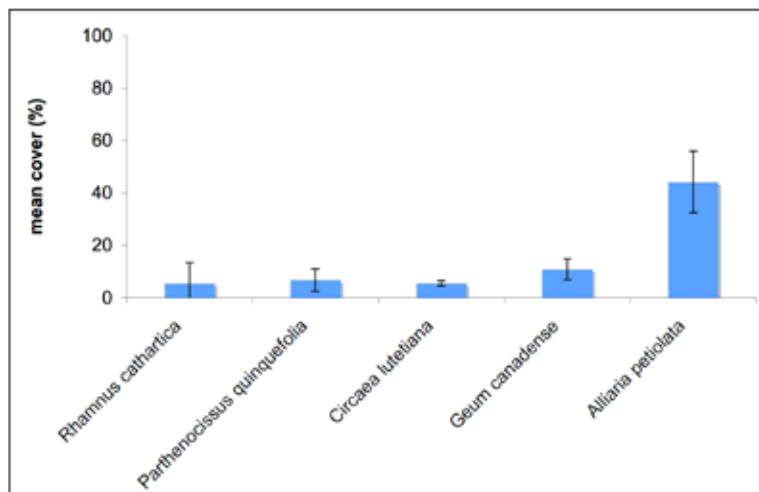


Figure 10: Mean cover of the five most frequently occurring species in S. Johnson woodlot, ± 1 Standard Error (SE).

Discussion:

McGaw Park

The wooded and shrubby areas of McGaw Park are heavily invaded by non-native bush honeysuckle and European buckthorn. Relative to non-invaded woodlots in southern Wisconsin, the park's wooded areas are species-poor. The invasive bush honeysuckle, the most abundant shrub in the park, is shading out the understory, limiting diversity and tree regeneration. Few species can persist below the honeysuckle canopy, and much of this area is occupied by bare soil and mosses. Where canopy gaps are sufficient to support understory vegetation, we observed an abundance of invasive species, including garlic mustard and reed canarygrass.

We expect diversity and abundance of native vegetation will decline at McGaw Park over time. The old field north of the ball fields is being shaded out by the conifers south of the planting, and by honeysuckle invading the area. The planted prairie area northeast of the park entrance is heavily invaded by reed canarygrass and Canada goldenrod.



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S. Johnson woodlot

The S. Johnson woodlot is primarily an oak-hickory overstory, with black cherry and box elder more prevalent along its southern boundary, and a variety of species present along its eastern edge. Despite the presence of large-diameter, mature trees in the overstory, regeneration is hindered by prevalence of buckthorn and garlic mustard throughout the stand, and honeysuckle to a lesser degree. During the inventory, one area in particular provided a window into the future of the stand, absent intervention by mechanical means. Two large shagbark hickories growing together, dbh greater than 20 inches each, had fallen over. In the large canopy gap created by their absences, a much higher density of buckthorn was now thriving, compared to the closed canopy areas surrounding the gap.

Compared to the McGaw Park Woodland, the S. Johnson woodlot was more open and species-poor, with a much lower density of non-native honeysuckle. We attribute the more open understory and lower understory species diversity to a difference in land use history. Based on the dbh of the larger trees, we know the understory of S. Johnson woodlot was much more shady and the soil possibly less disturbed, compared to the McGaw Woodland. This would have slowed the establishment of shrubs and ground layer vegetation.

Without mechanical removal, the persistence of honeysuckle and buckthorn will likely preclude any regeneration of native species, trees and understory alike. Garlic mustard is well established throughout the stand as well, presenting further problems, as this plant creates soil conditions that inhibit establishment of trees and other ground layer vegetation.

References:

Rogers, D. A., T. P. Rooney, D. Olson, D. M. Waller. 2008. Shifts in southern Wisconsin forest canopy and understory richness, composition and heterogeneity. *Ecology* 89(9). 2482-2492.

