

Final Report

Natural Resource Inventory

Project: 000438-07002-0

City of Ramsey

September 28, 2007

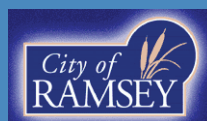


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Executive Summary

The city of Ramsey is a vibrant small town located at the confluence of the Mississippi and Rum Rivers, in southern Anoka County. The scenic environment, proximity to the urban centers of Minneapolis and St Paul, and location along Highway 10 are contributing to strong growth pressures in the city. In an effort to plan effectively for natural resources, the city requires accurate information about the type and quality of open space and natural areas within the city.

The Anoka Conservation District (ACD) completed Minnesota Land Cover Classification System (MLCCS) mapping of Anoka County in 2001, using aerial photos and a very limited field review. In spring of 2007 the city retained Bonestroo to update and field verify the MLCCS data for natural areas and other open space as part of the Natural Resource Inventory (NRI). Property owners were notified by letter and postcard about the NRI, and in May, over 60 residents attended an informational public open house about the project.

Field work began in late May and was largely complete by mid-July of 2007. Nearly 3,710 acres of natural areas were documented. These represent a variety of distinct natural community types including forest, woodland, shrubland, herbaceous wetlands, and grasslands, as well as areas of open water (lakes and ponds). The most common upland cover type in Ramsey is oak forest and oak woodland/brushland (941 combined acres) while the most common lowland cover type is cattail marsh (874 acres). The most unique plant communities identified during the NRI include a poor fen site and a mesic oak savannah site (1.3 acres and 0.8 acres respectively).

Forty-nine sites met the high standards necessary to be mapped as exceptional or high quality, meaning that the sites had little or no evidence of past disturbance, or had largely recovered from the effects of past disturbance. One hundred eighty sites were mapped as moderate quality, indicating moderate past or current disturbance, and 19 sites mapped as low quality, or marginal.

Natural areas are concentrated along the corridors defined by Trott Brook and its tributaries. Other natural areas can be found around the lakes, along the rivers, and in scattered locations around the city. These areas form the backbone of a proposed greenway/open space corridor through the city.

Recommendations include a process for refining the greenway corridor, possible tools and strategies for use of the data in the city's planning process and ordinance, and some possible ideas for funding implementation of the NRI. In addition, the NRI provides some general guidelines and information for management of the natural areas within the city.

Background and Introduction

Ramsey is a vibrant small-town community located near the convergence of the scenic Rum and Mississippi Rivers, about 40 minutes north of the urban center of Minneapolis. (See map on following page)

The city and surrounding area host a range of desirable natural features, including the Mississippi River, Rum River, and Trott Brook, quality natural communities, and rare plants and animals. These areas provide opportunity for hiking, biking and canoeing, and contribute to the scenic character of the landscape that makes Ramsey an attractive place to live.

Ramsey is facing a steady increase in growth and development pressures as a result of its proximity to the Twin Cities and its location along the Highway 10 corridor. The city recognizes the pressure that this growth will place on its natural resources, and, in response, as part of the comprehensive plan update project in progress, is moving proactively to develop planning policies that will balance growth with natural resource protection.

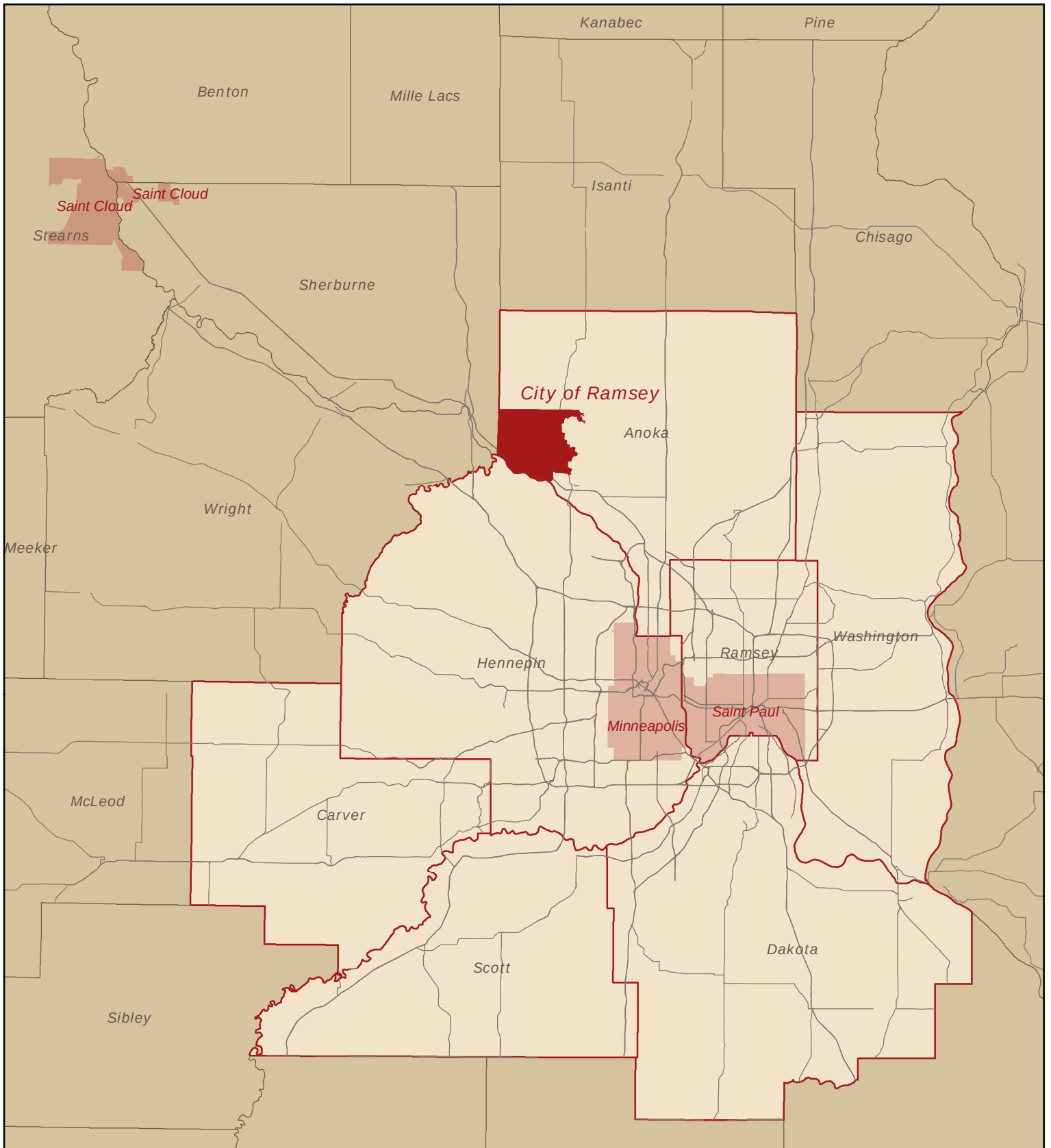
In order to successfully incorporate natural areas into the planning process, the city needs a good, science-based inventory on the location and type of existing resources. This inventory will form the technical foundation for land use planning efforts and will guide future policy decisions.

Existing natural resource information is available to the city through local studies including the recently completed wetland inventory, the Anoka Conservation District Minnesota Land Cover Classification System (MLCCS) mapping effort completed circa 2000-2001, Minnesota DNR County Biological Survey assessments, and various federal agencies. However, with the exception of some of the data from the wetland inventory, nearly all of these data sets are outdated, and many were based on an aerial photo analysis and have not been field verified. The city has a strong desire to base its planning decisions on accurate information. To accomplish this, in spring of 2007 the city retained Bonestroo to field verify the non-developed areas of the city and update the MLCCS with current data.

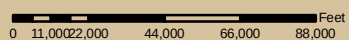
Goals and Objectives of the Inventory

The Goals and Objectives for this project were to:

- Identify and inventory significant natural areas, and gather on-the-ground data where access was available.
- Use a proven natural community classification and qualitative ranking methodology to evaluate natural communities.



City of Ramsey
Natural Resource Inventory
Project Location Map



Legend

- Metro Highways
- Project Location
- 7 County Metro Area
- County Boundary



- Field verify the existing land cover mapping of natural areas using the Minnesota Land Cover Classification System (MLCCS)
- Locate and complete a field evaluation of Natural areas
- Identify:
 - o Open space with public value
 - o Natural areas with restoration potential
 - o Potential/suitable greenway corridors
- Rank and prioritize sites for possible public acquisition, conservation easements, land banking, or similar measures.
- Guide policy development
- Enable protection, connection and restoration of important natural areas
- Provide information for parks, open space, trails, and greenway planning

Within most communities there is a strong interest on the part of citizens to maintain a high quality of life. The preservation of natural communities and open spaces is often an important component of this goal. Such areas provide opportunities for active and passive recreation, wildlife habitat, scenic vistas and buffers between developed areas, and can serve as landmarks or distinguishing features for the local community. It has also been shown that property values increase in close proximity to natural open spaces, and that effective planning for natural resources can benefit all parties.

Urban growth is also important to the well being of many communities; however, where growth occurs in environmentally sensitive areas, the potential to negatively impact wildlife, forest, soils and water resources is high. The Ramsey natural resource inventory will serve as a tool to effectively manage and protect natural resources while allowing growth to occur, and will help the city prioritize where to make investments in its natural resources. Completion of this NRI may also be advantageous to the city when applying for grants and other funds for management and protection of natural resources, as available grants often prioritize projects and planning efforts that are based on a natural resources inventory or similar data.

A Brief Look at the Natural History of the Study Area

The particular resource elements present in any area and their patterns in the landscape are the result of historical processes, including climate, hydrology, plant and animal migrations and interactions, and human decisions and activities. This section very briefly describes the role these interactions have played in determining the present day composition of natural communities and landscapes in the area.

Bedrock Geology and Glacial Landscapes

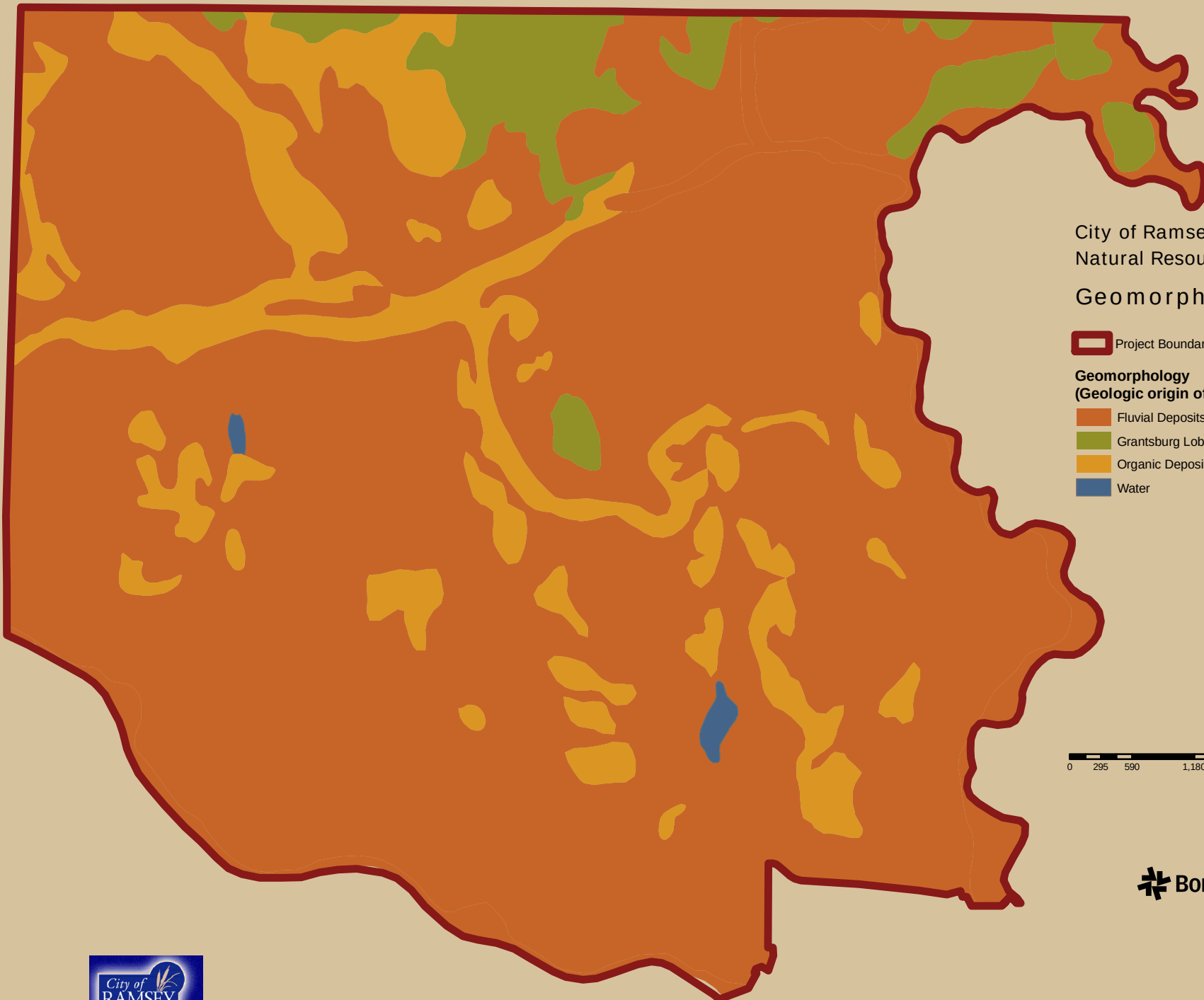
The majority of the region is mantled by debris left by glaciers and glacial rivers; beneath this, the bedrock that is closest to the surface in Ramsey is of the Cambrian System, which is some 500-600 million years old.

The topography of the area was most heavily influenced by the last period of glaciation (the "Wisconsin Stage"), which ended in east-central Minnesota about 10,000 years ago. During this event, glaciers sculpted the landscape and left behind a variety of deposits, including drift/till and outwash composed of sand and gravel, and windblown deposits of very fine sands. During the last glaciation, the Superior Lobe ice sheet advanced into the region from the east, and finally retreated about 20,000 years ago. With each advance and retreat, the melting ice sheet deposited immense piles of sand and gravel along its margins, and massive rivers of glacial meltwater carried additional sand and sediment across the area. These riverine, or fluvial, deposits cover much of the city.

In the northern-central region of the city, deposits from the Superior Lobe are covered by those of the Grantsburg sublobe of the Des Moines Lobe glacier. The Des Moines Lobe entered the area from the northwest, giving rise to the Grantsburg Sublobe that moved to the northeast, through the Twin Cities and into western Wisconsin. The Des Moines Lobe left a variety of deposits, including rugged terrain from till, outwash, and more subtle terrain from lake deposited sands. (See map on the following page)

After the glaciers

Immediately after the glaciers melted, spruce trees and tundra colonized the periglacial environment. This was later followed by pine barrens and mixed boreal forests with a bracken fern-dominated ground layer. As the climate of the region warmed dramatically about 9,000 years ago, pines began to decline, and prairie expanded into the region, along with elm and oak forests. The climate remained in this warm period until about 7,000 years ago, when midgrass prairie reached its maximum extent in Minnesota, and covered the southwest half of the state.



City of Ramsey
Natural Resource Inventory
Geomorphology

 Project Boundary

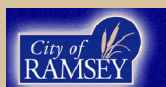
**Geomorphology
(Geologic origin of landform)**

-  Fluvial Deposits
-  Grantsburg Lobe
-  Organic Deposits
-  Water



0 295 590 1,180 1,770 2,360 Meters

 **Bonestroo**



September, 2007

I:\438\43807002\GIS\avprojects\Geology.mxd

Prairie, oak woodlands and brushlands, and oak savanna-- consisting of scattered trees with a prairie-like ground cover--dominated the Region until about 4,000 years ago, when the climate gradually became cooler and moister. Oak thickets spread, and oak woodlands came to dominate some upland areas, interspersed with tall grass and wet prairies. White pines also migrated to just northeast of Anoka County as the climate cooled. About 300 years ago, the climate became especially moist and cool, and fires became less frequent. As a result, extensive forests of elm, sugar maple, and basswood (known as the Big Woods) developed in eastern Minnesota. With this, the major patterns of vegetation in the area at the time of European settlement were in place.

Influence of Landform and Climate on Vegetation Types

Plant communities that exist in any given area are the result of numerous biological and physical factors. These work in concert to influence plant communities in subtle ways, and sometimes in dramatic and immediate ways such as drought, or a tornado. Biological factors include such varied things as the presence or absence of pollinators, burrowing activities, herbivory, or over utilization of an area by a single species or number of species.

Of the physical factors, two have a consistently strong influence in the shaping of plant communities. These are climate and landform. The climate in east-central Minnesota is considered to be continental and subhumid, with long, cold winters and relatively brief, warm summers. Wide fluctuations in temperature and precipitation strongly influence the plant communities present in the region and cause plants to be adapted to extremes, rather than averages.

Landforms also have a profound impact on the type of plant communities found in any area. As discussed, the landforms of the area are primarily glacial in origin. Direct glacial modification of the landscape, such as the deposition of till and moraine, and the influence of periglacial processes such as outwash, have formed the vast majority of the landforms in this region. Most of the deposited materials associated directly with glaciers, such as till and moraine are unsorted. These consist of mixed materials which range in size from clay and fine sand to large boulders. Overall, the materials deposited in the City tend to form well-drained to very well-drained landscapes with sands and gravels common.

In addition to the influences of climate and landform, landscape position also has a profound impact on the type of plant communities supported. Slope steepness, position, and aspect (direction a slope faces) all strongly influence the plant species that can occur in an area. Slope aspect plays a significant role since it can

exaggerate the influence of the sun; the amount of water plants lose through their leaves on south- and southwest-facing slopes makes these areas more hospitable to prairie or dry oak communities. North-facing slopes tend to be moister and have a tendency to be occupied by woodlands/forests.

Pre-Historic Influence of Humans on the Landscape

Ideas about the history of Native Americans and their influence on the local landscape are still evolving. Native Americans have probably inhabited and hunted in the area for over 10,000 years. While their impacts were not as great as those of European settlers, Native Americans used a wide variety of plants and animals for food, and altered vegetation patterns for cultivation and by setting fire to broad expanses of landscape. Native Americans (and European fur traders) used fire to hunt game; create desired habitat; clear the landscape for travel, communication and defense; and obtain firewood. While some fires in the region would have occurred naturally, the activities of Native Americans undoubtedly accounted for the vast majority of fires. Prairies, savannas, and oak forests are fire-dependent plant communities, and would most likely not have been present in the Twin Cities Area at the time of European settlement without these fires.

Vegetation at the Time of Settlement

According to the original land survey notes (compiled in Minnesota between 1850's and 1900's), the presettlement vegetation of southwestern Anoka County was comprised primarily of oak savanna and oak woodland. There were areas of floodplain forest along the Rum and Mississippi Rivers, a large swath of prairie in the south-central to south-west portion of the city, and scattered areas of wet prairie and tamarack swamp in the remainder of the city. A map illustrating the vegetation at the time of European settlement is shown on the following page.

Post-Settlement Influences on the Landscape

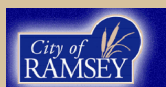
As the City developed, increasingly intense human activities began to change the landscape and natural communities. In the city of Ramsey today, approximately 80-90% percent of the native landscape has been substantially impacted by human activities. Examples of changes since European settlement include the following:

- Roads and the railroads began to fragment forests and other communities.
- Agriculture affected hydrology by draining wetlands and altering creeks. Vegetation was altered through clearing, plowing, cessation of regular fires, and grazing. These effects are evident in the reduction of native vegetation diversity in meadow and forest understory and substitution of

City of Ramsey
Natural Resource Inventory
Vegetation at the
Time of Settlement

-  Municipal Boundary
- Plant Community**
-  Aspen-Oak Land
 -  Big Woods (Hardwood Forest)
 -  Conifer Bogs and Swamps
 -  Oak openings and barrens
 -  Prairie
 -  River Bottom Forest
 -  Wet Prairie

0 900 1,800 3,600 5,400 7,200 Feet



communities of low diversity dominated by non-native plants. Soil erosion increased where native cover was removed, adding sediments to creeks, wetlands and lakes.

- Urbanization continues to fragment natural communities further with the addition of more roads, streets and utilities. Construction of all types alters and compacts soils, and changes the local hydrology. Large areas of impervious surface and drainage of wetlands increases the amount of stormwater runoff and pollutants carried to local waters.
- Non-native, aggressive species like European buckthorn have been added as landscape materials. Changes in habitat and the increasing presence of humans in the landscape has brought changes in animal populations, decreasing or eliminating some species like bluebirds and bison, and favoring others such as English sparrows and white-tail deer.
- Specialized uses such as the closed landfill also have the potential to influence the surrounding area and land use.

Project Methodology

This Land Cover Classification and Natural Areas Inventory project was conducted for all natural and semi-natural areas within the approximately 30 square mile boundary of the city. A brief summary of the methodology is provided below.

Gather and Review Background Information

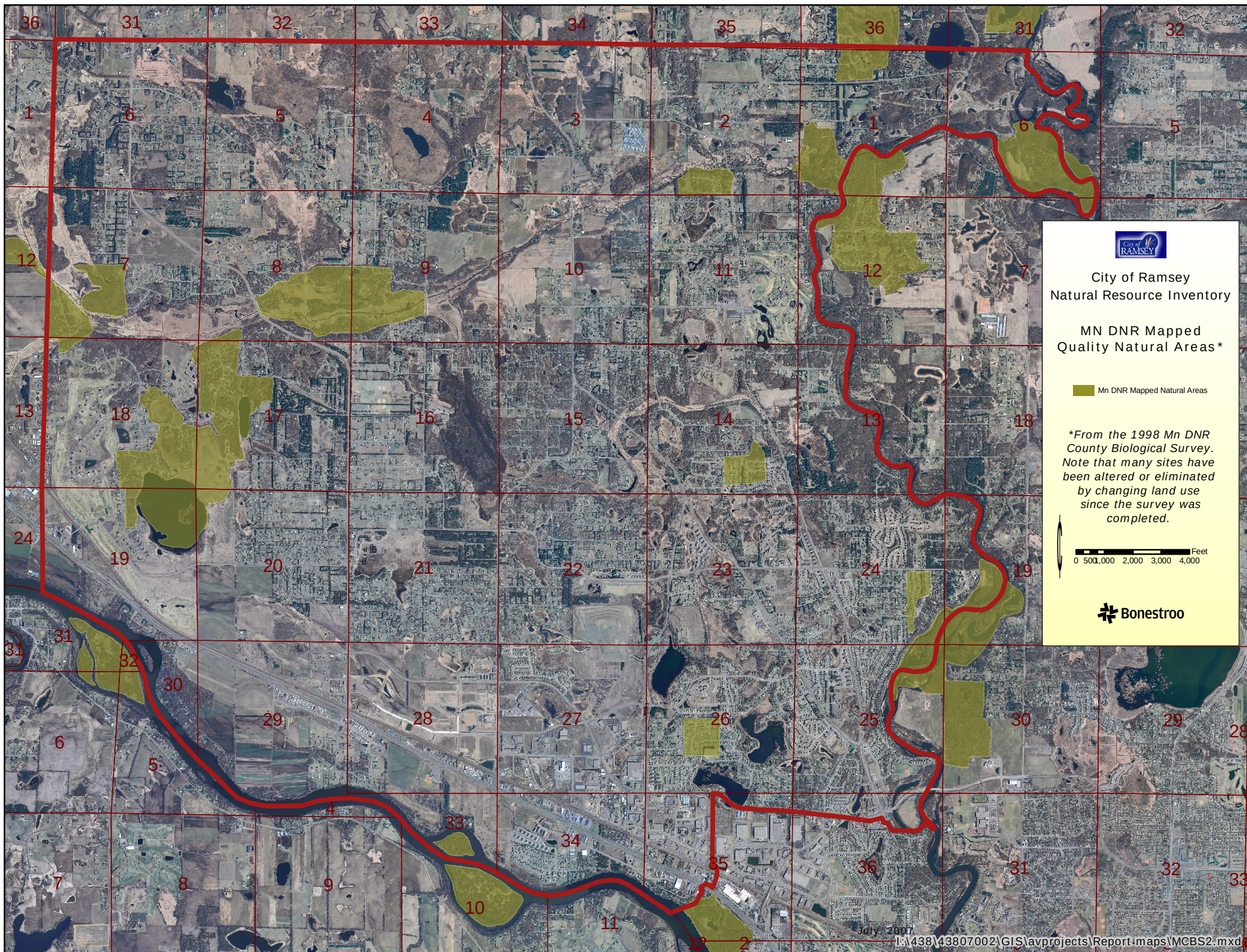
To provide a more detailed understanding of the study area, ecologists working on the project collected and reviewed available information on natural resources. This included information about vegetation at the time of European Settlement, biological survey information for Anoka County, wetland and water resource information, information about existing corridors, and the Anoka County soil survey.

Minnesota County Biological Survey

The Minnesota County Biological Survey (MCBS) conducted an inventory of select remaining natural communities within Anoka County (MCBS, 1998). Although much of the remnant natural vegetation within the City of Ramsey was reviewed through aerial photography and cursory ground surveys, a small subset of these remnants were of high enough quality to be surveyed in detail and included in the county biological survey. Other remnants were either too degraded or too small in size to be included in the survey. These communities are shown on the following page. A list of the native plant communities and rare species noted by the DNR during their inventory is included in Appendix B.

Minnesota Land Cover Classification System (MLCCS)

Staff ecologists reviewed the existing MLCCS data completed by Anoka Conservation District to both identify the location of natural communities, and to evaluate the quality of the data. The existing MLCCS data was compiled almost entirely via aerial photo analysis and had not been field verified. As a result, critical planning information about natural area type and quality was not available. Natural and semi-natural areas within the MLCCS layer were compared to aerial photos for a preliminary verification of cover type, and were then plotted on the base maps for field confirmation.

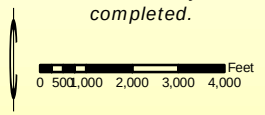


City of Ramsey
Natural Resource Inventory

MN DNR Mapped
Quality Natural Areas*

 Mn DNR Mapped Natural Areas

**From the 1998 Mn DNR
County Biological Survey.
Note that many sites have
been altered or eliminated
by changing land use
since the survey was
completed.*



July 2007

Minnesota Routine Assessment Method (MnRAM) Wetland Inventory

Information from the city's 2006 wetland inventory was also reviewed and compared to the MLCCS information. In an effort to avoid duplicating work completed by the city's consultant during the wetland inventory, in general, wetlands assessed during that process were not re-evaluated during the NRI; the wetland inventory contains information about the type and quality of wetlands for the sites evaluated during that process. Wetlands which were not field reviewed during the wetland inventory and which met the minimum mapping unit threshold for the MLCCS/NRI project were included on the base maps and selected for field review. Wetlands below the minimum mapping standard were not assessed. Minimum mapping units under MLCCS standards are 1.25 acres for natural communities and 2.5 acres for semi-natural communities.

Preparation of Field Base Maps

After review of the MLCCS and MnRAM information, project ecologists plotted 2005 Farm Services Administration (FSA) true-color low altitude aerial photographs for each section (square mile). These were printed at a scale of 1" = 200'. Available electronic data layers such as the National Wetlands Inventory, the Anoka County Soil Survey, geopolitical boundaries, parcel boundaries, transportation information, and DNR Natural Heritage (MCBS) data were also printed on these plotted photos to assist in the field review. In addition, 2005 MN DNR 1:15,840 scale, color infrared aerial photographs were used as an aid to remotely sense vegetation type and natural community structure. MLCCS data for natural and semi-natural areas, as well as information from the wetland inventory, was also included on the base maps.

Landowner Notification

Information about the location of natural areas was used to identify parcels where field review by a plant ecologist was appropriate. City staff sent each of these landowners a letter in the spring of 2007 to provide information about the project and request access to the property. An additional postcard was also mailed to landowners, to clarify that they had the right to deny access to their property. A copy of these items is included in Appendix B.

Field Inventory

Field inventory work and land cover classification took place between late May and late July of 2007. Where property access was not available, sites were viewed from nearby roads or adjacent properties where access was permitted. In many cases, natural communities crossed multiple properties and partial access to a site could still be obtained. In others, no access was available, and terrain or other factors may have prevented viewing the site. During the field review, a 5-digit MLCCS code was assigned to the natural and semi-natural

areas. Other pertinent data was also recorded including notations using MLCCS Modifiers and Field Check Levels (see below).

The field survey also included identification of dominant plant species within a given natural community. Intensity of inventory effort was related to the overall quality of an area. In general, good quality natural communities were more thoroughly inventoried and more extensive searches conducted for uncommon or rare species. The field inventory emphasized gathering data on the composition, structure and function of natural communities, including disturbance indicators such as exotic species and erosion. This information provides a solid starting point for assessing the current condition of the community and can be used to develop management recommendations.

Land Cover Classification

MLCCS Background

The Minnesota Land Cover Classification System Version 5.4 was used to classify land cover within the city. A brief explanation of the method and its application to this project is provided below. *The complete 273 page MLCCS Manual can be viewed/downloaded on the MN DNR web site at the following address:* <http://www.dnr.state.mn.us/mlccs/index.html>.

MLCCS has a five-level hierarchical system of land cover codes to describe natural, semi-natural, and cultural land cover types. Natural land cover types include areas such as forests, prairies, wetlands, shrublands, and other similar areas. Semi-natural areas are those dominated by nonnative plant species, but are not actively planted/maintained by humans through activities such as mowing/cutting. Cultural land cover types are areas that can be thought of as developed or substantially impacted by humans. These typically include paved (impervious) areas, agricultural fields, pastures and frequently manipulated grasslands, quarries, and others. The Ramsey inventory focused on natural and semi-natural areas for land cover mapping.

Progression through each of the five levels of the system represents an increased level of detail in land cover classification. In this framework, Level 1 is the least detailed and Level 5 is the most detailed. For the purposes of this project, all natural and semi-natural areas within the city were classified to the greatest level of detail practical (typically, Level 4 or Level 5).

MLCCS Modifier Codes

Several 'classes' of MLCCS modifiers were assessed in the field while conducting the land cover classification of Ramsey. These modifiers were assessed based on the methodology and definitions provided in the MLCCS training manual. Once assessed, the modifier values were entered into the GIS database for each land cover polygon. Below is a brief summary of the most commonly used MLCCS modifiers for this project.

Natural Community Quality Modifier (M_34x)

The M_34x modifier was developed as part of MLCCS methodology as a cursory method to assess the general natural quality of natural community and semi-natural land cover types. This modifier has four general categories. The assessment method is based on general ecological variables, and is applied in the same manner for all natural community types. The following is the description of the M_34x modifier from the MLCCS training manual:

34X - Modifiers for natural community quality ranking.

The natural plant community sites can be given a natural quality ranking, based on the DNR's Natural Heritage's Element Occurrence Ranking Guidelines* (EOR). See "[Natural Community Modifiers](#)" for a discussion of the Element Occurrence Ranking Guidelines.

Refer to the EOR Guidelines to evaluate the specific natural communities. Non-native, altered and disturbed communities should only be given a non-native ranking (NN or NA). Valid codes and general definitions for modifier m_34X are:

- **A** = highest quality natural community, no disturbances and natural processes intact. Site must be visited entirely or partially to accurately assess its natural quality at this level (fld_level = 3 or 4). Modifier code = 341
- **B** = good quality natural community. Has its natural processes intact, but shows signs of past human impacts. Low levels of exotics. Site must be visited entirely or partially to accurately assess its natural quality at this level (fld_level = 3 or 4). Modifier code = 342
- **C** = moderate condition natural community with obvious past disturbance but is still clearly recognizable as a native community. Not dominated by weedy species in any layer. Minimally, the site must be visited from the edge to accurately assess its natural quality at this level (fld_level = 2, 3 or 4). Modifier code = 343
- **D** = poor condition of a natural community. Includes some natives, but is dominated by non-natives and/or is widely disturbed and altered. Herbaceous communities may be assessed with this ranking from a distance

* http://files.dnr.state.mn.us/ecological_services/nhnrp/eoranks2001.pdf/eoranks2001.pdf

(fld_level = 1) if large masses of invasive species are present and the entire community is visible. Modifier code = 344

- **NA** = Native species present in an altered / non-native plant community. This NA ranking can only be used if the site is field checked from the edge or to a greater degree (fld_level 2, 3, or 4), thus confirming the presence of native species within a non-native community. Modifier code = 345
- **NN** = Altered / non-native plant community. These semi-natural communities do not qualify for natural quality ranking. Using NN signifies the site has been field checked and confirms it is a semi-natural community. Modifier code = 346

Invasive Species Modifiers (M_4xx)

The M_4xx modifiers represent invasive plant species occurring within land cover polygons. For the purpose of this project, the percent cover of each species of interest was estimated. These species are important to have information about due to their invasive nature and potential threats to native plant communities and biological diversity of native habitats. The cover classes used to assess invasive species aerial cover (i.e. as viewed from above) is a follows:

Cover Class/Estimated Percent Cover for Invasive Species

Cover Class	Description
0	Unknown, or if field checked, plants not observed
1	Observed, unknown quantity
2	1 – 5% Coverage
3	6 – 25% Coverage
4	26 – 50% Coverage
5	51 – 75% Coverage
6	76 – 100% Coverage

The following is a list of invasive plant species modifier numbers. Where these may have been encountered, they were recorded for aerial coverage within land cover polygons:

- 400 - Overgrown prairie/savanna
- 401 - Overgrown woodland
- 402 - Purple loosestrife
- 403 – Eurasian watermilfoil

- 404 – Curly-leafed pondweed
- 405 – Flowering rush
- 406 - Narrow-leaf cattail
- 407 - Crown vetch
- 408 – Common and glossy buckthorn
- 409 - Leafy spurge
- 410 - Tartarian honey suckle
- 411 – Garlic mustard
- 412 - Reed canary grass
- 413 - Smooth brome
- 414 - Spotted knapweed
- 415 – Exotic thistle
- 416 - Siberian elm
- 417 – Phragmites
- 418 – Grecian foxglove
- 419 - Amur maple
- 420 - Black locust
- 421 – Absinthe sage
- 422 – Dames rocket
- 499 – Other

Field-Check Level

A field-check level modifier was assigned to appropriate areas. The field-check level indicates the degree to which an individual polygon was checked in the field during the land cover assessment. Where access was permitted, most of the natural area polygons within this project were visited wholly/partially or viewed from edge. The following is a list of field check modifier values and their associated description:

- 0 = site not visited
- 1 = viewed the site from a distance

Was not able to walk to the site, but was able to discern the dominant vegetation. Masses of invasive species may be visible, and thus were recorded (buckthorn, reed canary grass, crown vetch, etc). Depending on the perceived quantity of invasive species, a natural quality ranking of D may or may not be discernable.

- 2 = visited the edge of the site
Walked or drove to the edge of the site, and was able to inventory some invasive species and speculate on its natural quality. Depending on the perceived quantity of invasive species, a natural quality ranking of C or D may or may not be discernable.
- 3 = visited part of the site
walked into the site and was able to confidently inventory most invasive species present and assess its natural quality - A, B, C or D. Wetlands that are inventoried from the edges in several places should be given this field check level.
- 4 = visited the entire site
Was able to inventory all invasive species present and assess the site's natural quality - A, B, C or D.

Other Modifier Codes that were applied, where possible:

- 247 - Trails
- 6XX series – Forestry modifiers
- 72X series - Water modifiers, Built features
- 73X series - Water modifiers, Wetland features
- 74X series - Water modifiers, Stream features
- 75X series - Water modifiers, Spring feature

Search for Rare Plant Species

Where natural areas occur, particularly those of better quality, there is the potential for the occurrence of rare species. Recognizing this, the plant ecologists from Bonestroo who conducted field inventory work made an effort to search habitats that had a high likelihood of supporting rare plants.

It is also important to note that although plant ecologists searched areas that appeared likely to host rare plants, limited property access, and one-time visit to the natural areas in the city means that some rare plant populations have likely gone undocumented.

Below is a list organized by habitat type of potential rare plant species that were not seen during the inventory, but are thought to have the potential to occur within the remaining plant community remnants in the city.

It is important to note that while this list is provided as a reference, it is not all-inclusive of rare species that have the potential to be encountered in the city. Likewise, some rare/highly uncommon plants tend to be found in special kinds of transitional habitats that may appear to be disturbed. For instance, lily-leaved twayblade orchid tends to be found in dry woodland edges that have been recently colonized by brush, and may have formerly been old fields dominated by non-native, cool season pasture grasses.

Those species that are rare but capable of colonizing some types of disturbed areas should also be taken into account when considering whether an additional search is warranted. We recommend consulting with an experienced plant ecologist when considering whether an additional search is warranted in natural/semi-natural areas where a land use change, such as development, is pending.

Oak Forest:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Minnesota Status</u>
Handsome sedge	<i>Carex formosa</i>	Endangered
Plantain-leaved sedge	<i>Carex plantaginea</i>	Endangered
Big tick-trefoil	<i>Desmodium cuspidatum</i>	Special Concern
Stemless tick-trefoil	<i>Desmodium nudiflorum</i>	Special Concern
Goldie's fern	<i>Dryopteris goldiana</i>	Special Concern
One-flowered broomrape	<i>Orobanche uniflora</i>	Special Concern
Wild Panax	<i>Panax quinquefolia</i>	Special Concern

Oak Savanna and Prairie:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Minnesota Status</u>
Old field toadflax	<i>Linaria canadensis</i>	Non-listed, but tracked
Field sedge	<i>Carex conoidea</i>	Non-listed, but tracked
Hill's thistle	<i>Cirsium hillii</i>	Special Concern
Long-bearded hawkweed	<i>Hieracium longipilum</i>	Non-listed, but tracked

Wet Meadow:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Minnesota Status</u>
Marginated rush	<i>Juncus marginatus</i>	Special Concern
Small white lady's slipper	<i>Cypripedium candidum</i>	Special Concern

Club-spur orchid	<i>Platanthera clavellata</i>	Endangered
Cross-leaved milkwort	<i>Polygala cruciata</i>	Endangered
Tall nut rush	<i>Scleria triglomerata</i>	Endangered
Lance leaved violet	<i>Viola lanceolata</i>	Threatened
Twisted yellow-eyed grass	<i>Xyris torta</i>	Endangered

Rich and Poor Fen:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Minnesota Status</u>
Water willow	<i>Decodon verticillatus</i>	Special Concern

Mixed Emergent Marsh:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Minnesota Status</u>
Water willow	<i>Decodon verticillatus</i>	Special Concern
Walter's barnyard grass	<i>Echinochloa walteri</i>	Tracked by DNR (Non-listed)

Cattail Marsh:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Minnesota Status</u>
Water willow	<i>Decodon verticillatus</i>	Special Concern

Lowland Hardwood Forest:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Minnesota Status</u>
Handsome sedge	<i>Carex formosa</i>	Endangered
Snow trillium	<i>Trillium nivale</i>	Special Concern

Tamarack Swamp:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Minnesota Status</u>
Water willow	<i>Decodon verticillatus</i>	Special Concern
Club spur orchid	<i>Platanthera clavellata</i>	Special Concern
Ram's head lady slipper	<i>Cypripedium arietinum</i>	Threatened

Land Cover Classification Results

A total of 19,018 acres are mapped within the city, in nearly 2,500 individual polygons. These represent a variety of distinct natural and semi-natural community types including forest, woodland, shrubland, herbaceous wetlands, and grasslands, as well as areas of open water (lakes and ponds) and impervious surfaces. The following text describes the major categories encountered within the city; a chart at the end of this section illustrates the percent cover that each of these categories occupies within the city.

Artificial Surface and associated areas (10,000 level codes) (9,617 acres, 51%) Areas with at least 4% artificial surface are the most dominant land cover type in the city. This includes residential, commercial, and industrial areas with impervious cover ranging from 4% to 100%.

Planted Cover (20,000) (2,448.5 acres, 13%) This cover class includes cropland, pastures, gardens, and tree plantations, as well as areas of mowed grass such as that found in public parks, large lawns, and other recreational areas.

Forest (30,000s) represent an important part of Ramsey's natural areas land cover, comprising 1,766 acres (9%) of the city's land cover. Native dominated/remnant forest cover types (30000's) within the city included native community remnants such as dry oak forest, lowland hardwood forest, and floodplain forest. Non-native forest types within the city were predominantly disturbed second growth forest types comprised of elm, box elder, ash, cottonwood, and occasional basswood, maple, and oak.

Woodlands (40,000s) comprise 446 acres (2%) of the city's land cover. Although some acreage is degraded deciduous woodland dominated by elm, box elder, ash, and cottonwood, or less commonly red cedar woodland and second growth oak woodland/brushland, much is oak woodland with varying amounts of brush encroachment.

Shrublands (50,000's) comprised 524 acres (3%) of the land cover. The majority of this cover type was associated with wetland systems and also commonly had significant presence of nonnative species, such as reed canary grass.

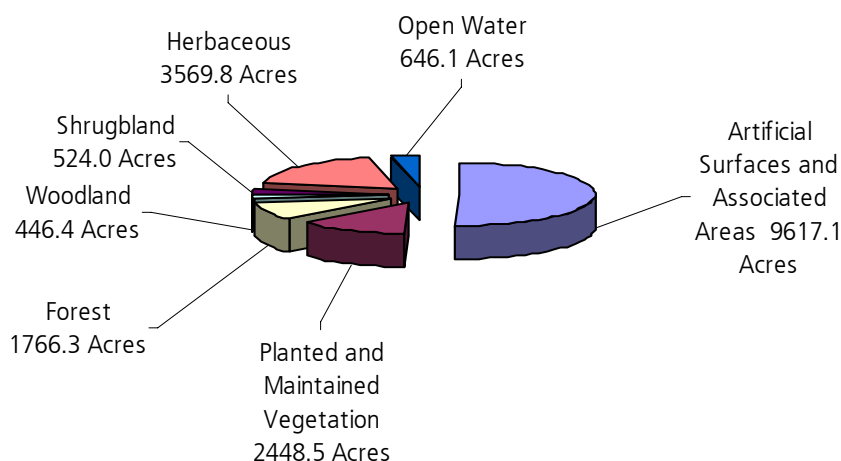
Herbaceous vegetation types (60000's) were most prevalent with a total of 3,570 acres (19%). This cover type series includes natural communities such as wet meadows, cattail marshes, rich fens, mixed emergent

marshes, and prairies, as well as non-native dominated cover types such as reed-canary grass dominated wetlands, agricultural old-fields, and other fallow land.

Open water habitats (90000's) represent 646 acres (3%) of the land cover in the city. The Mississippi and Rum Rivers, along with Trott Brook, are among the defining water features within the City. Important lakes include Itasca Lake in the southwest, and Grass Lake in the southeast area of the city.

The following figure depicts land cover for the City of Ramsey at MLCCS Level 1—the most general level. A digital version of the land cover data has been provided with the Final Report to City staff in a format that can be used within a geographic information system (GIS) such as ArcView. Summaries for cover type data are also included as Appendix C at the back of this report.

Land Cover Type



Change in MLCCS Data from the Anoka Conservation District (ACD) Original

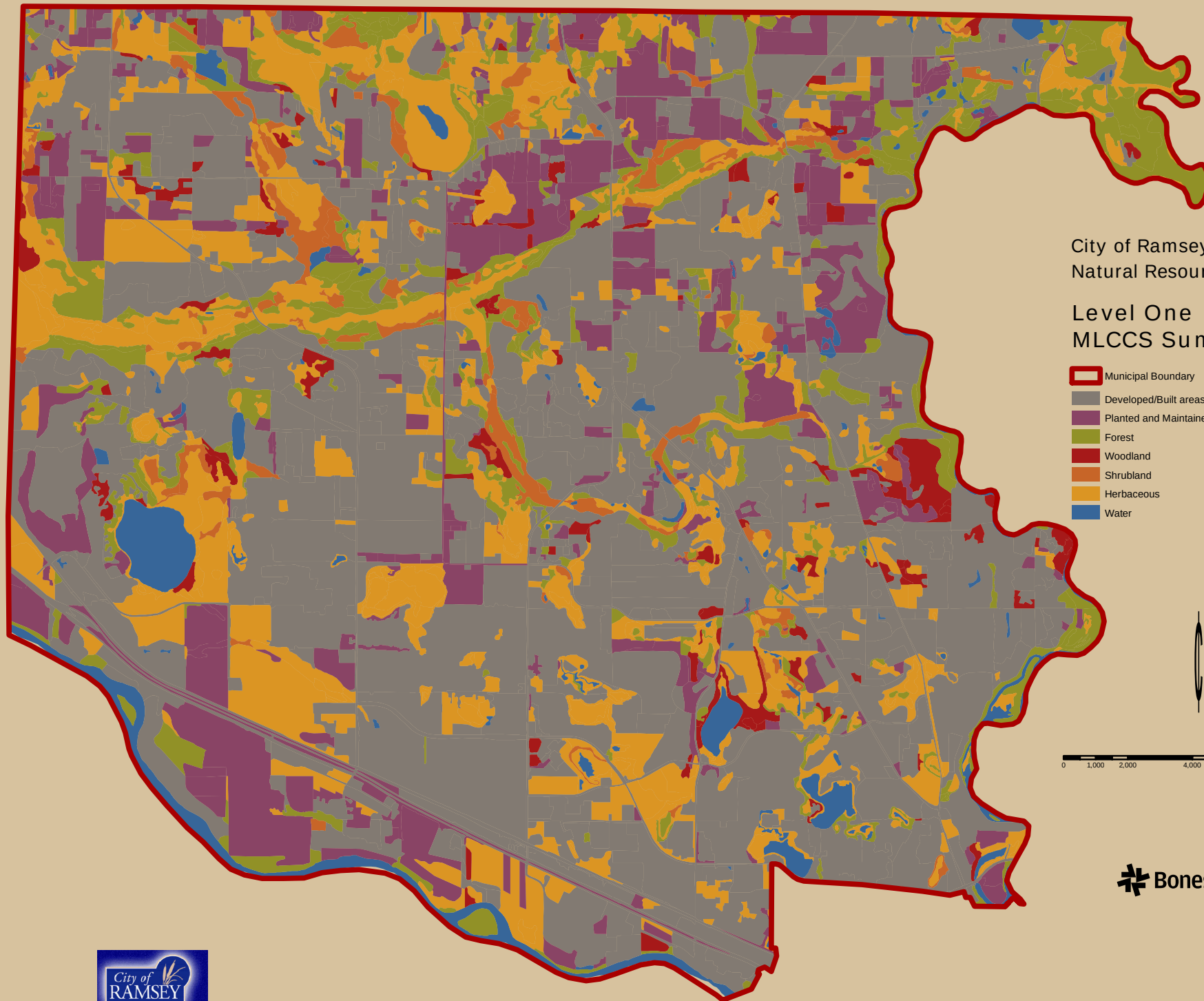
When compared to the original MLCCS data from ACD, the updated information contains slightly fewer polygons, due mostly to conversion of natural and open space areas to a developed land cover, but overall, has a higher level of field check than the original. This is especially significant for the natural areas, and will significantly improve the city's ability to make informed decisions regarding protection and/or management of its natural areas. A comparison of the field check information for natural areas from the original data and the new, revised data is below.