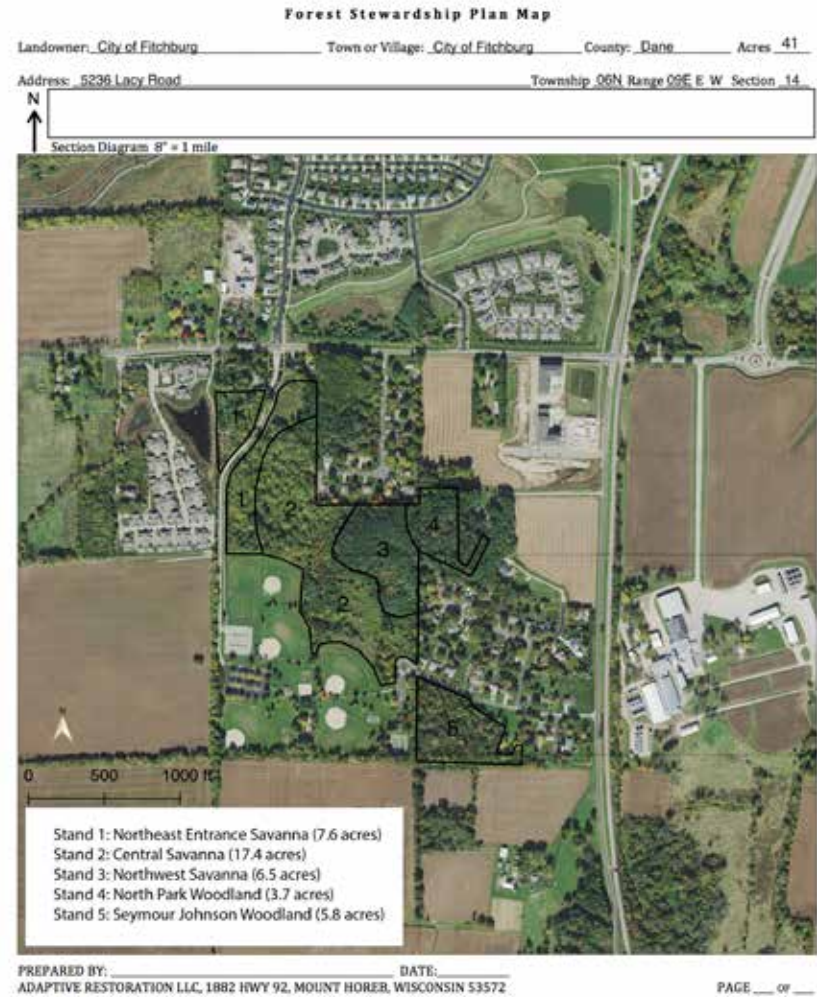
Wisconsin Department of Natural Resources (WDNR). 2011. "Invasive Species: Plants" <http://dnr.wi.gov/invasives/plants.asp>, Accessed May 31, 2011



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APPENDIX III

Forest Stewardship Plan Map



APPENDIX IV

Wisconsin NR40 Invasive Plants List

WISCONSIN CH. NR 40 INVASIVE SPECIES LIST – PLANTS ONLY

EFFECTIVE LISTING DATES: September 1, 2009^A; June 1, 2011^B; and May 1, 2015^C

PROHIBITED CATEGORY:

1. *Achyranthes japonica* (Japanese chaff flower)^C
2. *Akebia quinata* (Fiveleaf akebia or Chocolate vine)^C
3. *Ampelopsis brevipedunculata* (Porcelain berry)^A including the variegated cultivar
4. *Arundo donax* (Giant reed)^C
5. *Azolla pinnata* (Mosquito fern)^C
6. *Berberis vulgaris* (Common barberry)^C
7. *Cabomba caroliniana* (Fanwort, Carolina fanwort)^A
8. *Cardamine impatiens* (Narrow leaf bittercress)^C
9. *Celastrus loeseneri* (Asian loeseneri bittersweet)^C
10. *Centaurea diffusa* (Diffuse knapweed)^C
11. *Centaurea repens* (Russian knapweed)^C
12. *Centaurea solstitialis* (Yellow star thistle)^A
13. *Crassula helmsii* (Australian swamp crop or New Zealand pygmyweed)^A
14. *Cytisus scoparius* (Scotch broom)^A
15. *Digitalis lanata* (Grecian foxglove)^C
16. *Dioscorea batatas* or *Dioscorea polystachya* (Chinese yam)^C
17. *Dioscorea oppositifolia* (Indian yam)^A
18. *Egeria densa* (Brazilian waterweed or wide-leaf anacharis)^A
19. *Eichhornia azurea* (Anchored water hyacinth)^C
20. *Eichhornia crassipes* (Water hyacinth, floating)^C
21. *Fallopia sachalinensis* or *Polygonum sachalinense* (Giant knotweed)^A
22. *Fallopia x bohemicum* or *F. x bohemica* or *Polygonum x bohemicum* (Bohemian knotweed)^C
23. *Glossostigma cleistanthum* (Mudmat)^C
24. *Heracleum mantegazzianum* (Giant hogweed)^A
25. *Hydrilla verticillata* (Hydrilla)^A
26. *Hydrocharis morsus-ranae* (European frogbit)^A
27. *Hydrocotyle ranunculoides* (Floating marsh pennywort)^C
28. *Hygrophila polysperma* (Indian Swampweed)^C
29. *Impatiens glandulifera* (Policeman's helmet)^C
30. *Ipomoea aquatica* (Water spinach, swamp morning-glory)^C
31. *Lagrosiphon major* (Oxygen-weed, African elodea or African waterweed)^A
32. *Lepidium latifolium* (Perennial or broadleaved pepperweed)^A
33. *Lespedeza cuneata* or *Lespedeza sericea* (Sericea or Chinese lespedeza)^A
34. *Limnophila sessiliflora* (Asian marshweed)^C

PROHIBITED/RESTRICTED CATEGORY (restricted in the counties listed; prohibited elsewhere):

1. *Anthriscus sylvestris* (Wild chervil)^A - Adams, Barron, Chippewa, Crawford, Columbia, Dane, Dodge, Dunn, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Lacrosse, Lafayette, Marquette, Milwaukee, Monroe, Ozaukee, Polk, Racine, Richland, Rock, Sauk, Sheboygan, Taylor, Vernon, Walworth, Waukesha, and Washington counties
2. *Bunias orientalis* (Hill mustard)^A - Dane, Grant, Green, Iowa, Lafayette, and Rock counties
3. *Cirsium palustre* (European marsh thistle)^A - Ashland, Bayfield, Chippewa, Clark, Door, Florence, Forest, Iron, Langlade, Lincoln, Marathon, Marinette, Menominee, Oconto, Oneida, Price, Rusk, Sawyer, Shawano, Taylor and Vilas counties
4. *Conium maculatum* (Poison hemlock)^A - Buffalo, Crawford, Dane, Grant, Green, Iowa, Jefferson, Kenosha, La Crosse, Lafayette, Milwaukee, Monroe, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Trempealeau, Vernon, Walworth, and Waukesha counties; prohibited elsewhere
5. *Epilobium hirsutum* (Hairy willow herb)^B - Brown, Calumet, Door, Kenosha, Kewaunee, and Manitowoc counties
6. *Glyceria maxima* (Tall or reed mannagrass)^A - Brown, Calumet, Columbia, Dane, Dodge, Door, Fond du Lac, Green, Jefferson, Kenosha, Kewaunee, Manitowoc, Milwaukee, Milwaukee, Oconto, Ozaukee, Racine, Rock, Sheboygan, Walworth, Washington, Waukesha and Winnebago counties
7. *Humulus japonicus* (Japanese hops)^A - Buffalo, Crawford, Dane, Grant, Green, Iowa, Jackson, La Crosse, Lafayette, Monroe, Pepin, Richland, Sauk, Trempealeau, and Vernon counties; prohibited elsewhere
8. *Leymus arenarius* or *Elymus arenarius* (Lyme grass or sand ryegrass)^A - Door, Kenosha, Kewaunee, Manitowoc, Milwaukee, Ozaukee, Racine, and Sheboygan counties

35. *Lonicera japonica* (Japanese honeysuckle)^A
36. *Lythrum virgatum* (Wanded loosestrife)^C
37. *Microstegium vimineum* (Japanese stilt grass)^A
38. *Myriophyllum aquaticum* (Parrot feather)^A
39. *Najas minor* (Brittle naiad, or lesser, bushy, slender, spiny or minor naiad or watermymph)^A
40. *Nelumbo nucifera* (Sacred Lotus)^C
41. *Nymphoides peltata* (Yellow floating heart)^A
42. *Oenanthe javanica* (Java waterdropwort or Vietnamese parsley)^C
43. *Oplismenus hirtellus* ssp. *undulatifolius* (Wavy leaf basket grass)^C
44. *Ottelia alismoides* (Ducklettuce)^C
45. *Paulownia tomentosa* (Princess tree)^A
46. *Petasites hybridus* (Butterfly dock)^C
47. *Phellodendron amurense* (Amur Cork Tree)^C except male cultivars and seedling rootstock
48. *Pistia stratiotes* (Water lettuce)^C
49. *Polygonum perforatum* or *Persicaria perforata* (Mile-a-minute vine)^A
50. *Pueraria montana* or *P. lobata* (Kudzu)^A
51. *Quercus acutissima* (Sawtooth oak)^A
52. *Ranunculus ficaria* (Lesser celandine)^C
53. *Rubus armeniacus* (Himalayan blackberry)^C
54. *Rubus phoenicalisus* (Wineberry or wine raspberry)^A
55. *Sagittaria sagittifolia* (Hawaiian arrowhead)^C
56. *Salvinia herzogii* (Giant Salvinia)^C
57. *Salvinia molesta* (Giant salvinia)^C
58. *Sorghum halepense* (Johnsongrass)^C
59. *Stratiotes aloides* (Water Soldiers)^C
60. *Taeniatherum caput-medusae* (Medusahead)^C
61. *Toriiis arvensis* (Spreading hedgeparsley)^A
62. *Trapa natans* (Water chestnut)^C
63. *Tussilago farfara* (Colt's foot)^C
64. *Typha domingensis* (Southern cattail)^C
65. *Typha laxmannii* (Graceful cattail)^C
66. *Vincetoxicum rossicum* or *Cynanchum rossicum* (Pale or European swallow-wort)^A
67. *Wisteria floribunda* (Japanese wisteria)^C
68. *Wisteria sinensis* (Chinese wisteria)^C