Field Check Level	Anoka Conservation District MLCCS (natural areas only)*	Ramsey MLCCS (natural areas only)*
0 (not checked)	313	225**
1 (Checked from distance)	252	165
2 (Checked from edge)	223	162
3 (Checked partially)	44	231
4 (Checked fully)	7	7

**Totals from the two columns do not match, due to changes in land cover types between the time of the original MLCCS mapping and the current mapping.*

***Many of these sites are wetland areas which were previously assessed during the wetland inventory, and therefore not included in the NRI assessment.*

In addition, an estimated 35-40% of the 10000, 20000 codes and codes for semi-natural areas were changed during the inventory, and approximately 50% of the codes for the natural areas were changed. This is due to the higher accuracy with the higher field check levels, and changes in land cover since the time of the original MLCCS.



City of Ramsey
Natural Resource Inventory

Level One
MLCCS Summary

- Municipal Boundary
- Developed/Built areas (impervious)
- Planted and Maintained Vegetation
- Forest
- Woodland
- Shrubland
- Herbaceous
- Water

0 1,000 2,000 4,000 6,000 8,000 Feet



Natural Resource Inventory Results

821 individual natural areas were documented, covering just under 3,710 acres. These remnants represent a variety of distinct natural community types including forest, woodland, shrubland, herbaceous wetlands, and grasslands, as well as areas of open water (lakes and ponds). The following pages include a summary of the major natural community types encountered in the City, with general descriptions. It is important to note that there are numerous other natural community types that occur less frequently in the city. Descriptions for these community types are from the MLCCS User Manual. Note that both common and scientific names are provided for the first reference to a species. Subsequent references list only one name.

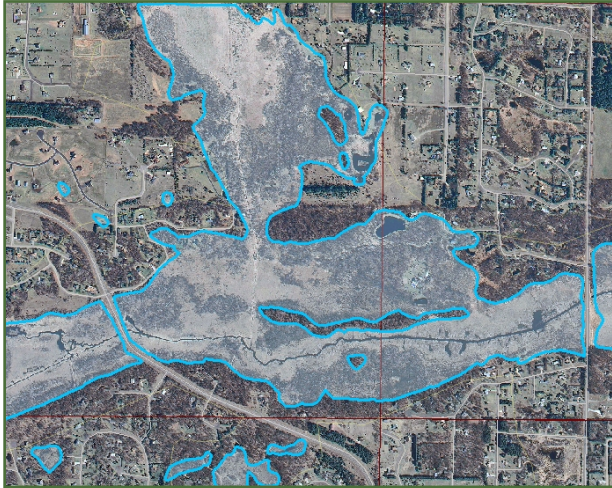
Quality Natural Areas

The map accompanying this report illustrates the natural areas identified during the inventory, mapped according to site quality. It is important to note that due to lack of access to some areas within the city, not all high quality sites may be listed here. We recommend that appropriate field work be conducted prior to any development to determine the quality/composition of any larger natural areas not visited during this project. A figure summarizing the location of upland natural areas identified can be found on the plotted map that accompanies this report. Site-specific field descriptions of natural areas shown on the large map can be found in Appendix D. A summary of findings for site quality is provided below.

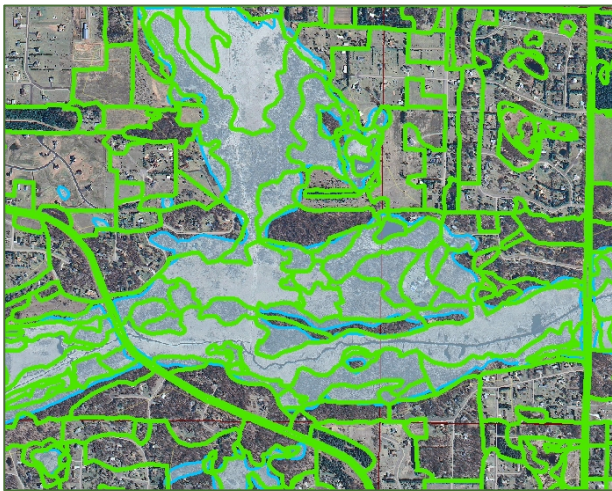
Quality Rank	Number of Sites*
Exceptional	3
High	46
Moderate	180
Low	19

** In general, data reflects upland sites; the majority of wetlands were evaluated separately, during the city's wetland inventory, and are not included here.*

A note on wetland data: Because the MLCCS and the MnRAM use different conventions for determining wetland type and quality, the information below will differ from data on wetland type, quality, approximate location, and acreage determined during the wetland inventory. The following figures illustrate the difference in mapping between the two systems.



The City's MnRAM is based on the National Wetlands Inventory data (NWI). NWI boundaries were determined in the late 1970's and early 1980's, based on then-current data.



MLCCS data (shown in green) is based on recent aerial photos; individual habitat types (plant communities) are mapped separately.

Forest (Upland)

Oak Forest (All subtypes) (MLCCS Code 32110, 32111, 32112, 32113 / 592 Total Acres)

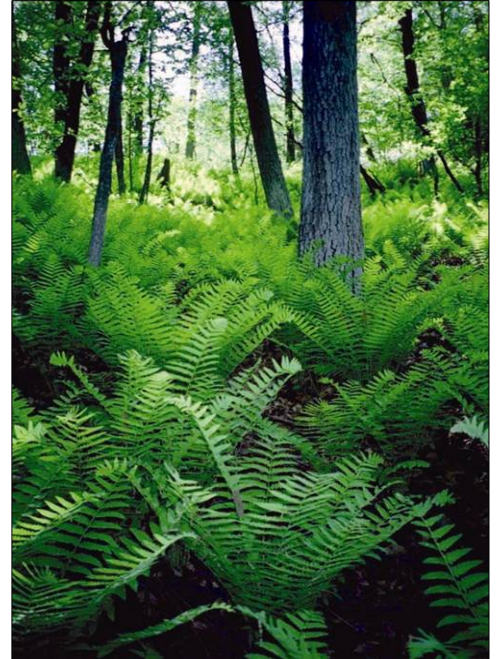
97 oak forest remnants were documented totaling 592 acres. This includes oak forest of unspecified subtype, oak-red maple forest, mesic oak forest, and dry oak forest.

Northern red oaks (*Quercus rubra*), white oaks (*Quercus alba*), or bur oaks (*Quercus macrocarpa*) dominate mesic stands of oak forest. These stands occur on sites that had fewer severe fires before European settlement than the sites on which dry mixed oak forest occurs. Mesic stands most likely were always forest, rather than woodland or savanna. They have tall (> 20 meters), straight, single-stemmed trees that lack spreading lower branches. Commonly, mesic fire-sensitive tree species are present with the oaks in these stands, especially in the understory. These species include basswood (*Tilia americana*), green ash (*Fraxinus*

americana), bitternut hickory (*Carya cordiformis*) big-toothed aspen (*Populus grandidentata*), and butternut (*Juglans cinerea*).

Dry oak forest tends to have pin oak (*Quercus ellipsoidalis*), bur oak (*Q. macrocarpa*), and white oak (*Q. alba*) more common as canopy trees. As well, the subcanopy of dry oak forests in Ramsey commonly support red maple (*Acer rubrum*.)

The shrub layer in mesic stands is sparser than in dry stands and, correspondingly, the forb layer is denser and more diverse and there are more graminoid species. Like the drier stands, however, there is little oak regeneration, and most mesic oak forests appear to be succeeding to maple-basswood forest. Heavy selective logging of the oaks in mesic stands may accelerate this trend, producing young stands of maple-basswood forest. The mesic stands often grade into drier stands of maple-basswood forest, but differ from them by having a somewhat denser shrub layer and the herbs woodrush (*Luzula acuminata*) and pointed-leaved tick-trefoil (*Desmodium glutinosum*) in their understory.



Oak Forest

Natural stands of mesic oak forest are rare in Minnesota. In much of Minnesota, including Ramsey, drier stands are more common, in part because relative to the mesic forests they occur on sites with soils less suitable for cultivation.

Forests (Lowland)

Tamarack Swamps (MLCCS Codes 31210, 31213 / 33 Total Acres)

Seven tamarack swamps totalling 33 acres were documented within Ramsey. It should be noted that the quality of these forests and management issues associated with them was mostly either undeterminable or noted from a distance and/or aerial photo interpretation due to lack of site access, either due to physical inability to access the site or to lack of land owner permission. As such, quality determinations could not be made for these sites.

Tamarack swamp is present throughout the deciduous forest-woodland and conifer-hardwood forest zones of Minnesota. It occurs on minerotrophic muck and shallow peat along rivers and in shallow lake basins, and on nutrient-poor, mildly-acidic to acidic peat in ice-block basins or large peatland systems. Tamarack is either the only canopy species or is mixed with black spruce (*Picea mariana*), paper birch (*Betula papyrifera*), yellow birch (*Betula alleghaniensis*), white pine (*Pinus strobus*), black ash (*Fraxinus nigra*), American elm (*Ulmus americana*), or red maple (*Acer rubrum*). The sedge *Carex stricta* is common under relatively open stands of tamarack; cyperus-like sedge (*Carex pseudo-cyperus*) and black chokeberry (*Aronia melanocarpa*) are often present on tear-drop islands in large peatland complexes.

In the absence of catastrophic disturbances, tamarack swamps may succeed shrub swamps, rich fens, poor fens, and possibly hardwood swamp forests. Fire, flooding, and insect infestations (e.g., larch sawfly) often reverse this succession. Wind throw, disease, and selective cutting of tamaracks in dense stands help



Tamarack Swamp
Photo credit: MN DNR

maintain tamarack cover by creating gaps in the canopy in which the very shade-intolerant tamarack seedlings and saplings are able to grow.

Tamarack swamp differs from mixed hardwood swamp in part by having at least 50% of its canopy cover formed by tamarack. Tamarack swamp differs from bog communities in the pH of its surface waters and by having minerotrophic species that do not occur in true

bogs [such as bog birch (*Betula pumila*), several sedge species (*Carex leptalea*, *C. paupercula*, *C. tenuiflora*), swamp loosestrife (*Lysimachia thyrsiflora*), marsh cinquefoil (*Potentilla palustris*), willow (*Salix pedicellaris*), and northern white cedar (*Thuja occidentalis*)].

Lowland Hardwood Forest (MLCCS Code 32220 / 96 Total Acres)

25 lowland hardwood forests covering 96 acres were documented within Ramsey.

Lowland hardwood forest is a wet-mesic forest that is present throughout Minnesota. It is transitional between the terrestrial and palustrine systems, occurring on sites with seasonally high water tables (within the tree-rooting zone) but do not flood regularly and have mineral rather than peat soils. In accordance with

the poorly drained sites on which the lowland hardwood forests occur, species tolerant of periodic soil saturation dominate the tree canopy. American elms and black ashes are common canopy dominants, but most stands are mixed, with slippery elms (*Ulmus rubra*), rock elms (*U. thomasi*), basswoods, bur oaks, hackberries (*Celtis occidentalis*), yellow birches, green ashes (*Fraxinus pensylvanica*), black ashes, quaking aspens, balsam poplars (*Populus balsamifera*), and paper birches as important species. The tall-shrub layer is usually discontinuous and is composed of a mixture of upland and lowland shrubs. The ground layer is composed mostly of upland herbs that do not root to the water-table.

Lowland hardwood forest usually occurs in fire-protected areas, although even in unprotected areas the community burns infrequently because the woody vegetation is usually hydrated, especially in the spring. Lowland hardwood forest soils differ from hardwood swamp forest soils by being mineral rather than peaty and from the mineral soils of other mesic upland forest types by being seasonally saturated (at depths greater than 0.5 meters).

Lowland hardwood forest is often composed of late-successional species, but few stands in Minnesota have old canopy trees, presumably because of wind throw and infrequent episodes of killing floods. Lowland hardwood forest is topographically transitional between upland forests and forested peatlands and is best developed on flat terrain where such transition zones are broad (e.g., on river terraces above normal flood levels, on loamy ground moraine, and on drumlin fields).

Floodplain Forests (MLCCS Codes 32210, 32211 / 260 Total Acres)

41 floodplain forests totaling 260 acres were documented within Ramsey.

Floodplain forest is a seasonally wet forest community that occurs throughout Minnesota on the active floodplains of major rivers and their tributary streams. The canopy of the community is dominated by deciduous tree species tolerant of inundation, abrasion, and other disturbances associated with flooding. The canopy is variable in composition, either composed of a mixture of tree species or strongly dominated by a single tree species.



Floodplain forest

The species composition of floodplain forests varies both geographically and in relation to such features as substrate type or flood cycles. In southern Minnesota, silver maples (*Acer saccharinum*), black willows (*Salix nigra*), and cottonwoods (*Populus deltoids*) are common canopy dominants. They occur either in nearly pure stands or in mixed stands. Scattered individuals or patches of river birch, American elm, slippery elm, green ash, and swamp white oak (*Quercus bicolor*) are also common in stands in southern Minnesota.

The tree canopy cover is highly variable within floodplain forests. The canopy is continuous in some stands while other stands have open areas caused by repeated erosion, ice-scouring, and soil and debris deposition, all of which prevent the growth of trees and shrubs.

In recent decades, Dutch elm disease has also caused significant canopy openings in floodplain forests in which mature American elm trees were abundant in the canopy. Areas beneath tree-canopy openings in the forests are either dominated by short-lived herbaceous plants or, where erosion and disturbance from flooding tend to be repeated and severe, remain unvegetated.

Woodlands

Oak Woodland/Brushland (MLCCS Code 42120 / 349 Total Acres)

73 occurrences of oak woodland/brushland totaling 349 acres were documented within Ramsey. These were generally moderate to good quality, with some concerns related to encroachment by brush, the absence of periodic fires, and other factors.

Oak woodland-brushland occurs on dry to mesic sites throughout the deciduous forest-woodland zone and locally in the prairie zone near the ecotone between the prairie



Oak Woodland-brushland in winter

zone and the deciduous forest-woodland zone. Oak woodland is floristically and structurally intermediate between oak savanna and oak forest, with a patchy tree canopy and an understory dominated by shrubs and tree saplings.

The principal species in the tree canopy are bur oak, northern pin oak, white oak, and northern red oak. Aspens may form up to 70% of the tree canopy cover. The brush layer ranges in density from sparse (with 10-30% cover), to an impenetrable thicket. It is often especially dense in openings between clumps or groves of trees. Most of the floristic diversity in the community exists in the brush layer, which most commonly is composed of blackberries and raspberries (*Rubus* spp.), gooseberries (*Ribes* spp.), dogwoods (*Cornus* spp.), cherries (*Prunus* spp.), hazelnuts (*Corylus* spp.), prickly ashes (*Zanthoxylum americanum*), and sprouts of oak (*Quercus* spp.) and quaking aspen. Prairie vegetation, if present, occurs only in small openings in the tree or shrub canopy. Except in these scattered prairie openings, the herbaceous layer is sparse and floristically poor. It is usually composed of woodland species capable of surviving in the dense shade beneath the brush layer.

Oak woodland-brushland is a fire-maintained community. It is most common on rich sites where trees and shrubs grow well but where recurrent fires prevent the formation of true forest. Historically, Oak Woodland-Brushland was probably one of the most extensive community types in Minnesota, comprising much of the vegetation described as oak barrens, brushland, and thickets by the early surveyors. The fires that maintained oak woodland-brushland usually started on nearby prairies. Following the conversion of these prairies to agricultural land, oak woodland-brushland burned less frequently and rapidly succeeded to oak forest. Oak woodland-brushland is defined broadly enough here to also include communities in which the predominant cover is oak brush or oak-aspen brush (that originated following fire or limited human disturbance) instead of a well-developed tree canopy. There are four geographic sections of oak woodland-brushland in Minnesota. These sections may be modified in the future as more information becomes available.

In southeastern and central Minnesota, oak woodland-brushland is present on southwest-facing slopes on the blufflands and on outwash terraces of the Mississippi River and its tributaries. It generally occurs on more gentle slopes than bluff prairie or on lower slopes below bluff prairies. Bur oaks are common canopy dominants and northern red oaks are common associates. Northern pin oaks, basswoods, and black cherries may also occur in the canopy. White oaks are rare and aspens typically are absent. Chokecherries are common in the shrub layer, with shrub cover averaging 30-50%. On droughty sites with thin soils or steep slopes these woodlands may persist even in the absence of fire.

In the Big Woods Section of Minnesota, oak woodlands are dominated by white oak in areas with coarse-textured soils, such as on kames or eskers, or in areas prone to occasional fires. Natural woodlands are now extremely rare in this section because of logging, grazing, and fire suppression.

Mesic Oak Savanna (MLCCS Code 62130 / .8 Total Acres)

One mesic oak savanna totaling .8 acres was documented within the City of Ramsey.

The characteristic trees of mesic oak savanna are bur oaks and to a lesser extent northern pin oaks.

Northward, quaking aspens were probably common in moister parts of mesic oak savannas. The stature and spacing of the oaks in the community probably varied considerably, primarily with differences in fire history, which were themselves related to differences in soils, landforms, and climate. Grubs and small, gnarly, open-grown trees were probably also common.

The distribution of trees ranged from evenly spaced to strongly clumped. Shrub cover, likewise, was probably quite variable. The shrub layer included chokecherries (*Prunus virginiana*), low juneberries (*Amelanchier humilis*), gray-bark dogwoods (*Cornus racemosa*), wolfberries (*Symphoricarpos*



Oak savanna restoration

occidentalis), and on lighter soils, prairie willows (*Salix humilis*), New Jersey tea (*Ceanothus americanus*), and American hazelnuts (*Corylus americana*). Leadplant (*Amorpha canescens*) was always present. The herbaceous vegetation was dominated by species typical of mesic prairie, but herbs typical of oak woodland and oak forest were probably present as well, especially beneath tree or shrub canopies.

Mesic oak savanna is rare throughout Minnesota. Historically, it occurred in the prairie and deciduous forest-woodland zones. Mesic oak savanna occurred on dry-mesic to mesic, gently undulating to moderately sloping sites. These sites were on glacial till or outwash, with soil texture ranging from clay loam to sandy loam. Mesic Oak Savanna generally occurred on sites where fire was frequent enough to prevent trees and shrubs from forming closed canopies, thereby permitting heliophilous sun-loving prairie herbs to dominate the ground layer. However, fire frequencies were lower than in prairies on similar topography and soils.

Native grazing and browsing animals may also have helped maintain the open character of mesic oak savanna. Within the deciduous forest-woodland zone, where landscape character reduced fire frequency on a large scale, mesic oak savanna often covered larger areas. With settlement and the suppression of prairie

fires, savannas in the deciduous forest-woodland zone that escaped clearing and cultivation quickly succeeded to woodland unless heavily and continuously grazed. No high quality examples are known to remain in Minnesota.

Dry Oak Savanna – (MLCCS Codes 62120, 62122 / 50 Total Acres)

Six dry oak savannas totalling 50 acres were documented in the city.

Dry Oak Savanna occurs on the same kinds of landforms as Dry Prairie, except for bedrock bluffs. The barrens subtype of dry savanna occurs on the same kinds of sand deposits as the Barrens Subtype of Dry Prairie. On dune blankets it tends to be favored over prairie in areas of sharper relief. Bur oaks are generally the prevalent trees, but northern pin oaks are also common.



Dry oak savanna/barrens prairie

Small, gnarly, open-grown trees are most common, although in moister spots, or in heavier soils, larger trees are sometimes more common. Trees range in spacing from sparse and evenly spaced to strongly clumped. The shrub layer is usually sparse; the most common species in the shrub layer are oaks (in the form of grubs), chokecherry, American hazel, smooth sumac, prairie willow, bush juniper (*Juniperus communis*) and New Jersey tea (*Ceanothus americanus*) are usually present. The herbaceous vegetation present in open areas is similar to that of the Barrens Subtype of Dry Prairie.

The presence of savanna rather than prairie indicates a lower fire frequency or intensity (or both) than in prairie. Dry Oak Savanna requires less frequent fire than Mesic Savanna for maintenance. However, in the complete absence of fire, woodland will eventually replace Dry Oak Savanna. Grazing and browsing animals may also have had a role in the maintenance of Dry Oak Savanna. Because Dry Oak Savanna occurs on sites that are not as suitable for cultivation as Mesic Savanna sites, and because succession in the absence of fire is not as rapid, more examples remain of Dry Oak Savanna than of Mesic Oak Savanna.

Shrublands

Wet Meadow - Shrub Subtype (MLCCS Code 52420 / 100 Total Acres)

Thirty-three wet meadow shrub subtypes totaling 100 acres were documented within the city.

This wet shrub meadow type is found in the northern prairie-forest border area within Minnesota. Stands may occur along stream courses or adjacent to lakes or in upland depressions. Soils are wet mineral, muck, or shallow peat (<0.5 m). Standing water is present in the spring and after heavy rains, but the water table draws down by mid-summer. Seepage areas may also occur. Shrub cover is at least 25 percent but does not become thick. Dominant species include red-osier dogwood (*Cornus sericea*), Bebb's willow (*Salix bebbiana*), pussy willow (*Salix discolor*), slender willows (*Salix petiolaris*), and meadowsweet (*Spiraea alba*). Herbaceous species are typical of wet herbaceous meadows, and include several species of sedges (*Carex aquatilis*, *C. atherodes*, *C. haydenii*, *C. lacustris*, *C. lanuginosa*, *C. rostrata*, and *C. stricta*), or grasses such as Canada blue joint (*Calamagrostis canadensis*) and reedgrass (*Calamagrostis stricta*). Forbs include swamp milkweed (*Asclepias incarnata*), lance-leaved aster (*Aster lanceolatus*), New England aster (*A. novae-angliae*), swamp aster (*A. puniceus*), turtlehead (*Chelone glabra*), joe-pye weed (*Eupatorium maculatum*), and common mint (*Mentha arvensis*).

Wet meadow shrub subtype is a wetland community comprised of 50-70% cover by tall shrubs where peat is <0.5m deep and gaps are not dominated by emergent species >1m tall. The leaves of typical grasses and sedges within this community are >3mm wide (such as Canada blue joint (*Calamagrostis canadensis*), lake sedge (*Carex lacustris*), and tussock sedge (*C. stricta*)).

Willow Swamp (MLCCS Code 52430 / 185 Acres)

Forty-two occurrences of willow swamp totaling 185 acres were documented within Ramsey.

Willow swamp is a minerotrophic wetland with a canopy of medium to tall (>1m) shrubs dominated by willows (especially pussy willow, slender willow, and Bebb's willow) and red-osier dogwood. Other shrubs, such as speckled alder (*Alnus rugosa*), bog birch, poison sumac (*Rhus vernix*), and alder buckthorn (*Rhamnus alnifolia*) may be common in the tall shrub layer, although speckled alder is never the most abundant species present. Herbaceous species (especially graminoids) characteristic of wet meadow/fen communities are common in the more open occurrences of the community. However, in willow swamps, unlike wet meadow/fen communities, these graminoid-dominated patches are poorly separated from clumps of shrubs. The most common herbs are tussock sedge (*Carex stricta*), prairie sedge (*Carex prairea*), lake-bank sedge

(*Carex lacustris*), broad-leaved cattail (*Typha latifolia*), Canada blue-joint grass, northern marsh fern (*Thelypteris palustris*), and jewel-weed (*Impatiens capensis*).

Willow swamps dominated by bog birch are closely related to the shrub subtype of rich fen but have more minerotrophic indicator species [such as speckled alder, holly (*Ilex verticillata*), jewel-weed, and horehound (*Lycopus uniflorus*)] than are present in Rich Fens. Following fire in conifer swamps or in the shrub subtype of rich fens there may be initially a dense cover of willows (usually balsam willow and bog willow), but these stands are best classified as successional stages of conifer swamp or rich fen rather than as willow swamp. The dense groves of sand-bar willow or juvenile black willow that occur on sand bars along rivers are not considered shrub swamp communities but instead river beach communities, as they occur on mineral rather than peat or muck substrates.