9. *Linaria dalmatica* (Dalmatian toadflax)^C - Juneau and Bayfield counties
10. *Lonicera maackii* (Amur honeysuckle)^A - Adams, Brown, Buffalo, Calumet, Columbia, Crawford, Dane, Dodge, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Manitowoc, Marquette, Milwaukee, Monroe, Outagamie, Ozaukee, Racine, Richland, Rock, Sauk, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, and Winnebago counties
11. *Phragmites australis* non-native ecotype (Phragmites or Common reed non-native ecotype)^A - Brown, Calumet, Columbia, Dane, Dodge, Door, Florence, Fond du Lac, Forest, Green Lake, Jefferson, Kenosha, Kewaunee, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Oconto, Outagamie, Ozaukee, Portage, Racine, Rock, Shawano, Sheboygan, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties
12. *Solidago sempervirens* (Seaside goldenrod)^C - Kenosha, Milwaukee and Racine counties
13. *Toriiis japonica* (Japanese hedgeparsley or erect hedgeparsley)^A - Adams, Brown, Calumet, Columbia, Crawford, Dane, Dodge, Door, Fond du Lac, Grant, Green, Green Lake, Iowa, Jefferson, Juneau, Kenosha, Kewaunee, La Crosse, Lafayette, Langlade, Manitowoc, Marathon, Marinette, Marquette, Menominee, Milwaukee, Monroe, Oconto, Outagamie, Ozaukee, Portage, Racine, Richland, Rock, Sauk, Shawano, Sheboygan, Vernon, Walworth, Washington, Waukesha, Waupaca, Waushara, and Winnebago counties
14. *Vincetoxicum nigrum* or *Cynanchum louiseae* (Black or Louise's swallow-wort)^A - Columbia, Crawford, Dane, Grant, Green, Iowa, Jefferson, Juneau, Kenosha, La Crosse, Lafayette, Milwaukee, Monroe, Racine, Richland, Rock, Sauk, Vernon, Walworth and Waukesha counties

RESTRICTED CATEGORY:

1. *Acer tataricum* subsp. *ginnala* (Amur maple)^C *except all cultivars
2. *Aegopodium podagraria* (Bishop's goutweed)^C
3. *Ailanthus altissima* (Tree of heaven)^A
4. *Alliaria petiolata* (Garlic mustard)^A
5. *Alnus glutinosa* (Black alder)^C *except all cultivars and hybrids
6. *Artemisia absinthium* (Wormwood)^C
7. *Berberis thunbergii* (Japanese barberry)^C *This restriction only applies to the parent type, the variety *atropurpurea*, the hybrid of *B. thunbergii* x *B. koreana*, and the following cultivars. *Berberis thunbergii* cultivars: Sparkle, 'Anderson' Lustre Green™, Erecta, 'Bailgreen' Jade Carousel®, Angel Wings, Painter's Palette, Inermis ('Thornless'), Pow Wow, Golden Ring, Kellersii, Kobold, 'JN Variegated' Stardust™ and Antares. Variety *atropurpurea* cultivars: Marshall Upright ('Erecta'), Crimson Velvet, 'Bailtwo' Burgundy Carousel®, Red Rocket, 'Monomb' Cherry Bomb™, 'Ballone' Ruby Carousel®, JN Redleaf, Rose Glow and Silver Mile. Hybrid of *B. thunbergii* x *B. koreana* cultivars: Tara and 'Bailse' Golden Carousel®
8. *Butomus umbellatus* (Flowering rush)^A
9. *Campanula rapunculoides* (Creeping bellflower)^A
10. *Caragana arborescens* (Siberian peashrub)^C *except the cultivars *Lurbergii*, *Pendula*, and *Walkerii*
11. *Carduus acanthoides* (Plumeless thistle)^A
12. *Carduus nutans* (Musk thistle or Nodding thistle)^A
13. *Celastrus orbiculatus* (Oriental bittersweet)^A
14. *Centaurea biebersteinii*, *Centaurea maculosa* or *Centaurea stoebe* (Spotted knapweed)^C
15. *Centaurea jacea* (Brown knapweed)^C
16. *Centaurea nigra* (Black knapweed)^C
17. *Centaurea nigrescens* (Tyrol knapweed)^C
18. *Chelidonium majus* (Celandine)^A
19. *Cirsium arvense* (Canada thistle)^A
20. *Coronilla varia* (Crown vetch)^C
21. *Cynoglossum officinale* (Hound's tongue)^A
22. *Dipsacus laciniatus* (Cut-leaved teasel)^A
23. *Dipsacus sylvestris* or *Dipsacus fullonum* (Common teasel)^A
24. *Elaeagnus angustifolia* (Russian olive)^A
25. *Elaeagnus umbellata* (Autumn olive)^A
26. *Epipactis helleborine* (Helleborine orchid)^A
27. *Euonymus alatus* (Burning bush)^C *including the cultivar 'Nordine' and excluding all other cultivars
28. *Euphorbia cyparissias* (Cypress spurge)^A
29. *Euphorbia esula* (Leafy spurge)^A
30. *Fallopia japonica* or *Polygonum cuspidatum* (Japanese knotweed)^A
31. *Filipendula ulmaria* (Queen of the meadow)^C
32. *Galeopsis tetrahit* (Hemp nettle, brittlestem hemp nettle)^A
33. *Galium mollugo* (White bedstraw)^C
34. *Hesperis matronalis* (Dame's rocket)^A
35. *Impatiens balfourii* (Balfour's touch-me-not)^C
36. *Iris pseudacorus* (Yellow iris)^C
37. *Knautia arvensis* (Field scabiosa)^A
38. *Lonicera marrowii* (Morrow's honeysuckle)^A
39. *Lonicera tatarica* (Tartarian honeysuckle)^A
40. *Lonicera x bella* (Bell's or showy bush honeysuckle)^A
41. *Lysimachia nummularia* or *L. nummularia* (Moneywort)^C *except the cultivar *Aurea* and yellow and gold leaf forms
42. *Lysimachia vulgaris* (Garden yellow loosestrife)^C
43. *Lythrum salicaria* (Purple loosestrife)^A
44. *Morus alba* (White mulberry)^C *except male cultivars
45. *Myosotis scorpioides* (Aquatic forget-me-not)^C
46. *Myosotis sylvatica* or *M. sylvaticum* (Woodland forget-me-not)^C
47. *Myriophyllum spicatum* (Eurasian watermilfoil)^A
48. *Najas marina* (Spiny naiad)^C
49. *Pastinaca sativa* (Wild parsnip)^A *except for the garden vegetable form
50. *Phalaris arundinacea* var. *picta* (ribbon grass or gardener's garters and other ornamental variegated varieties and cultivars)^C *this restriction does not include the parent type - reed canary grass.
51. *Pimpinella saxifraga* (Scarlet pimpernel or Burnet saxifrage)^C
52. *Populus alba* (White poplar)^C
53. *Potamogeton crispus* (Curly-leaf pondweed)^A
54. *Rhamnus cathartica* (Common buckthorn)^A
55. *Rhamnus frangula* or *Frangula alnus* (Glossy buckthorn)^A *including the *Columnaris* (tall hedge) cultivar but excluding the cultivars *Asplenifolia* and *Fineline* (Ron Williams)
56. *Robinia hispida* (Rose acacia or Bristly locust)^C
57. *Robinia pseudoacacia* (Black locust)^C *except all cultivars
58. *Rosa multiflora* (Multiflora rose)^C
59. *Tanacetum vulgare* (Tansy)^C *except the cultivars *Aureum* and *Crispum*
60. *Typha angustifolia* (Narrow-leaf cattail)^A
61. *Typha x glauca* (Hybrid cattail)^A
62. *Ulmus pumila* (Siberian elm)^C *except hybrids and individuals used as rootstock
63. *Valeriana officinalis* (Garden heliotrope or Valerian)^C

Phase-out: Restricted only plants located in Wisconsin prior to their effective listing date may be transported, transferred, and introduced without a permit for a period not to exceed 3 years for herbaceous plants and woody vines, or 5 years for trees and shrubs, from their effective listing date (effective May 1, 2015).



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