Willow swamp occurs on seasonally flooded soils with <30% tree cover and >50% cover by tall shrubs (not dwarf-shrubs), where <50% of the shrubs are alders and gaps are dominated by emergent species >1m tall.

Alder Swamp (MLCCS Codes 52410 and 52350 / 23 Acres)

Eight alder swamps totaling 23 acres were documented within Ramsey.

Alder Swamp is a minerotrophic wetland with a canopy of tall shrubs dominated by speckled alder, often mixed with other shrub species such as willows, bog birch, poison sumac, or alder buckthorn. Common understory species in the community are tussock sedge, prairie sedge, lake-bank sedge, broad-leaved cattail, Canada blue-joint, northern marsh fern, jewel-weed, and a species of sphagnum moss, *Sphagnum squarrosum*. The shrub canopy is usually continuous and dense, but may be interrupted, especially as a result of flooding. The understory graminoid cover tends to be sparse wherever the shrub canopy is especially dense. Graminoid-dominated openings are not distinctly separated from shrub clumps as in Wet Meadow or Fen communities. Trees, including northern white cedars, tamaracks, black ashes, and paper birches, are occasionally present in Alder Swamps, but have less than 30% cover.

Herbaceous Wetlands

Cattail Marsh (MLCCS Codes 61510, 61610, 61710, 61810 / 874 Total Acres)

One-hundred and thirty four cattail marshes totaling 874 acres were documented within Ramsey.

For the purposes of this project, cattail marshes do not include monotypic (i.e. single species) stands of the nonnative narrow-leaf cattail with very low species diversity. Wetlands within Ramsey comprised primarily of narrow-leaf cattail (*Typha angustifolia*) and reed canary grass (*Phalaris arundinacea*) were considered non-native dominated herbaceous wetlands (MLCCS codes 61330, 61480, 61530, and 61630). Several large cattail/reed canary grass monotypes were observed within the city, as well as numerous medium to small disturbed basins containing a monotype or combination of invasive species.

Cattail marsh is an emergent marsh dominated by cattails including broad leaved cattail *Typha latifolia* and less frequently narrow leaved cattail, and very often their hybrids (*T. glauca*). Cattail marshes occur most commonly along lake margins and in shallow basins, although they are sometimes also present in river backwaters. Lacustrine cattail marshes typically have a muck-bottom zone bordering the shoreline, where cattails are rooted in the bottom substrate, and



a floating mat zone, where the roots do not contact the bottom but instead the plants grow suspended in a buoyant peaty mat. Associated species vary widely, but some of the most common ones are sedges of the genus *Carex* (Water sedge (*C. aquatilis*), beaked sedge (*C. rostrata*), and wooly sedge (*C. lanuginosa*), bulrushes (American bulrush (*Scirpus americanus*), hardstem bulrush (*S. acutus*), and slender bulrush (*S. heterochaetus*)), and broad-leaved herbs such as northern marsh fern (*Thelypteris palustris*), swamp milkweed, jewel-weed, broad-leaved arrowhead (*Sagittaria latifolia*), mad-dog skullcap (*Scutellaria lateriflora*), marsh skullcap (*Scutellaria galericulata*), and blue vervain (*Verbena hastata*).



Wet Meadow

Wet Meadow (MLCCS Code 61420, 61540 / 204 Total Acres)

Thirty-two wet meadows totaling 204 acres were documented in Ramsey.

The ground layer of wet meadow communities are composed of dense, closed stands of predominately wide-leaved sedges (e.g., lake sedge,, tussock sedge, water sedge (*Carex aquatilis*), beaked sedge (*C.*

rostrata), and Haydens sedge (*C. haydenii*) or grasses (e.g., Canada blue joint grass, Northern reed grass (*Calamagrostis inexpectata*)). Forb cover and diversity usually are high. Forbs such as spotted joe-pye weed (*Eupatorium maculatum*), common mint (*Mentha arvensis*), turtlehead (*Chelone glabra*), and swamp milkweed are conspicuous. Shrub cover in wet meadows ranges from 0 to 70% and is composed of Bebb's willows and pussy willows. Mosses are rare or absent.

Wet meadow occurs on wet mineral soil, muck, or shallow peat (<0.5 m). Standing water (generally stagnant) is present in the spring and after heavy rains, but the water table is generally below the soil surface for most of the growing season. The drawdown of the water table as the growing season progresses enables the oxidation of dead organic matter that has accumulated on the ground surface from previous years. This process makes available nutrients for some of the nutrient-demanding species present in the community. Occurrences of wet meadow along stream courses or adjacent to lakes often have fairly constant water levels relative to wet meadows in depressions or basins. On these sites siltation may be important in maintaining high nutrient levels.

Wet meadow tends to succeed to shrub swamp communities in the absence of fire. Water-table lowering caused by drought or by ditching promotes succession of wet meadow to shrub swamps. Wet meadows on organic soils, like other communities that occur on organic soils, recover very slowly, if at all, once altered by artificial flooding or draining.

Poor fen (MLCCS Codes 61450/ 1.3 Total Acres)

One occurrence of poor fen covering 1.3 acres was documented in Ramsey.



Poor fen

Poor Fen is most common in the conifer-hardwood forest zone, with scattered occurrences in the deciduous forest-woodland zone. The ground cover of the community is typically dominated by wiregrass sedge (*Carex lasiocarpa*) or few-seeded sedge (*C. oligosperma*). Mud sedge (*C. limosa*), creeping sedge (*C. chordorrhiza*), beaked-sedge (*Rhynchospora alba*), tufted club-rush (*Scirpus cespitosus*), scheuchzeria (*Scheuchzeria*

palustris), and ericaceous shrubs are present in most Poor Fens as associates of the dominant sedges. Poor Fens have at least 50% cover by sphagnum mosses, and up to 70% cover by shrubs and small trees, most commonly bog birches and stunted tamaracks.

Poor Fen occurs on deep peat (>1.0m) that receives minimal nutrient-rich run-off from surrounding uplands. In Minnesota's large patterned peatlands, Poor Fen often is present on sites with water infiltration from adjacent raised bogs. Less frequently, Poor Fen occurs in the interiors of small basins that are relatively isolated from run-off. This is the case for fens in Ramsey. The surface water of Poor Fen is slightly acidic (pH 4.1 - 5.9) and nutrient poor ($[Ca^{2+}] < 13$ mg/l). Poor Fen is transitional between Rich Fen and Open Bog and commonly grades into these communities on the landscape.

There are four subtypes of Poor Fen, a Sedge Subtype, a Shrub Subtype, a Scrub Tamarack Subtype, and a Patterned Subtype.

Key-based definition: A saturated wetland on peat >0.5m deep where grasses and sedges, such as *Carex lasiocarpa* and *C. chordorrhiza*, are mostly <3mm wide and there is <50% cover by shrubs, including dwarf-shrubs. The community does not occur on the floating mat at the edge of a shallow lake and lacks the complex patterned topography of strings and flarks. The following species are NOT common: livid sedge (*Carex livida*), Buxbaum's sedge (*C. buxbaumii*), swamp lousewort (*Pedicularis lanceolata*), flat stem spikerush (*Eleocharis compressa*), spiked muhly grass (*Muhlenbergia glomerata*), and Kalm's lobelia (*Lobelia kalmii*.)

The National Vegetation Classification System description of a more narrowly defined community is given here as well: This graminoid poor fen community is found in the Great Lakes region of the United States and Canada, as well as elsewhere in central Canada, ranging from Ontario to Manitoba, south to Iowa, and east to Illinois. Stands are found in peatlands with low exposure to mineral-rich groundwater, including basin fens, shores above the level of seasonal flooding and larger peatlands. Water hydrology is saturated, and surface water is slightly acidic and nutrient poor. The vegetation is dominated by graminoids, with up to 25 percent shrub cover, and scattered trees. The dominant graminoid is *Carex lasiocarpa*, and typical associates include *Carex chordorrhiza*, *Carex limosa* (mud sedge), *Carex oligosperma* (few-seeded sedge), *Rhynchospora alba*, *Scirpus cespitosus*, and *Scheuchzeria palustris*. Forbs include Dragon-mouth (*Arethusa bulbosa*), northern bog aster (*Aster borealis*), grass pink (*Calopogon tuberosus*), rose pogonia (*Pogonia ophioglossoides*), pitcher plant (*Sarracenia purpurea*), and bog goldenrod (*Solidago uliginosa*). The low-shrub layer contains bog

rosemary (*Andromeda polifolia*), bog birch (*Betula pumila*), leatherleaf (*Chamaedaphne calyculata*), *Larix laricina*, *Salix discolor*, *Salix pedicellaris*, and dwarf cranberry (*Vaccinium oxycoccos*). The moss layer is virtually continuous, and is dominated by species of sphagnum mosses including *Sphagnum capillifolium*, *Sphagnum fuscum*, and *Sphagnum magellanicum*. Diagnostic features include the dominance of graminoids, particularly *Carex lasiocarpa*, the almost continuous layer of *Sphagnum* peat, and few minerotrophic indicators.

Rich Fen (MLCCS Code 61460, 61461, and 61462 / 0 Total Acres documented during the NRI)

No occurrences of rich fen were documented in Ramsey during the NRI. However, since the NRI generally focused on upland communities rather than wetland communities, some wetland community types which are typically identified during field review (vs. during aerial photo review) may have been overlooked in the NRI. Because of differences between MnRAM and MLCCS, some rich fens may have been classified as mixed emergent marshes, sedge meadows, wet meadows or other plant community types during the wetland inventory. Because they are likely to occur in the city, a description of the community type is provided below.

The ground layer of rich fens is dominated by wiregrass sedge (*Carex lasiocarpa*), brown sedge (*Carex buxbaumii*), livid sedge (*Carex livida*), bluejoint grass (*Calamagrostis neglecta*), or bog reed-grass (*Calamagrostis inexpansa*). Although generally open communities, rich fens may have up to 70% cover of woody shrubs, especially bog birches, sage-leaved willows, and shrubby cinquefoils. Mosses range from scarce to abundant in the community. Where mosses are abundant, the dominant species are species other than sphagnum mosses (*Sphagnum* spp.).

Surface waters within the community are slightly acidic to circumneutral (pH 5.8 - 7.8) with moderate nutrient levels. Rich fen may grade into poor fen but is distinguishable from poor fen by its higher species diversity and by the more frequent occurrence and greater abundance of minerotrophic indicator species, including livid sedge (*Carex livida*), brown sedge (*C. buxbaumii*), swamp lousewort (*Pedicularis lanceolata*), spike-rush (*Eleocharis compressa*), marsh muhly (*Muhlenbergia glomerata*), and Kalm's lobelia (*Lobelia kalmii*).

Rich fen occurs in the conifer-hardwood forest and deciduous forest-woodland zones. There are two geographic sections of rich fen, a Transition Section and a Boreal Section. In the Boreal Section (i.e. northern Minnesota), rich fen usually occurs on deep peat and contains characteristically northern species such as bog-rosemary (*Andromeda glaucophylla*) and other ericaceous shrubs, the bulrush *Scirpus hudsonianus*, and pitcher-plant (*Sarracenia purpurea*).

The sedge subtype rich fen does not occur on the floating mat at the edge of a shallow lake and lacks the complex patterned topography of strings and flarks. Rich fen – floating-mat subtype occurs on the floating mat at the edge of a shallow lake. In both community types there is no discharge of calcareous groundwater, and the following species are often common: *Carex livida*, *C. buxbaumii*, *Pedicularis lanceolata*, *Eleocharis compressa*, *Muhlenbergia glomerata*, and *Lobelia kalmii*.

Mixed Emergent Marsh (MLCCS Code 61520, 61620 / 176 Total Acres)

Sixty mixed emergent marshes totaling 176 acres were documented within Ramsey.

Within most of the mixed emergent marsh remnants in the study area, reed canary grass (*Phalaris arundinacea*) is a common invasive species. This is especially true adjacent to agricultural lands that have high sediment and nutrient load in their runoff.

Mixed emergent marsh is a broad community type, encompassing all marshes dominated by species other than cattails. Bulrushes are the most common dominants, especially hard-stemmed bulrush (*Scirpus acutus*), river bulrush (*Scirpus fluviatilis*), softstem bulrush (*Scirpus validus*), *Scirpus americanus*, and *Scirpus heterochaetus*. Common reed grass (*Phragmites australis*), spike rushes (*Eleocharis* spp.), and (in some river backwaters) prairie cord grass (*Spartina pectinata*) are less common dominants.

In general, mixed emergent marsh tends to occur on harder pond, lake, or river bottoms than cattail marsh and is less likely to contain the forbs that grow on the floating peat mats present in many cattail marshes. Broad-leaved arrowhead (*Sagittaria latifolia*) and aquatic macrophytes are the most common non-graminoid associates. Many mixed emergent marsh species are sensitive to fertilizer run-off and other artificial disturbances, and disturbed mixed emergent marshes (especially in the Prairie Zone) tend to convert to cattail marshes or become strongly dominated by reed canary grass (*Phalaris arundinacea*) or common reed grass (*Phragmites australis*), species that increase in abundance with disturbance.

Upland Grasslands

Upland Prairie

Upland prairie occurs primarily in the prairie zone, with scattered occurrences in the deciduous forest-woodland zone. It is dominated by grasses. The tall grasses, big bluestem (*Andropogon gerardii*) and Indiangrass (*Sorghastrum nutans*), are the major dominants on moist sites. Prairie dropseed (*Sporobolus*

heterolepis) is common on both dry and moist sites. Forbs typically are abundant (but subdominant to the grasses) and may have high local diversity. Forb species composition varies with site moisture, although some forb species occur on almost all sites, moist or dry. Several low shrub or sub-shrub species are common on Upland prairie; the most characteristic is leadplant (*Amorpha canescens*). Taller brush and trees are absent or scattered, however brush or woodland areas may be interspersed with prairie, usually in association with topographic and aquatic features that provide protection from fire.

The most important cause of variation in species composition in prairie communities is variation in soil moisture. The local soil moisture regime is determined by slope, aspect, proximity to the water table, and soil texture. On a regional scale, variation in species composition is primarily caused by climatic variation (i.e., the westward decline in precipitation and northward decline in temperature in Minnesota).

Upland prairies occur on a range of landforms in the prairie zone, from nearly flat glacial lakeplains to steep morainic slopes. In the deciduous forest-woodland zone, prairies occur on droughty, level outwash areas and steep south- and west-facing slopes. The pre-European settlement distribution of prairie was related to the interaction of local fire frequency with growth rates of woody species: where conditions were favorable for rapid growth, more frequent fires were necessary to maintain prairie over savanna, woodland, or forest. Fragmentation of upland prairie since European settlement has reduced fire frequency throughout the prairie and deciduous forest-woodland zones, and most prairie remnants have more brush and trees than were present in the past.

It is important to note that plantings of prairie species, typically referred to as "prairie restorations" are invariably less species rich than native prairie remnants, mimic only a small fraction of the function of a remnant prairie, and are often fraught with exotic weed species such as smooth brome (*Bromus inermis*) and Kentucky blue grass (*Poa pratensis*) among others. These prairie plantings are typically dominated by a handful of native grasses, including big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), and Indian grass (*Sorghastrum nutans*), with little blue stem (*Schizachyrium scoparium*) seldom used.

Mesic Prairie (MLCCS Code 61110 / 14 Total acres)

Five mesic prairies and/or prairie plantings totaling 14 acres were documented in Ramsey.

Mesic prairie is a dry-mesic to wet-mesic grassland that occurs mainly in the prairie zone in southern and western Minnesota and sporadically in the deciduous forest-woodland zone. Mesic prairie is dominated by grasses.

Big bluestem (*Andropogon gerardii*), Indiangrass (*Sorghastrum nutans*), and prairie dropseed (*Sporobolus heterolepis*) are the major native species on most sites, with little

bluestem (*Schizachyrium scoparium*) and porcupine grass (*Stipa spartea*) important on drier sites, and switchgrass (*Panicum virgatum*) and prairie cordgrass (*Spartina pectinata*) common on wetter sites. The introduced grass Kentucky bluegrass (*Poa pratensis*) is present at most sites; it is a function of the site's disturbance history.



Mesic Prairie Restoration

Forbs are abundant (but usually subdominant to grasses) and have high local diversity. Forb species-composition also varies locally with soil moisture. There is greater regional variation among forbs than among grasses. Common forb species include purple prairie-clover (*Petalostemon purpureum*), white prairie-clover (*P. candidum*), ground-plum (*Astragalus crassicaarpus*), prairie-turnip (*Psoralea esculenta*), rough blazing-star (*Liatris aspera*), Canada goldenrod (*Solidago canadensis*), stiff goldenrod (*S. rigida*), Missouri goldenrod (*S. missouriensis*), prairie thistle (*Cirsium flodmani*), smooth aster (*Aster laevis*), stiff sunflower (*Helianthus rigidus*), Maximilian sunflower (*H. maximilianii*), smooth rattlesnake-root (*Prenanthes racemosa*), white sage (*Artemisia ludoviciana*), wood lily (*Lilium philadelphicum*), white camas (*Zigadenus elegans*), heart-leaved alexanders (*Zizia aptera*), prairie larkspur (*Delphinium virescens*), downy phlox (*Phlox pilosa*), hoary puccoon (*Lithospermum canescens*), tall cinquefoil (*Potentilla arguta*), alum-root (*Heuchera richardsonii*), wood-betony (*Pedicularis canadensis*), northern bedstraw (*Galium boreale*), prairie bird-foot violet (*Viola pedatifida*), oval-leaved milkweed (*Asclepias ovalifolia*), and showy milkweed (*A. speciosa*). Purple coneflower (*Echinacea angustifolia*) is common on drier sites in the western part of the community's range. Leadplant, prairie rose, sand cherry, wolfberry, and prairie willow are common low-shrub or sub-shrub species. Fragrant false indigo is common on moister sites. Trees and taller brush often occur along the margins of wetlands adjacent to mesic prairies.

Mesic prairie is a fire-dependent community. In the absence of fire, occurrences of mesic prairie are invaded by brush and trees. In the prairie zone, mesic prairie occurs on nearly level glaciolacustrine and glaciofluvial deposits, and on flat or gently rolling morainic landforms. In southeastern and, to a lesser extent, southwestern Minnesota, the glacial deposits are overlain by loess. Bedrock subtypes of mesic prairie exist in a few areas where bedrock is within about one-and-one-quarter meters of the ground surface and there are numerous small patches of exposed rock. Within the deciduous forest-woodland zone, mesic prairie usually occurs on level outwash areas or on broad, sandy river terraces.

The soils in mesic prairie are predominantly mollisols with thick, dark mineral surface layers that have high base saturation and dominantly bivalent cations. They range in texture and drainage from silty and somewhat poorly drained to sandy and somewhat excessively drained, with moderately well-drained to well-drained, loamy soils being most common. Mesic prairie grades into wet prairie on moister sites and into the hill and sand-gravel subtypes of dry prairie on drier sites. Separation of mesic prairie from other prairie types is based primarily on landform or substrate characteristics rather than on species composition, as floristic boundaries between mesic prairie and other prairie types are not well defined.

Dry Prairie – (MLCCS Code 61210, 61211, 61213/ 113 Total Acres)

There thirty dry prairies totaling 113 acres documented in Ramsey.

Dry Prairie is a type of Upland Prairie, which occurs primarily in the prairie zone, with scattered occurrences in the deciduous forest-woodland zone. They are dominated by grasses. The tall grasses, big bluestem (*Andropogon gerardii*) and Indiangrass (*Sorghastrum nutans*), are the major dominants on moist sites. Prairie dropseed (*Sporobolus heterolepis*) is common on both dry and moist sites. Forbs typically are abundant (but subdominant to the grasses) and may have high local diversity. Forb species composition varies with site moisture, although some forb species occur on almost all sites, moist or dry. Several low shrub or sub-shrub species are common on Upland Prairie; the most characteristic is leadplant (*Amorpha canescens*). Taller brush and trees are absent or scattered, however brush or woodland areas may be interspersed with prairie, usually in association with topographic and aquatic features that provide protection from fire.

Dry Prairie is a dry to dry-mesic herbaceous community dominated by grasses and sedges. It occurs throughout the prairie zone and sporadically in the deciduous forest-woodland zone. Dry Prairie has considerable variation in species composition, reflecting interactions among geography (namely climate),

soils, and topography. In general, Dry Prairies have a greater component of Great Plains species than Mesic Prairies, especially in prairies in the western part of Minnesota. Big bluestem (*Andropogon gerardii*) is always present in the community and usually important, but it does not achieve the dominance it typically has in Mesic Prairie. Indiangrass (*Sorghastrum nutans*) is more limited in occurrence, generally appearing only where conditions approach mesic. Mid-height and short grasses and sedges are usually dominant in Dry Prairie. Among the more common are porcupine grass (*Stipa spartea*), little bluestem (*Schizachyrium scoparium*), side-oats grama (*Bouteloua curtipendula*), prairie June-grass (*Koeleria macrantha*), and sun-loving sedge (*Carex heliophila*).

Forb variation within the community is more pronounced. Some widespread, characteristic species are dotted blazing star (*Liatris punctata*), pasque flower (*Pulsatilla nuttalliana*), prairie golden-aster (*Heterotheca villosa*), stiff sunflower (*Helianthus rigidus*), silky aster (*Aster sericeus*), green milkweed (*Asclepias viridiflora*), stiff goldenrod (*Solidago rigida*), gray goldenrod (*Solidago nemoralis*), Missouri goldenrod (*Solidago missouriensis*), and narrow-leaved puccoon (*Lithospermum incisum*). Dry Prairies share many forb species with Mesic Prairies, including rough blazing star (*Liatris aspera*), buffalo-bean (*Astragalus crassicaarpus*), tooth-leaved evening primrose (*Calylophus serrulatus*), silverleaf scurfpea (*Psoralea argophylla*), thimbleweed (*Anemone cylindrica*), Louisiana sagewort (*Artemisia ludoviciana*), prairie larkspur (*Delphinium virescens*), heartleaved alexanders (*Zizia aptera*), purple prairie-clover (*Petalostemon purpureum*), hoary puccoon (*Lithospermum canescens*), prairie smoke (*Geum triflorum*), and wood lily (*Lilium philadelphicum*).

Three sub-shrubs--leadplant (*Amorpha canescens*), prairie rose (*Rosa arkansana*), and wolfberry (*Symphoricarpos occidentalis*)--typical in Mesic Prairies are also generally present in Dry Prairie. Soil-encrusting lichens and the fern-ally rock-spikemoss (*Selaginella rupestris*) are often common in Dry Prairie. Brush, and sometimes trees, may be present in hollows and draws. Bur oak (*Quercus macrocarpa*), chokecherry (*Prunus virginiana*), wild plum (*Prunus americana*), and smooth sumac (*Rhus glabra*) are the most widespread woody species. Other woody species more limited in distribution in the community are northern pin oak (*Quercus ellipsoidalis*), black oak (*Quercus velutina*), and hazel (*Corylus americana*).

Dry Prairies are maintained by fire but require less frequent fires than mesic and wet prairies because the droughty conditions within Dry Prairies slow or prevent the growth of woody species. Dry Prairie occurs on a variety of landforms, including sand dune blankets of mid-Holocene origin, glacial lake beach ridges, outwash deposits, ice-contact features (kames, eskers), morainic hills, erosional slopes in glacial drift, and bedrock-cored bluffs. Soils range from nearly pure sand with little profile development, to mollisols, although the

latter have a much thinner organic-rich surface horizon than the soils of Mesic Prairie. All overlie deep glacial drift except for those of the bedrock-cored bluffs, which are formed in a thin layer of loess or residuum. Soils are well drained to excessively drained. Depending upon the degree of slope, the slope aspect, and the soil composition, Dry Prairie intergrades with Mesic Prairie.

Other Plant Assemblages (MLCCS Semi-natural Community Types)

There are a number of plant assemblages in the study area that do not have sufficient species composition, three-dimensional structure, or overall function to be considered natural communities as described in *Minnesota's Native Vegetation: A Key to Natural Communities* (MN DNR 1993). These communities were assigned community names according to the protocols of the Minnesota Land Cover Classification System. These were included in the inventory as a way of creating a more complete picture for the permanent habitats within the city. Although they are not natural areas by definition, they possess one or several characteristics that contribute to overall function of natural areas at a landscape-level due to proximity to other natural areas, good restoration potential back to natural area, or they may represent the only large block of habitat in the area, or others.

The names assigned to these MLCCS communities are standardized, descriptive in nature, and give an indication of the structure of an area, as well as the hydrologic regime. Some examples of common semi-natural MLCCS community type names included in this report are:

Altered/Nonnative Deciduous Forest (MLCCS Code 32170/ 264 Total Acres)

There are 71 non-native forests totaling 264 acres in Ramsey.

This upland deciduous forest classification is reserved for sites which do not meet the definition of other, native community types. In other words, oaks, aspens, balsam poplars (*Populus balsamifera*), paper birches, yellow birches (*Betula allegheniensis*), sugar maples, or basswoods are not dominant, and, if present, are only minor components of the community. Instead, boxelder (*Acer negundo*), green ash, and cottonwood (*Populus deltoides*) are typical canopy dominants, sometimes together and sometimes singly. Elms are common associates. Hackberries, aspens, oaks, and basswoods may also be present. The shrub layer is often dominated by buckthorn and Tartarian honeysuckle (*Lonicera tatarica*), but gooseberries (*Ribes spp.*) and elderberries (*Sambucus spp.*) can also be common. The ground layer is also dominated by species tolerant of disturbances, including white snakeroot (*Eupatorium rugosum*), motherwort (*Leonuris cardiaca*) and garlic

mustard (*Alliaria petiolata*). Occasionally, when higher quality forests are nearby, the understory can be more diverse.

Disturbed Deciduous Woodland (MLCCS Code 42130 and 43110/89 Total Acres)

There are 38 disturbed/alterd woodlands totalling 89 acres in Ramsey.

These upland areas have 10-70% tree cover. Aspens comprise <70% of tree cover, and oaks comprise <30%. Herbaceous species comprise <30% of the non-tree cover. Boxelder, green ash, and cottonwood are typical canopy dominants, sometimes together and sometimes singly. Elms are common associates. Hackberries, aspens, oaks, and basswoods may also be present. The shrub layer is often dominated by buckthorn and Tartarian honeysuckle, but sumacs, gooseberries and elderberries can also be common. The ground layer is also dominated by species tolerant of disturbances, including white snakeroot, motherwort, and garlic mustard. Occasionally, when higher quality forests are nearby, the understory can be more diverse.

Tall or Medium tall non-native grassland, with or without sparse trees (MLCCS Codes 61120, 61220, 62140, and 62220/ 633 total Acres)

There are 77 non-native grasslands totaling 633 acres in Ramsey.

These are often plantings of smooth brome grass like those planted for the Conservation Reserve Program in the 1980's, or some other nonnative pasture grass. This upland grassland is generally <1m tall, with <25% tree cover and <50% shrub cover, and is dominated by non-native species, such as brome, Kentucky bluegrass, reed canary grass (*Phalaris arundinacea*), and spotted knapweed (*Centaurea maculosa*).

*Saturated to Seasonally flooded nonnative dominated wetland vegetation
(MLCCS Codes 32240, 52220, 52330, 52440, 61330, 61480, 61530, 61630/ 884 Acres)*

There are 180 areas of non-native dominated wetland totaling 884 acres in Ramsey.

These wetland areas are typically disturbed by one of several human activities such as draining and/or planting of nonnative grasses, as well as grazing. These areas typically occur in the same settings that native wetland communities occur (see descriptions, above) and tend to be dominated by non-natives including reed canary grass, giant reed grass, European buckthorn, narrow leaved cattail, and/or purple loosestrife, or the native, disturbance adapted species such as boxelder.

Grassland with sparse deciduous trees – nonnative dominated
(MLCCS Codes 62140 / 289 Acres)

There are 66 areas of non-native dominated grassland with sparse deciduous trees totaling 289 acres in Ramsey.

These areas may occur in former oak savannas where the ground cover was planted to nonnative pasture grasses (as in Sunfish Lake Oak Savanna), or more commonly abandoned agricultural fields planted to perennial nonnative grasses and later colonized by pioneer tree species. This upland vegetation has 10-70% cover by trees (of which <25% is conifer), where >30% of non-tree cover is herbaceous and dominated by non-native species. The ground layer is often dominated by brome or Kentucky bluegrass. Common shrubs include sumac and Tartarian honeysuckle. Almost any tree species can be found here, but elms, cottonwoods, green ashes, boxelders, and bur oaks are common.

It is important to note that while these plant assemblages do not meet the criteria developed by the MN DNR Natural Heritage Program as remnant natural communities, they can still provide valuable habitat for wildlife. They can also be important in the landscape, providing buffers from developed and intensively farmed areas. In some cases, such as in some "Grassland with sparse deciduous trees" areas (which may be oaks over non-native grasslands), there may be opportunity to easily restore a natural community such as Mesic Oak Savanna that is exceptionally rare in the Upper Midwest. Additional information about these and other communities is available in the MLCCS Manual.

Recommendations

Many of the following recommendations in this natural resource inventory report are designed to maintain or improve ecological function in the landscape; several important, inter-related ecological concepts help to guide these recommendations. To help provide a context for the recommendations, these concepts are defined below.

“Connectivity” refers to the physical proximity between natural or semi-natural area and other natural or semi-natural areas-- the degree to which natural and semi-natural areas are connected to each other, versus isolated on the landscape. The connections between areas provide often critical opportunities for wildlife movement, allowing wildlife access to and movement through sites for foraging, hunting, nesting, and shelter. Wildlife are important for dispersing seed and pollinating plants, and thus connectivity also can improve the stability of native plant species populations as well. Corridor plans, for example, are an attempt to improve connectivity.

“Fragmentation” describes the degree to which a particular natural land cover type is broken into smaller patches interspersed with other land cover types. For example, a forest can be broken in numerous smaller units by the presence of natural features such as prairie, or by built features such as driveways, lawns, or parking lots. As the distance between areas of similar habitat increase, these intervening areas can become barriers to animal movement and can also serve to isolate native plant and animal populations. These isolated populations can be more vulnerable to local extinction, and may suffer from genetic isolation if populations are too far apart to facilitate movement or, in the case of plants, cross pollination. This can be of significant concern on prairie remnants in Minnesota, which are often isolated by great distances from each other. Fragmentation is also important to consider for those wildlife species which require larger expanses of habitat, and which will not use small areas. As natural areas are fragmented into smaller units, these species also become vulnerable to loss and/or extinction.

“Edge effect” refers to the differences in habitat quality and environmental conditions that occur around the perimeter of a natural area versus the interior of the site. Edge habitat is much more susceptible to invasion by exotic species, and, in forest habitats, is typically both warmer and drier than the interior of the site. When natural areas become fragmented (such as by development), the amount of edge habitat increases and the amount of interior habitat decreases. As the amount of fragmentation increases, this creates more habitat for wildlife and plant species that prefer the edge conditions, and decreases the amount of habitat available for species that require interior conditions. Conservation development/cluster development and natural resource

overlay districts are examples of strategies that attempt to minimize the impacts of fragmentation and the edge effect.

Strategies for Conservation

Conceptual Greenways/Open Space Corridors

For the purpose of this report, a greenway is defined as "*privately or publicly owned corridors of open space which often follow natural land or water features and which are primarily managed to protect and enhance natural resources*". However, greenways can, and often do incorporate active or passive recreational trails, active recreational spaces (such as athletic fields or golf courses), and other public open spaces that may provide rudimentary ecological functions and values.

As a part of this project, ecologists at Bonestroo reviewed the Anoka Conservation District Greenways Corridors map and refined it within the context of the data from the Natural Resources Inventory. This corridor, shown on the large wall map included with this report, was reviewed with the following guiding elements, in rough order of priority:

- High and Moderate quality natural areas
- Semi-natural areas that occur immediately adjacent to natural areas
- Bodies of water and large wetland complexes
- Natural corridors with natural/semi-natural areas (e.g. streams, drainageways, ridges)
- Areas that would serve as logical links between natural and semi-natural areas, particularly those that have potential to be restored to native vegetation
- Existing development areas were eliminated from the existing corridor

The greenways/corridors shown on the accompanying map are conceptual and broad stroke in nature. Therefore, we encourage the city staff, along with its citizen committees and other important stakeholders to undertake a more comprehensive process of defining and locating potential greenways/corridors. Such a process will allow for public input, along with technical guidance from experienced staff in the natural resources field, ensuring long-term acceptance of a final product. During a greenway/corridor planning process, we suggest that the city consider at a minimum the following elements:

- **Public ownership** – where possible, use corridors to connect large publicly owned open spaces
- **Remnant natural areas** – provide connectivity between natural areas, especially those of high quality and/or potential for hosting rare species.

- **Incorporate semi-natural communities** --into the greenway system as corridors to connect and/or buffer the highest quality remaining natural areas within the city.
- **Restore/reconstruct natural areas** --to provide connectivity between natural or semi-natural areas (especially good quality sites) suitable for inclusion with greenways.
- **Incorporate water resources and large permanent wetland systems** within the corridor (directly or indirectly). Wetlands, lakes, and streams provide beneficial wildlife habitat and are not likely suitable for development.
- **Consider opportunities for recreation and pedestrian movement** through the greenway system. Co-aligning natural and recreation features should be done in a manner that minimizes negative impacts to sensitive natural areas.
- **Consider educational and interpretive opportunities**—High quality natural areas, unique features, and other amenities can provide an excellent resource for teaching and research, and can provide a forum for the public to develop an understanding of the local resources.

Within the City of Ramsey, there are many opportunities to develop a viable greenways system as the city grows over the next ten to twenty years. Ramsey's water features provide significant wildlife habitat and opportunities for recreation including the Mississippi River, the Rum River, area lakes, and Trott Brook, as well as several large wetland systems. These represent another opportunity to connect and buffer higher quality natural resources and wildlife habitat corridors within the city. The city has made an excellent start on developing a greenways system, through the park development program and the use of funds from the Legislative and Citizen's Commission on Minnesota Resources (LCCMR) to purchase property and conservation easements along Trott Brook.

As the city begins considering more comprehensive greenway/corridor planning, there are several outside sources of funding/in-kind assistance that are available. One of these is the MN DNR, which periodically offers funding for planning efforts such as this. Information regarding the MN DNR's financial assistance programs may be found at:

<http://www.dnr.state.mn.us/grants/index.html> .

Zoning and Subdivision Ordinance Review

Overview

The Natural Resources Inventory provides the City with extensive data related to the location and quality of natural resources in the city. The City can use this information as a basis for updating its current

environmental ordinances, or for developing new approaches for protecting and enhancing its natural resources.

Future growth, changes in land use, and development of infrastructure can impact the health and function of natural communities and natural systems. The City can use its zoning and subdivision controls to avoid or minimize these impacts, and provide incentives for developers and landowners to protect or restore natural resources.

What follows are recommendations for possible changes and additions to the City's existing code.

Include Natural Resource Data in Preliminary Plat

The City could require project proposers to identify all natural resource data from the NRI as part of the data submission for a project. This data could then be used to identify any necessary setbacks or alignments of potential greenway corridors.

Include Dedication of Natural Resources Areas as Parkland

The City could require developers to dedicate the natural resource areas identified on the NRI maps as open space or parks if they are located within the proposed development area. Dedication of these areas may offset at least a portion of the parkland dedication requirement. Conservation easements are another tool that can be used to protect these resources.

If the size of the natural resources areas contained on the site are greater than the parkland dedication requirement, the City could allow additional density on other portions of the site that do not contain natural resources areas equivalent to the density lost from the additional dedication.

The City may also consider adding language to the park dedication ordinance that specifically states park dedication funds may be used for the purposes of ecological restoration (restoring native plant communities) on lands available to the public. Such activities could be considered a form of park "development". This would allow for necessary active management of purchased or existing natural areas.

Consider Gross Density Calculation for Developments with Natural Resource Areas

Protection of valuable natural areas may require preventing development on certain pieces of land. In order to ensure efficient urban development and preserve the rights of landowners while protecting natural resources, density transfers or “gross density” calculations should be preferred when reviewing subdivision development plans.

The City could adopt regulations that require that all high-value natural areas, wetlands, steep slopes, their related buffers and setbacks, and other sensitive resources be put under easement or deed restriction while allowing the same amount of density overall for the development. For example, contrast a conventional two-acre lot subdivision with homes located on sensitive but buildable land with a layout that concentrates buildings in the least sensitive areas, and protects sensitive areas as open space.

The City could maintain the existing density requirements in the zoning code, but allow the “transfer” of density from one portion of the site to another to protect high value resources and preserve the development rights of the landowner. The same total amount of land is used, but individual lot sizes are smaller and sensitive areas are put under permanent protection. Currently, the City uses this type of gross density calculation in the rural residential districts with areas that include wetlands, but it is recommended that this be expanded to include high-value natural areas, steep slopes, their related buffers and setbacks and other sensitive resources as identified by the City. The use of gross density calculations could be considered within the urban services areas if in conjunction with a planned unit development.

This requirement could be implemented in conjunction with the requirement that developers dedicate natural resource areas as parkland, or it could be implemented independently.

Environmental Protection Overlay Zone

Overlay districts are commonly used in zoning ordinances to identify special areas and requirements applied to these areas. The Ramsey code includes a Shoreland overlay district, a Scenic River overlay district, a Critical Area overlay district and a Floodplain overlay district, which are included in many city codes.

The Minnesota Environmental Quality Board has suggested an option of using a broader overlay district called a Sensitive Natural Environment Areas overlay district for protecting and conserving significant natural resources in the community. This overlay district can provide protection for a full range of natural community types—woodlands, prairies, wetlands, and shorelands. It could reduce the need for separate park dedication,

or buffer protection elements discussed. The areas may also include natural resource corridors or greenways identified in the community.

The adoption of an environmental protection zone overlay ordinance requires that the community's resources have been inventoried. Ramsey's NRI meets this need. In some cases, two zones are established—Environmental Protection Zones with the highest level of protection for high quality resources, and Environmental Conservation Zones for resources of somewhat lower quality that require a lower standard of protection. The protection zone or zones would be mapped on official city zoning maps, just as the Shoreland and Floodplain overlay zones are mapped.

The environmental protection zone ordinance then provides requirements or standards for development within these zones. Such requirements may include the following:

- Setbacks or buffers from the edge of the sensitive area
- Construction management practices to limit disturbance or damage
- Limits to vegetation removal
- Prohibition or limitation of development within the zones by regulating disturbance, lot sizes, densities, etc.
- Limit to impervious surface coverage

Given the number and diversity of high quality natural areas identified in the City's Natural Resource Inventory, an overlay ordinance of this type offers a way to provide protection to this range of resources rather than using multiple ordinances to address woodlands, wetlands, and other types of natural resources.

The City of Portland, Oregon, has adopted a detailed environmental protection zone ordinance that provides a good example of such ordinances. In the Portland ordinance, development is mostly prohibited in the "environmental protection zone", and environmentally-sensitive development is allowed in the "environmental conservation zone." Typically, existing development, repairs and maintenance, and provision of public infrastructure and utilities, public trails, and similar items are allowed in the protection and conservation zones.

Copies of the Portland ordinance or Minnesota EQB Model Ordinance can serve as examples of this approach.

Other Tools for Protection and Management of Natural Areas

Ordinances are mainly a regulatory (“stick”) approach for protecting and managing natural resources. They can also provide incentives (“carrots”) to natural resources protection. Many communities use a combination of carrots and sticks in protecting and managing natural resources. The regulatory approach assures that some priority resources will be protected, but is limited by laws that prohibit the “taking” of private property without adequate compensation. The “carrot” approach may be more politically acceptable in some cases than the “stick” approach, and may be more viable when potential “taking” is an issue.

In addition to changes in existing ordinances or adoption of new ordinances, the City can consider a variety of “carrot” approaches to encourage city residents to protect the natural resources on their properties, including the following:

- Provide information and education to homeowners about the special features on their properties. Many landowners will take great pride in knowing that they have something special on their land, and will be eager to learn about how best to manage it.
- Inform property owners about options to donate their land as parks and open space, or protect it with a conservation easement. For some property owners, donation of land or easements provide financial and tax benefits.
- Identify grants or other public programs that provide financial or educational benefits to owners of natural areas
- Work with developers or property owners to encourage design strategies that protect and improve the quality of resources.
- The DNR Website (<http://files.dnr.state.mn.us/assistance/landprot.pdf>) contains the resource Land Protection Options, a Handbook for Minnesota Landowners. This is an outstanding tool to help individual landowners better understand their options, and also for city staff as a resource to help positively engage interested property owners.
- Another important resource for private landowners is the publication Beyond the Suburbs: A Landowner’s Guide to Conservation Management. This resource can also be found on the MN DNR website at: http://files.dnr.state.mn.us/forestry/beyond_suburbs.pdf
- The City can also continue to set a good example for other landowners by protecting or restoring natural areas on city-owned properties, and by developing interpretive and educational opportunities.
- In addition, there are a variety of funding options available to assist with implementation of these and/or other activities. These include the existing park dedication fee, bond referendums, and grant

opportunities. It should also be noted that completion of this NRI and the identification of a greenways corridor is an important step that will improve the city's competitiveness when seeking natural resource implementation grants from the Minnesota DNR.

Use Low Impact Development Strategies

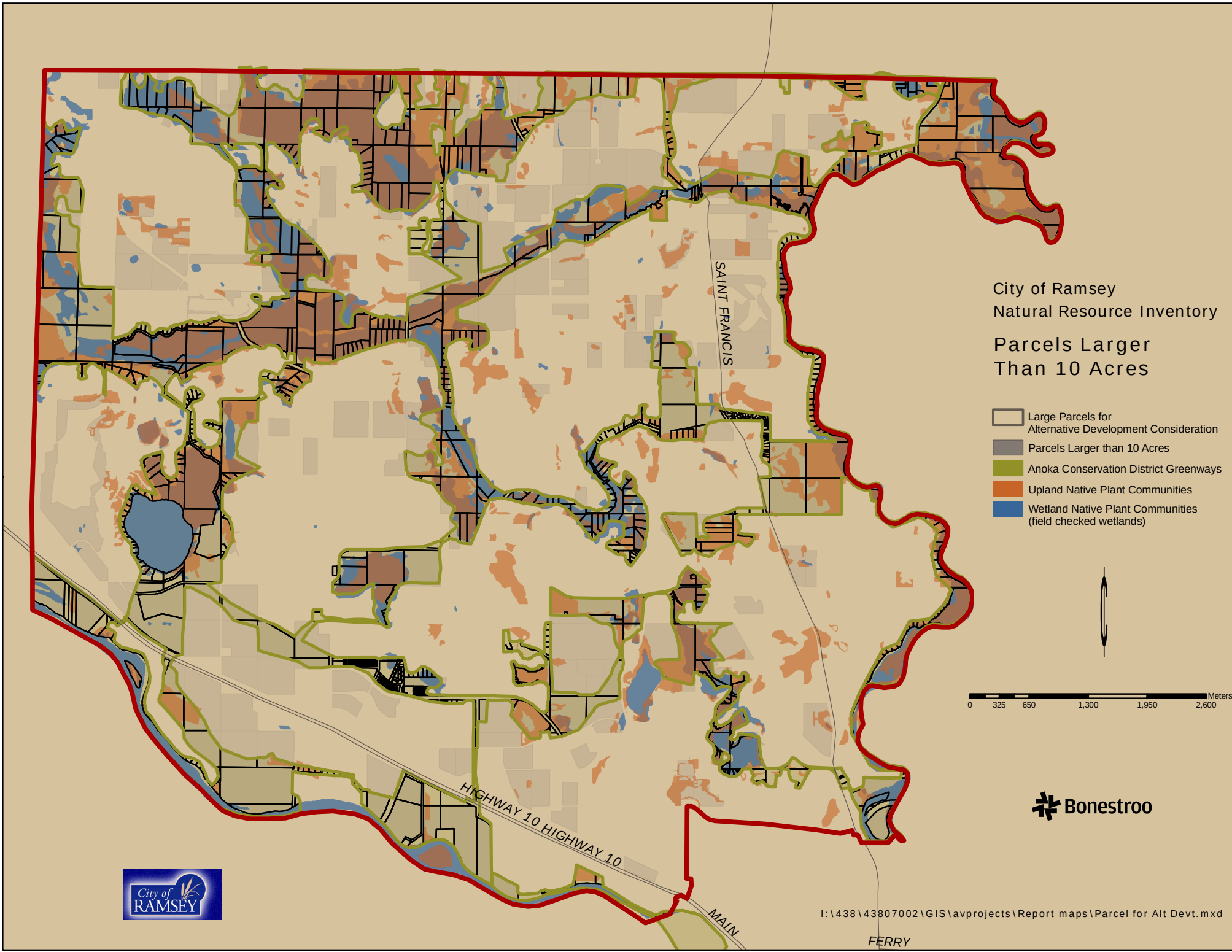
Low Impact Development (LID) is intended to minimize the impacts of development on natural resources, and includes approaches such as cluster development, the use of various infiltration techniques such as rain gardens, pervious pavement, green roofs, ribbon curbing, as well as other approaches. Benefits can include reduced infrastructure cost, as well as maintaining site hydrology, protection of downstream water quality, and preservation and/or restoration of natural areas for potential public open space use.

The Minnesota Pollution Control Agency has a program for developing sustainable communities that includes information about LID. More information is available at the MPCA website, www.pca.state.mn.us/oea/sc/. Additional information about LID can also be found at <http://www.lowimpactdevelopment.org/>

Parcel Evaluation

As part of this project Bonestroo ecologists identified parcels greater than 10 acres in size that may be suitable for low-impact development design methods such as cluster development. This analysis was conducted after the completion of the field work, so that data from the NRI could inform the process. This evaluation focused on sites that contain quality natural areas and have the potential to be developed, based on parcel size. Areas not considered include existing parks. The parcel review found that the combination of large parcels and quality natural areas tended to align within the proposed Greenways Corridor. This concurrence may facilitate planning by allowing the city to focus conservation strategies within a defined area (the corridor), and also supports the validity of the proposed corridor.

On some parcels, property access may have prevented a field inventory. Where field data is lacking, a field evaluation of the site by a professional plant ecologist should occur prior to development. This will allow solid field information to guide site-specific decision-making, and minimize the cost of development review for both the City and developer. The following pages show parcels identified as suitable for alternative development and other non-traditional design methods, and wetlands and flood zones that limit development.

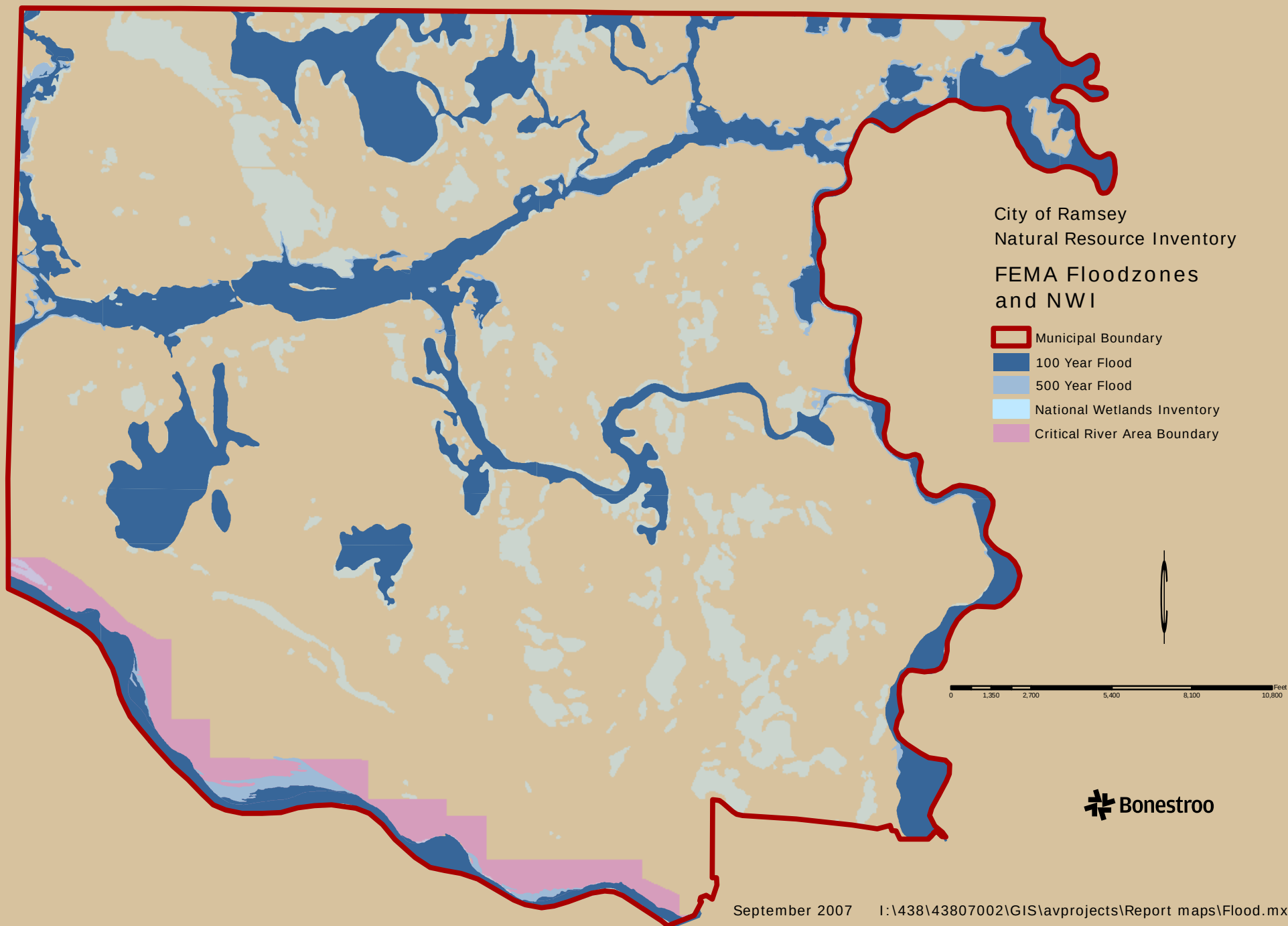


City of Ramsey
Natural Resource Inventory
Parcels Larger
Than 10 Acres

- Large Parcels for Alternative Development Consideration
- Parcels Larger than 10 Acres
- Anoka Conservation District Greenways
- Upland Native Plant Communities
- Wetland Native Plant Communities (field checked wetlands)

0 325 650 1,300 1,950 2,600 Meters





Updates to the NRI and Sharing of the NRI Data

Updating NRI Data

The natural resource inventory and MLCCS data generated by the this project represent a snapshot of natural resources in Ramsey at the time the assessment was conducted, and the recommendations are for practices and strategies that reflect current understanding of the best approach. Over time, changes in land use and new knowledge may make it appropriate to revisit and update the NRI. While there is no hard and fast rule about how frequently an NRI should be updated, several factors influence the need to update, and there are several approaches to how an update can occur.

Factors influencing the need to update include time, the degree of change on the landscape, and the degree of on-going maintenance to the NRI data. If the NRI and MLCCS data is maintained on an on-going basis, a full-scale update may not be needed. However, if the data is not maintained, the city may want to consider reviewing and updating the NRI every 5-10 years to evaluate the condition of natural areas, or anytime there is a significant percent change in the amount of developed land in the city. For example, currently approximately 50% of the land has been developed to commercial, residential, or rural residential land cover. Converting an additional 5-10% of the land may affect stormwater or invasive species levels in adjacent natural areas, and may change the boundaries, type, and quality of natural areas.

The simplest approach to maintenance is to implement a process for regular review and update of the MLCCS data in GIS. This could be done annually, as new aerial photos become available, or episodically, in conjunction with development plat review. Updates would be needed for areas where there was a change in landcover, such as conversion of agricultural land to development or to a prairie restoration, or loss of forest habitat due to disease or development. Updates should include a site visit to affected natural areas by an experienced MLCCS ecologist, either from the city, city's consultant, or developer's consultant.

The GIS layer associated with the MLCCS data can be readily updated on an on-going basis by city staff with a knowledge of ecology and GIS, and with access to current aerial photographs, or through use of an outside consultant with solid experience in MLCCS. A brief training in MLCCS, how it works, and how to use the information may be beneficial for city staff, as well.

Sharing of NRI Data

The Anoka Conservation District (ACD) completed the originally, remote assessed MLCCS data set that formed the foundation of the City's NRI. Since this information is important for planning at a county-wide and state-

wide level, as well as at the local level, it would be a positive “good-will” gesture for the city to share the new, updated MLCCS GIS data with the ACD and, potentially, with the Minnesota DNR.

Rum River Study

Altering the hydrologic regime and the seasonal hydrologic fluctuations in natural river systems can have a variety of effects on aquatic ecosystems. A study of the late-season drawdowns on the Rum River is recommended, to facilitate a broad understanding of any potential effects of these draw-downs on the river ecosystem.

General Management Concepts for all Natural Areas

Maintain and Link Together Larger Tracts of Significant Natural Areas

Connectivity and size are both important factors affecting the function of natural areas. As a general rule, the larger an area is, the greater the diversity of plants and animals present. Larger natural areas are also more stable and able to withstand the affects of naturally occurring events such as drought, insects and disease, and windstorms. For these reasons, the largest high quality natural areas should be given the highest priority for protection and management. Smaller patches of natural communities and sites with good restoration potential should then be used to link larger areas together. Linkages should consider corridors and natural areas outside the City as well as features within the City. For example, Trott Brook is one of the defining features of the City. The Trott Brook corridor and adjacent moderate and high quality natural and semi-natural areas form a natural “backbone” to a greenway corridor plan. Other natural alignments exist along the Mississippi and Rum Rivers, and via the existing parks. The greenways map that accompanies this report illustrates a potential greenway corridor, as well as high and moderate quality natural areas that can guide finalizing a greenways plan.

Maintain Undisturbed Vegetative Buffers Around Natural Areas

A buffer of undisturbed vegetation can provide a variety of benefits. The buffer should consist of a mixture of trees, shrubs, grasses and forbs, with the mixture dependent on the specific site. Buffers reduce the impacts of surrounding land uses by stabilizing soil to prevent erosion, filtering pollutants, providing habitat areas and cover for animals, and reduce problems related to human activities by blocking noise, glare from lights and reducing disturbance. Even relatively narrow buffers of undisturbed vegetation can provide some benefits, but wider buffers will provide additional screening, water quality, and habitat benefits. Buffers will be most effective if most or all of the landowners around a natural area cooperate to make a continuous buffer. Landowners should avoid cutting vegetation, dumping grass clippings or other debris, and trampling vegetation within buffers. If a path is desired through the buffer, it should be mown or cut only as wide as is necessary for walking, and located so that it does not encourage erosion. Likewise, City trail systems should not be located where they defeat the purpose of natural buffers.

Use Plant Species Native to the Area.

Native trees, shrubs, grasses and forbs can be planted in buffer areas or in degraded portions of natural areas. Species planted should be indigenous to the region (species lists are available from the Minnesota DNR). Plant species should be chosen based on the specific characteristics of the site including soils, slope, aspect and

adjacent natural community types and quality. If possible, restore the site to the original natural community type that existed before conversion (i.e., prairie, oak forest).

Control Invasive Exotic Species

A number of nonnative species (sometimes called "exotics") are either currently a problem or have potential to be a problem. These include European buckthorn (*Rhamnus cathartica*), Tartarian honeysuckle (*Lonicera tartarica*), Siberian elm (*Ulmus pumila*), reed canary grass (*Phalaris arundinacea*), smooth brome (*Bromus inermis*), leafy spurge (*Euphorbia esula*), giant reed grass (*Phragmites australis*), Absinthe sage (*Artemisia absinthium*) and purple loosestrife (*Lythrum salicaria*), among others. For a complete list of species considered invasive by the Mn DNR, see <http://www.dnr.state.mn.us/invasives/index.html>

These plants invade native plant communities and can take over rapidly, eliminating native plants and leading to a loss of plant diversity and wildlife habitat. Often, disturbances from new road or home site construction serve as a pathway for introduction of these species to a natural community not yet invaded by exotic species. To control invasion by exotics, minimize disturbance to natural areas and surrounding buffer areas as much as possible, and avoid planting or providing openings for exotics to invade. Small populations of exotics may be controlled by hand removal or through direct application of appropriate herbicides.

Maintain and Place Habitat Structures Where Appropriate

Natural areas provide important habitat for many species of wildlife. Adding wood duck nest boxes and other types of nesting structures can augment habitat. Retaining or adding stones, logs, and dead trees in natural areas and buffers provides habitat for many species of reptiles, amphibians, birds and mammals. While some tree removal may be necessary for safety or for disease control (e.g., Dutch Elm Disease or Oak Wilt), dead trees, both standing and down provide habitat for many animals. The books *Lakescaping for Wildlife and Water Quality* and *Landscaping for Wildlife* by Carroll Henderson are useful guides for improving habitat with plantings and structures.

Management Recommendations, by Community Type

Following are general management strategies for prairie, savanna, wetland and forest communities. These management strategies are intended to be generic; therefore more specific management recommendations may be necessary for individual natural communities and sites.

Prairie and Savanna Management

Prior to European settlement the health of prairie and savanna plant communities were maintained by grazing and fires, both of which probably occurred annually to every few years on most sites. Some fires occurred naturally, while most were set by Native Americans. Fires maintained the open structure of prairies by controlling the growth and spread of trees and shrubs, removing accumulated plant litter, warming the soil in spring, and returning nutrients to the soil. With the spread of agriculture and urban development, fires have been suppressed, leading to the spread of shrubs, trees, and exotic plants in prairie and savanna communities, and loss of diversity of native grasses and forbs. The activities of large and small mammals and insects also helped to maintain prairie communities by spreading seeds, burrowing to loosen soils, and pollinating prairie grasses and forbs.

In addition to the suppression of fires, prairies and savannas have been degraded by inappropriate levels of grazing, which reduces forb diversity and encourages the dominance of clonal plants (such as golden rod) that are unpalatable to livestock. Other factors responsible for the decline of prairie and savanna communities include development, ill-advised tree planting, plowing, and too frequent mowing.

Less than one percent of the prairie and savanna landscapes that once existed in southeastern Minnesota remain. The goal for managing the remaining remnants should be to maintain or restore as much of the original diversity as possible, through re-establishing or mimicking the processes that helped to maintain these plant communities.

Prairie and savanna management should consider the following actions, as appropriate for each site:

- Remove exotic species with appropriate methods. Cutting and herbicide treatment are often most appropriate for tree and shrub species such as black locust, sumac, and buckthorn. Repeated herbicide treatments or biological controls may be needed for other exotic species such as leafy spurge and reed canary grass.
- Remedy disturbance problems where possible, by closing trails where erosion is occurring, or reduce/rotate grazing to maintain plant populations.
- Use prescribed burns to control cool season grasses and other exotics, remove accumulated plant litter, encourage recruitment of prairie plants from the seed bed, and to maintain the health of the prairie for the long term. Burns may be scheduled annually at first, and reduced to every 3-4 years, depending on amount of litter available to successfully support a burn. Vary the burn regime over the long-term to

include both fall and spring burns, and manage the timing of the burns to minimize negative impacts to ground-nesting birds. Burn only a portion of a prairie at any one time to conserve insect diversity.

- If elimination of exotics and prescribed burns over several seasons fails to restore desired diversity, consider plant community restoration through supplemental seeding of cut and burned area. Reconstructed prairies and savannas will require maintenance through infrequent mowing or prescribed burn regimes (burning is preferred over mowing when possible). Plantings should use native seed from local sources.
- In general, savannas can be burned less frequently than prairies and droughty sites burned less frequently than mesic or wet sites. Average burn frequency for the dry prairies and savannas in Ramsey is approximately five years, with a range of 1-10+ years. In addition, burn frequency should be greater during the first couple of years if control of nonnative species is a management objective.
- Seasonal timing can have a profound effect on species composition. Current research information indicates that spring fires, conducted prior to April 15, tend to favor cool season grasses and summer-blooming forbs. Late spring fires (April 15 – June 1) tend to favor warm season (usually native) grasses and usually negatively effect forbs and tree/shrub species. Summer burns would mimic lightning set fires, and although these did occur, they appear to have been less of an influence on the presettlement landscape than human-set fires. Current information indicates that fall fires (after September 15) are most effective at maintaining a balance between grass and forb species and for controlling brush. There is also reason to believe, based on historical records that frequent fall burns most closely mimic the presettlement burning pattern used by Native Americans in the tallgrass prairie region of the Upper Midwest.
- Mowing can also be used on sites with adequate accessibility and low risk for site disturbance. Mowing somewhat mimics the effect of grazing and can give many of the effects that prescribed burning can. Proper timing and techniques in mowing can be used to maintain a healthy balance between grasses and forbs.
- Management of native communities, especially prairie, must also consider effects on the animal populations that are dependent on the community. The influence of management activities (i.e. burning) are not completely understood on animals such as butterflies and other invertebrates. To minimize the potential for devastating impacts on community obligate species and/or fire sensitive species, management should be carried out so as not to influence the entire area upon which these species depend on. An example would be not burning an entire prairie at once; this would leave refugia for the species of concern and allow for potential recolonization of burned areas.

- Monitor the effectiveness of management activities, and any changes in plant and animal species in managed areas. Adjust activities as-needed based on monitoring results. This is a very important part of sound natural resource management.

An example of site specific prairie and savanna management can be seen in the Sunfish Lake Oak Savanna management plan, which is currently being implemented by the Minnesota Pollution Control Agency.

Wetland Management

Wetland plant communities are frequently altered or degraded by changes in hydrologic regimes associated with agricultural or urban development. Farming and urban development alter the quantity and quality of stormwater entering wetlands by increasing stormwater runoff and associated sediments and nutrients, and by draining, filling and ditching wetlands. Agriculture and urban development also alter groundwater flows, typically diminishing flows through withdrawals for drinking water or increasing impervious surface areas. Excessive groundwater removal has been proved to de-water and alter seepage communities and fens.

Goals for wetland plant communities should include maintaining or restoring native plant communities and diversity by re-establishing or approximating original hydrology and natural processes. Some communities with variable hydrology, such as cattail marshes and wet meadows, may be relatively easy to restore or enhance, while more specialized communities like fens and seepage swamps can be remarkably difficult to restore if hydrologic conditions have been excessively altered.

Some strategies for enhancing or restoring native plant communities in wetlands include the following:

- When possible, maintain or restore the natural hydrologic regime, limiting “bounce” from storm events and maintaining ground water flows. Use infiltration and vegetation strategies to reduce runoff from the watershed area that drains to the wetland, or use ponding or other best management practices to moderate storm flows, and remove sediments and nutrients from stormwater before it enters the wetland.
- Remove or control invasive exotic species. Repeated herbicide treatments may be necessary to control reed canary grass and purple loosestrife. Biological controls, such as weevils, have also shown promise recently in managing purple loosestrife. Hand removal of exotics by digging may be effective in areas where invasions are limited. In forested wetlands, buckthorn removal may be required, using cutting and herbicide treatments. Use herbicides that are licensed for use in wetland areas.

- Establish a vegetative buffer around wetland areas, to filter runoff, slow stormwater flows, and provide essential upland habitat needed by many species that use both wetlands and uplands as habitat during their lifecycles. Prohibit cutting, dumping or other alteration of buffers.
- Plant native wetland and upland plants in constructed wetlands and buffers. Plantings should use locally native species, and may include aquatic plants, grasses, forbs, shrubs and trees to provide structural diversity and improve habitat.
- Maintain dead and fallen trees or add nesting structures if desired to improve wildlife habitat.
- Monitor management efforts and revise strategies as needed to meet goals.

Forest Management

Most of the forest areas in the area have been grazed at varying levels, and in some cases were logged. Forest communities are often associated with ravines and steep slopes and are therefore sensitive to the impacts of erosion and sedimentation. In addition, roads and trails frequently fragment forest communities. All of these activities encourage invasion by aggressive exotic species-particularly buckthorn and Tartarian honeysuckle. Fragmentation also reduces the value of the forest community for wildlife species such as migratory songbirds that require "interior" forest areas that are well buffered from human disturbances. Following are management strategies for maintaining and restoring the diversity and health of forest communities:

- Avoid cutting trees in areas containing exotic shrub species. Where cutting trees is necessary, cut exotic shrubs and treat with a basal application of an appropriate herbicide. Where developments are proposed within or adjacent to forest areas, removal and treatment of exotic shrubs could be incorporated into the overall site preparation process.
- Slow growing and mast-bearing trees such as oak and hickory should be given particular protection due to their value to wildlife. Other trees through their seeds or buds also serve as important food sources for wildlife; these include maples, elms, aspens, basswood and birch.
- Large trees, particularly those containing cavities, should not be removed unless absolutely necessary. Dead standing and down trees should likewise not be removed unless they present a safety hazard. While humans perceive a forest with dead trees as messy, dead trees are important because they harbor a high diversity of plants and animals throughout their decomposition cycle. (Note that sanitation cuts may be necessary where oak wilt or Dutch elm disease is present)

- Encourage removal of weedy and/or exotic tree species such as Siberian elm, boxelder, Russian olive, black locust and eastern red cedar. Plant higher value native trees and shrubs back into forests following removal. The Ramsey Tree Book is a good source for planting recommendations.
- Oak forest communities are adapted to fires and can often be improved through prescribed burns. Prescribed burns will generally increase diversity of grasses and forbs, encourage oak seedling germination and kill back exotic or invasive shrub species. Where oak forest communities occur adjacent to prairie and savanna communities, fires from prescribed burns should be allowed to burn into the oak forest. Burn more frequently in early years and less frequently as exotic species are controlled. Include both spring and fall burns in the management regime.
- Maple-basswood and lowland hardwood forest communities are generally not adapted to fires and should not be burned, or burned very infrequently (every 20+ years).

Oak wilt is of particular concern on the Anoka Sand Plain. It is spread by construction activity or other root/top damage during the growing season. Canopy openings created by oak wilt can augment invasion by exotic species if not replanted or managed to restore oak woodlands. Oak trees should not be cut, pruned or injured between April 15 and July 1 of each year. Exposed roots injured by construction activities facilitate the spread oak wilt infection. A vibratory plow can be used to sever roots along the edge of any construction area prior to beginning work. This can prevent the transfer of the oak wilt fungus between individual trees through grafted roots and allow for regeneration at the point of cutting. If vibratory plowing is used, the disturbed ground should be restored to pre-plow contours and planted with an appropriate native seed mix to prevent invasion by nonnative shrubs and weeds. Tree protection zones should be fenced to prevent entry or compaction by construction equipment. Soil and construction materials should not be stored within the tree protection zone, as this can result in contamination.

Appendix A

MN DNR Native Plant Community and Rare Features Records

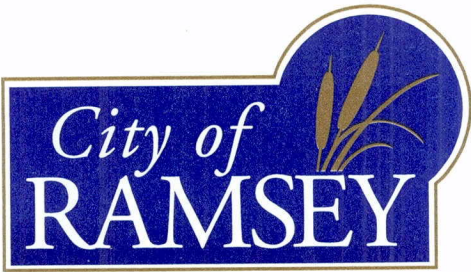
Minnesota Natural Heritage Database
 Element Occurrence Records

T32N R25W S1-30, 33-36; T32N R24W S6 & 19; ANOKA COUNTY
 MndNR, Natural Heritage and Nongame Research Program

11:01 Thursday, SEPTEMBER 08, 2005 1
 Copyright 2005 State of Minnesota DNR

TWP	RNG	PRIMARY SECTION	FED STATUS	MN STATUS	S RANK	ELEMENT and OCCURRENCE NUMBER	MANAGED AREA
T032N	R24W	06		SPC		PIYUOPHIS CATENIFER (GOPHER SNAKE) #30	RUM RIVER CENTRAL REGIONAL PARK
T032N	R24W	17		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #285	
T032N	R24W	20		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #280	
T032N	R24W	20		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #636	
T032N	R24W	29		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #126	
T032N	R24W	29		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #281	
T032N	R24W	29		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #511	
T032N	R24W	29	LT	SPC		HALIAEETUS LEUCOCEPHALUS (BALD EAGLE) #2206	
T032N	R24W	29		SPC		HETERODON NASTICUS (WESTERN HOGNOSE SNAKE) #7	
T032N	R24W	31		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #422	
T032N	R24W	31		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #488	
T032N	R25W	01		SPC		BUTEO LINEATUS (RED-SHOULDERED HAWK) #45	
T032N	R25W	02		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #560	
T032N	R25W	02		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #561	
T032N	R25W	02		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #562	
T032N	R25W	03		NON		BOYTAURUS LENTIGINOSUS (AMERICAN BITTERN) #23	
T032N	R25W	07		S2		DRY OAK SAVANNA (CENTRAL) SAND-GRAVEL SUBTYPE #16	
T032N	R25W	08		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #486	
T032N	R25W	15		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #563	
T032N	R25W	16		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #564	
T032N	R25W	20		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #777	
T032N	R25W	21		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #469	
T032N	R25W	21		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #484	
T032N	R25W	22		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #482	
T032N	R25W	22		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #1005	
T032N	R25W	23		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #1020	
T032N	R25W	25		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #1011	
T032N	R25W	30		S3		FLOODPLAIN FOREST SILVER MAPLE SUBTYPE #63	
T032N	R26W	12		S2		DRY OAK SAVANNA (CENTRAL) SAND-GRAVEL SUBTYPE #17	
T032N	R26W	24				COLONIAL WATERBIRD NESTING SITE #841	
T033N	R24W	31		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #559	RUM RIVER CENTRAL REGIONAL PARK ELM CREEK PARK RESERVE ELM CREEK PARK RESERVE ELM CREEK PARK RESERVE
T033N	R25W	36		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #675	
T120N	R22W	16		THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #98	
T120N	R22W	16		S2		MAPLE-BASSWOOD FOREST (BIG WOODS) #2	
T120N	R22W	16		SPC		PANAX QUINQUEFOLIUS (AMERICAN GINSENG) #24	

Appendix B
Landowner Notification Letter and Postcard



7550 Sunwood Drive NW • Ramsey, Minnesota 55303
City Hall: 763-427-1410 • Fax: 763-427-5543
www.ci.ramsey.mn.us

May 1, 2007

Re: Site Access for Natural Resources Inventory

Dear Property Owner:

The City of Ramsey is conducting a Natural Resources Inventory (NRI) of targeted natural areas within the city. The NRI will provide valuable information about the location and condition of natural areas within the city, and is an important component of the Comprehensive Plan process currently underway.

The city has hired Bonestroo, a local natural resources, planning, and engineering firm, to complete the NRI. To ensure that this inventory is based on accurate and up-to-date information, a plant ecologist from Bonestroo will be evaluating natural areas via an on-site visit. Your property may contain or be adjacent to a natural area that should be evaluated.

During the visit, the ecologist will walk through natural areas and note the location and quality of features such as forests and prairies. No digging or other disturbance will take place. The site evaluations will be conducted between May 21, 2007 and July 31, 2007, and the time needed to evaluate a site will vary, depending on the size of the site. Your presence is not required during the visit; however, if you prefer to accompany the ecologist, or would like advance notice (24 hours) of when they anticipate accessing your property, please contact the City with that request or with any other concerns.

To help provide information about the project, the City of Ramsey will host a **Natural Resources Inventory Open House on Tuesday, May 15, 2007, from 6:30 p.m. to 8:00 p.m. at the Ramsey Municipal Center (7550 Sunwood Dr NW)**. This will provide an opportunity to view examples of similar NRI projects completed for other cities, ask questions, and talk to both city staff and the ecologists working on the Ramsey NRI.

We appreciate your cooperation in allowing the ecologist(s) access to your property. If you have any questions, please do not hesitate to contact me at (763)433-9905 or canderson@ci.ramsey.mn.us.

Sincerely,

Chris Anderson
Environmental Coordinator



Natural Resources Inventory Fact Sheet

What is a Natural Resources Inventory?

A Natural Resource Inventory (NRI) is a field-based survey of natural areas such as forests, wetlands, and prairies. NRIs focus on understanding where natural areas occur, and what condition they are in. A NRI is based on land cover classifications and does not include a wildlife inventory, monitoring water quality, or other similar activities.

How will information from the NRI be used?

NRIs are an effective way to understand the existing natural resources in an area and are a critical part of comprehensive land use planning. Understanding the condition and quality of existing resources, sound management decisions can be made that balance community growth with appropriate land use and conservation goals. For example, if development does occur in a particular area, information from an NRI can be used to help avoid or buffer changes to areas such as high quality forests. A NRI also identifies opportunities for interested landowners to further manage or protect natural areas on their property.

How is a NRI Conducted?

The initial stages of a NRI include activities such as collecting existing information about natural resources within the study area and reviewing aerial photographs. This helps scientists identify natural areas that should be site reviewed. Landowners are then contacted to inform them that the scientist would like to visit natural areas on their property. After landowners are notified, a scientist walks through each natural area and records the composition, structure and function of the land cover present. Landowners are welcome to walk with the scientist as they perform the inventory.



Natural Resource Inventory Update

May 7, 2007

Dear Property Owner:

This post card is a follow up to the May 1, 2007 letter you received regarding a Natural Resources Inventory that will be conducted in Ramsey this summer. The letter explained that if you would like to accompany the ecologist or would like advance knowledge of when they anticipate accessing your property, that you should call the City with your request or any other concerns. ***The City would like to take this opportunity to clarify that you also have the right to deny access to your property. If your desire is to not allow access to your property, please call Jo Ann Shaw at 763-433-9824 or Chris Anderson at 763-433-9905.***

To learn more about the Inventory purpose and process, we encourage you to attend the ***Natural Resource Inventory Open House on Tuesday, May 15, 2007, from 6:30 p.m. to 8:00 p.m. at the Ramsey Municipal Center, 7550 Sunwood Drive N.W.***

7550 Sunwood Drive NW
Ramsey, MN 55303



Appendix C

Land Cover Summary Tables

Level 1 Land Cover Summary (all Land Cover Classes)

MLCCS Cover Code	Description	Total Acres
10000	Artificial surfaces and associated areas	9,583.87
20000	Planted or Cultivated Vegetation (greater than 96% vegetation cover)	2,448.86
30000	Forests	1,767.34
40000	Woodlands	445.02
50000	Shrubland	524.36
60000	Herbaceous	3,565.24
90000	Open Water	646.12
<i>TOTAL</i>		18,980.80

Level 5 Land Cover Summary (Natural Areas)

MLCCS Code	Number of Sites	Description	Total Acres
31210	7	Tamarack swamp	32.91
32100	2	Upland deciduous forest	13.13
32110	73	Oak forest	364.01
32111	3	Oak forest red maple subtype	10.55
32112	12	Oak forest mesic subtype	115.06
32113	9	Oak forest dry subtype	102.05
32150	2	Maple-basswood forest	12.26
32160	69	Aspen forest	147.06
32170	71	Altered/non-native deciduous forest	263.72
32200	1	Temporarily flooded deciduous forest	1.09
32210	39	Floodplain forest	245.88
32211	2	Floodplain forest silver maple subtype	14.09
32220	25	Lowland hardwood forest	96.04
32230	25	Aspen forest - temporarily flooded	65.17
32240	1	Altered/non-native temporarily flooded deciduous forest	1.13
32310	1	Black ash swamp	7.47
32311	1	Black ash swamp seepage subtype	2.39
32320	6	Mixed hardwood swamp	22.94
32330	65	Aspen forest - saturated soils	170.36
32400	3	Seasonally flooded deciduous forest	0.27
32420	8	Mixed hardwood swamp - seasonally flooded	59.86
41130	8	Eastern Red Cedar woodland	24.10
42120	73	Oak woodland-brushland	348.72
42130	36	Altered/non-native deciduous woodland	83.65
43110	2	Altered/non-native mixed woodland	5.46
52120	1	Native dominated disturbed upland shrubland	0.52
52130	4	Altered/non-native dominated upland shrubland	18.65
52210	3	Native dominated temporarily flooded shrubland	19.92
52220	4	Altered/non-native dominated temporarily flooded shrubland	8.96
52330	24	Altered/non-native dominated saturated shrubland	136.45
52350	2	Alder swamp - saturated soils	6.62
52360	2	Willow swamp - saturated soils	8.30
52410	6	Alder swamp	16.41
52420	22	Wet meadow shrub subtype	100.52
52430	40	Willow swamp	176.63
52440	7	Altered/non-native dominated seasonally flooded shrubland	29.37
52530	1	Birch bog, spiraea shrublan - semipermanently flooded shrubland	1.37
61110	5	Mesic prairie	13.66
61120	2	Tall grass altered/non-native dominated grassland	4.11
61200	1	Medium-tall grassland	14.61
61210	29	Dry prairie	98.26
61213	1	Dry prairie sand-gravel subtype	15.07
61220	75	Medium-tall grass altered/non-native dominated grassland	628.60
61310	3	Wet prairie	7.97
61330	1	Temporarily flooded altered/non-native dominated grassland	2.68

61340	1	Cattail marsh - temporarily flooded	0.56
61410	3	Wet prairie - saturated soils	12.49
61420	31	Wet meadow	179.49
61430	8	Cattail marsh - saturated soils	21.38
61451	1	Poor fen sedge subtype	1.29
61480	62	Saturated altered/non-native dominated graminoid vegetation	222.25
61510	55	Cattail marsh - seasonally flooded	397.94
61520	16	Mixed emergent marsh - seasonally flooded	45.83
61530	58	Seasonally flooded altered/non-native dominated emergent vegetation	335.97
61540	1	Wet meadow - seasonally flooded	24.62
61610	66	Cattail marsh - semipermanently flooded	452.69
61620	36	Mixed emergent marsh	90.25
61630	23	Semipermanently flooded altered/non-native dominated emergent vegetation	147.65
61710	4	Cattail marsh - intermittently exposed	1.85
61720	8	Mixed emergent marsh - intermittently exposed	39.59
62100	1	Grassland with sparse deciduous trees	1.53
62120	6	Dry oak savanna	49.94
62130	1	Mesic oak savanna	0.83
62140	66	Grassland with sparse deciduous trees - altered/non-native grassland	288.58
62220	41	Grassland with sparse conifer or mixed deciduous/coniferous trees	466.96
63100	1	Upland forb vegetation	0.96
63210	1	Seepage meadow	1.21
91100	10	Slow moving linear open water habitat	288.54
92100	4	Limnetic open water	160.51
92210	1	Floating algae - semipermanently flooded littoral	0.40
92500	1	Littoral open water	32.81
93110	8	Floating algae - intermittently exposed aquatic bed	7.40
93120	1	Floating vascular vegetation - intermittently exposed	10.16
93200	2	Permanently flooded aquatic bed	1.40
93210	5	Floating algae	3.84
93220	1	Floating vascular vegetation	0.83
93300	107	Palustrine open water	140.22

Appendix D

Plant Community Summary Data and Species Lists

Natural Resources Inventory

By-Community Species Lists

Area 1-1				MLCCS Code	Qualitative Rank	Acres
Oak forest				32110	C	
Canopy		Shrub		Ground		
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Cornus racemosa</i>	Gray dogwood	<i>Solidago canadensis</i>	Canada goldenrod	
<i>Quercus rubra</i>	Northern red oak	<i>Corylus americana</i>	American hazelnut	<i>Carex pensylvanica</i> var.	Sun-loving sedge	
<i>Quercus macrocarpa</i>	Bur oak	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Carex pensylvanica</i> var.	Sun-loving sedge	
<i>Populus tremuloides</i>	Quaking aspen	<i>Vitis riparia</i>	Wild grape	<i>Hydrophyllum virginianum</i>	Virginia waterleaf	
<i>Prunus serotina</i>	Black cherry	<i>Ribes nigrum</i>	Black currant	<i>Parthenocissus vitacea</i>	Virginia creeper	
<i>Acer negundo</i>	Box elder	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Circaea lutetiana</i> var.	Common enchanter's	
				<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil	

Area 1-2				MLCCS Code	Qualitative Rank	Acres
Oak forest mesic subtype				32112	C	
Canopy		Shrub		Ground		
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Corylus americana</i>	American hazelnut	<i>Phalaris arundinacea</i>	Reed canary grass	
<i>Quercus rubra</i>	Northern red oak	<i>Salix exigua</i>	Sandbar willow	<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle	
<i>Prunus serotina</i>	Black cherry			<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle	
<i>Populus tremuloides</i>	Quaking aspen			<i>Carex pensylvanica</i> var.	Sun-loving sedge	
<i>Acer saccharum</i>	Sugar maple			<i>Parthenocissus vitacea</i>	Virginia creeper	
				<i>Matteuccia struthiopteris</i>	Ostrich fern	
				<i>Circaea alpina</i> var. <i>alpina</i>	Alpine enchanter's	

By-Community Species Lists

Area 1-3

Oak forest mesic subtype

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Prunus serotina</i>	Black cherry
<i>Acer negundo</i>	Box elder
<i>Quercus alba</i>	White oak
<i>Tilia americana</i>	Basswood
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Cornus racemosa</i>	Gray dogwood
<i>Vitis riparia</i>	Wild grape
<i>Ribes nigrum</i>	Black currant
<i>Corylus americana</i>	American hazelnut
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Solidago canadensis</i>	Canada goldenrod
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Geranium maculatum</i>	Wild geranium
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Aster macrophyllus</i>	Large-leaved aster
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Elymus hystrix</i>	Bottlebrush grass

MLCCS Code

32112

Qualitative Rank

B

Acres

Area 1-4

Oak forest mesic subtype

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Tilia americana</i>	Basswood
<i>Quercus alba</i>	White oak
<i>Acer saccharum</i>	Sugar maple
<i>Ulmus americana</i>	American elm
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Geranium maculatum</i>	Wild geranium
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Aster macrophyllus</i>	Large-leaved aster
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Thalictrum dioicum</i>	Early meadow-rue

MLCCS Code

32112

Qualitative Rank

A

Acres

By-Community Species Lists

Area 1-5		MLCCS Code		Qualitative Rank	Acres
Oak forest mesic subtype		32112		C	
Canopy		Shrub		Ground	
<i>Quercus macrocarpa</i>	Bur oak	<i>Corylus americana</i>	American hazelnut	<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Sambucus canadensis</i>	Common elder	<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Populus grandidentata</i>	Big-toothed aspen	<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry	<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Quercus rubra</i>	Northern red oak	<i>Ribes nigrum</i>	Black currant	<i>Geranium maculatum</i>	Wild geranium
<i>Tilia americana</i>	Basswood			<i>Toxicodendron radicans</i>	Common poison ivy
<i>Prunus serotina</i>	Black cherry			<i>Solidago canadensis</i>	Canada goldenrod
<i>Populus tremuloides</i>	Quaking aspen				

Area 2-1		MLCCS Code		Qualitative Rank	Acres
Oak woodland-brushland		42120		C	
Canopy		Shrub		Ground	
<i>Quercus macrocarpa</i>	Bur oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Solidago canadensis</i>	Canada goldenrod
<i>Prunus serotina</i>	Black cherry	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Tilia americana</i>	Basswood	<i>Ribes nigrum</i>	Black currant	<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Populus tremuloides</i>	Quaking aspen	<i>Vitis riparia</i>	Wild grape	<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Quercus alba</i>	White oak			<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Acer negundo</i>	Box elder			<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Quercus rubra</i>	Northern red oak			<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil

By-Community Species Lists

Area 2-2

Floodplain forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Tilia americana</i>	Basswood
<i>Acer negundo</i>	Box elder
<i>Fraxinus pennsylvanica</i> <i>var. pennsylvanica</i>	Green ash
<i>Salix nigra</i>	Black willow
<i>Fraxinus nigra</i>	Black ash
<i>Populus tremuloides</i>	Quaking aspen

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Ribes nigrum</i>	Black currant
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Geranium maculatum</i>	Wild geranium
<i>Dactylis glomerata</i>	Orchard grass
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Lilium sp.</i>	Undetermined lily species

MLCCS Code

32210

Qualitative Rank

C

Acres

Area 2-3

Oak forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Fraxinus pennsylvanica</i> <i>var. pennsylvanica</i>	Green ash

Shrub

<i>Cornus racemosa</i>	Gray dogwood
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ostrya virginiana</i>	Ironwood
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Vitis riparia</i>	Wild grape
<i>Ribes sativum</i>	Red currant

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica var.</i>	Sun-loving sedge
<i>Carex pensylvanica var.</i>	Sun-loving sedge
<i>Geranium maculatum</i>	Wild geranium
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Circaea lutetiana var.</i>	Common enchanter's
<i>Leonurus sibiricus</i>	Motherwort
<i>Carex blanda</i>	Charming sedge
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Veronicastrum virginicum</i>	Culver's root
<i>Quercus macrocarpa</i>	Bur oak
<i>Maianthemum canadense</i>	Canada mayflower
<i>Bromus inermis</i>	Smooth brome

MLCCS Code

32110

Qualitative Rank

C

Acres

By-Community Species Lists

Area 2-4

Floodplain forest

Canopy

<i>Acer negundo</i>	Box elder
<i>Tilia americana</i>	Basswood
<i>Quercus macrocarpa</i>	Bur oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Cornus racemosa</i>	Gray dogwood
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Vitis riparia</i>	Wild grape
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rhus glabra</i>	Smooth sumac

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Geranium maculatum</i>	Wild geranium
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Carex blanda</i>	Charming sedge
<i>Leonurus sibiricus</i>	Motherwort
<i>Carex</i> sp.	Undetermined sedge

MLCCS Code

32210

Qualitative Rank

C

Acres

Area 2-5

Maple-basswood forest

Canopy

<i>Tilia americana</i>	Basswood
<i>Acer saccharum</i>	Sugar maple
<i>Prunus serotina</i>	Black cherry
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Ribes nigrum</i>	Black currant
<i>Vitis riparia</i>	Wild grape
<i>Sambucus canadensis</i>	Common elder

Ground

<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Carex blanda</i>	Charming sedge
<i>Amphicarpaea bracteata</i>	Hog peanut

MLCCS Code

32150

Qualitative Rank

C

Acres

By-Community Species Lists

Area 2-7

Oak woodland-brushland

Canopy		Shrub		Ground		MLCCS Code	Qualitative Rank	Acres
<i>Quercus macrocarpa</i>		<i>Rhamnus cathartica</i>		<i>Carex blanda</i>		42120	C	
Bur oak		Common buckthorn		<i>Amphicarpaea bracteata</i>				
<i>Populus tremuloides</i>		<i>Zanthoxylum americanum</i>		<i>Amphicarpaea bracteata</i>				
Quaking aspen				<i>Desmodium glutinosum</i>				
<i>Fraxinus pennsylvanica</i>				<i>Laportea canadensis</i>				
var. <i>pennsylvanica</i>								
<i>Acer saccharum</i>				<i>Anemone cylindrica</i>				
Sugar maple								
<i>Acer negundo</i>								
Box elder								

Area 2-8

Saturated altered/non-native dominated graminoid vegetation

Canopy		Shrub		Ground		MLCCS Code	Qualitative Rank	Acres
		<i>Zanthoxylum americanum</i>		<i>Phalaris arundinacea</i>		61480	NA	
		Prickly ash		<i>Asclepias incarnata</i> var.				
				<i>Solidago canadensis</i>				
				<i>Rudbeckia hirta</i> var.				
				<i>Carex stricta</i>				
				<i>Amphicarpaea bracteata</i>				
				<i>Solidago gigantea</i>				
				<i>Scirpus atrovirens</i>				
				<i>Melilotus officinalis</i>				
				<i>Hypericum perforatum</i>				
				<i>Eupatorium perfoliatum</i>				
				<i>Typha</i> sp.				

By-Community Species Lists

Area 2-9

Oak woodland-brushland

Canopy

<i>Prunus serotina</i>	Black cherry
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Corylus americana</i>	American hazelnut

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Circaea lutetiana</i> var. <i>Circaea lutetiana</i> var.	Common enchanter's
<i>Carex pensylvanica</i> var.	Common enchanter's
	Sun-loving sedge

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 2-10

Seepage meadow

Canopy

Shrub

<i>Salix exigua</i>	Sandbar willow
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Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Verbena hastata</i>	Blue vervain
<i>Scirpus validus</i>	Soft stem bulrush
<i>Cirsium arvense</i>	Canada thistle
<i>Trifolium pratense</i>	Red clover
<i>Agrostis stolonifera</i>	Redtop
<i>Asclepias incarnata</i> var. <i>Asclepias incarnata</i> var.	Swamp milkweed
<i>Carex vulpinoidea</i>	Fox sedge
<i>Solidago gigantea</i>	Giant goldenrod
<i>Scirpus validus</i>	Soft stem bulrush
<i>Carex sparganioides</i>	Thin-leaved sedge
<i>Carex hystericina</i>	Porcupine sedge
<i>Sagittaria latifolia</i>	Broad-leaved arrowhead
<i>Mimulus ringens</i> var.	Blue monkey flower

MLCCS Code

63210

Qualitative Rank

B

Acres

By-Community Species Lists

Area 2-11

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Acer negundo</i>	Box elder

Shrub

<i>Rubus occidentalis</i>	Black raspberry
<i>Ribes nigrum</i>	Black currant
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Poa pratensis</i>	Kentucky bluegrass
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Solidago canadensis</i>	Canada goldenrod
<i>Plantago major</i>	Common plantain
<i>Arctium minus</i>	Common burdock
<i>Phleum pratense</i>	Timothy

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 2-12

Oak woodland-brushland

Canopy

<i>Quercus rubra</i>	Northern red oak
<i>Prunus serotina</i>	Black cherry
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Corylus americana</i>	American hazelnut
<i>Rhus glabra</i>	Smooth sumac

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Monarda fistulosa</i>	Wild bergamot
<i>Sporobolus heterolepis</i>	Prairie dropseed
<i>Campanula rotundifolia</i>	Harebell
<i>Berteroa incana</i>	Hoary alyssum
<i>Lespedeza capitata</i>	Round-headed bush clover

MLCCS Code

42120

Qualitative Rank

B

Acres

By-Community Species Lists

Area 2-13

Oak forest

				MLCCS Code	Qualitative Rank	Acres
				32110	C	
Canopy		Shrub				
<i>Quercus rubra</i>	Northern red oak	<i>Rhamnus cathartica</i>	Common buckthorn			
		<i>Lonicera tatarica</i>	Tartarian honeysuckle			
<i>Acer negundo</i>	Box elder	<i>Ribes nigrum</i>	Black currant			
				Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Circaea lutetiana</i> var.	Common enchanter's	
		<i>Acer negundo</i>	Box elder	<i>Geranium maculatum</i>	Wild geranium	
<i>Prunus serotina</i>	Black cherry	<i>Vitis riparia</i>	Wild grape	<i>Geranium maculatum</i>	Wild geranium	
		<i>Corylus americana</i>	American hazelnut	<i>Matteuccia struthiopteris</i>	Ostrich fern	
				<i>Hydrophyllum virginianum</i>	Virginia waterleaf	
				<i>Carex pensylvanica</i> var.	Sun-loving sedge	
				<i>Leonurus sibiricus</i>	Motherwort	
				<i>Parthenocissus</i>	Woodbine	

Area 2-14

Oak woodland-brushland

				MLCCS Code	Qualitative Rank	Acres
				42120	B	
Canopy		Shrub				
<i>Quercus rubra</i>	Northern red oak	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Amorpha canescens</i>	Leadplant	
		<i>Corylus americana</i>	American hazelnut	<i>Carex pensylvanica</i> var.	Sun-loving sedge	
<i>Quercus alba</i>	White oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Carex pensylvanica</i> var.	Sun-loving sedge	
				<i>Poa pratensis</i>	Kentucky bluegrass	
<i>Prunus serotina</i>	Black cherry	<i>Ribes nigrum</i>	Black currant	<i>Solidago canadensis</i>	Canada goldenrod	
				<i>Bromus inermis</i>	Smooth brome	
				<i>Lespedeza capitata</i>	Round-headed bush clover	

By-Community Species Lists

Area 2-15

Floodplain forest

Canopy

<i>Acer negundo</i>	Box elder
<i>Populus tremuloides</i>	Quaking aspen
<i>Tilia americana</i>	Basswood
<i>Quercus macrocarpa</i>	Bur oak
<i>Ulmus americana</i>	American elm
<i>Quercus rubra</i>	Northern red oak

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Ostrya virginiana</i>	Ironwood

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Campanula rotundifolia</i>	Harebell
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Amphicarpaea bracteata</i>	Hog peanut

MLCCS Code

32210

Qualitative Rank

C

Acres

Area 2-16

Oak woodland-brushland

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Tilia americana</i>	Basswood
<i>Quercus alba</i>	White oak
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Ribes nigrum</i>	Black currant
<i>Corylus americana</i>	American hazelnut

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Eupatorium rugosum</i>	White snakeroot

MLCCS Code

42120

Qualitative Rank

C

Acres

By-Community Species Lists

Area 2-18

Floodplain forest

Canopy

<i>Salix nigra</i>	Black willow
<i>Ulmus americana</i>	American elm
<i>Acer negundo</i>	Box elder

Shrub

<i>Salix exigua</i>	Sandbar willow
<i>Cornus racemosa</i>	Gray dogwood
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Vitis riparia</i>	Wild grape
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Urtica dioica ssp. gracilis</i>	Stinging nettle
<i>Urtica dioica ssp. gracilis</i>	Stinging nettle
<i>Cirsium arvense</i>	Canada thistle
<i>Eupatorium maculatum</i>	Spotted Joe pye weed

MLCCS Code

32210

Qualitative Rank

C

Acres

Area 3-1

Oak forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Prunus serotina</i>	Black cherry
<i>Quercus rubra</i>	Northern red oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Prunus serotina</i>	Black cherry
<i>Quercus rubra</i>	Northern red oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Cornus racemosa</i>	Gray dogwood
<i>Ribes nigrum</i>	Black currant
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Rhus hirta</i>	Staghorn sumac
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Cornus racemosa</i>	Gray dogwood
<i>Ribes nigrum</i>	Black currant

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Bromus inermis</i>	Smooth brome
<i>Cirsium arvense</i>	Canada thistle
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Hydrophyllum virginianum</i>	Virginia waterleaf

MLCCS Code

32110

Qualitative Rank

C

Acres

By-Community Species Lists

Area 3-2				MLCCS Code	Qualitative Rank	Acres
Altered/non-native deciduous forest				32170	NA	
Canopy		Shrub		Ground		
<i>Quercus macrocarpa</i>	Bur oak	<i>Ribes nigrum</i>	Black currant	<i>Parthenocissus vitacea</i>	Virginia creeper	
<i>Acer negundo</i>	Box elder	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Carex pensylvanica</i> var.	Sun-loving sedge	
<i>Celtis occidentalis</i>	Hackberry	<i>Cornus alternifolia</i>	Pagoda dogwood	<i>Carex pensylvanica</i> var.	Sun-loving sedge	
<i>Prunus serotina</i>	Black cherry	<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry	<i>Vitis riparia</i>	Wild grape	
<i>Quercus rubra</i>	Northern red oak	<i>Zanthoxylum americanum</i>	Prickly ash			
<i>Quercus alba</i>	White oak					

Area 3-4				MLCCS Code	Qualitative Rank	Acres
Oak woodland-brushland				42120	C	
Canopy		Shrub		Ground		
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Carex pensylvanica</i> var.	Sun-loving sedge	
<i>Quercus macrocarpa</i>	Bur oak			<i>Parthenocissus vitacea</i>	Virginia creeper	
<i>Fraxinus pennsylvanica</i> var. <i>pennsylvanica</i>	Green ash			<i>Bromus inermis</i>	Smooth brome	
<i>Prunus serotina</i>	Black cherry					

By-Community Species Lists

Area 3-5		MLCCS Code		Qualitative Rank	Acres
Cattail marsh - seasonally flooded		61510		C	
Canopy	Shrub	Ground			
		<i>Phalaris arundinacea</i>		Reed canary grass	
		<i>Eupatorium maculatum</i>		Spotted Joe pye weed	
		<i>Cirsium arvense</i>		Canada thistle	
		<i>Typha angustifolia</i>		Narrow-leaved cattail	

Area 3-7		MLCCS Code		Qualitative Rank	Acres
Oak forest		32110		C	
Canopy	Shrub	Ground			
<i>Populus tremuloides</i>	Quaking aspen	<i>Rhamnus cathartica</i>		Common buckthorn	
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Zanthoxylum americanum</i>		Prickly ash	
<i>Quercus macrocarpa</i>	Bur oak	<i>Bromus inermis</i>		Smooth brome	
		<i>Poa pratensis</i>		Kentucky bluegrass	
		<i>Poa pratensis</i>		Kentucky bluegrass	

Area 3-9		MLCCS Code		Qualitative Rank	Acres
Medium-tall grass altered/non-native dominated grassland		61220		NA	
Canopy	Shrub	Ground			
	<i>Pinus strobus</i>	<i>Bromus inermis</i>		Smooth brome	
	<i>Rhus glabra</i>	<i>Centaurea maculosa</i>		Spotted knapweed	
		<i>Artemisia ludoviciana</i> var.		White sage	
		<i>Solidago canadensis</i>		Canada goldenrod	
		<i>Berteroa incana</i>		Hoary alyssum	

By-Community Species Lists

Area 3-10		MLCCS Code		Qualitative Rank	Acres
Aspen forest - temporarily flooded		32230		C	
Canopy	Shrub	Ground			
Populus tremuloides	Quaking aspen	Phalaris arundinacea	Reed canary grass		
Acer negundo	Box elder				

Area 3-11		MLCCS Code		Qualitative Rank	Acres
Mixed emergent marsh - intermittently exposed		61720		C	
Canopy	Shrub	Ground			
Acer negundo	Box elder	Typha angustifolia	Narrow-leaved cattail		
Populus tremuloides	Quaking aspen	Phalaris arundinacea	Reed canary grass		
		Carex lacustris	Lake sedge		
		Asclepias incarnata var.	Swamp milkweed		

By-Community Species Lists

Area 3-13

Wet meadow

Canopy

Shrub

Ground

MLCCS Code 61420 Qualitative Rank A Acres

- Carex lacustris Lake sedge
- Calamagrostis canadensis Bluejoint
- Eupatorium maculatum Spotted Joe pye weed
- Eupatorium perfoliatum Common boneset
- Iris versicolor Northern blue flag
- Campanula aparinoides Marsh bellflower
- Solidago gigantea Giant goldenrod
- Typha angustifolia Narrow-leaved cattail
- Salix candida Sage-leaved willow
- Spiraea tomentosa var. Steeplebush
- Scutellaria galericulata Marsh skullcap

Area 3-14

Oak forest

Canopy

- Quercus alba White oak
- Quercus rubra Northern red oak
- Prunus serotina Black cherry
- Populus tremuloides Quaking aspen

Shrub

- Cornus racemosa Gray dogwood
- Viburnum lentago Nannyberry
- Prunus virginiana Chokecherry
- Acer rubrum Red maple

Ground

- Smilacina sp. Undetermined species of

MLCCS Code 32110 Qualitative Rank B Acres

By-Community Species Lists

Area 3-15		MLCCS Code		Qualitative Rank	Acres
Cattail marsh - seasonally flooded		61510		C	
Canopy	Shrub	Ground			
		<i>Typha angustifolia</i>		Narrow-leaved cattail	
		<i>Polygonum amphibium</i>		Water smartweed	
		<i>Campanula aparinoides</i>		Marsh bellflower	
		<i>Phalaris arundinacea</i>		Reed canary grass	

Area 3-16		MLCCS Code		Qualitative Rank	Acres
Altered/non-native dominated upland shrubland		52130		NA	
Canopy	Shrub	Ground			
<i>Acer negundo</i>	Box elder	<i>Bromus inermis</i>		Smooth brome	
		<i>Solidago canadensis</i>		Canada goldenrod	
		<i>Parthenocissus vitacea</i>		Virginia creeper	
		<i>Poa pratensis</i>		Kentucky bluegrass	
		<i>Tragopogon dubius</i>		Yellow goat's beard	
		<i>Asclepias syriaca</i>		Common milkweed	
		<i>Vitis riparia</i>		Wild grape	
		<i>Juniperus virginiana</i> var. <i>virginiana</i>		Eastern red cedar	
		<i>Acer negundo</i>		Box elder	
		<i>Ulmus pumila</i>		Siberian elm	

Area 4-1		MLCCS Code		Qualitative Rank	Acres
Grassland with sparse conifer or mixed deciduous/coniferous trees - altered/non-native		62220		B	
Canopy	Shrub	Ground			
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar	<i>Bromus inermis</i>		Smooth brome	
		<i>Desmodium canadense</i>		Canada tick trefoil	
<i>Acer negundo</i>	Box elder	<i>Artemisia ludoviciana</i> var. <i>Andropogon gerardii</i>		White sage	
				Big bluestem	
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Poa pratensis</i>		Kentucky bluegrass	
		<i>Rudbeckia hirta</i> var. <i>Stipa spartea</i>		Black-eyed Susan	
				Porcupine grass	

By-Community Species Lists

Area 4-2

Oak forest

Canopy

<i>Quercus alba</i>	White oak
<i>Quercus rubra</i>	Northern red oak
<i>Prunus serotina</i>	Black cherry
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Vitis riparia</i>	Wild grape
<i>Corylus americana</i>	American hazelnut
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Sambucus racemosa</i>	Red-berried elder
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Lonicera tatarica</i>	Tartarian honeysuckle

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Carex blanda</i>	Charming sedge

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 4-17

Aspen forest - saturated soils

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Fraxinus pennsylvanica</i> var. <i>pennsylvanica</i>	Green ash
<i>Acer negundo</i>	Box elder

Shrub

<i>Cornus racemosa</i>	Gray dogwood
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Ground

MLCCS Code

32330

Qualitative Rank

C

Acres

Area 5-1

Canopy

Shrub

Ground

MLCCS Code

Qualitative Rank

Acres

By-Community Species Lists

Area 5-2				MLCCS Code	Qualitative Rank	Acres
Oak woodland-brushland				42120	C	
Canopy		Shrub		Ground		
<i>Quercus alba</i>	White oak	<i>Prunus serotina</i>	Black cherry	<i>Phalaris arundinacea</i>	Reed canary grass	
<i>Quercus macrocarpa</i>	Bur oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Amphicarpaea bracteata</i>	Hog peanut	
<i>Fraxinus nigra</i>	Black ash	<i>Vitis riparia</i>	Wild grape	<i>Amphicarpaea bracteata</i>	Hog peanut	
<i>Celtis occidentalis</i>	Hackberry			<i>Geranium maculatum</i>	Wild geranium	
				<i>Solidago gigantea</i>	Giant goldenrod	
				<i>Carex pensylvanica</i> var.	Sun-loving sedge	
				<i>Parthenocissus vitacea</i>	Virginia creeper	
				<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle	

Area 5-3				MLCCS Code	Qualitative Rank	Acres
Aspen forest - saturated soils				32330	C	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry	<i>Solidago canadensis</i>	Canada goldenrod	
		<i>Corylus americana</i>	American hazelnut	<i>Bromus inermis</i>	Smooth brome	
		<i>Rhamnus cathartica</i>	Common buckthorn	<i>Circaea lutetiana</i> var.	Common enchanter's	
		<i>Cornus racemosa</i>	Gray dogwood	<i>Parthenocissus vitacea</i>	Virginia creeper	
		<i>Vitis riparia</i>	Wild grape			
		<i>Salix exigua</i>	Sandbar willow	<i>Carex lacustris</i>	Lake sedge	
				<i>Rhamnus cathartica</i>	Common buckthorn	
				<i>Phalaris arundinacea</i>	Reed canary grass	

By-Community Species Lists

Area 5-4

Oak woodland-brushland

Canopy

<i>Quercus rubra</i>	Northern red oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry
<i>Fraxinus nigra</i>	Black ash
<i>Quercus alba</i>	White oak

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Cornus racemosa</i>	Gray dogwood
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Osmunda regalis</i> var.	Royal fern
<i>Osmunda regalis</i> var.	Royal fern
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Solidago canadensis</i>	Canada goldenrod
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex gracillima</i>	Graceful sedge
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Aster macrophyllus</i>	Large-leaved aster
<i>Stachys palustris</i>	Woundwort
<i>Pilea fontana</i>	Black-fruited clearweed

MLCCS Code	Qualitative Rank	Acres
42120	B	

By-Community Species Lists

Area 5-5

Oak forest red maple subtype

Canopy

<i>Prunus serotina</i>	Black cherry
<i>Celtis occidentalis</i>	Hackberry
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Acer saccharum</i>	Sugar maple
<i>Fraxinus pennsylvanica</i> <i>var. pennsylvanica</i>	Green ash
<i>Acer negundo</i>	Box elder
<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus alba</i>	White oak
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Vitis riparia</i>	Wild grape
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Geranium maculatum</i>	Wild geranium
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Aster macrophyllus</i>	Large-leaved aster
<i>Onoclea sensibilis</i>	Sensitive fern

MLCCS Code

32111

Qualitative Rank

B

Acres

Area 6-1R24

Oak forest

Canopy

<i>Quercus rubra</i>	Northern red oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Bromus inermis</i>	Smooth brome
<i>Vitis riparia</i>	Wild grape

MLCCS Code

32110

Qualitative Rank

D

Acres

By-Community Species Lists

Area 6-1

Altered/non-native deciduous forest

MLCCS Code

Qualitative Rank

Acres

32170

NA

Canopy

Acer negundo Box elder

Celtis occidentalis Hackberry

Fraxinus pennsylvanica Green ash
var. pennsylvanica

Shrub

<i>Ostrya virginiana</i>	Ironwood
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ribes nigrum</i>	Black currant

<i>Vitis riparia</i>	Wild grape
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Ribes cynosbati</i>	Prickly gooseberry

Ground

<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Arctium minus</i>	Common burdock
<i>Arctium minus</i>	Common burdock
<i>Eupatorium rugosum</i>	White snakeroot

Area 6-2

Oak woodland-brushland

MLCCS Code

Qualitative Rank

Acres

42120

D

Canopy

Quercus macrocarpa Bur oak

Acer negundo Box elder

<i>Ulmus americana</i>	American elm
<i>Celtis occidentalis</i>	Hackberry

Quercus rubra Northern red oak

Shrub

<i>Rubus occidentalis</i>	Black raspberry
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Vitis riparia</i>	Wild grape

Rhamnus cathartica Common buckthorn

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Bromus inermis</i>	Smooth brome
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Leonurus sibiricus</i>	Motherwort

Hydrophyllum virginianum Virginia waterleaf

By-Community Species Lists

Area 6-3

Oak forest

Canopy

<i>Quercus rubra</i>	Northern red oak
<i>Quercus alba</i>	White oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Celtis occidentalis</i>	Hackberry
<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ribes nigrum</i>	Black currant

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Leonurus sibiricus</i>	Motherwort
<i>Solidago canadensis</i>	Canada goldenrod

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 6-4

Aspen forest - temporarily flooded

Canopy

<i>Quercus alba</i>	White oak
<i>Prunus serotina</i>	Black cherry
<i>Quercus macrocarpa</i>	Bur oak
<i>Acer negundo</i>	Box elder

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Corylus americana</i>	American hazelnut
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Eupatorium rugosum</i>	White snakeroot
<i>Eupatorium rugosum</i>	White snakeroot

MLCCS Code

32230

Qualitative Rank

B

Acres

By-Community Species Lists

Area 6-6

Aspen forest - temporarily flooded

Canopy

Populus tremuloides Quaking aspen
Betula papyrifera Paper birch

Shrub

Ground

Phalaris arundinacea Reed canary grass
Hypericum perforatum Common St. John's wort
Solidago canadensis Canada goldenrod
Verbena hastata Blue vervain
Solidago gigantea Giant goldenrod
Poa pratensis Kentucky bluegrass
Asclepias syriaca Common milkweed
Lycopus uniflorus Northern bugleweed

MLCCS Code

32230

Qualitative Rank

C

Acres

Area 6-7

Aspen forest

Canopy

Populus tremuloides Quaking aspen

Shrub

Cornus sericea Red-osier dogwood

Ground

Phalaris arundinacea Reed canary grass
Onoclea sensibilis Sensitive fern
Parthenocissus vitacea Virginia creeper
Circaea lutetiana var. Common enchanter's
Convolvulus arvensis Field bindweed

MLCCS Code

32160

Qualitative Rank

C

Acres

By-Community Species Lists

Area 7-1				MLCCS Code	Qualitative Rank	Acres
Oak woodland-brushland				42120	C	
Canopy		Shrub				
<i>Populus tremuloides</i>	Quaking aspen	<i>Zanthoxylum americanum</i>	Prickly ash			
		<i>Ribes sativum</i>	Red currant			
<i>Quercus macrocarpa</i>	Bur oak	<i>Juniperus virginiana</i> var.	Eastern red cedar			
		<i>virginiana</i>				
<i>Acer negundo</i>	Box elder	<i>Rhamnus cathartica</i>	Common buckthorn			
<i>Celtis occidentalis</i>	Hackberry	<i>Corylus americana</i>	American hazelnut			
		Ground				
				<i>Solidago canadensis</i>	Canada goldenrod	
				<i>Bromus inermis</i>	Smooth brome	
				<i>Bromus inermis</i>	Smooth brome	
				<i>Parthenocissus vitacea</i>	Virginia creeper	
				<i>Berteroa incana</i>	Hoary alyssum	
				<i>Carex pensylvanica</i> var.	Sun-loving sedge	
				<i>Verbascum thapsus</i>	Common mullein	

Area 7-2				MLCCS Code	Qualitative Rank	Acres
Grassland with sparse conifer or mixed deciduous/coniferous trees - altered/non-native				62220	NA	
Canopy		Shrub				
		<i>Juniperus virginiana</i> var.	Eastern red cedar			
		<i>virginiana</i>				
		<i>Ulmus pumila</i>	Siberian elm			
		Ground				
				<i>Berteroa incana</i>	Hoary alyssum	
				<i>Bromus inermis</i>	Smooth brome	
				<i>Poa pratensis</i>	Kentucky bluegrass	
				<i>Coronilla varia</i>	Crownvetch	
				<i>Ambrosia artemisiifolia</i>	Common ragweed	
				<i>Solidago canadensis</i>	Canada goldenrod	
				<i>Asclepias syriaca</i>	Common milkweed	
				<i>Achillea millefolium</i>	Yarrow	

By-Community Species Lists

Area 7-3

Altered/non-native deciduous forest

Canopy		Shrub		Ground		MLCCS Code	Qualitative Rank	Acres
<i>Ulmus americana</i>		<i>Corylus americana</i>		<i>Phalaris arundinacea</i>		32170	NA	
		<i>Zanthoxylum americanum</i>		<i>Nepeta cataria</i>				
<i>Quercus macrocarpa</i>		<i>Rubus occidentalis</i>		<i>Nepeta cataria</i>				
				<i>Carex pensylvanica</i> var.				
<i>Prunus serotina</i>				<i>Poa pratensis</i>				
<i>Quercus ellipsoidalis</i>				<i>Parthenocissus vitacea</i>				
				<i>Fragaria</i> sp.				
<i>Acer negundo</i>				<i>Linaria vulgaris</i>				
<i>Celtis occidentalis</i>				<i>Solidago canadensis</i>				

Area 7-4

Oak forest

Canopy		Shrub		Ground		MLCCS Code	Qualitative Rank	Acres
<i>Quercus ellipsoidalis</i>		<i>Rubus occidentalis</i>		<i>Parthenocissus vitacea</i>		32110	C	
		<i>Ribes nigrum</i>		<i>Carex pensylvanica</i> var.				
<i>Prunus serotina</i>		<i>Corylus americana</i>		<i>Carex pensylvanica</i> var.				
				<i>Bromus inermis</i>				
<i>Celtis occidentalis</i>		<i>Rhamnus cathartica</i>		<i>Desmodium glutinosum</i>				
<i>Quercus macrocarpa</i>				<i>Leonurus sibiricus</i>				

By-Community Species Lists

Area 7-6

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus alba</i>	White oak

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Ribes nigrum</i>	Black currant

Ground

<i>Amorpha canescens</i>	Leadplant
<i>Bromus inermis</i>	Smooth brome
<i>Bromus inermis</i>	Smooth brome
<i>Asclepias tuberosa</i> var.	Butterflyweed
<i>Artemisia ludoviciana</i> var.	White sage
<i>Andropogon gerardii</i>	Big bluestem
<i>Berteroa incana</i>	Hoary alyssum
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Asclepias syriaca</i>	Common milkweed
<i>Verbena stricta</i>	Hoary vervain
<i>Lithospermum canescens</i>	Hoary puccoon
<i>Stipa spartea</i>	Porcupine grass
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Sporobolus heterolepis</i>	Prairie dropseed

MLCCS Code	Qualitative Rank	Acres
42120	B	

By-Community Species Lists

Area 8-1				MLCCS Code	Qualitative Rank	Acres
Medium-tall grass altered/non-native dominated grassland				61220	NA	
Canopy		Shrub		Ground		
<i>Quercus rubra</i>	Northern red oak			<i>Verbena stricta</i>	Hoary vervain	
				<i>Stipa spartea</i>	Porcupine grass	
				<i>Coreopsis palmata</i>	Bird's foot coreopsis	
				<i>Solidago rigida</i>	Stiff goldenrod	
				<i>Panicum virgatum</i>	Switchgrass	
				<i>Bromus inermis</i>	Smooth brome	
				<i>Berteroa incana</i>	Hoary alyssum	
				<i>Cirsium arvense</i>	Canada thistle	
				<i>Asclepias syriaca</i>	Common milkweed	
				<i>Asclepias verticillata</i>	Whorled milkweed	

Area 8-2				MLCCS Code	Qualitative Rank	Acres
Oak woodland-brushland				42120	C	
Canopy		Shrub		Ground		
<i>Quercus rubra</i>	Northern red oak	<i>Corylus americana</i>	American hazelnut	<i>Leonurus sibiricus</i>	Motherwort	
		<i>Rhamnus cathartica</i>	Common buckthorn	<i>Urtica dioica ssp. gracilis</i>	Stinging nettle	
<i>Quercus ellipsoidalis</i>	Northern pin oak			<i>Urtica dioica ssp. gracilis</i>	Stinging nettle	
				<i>Phalaris arundinacea</i>	Reed canary grass	
<i>Prunus serotina</i>	Black cherry			<i>Solidago gigantea</i>	Giant goldenrod	
<i>Quercus macrocarpa</i>	Bur oak			<i>Geranium maculatum</i>	Wild geranium	
				<i>Vitis riparia</i>	Wild grape	
				<i>Poa pratensis</i>	Kentucky bluegrass	
				<i>Carex pensylvanica var.</i>	Sun-loving sedge	
				<i>Circaea lutetiana var.</i>	Common enchanter's	
				<i>Nepeta cataria</i>	Catnip	

By-Community Species Lists

Area 8-3

Oak forest

Canopy	
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry
<i>Acer negundo</i>	Box elder
<i>Ulmus americana</i>	American elm
<i>Populus tremuloides</i>	Quaking aspen

Shrub	
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Corylus americana</i>	American hazelnut
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Sambucus racemosa</i>	Red-berried elder
<i>Vitis riparia</i>	Wild grape
<i>Cornus racemosa</i>	Gray dogwood
<i>Ribes nigrum</i>	Black currant

Ground	
<i>Solidago canadensis</i>	Canada goldenrod
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Maianthemum canadense</i>	Canada mayflower
<i>Galium aparine</i>	Cleavers
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Monarda fistulosa</i>	Wild bergamot
<i>Amorpha canescens</i>	Leadplant
<i>Phlox pilosa</i> var. <i>fulgida</i>	Prairie phlox

MLCCS Code	Qualitative Rank	Acres
32110	B	

Area 8-4

Oak forest

Canopy	
<i>Prunus serotina</i>	Black cherry
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus rubra</i>	Northern red oak
<i>Celtis occidentalis</i>	Hackberry

Shrub	
<i>Corylus americana</i>	American hazelnut
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Zanthoxylum americanum</i>	Prickly ash

Ground	
<i>Solidago canadensis</i>	Canada goldenrod
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Vitis riparia</i>	Wild grape
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Leonurus sibiricus</i>	Motherwort

MLCCS Code	Qualitative Rank	Acres
32110	C	

By-Community Species Lists

Area 8-5		MLCCS Code		Qualitative Rank	Acres
Oak woodland-brushland		42120		C	
Canopy		Shrub		Ground	
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Quercus alba</i>	White oak	<i>Rubus occidentalis</i>	Black raspberry	<i>Leonurus sibiricus</i>	Motherwort
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar	<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry	<i>Leonurus sibiricus</i>	Motherwort
		<i>Ribes nigrum</i>	Black currant	<i>Nepeta cataria</i>	Catnip
		<i>Rhamnus cathartica</i>	Common buckthorn	<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
		<i>Prunus americana</i>	Wild plum	<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Prunus serotina</i>	Black cherry			<i>Berteroa incana</i>	Hoary alyssum
<i>Quercus macrocarpa</i>	Bur oak			<i>Asclepias syriaca</i>	Common milkweed
				<i>Bromus inermis</i>	Smooth brome
				<i>Parthenocissus vitacea</i>	Virginia creeper

Area 8-6		MLCCS Code		Qualitative Rank	Acres
Grassland with sparse conifer or mixed deciduous/coniferous trees - altered/non-native		62220		NA	
Canopy		Shrub		Ground	
<i>Quercus macrocarpa</i>	Bur oak	<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar	<i>Bromus inermis</i>	Smooth brome
<i>Ulmus pumila</i>	Siberian elm			<i>Asclepias syriaca</i>	Common milkweed
				<i>Verbena stricta</i>	Hoary vervain
				<i>Lespedeza capitata</i>	Round-headed bush clover
				<i>Achillea millefolium</i>	Yarrow
				<i>Panicum virgatum</i>	Switchgrass
				<i>Asclepias amplexicaulis</i>	Clasping milkweed
				<i>Asclepias verticillata</i>	Whorled milkweed
				<i>Rumex acetosella</i>	Red sorrel

By-Community Species Lists

Area 8-7

Oak woodland-brushland

Canopy	
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Shrub	
<i>Rubus occidentalis</i>	Black raspberry
<i>Quercus macrocarpa</i>	Bur oak
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Ground	
<i>Campanula rotundifolia</i>	Harebell
<i>Bromus inermis</i>	Smooth brome
<i>Bromus inermis</i>	Smooth brome
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Galium aparine</i>	Cleavers

MLCCS Code	Qualitative Rank	Acres
42120	C	

Area 8-8

Oak forest

Canopy	
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Shrub	
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Ground	
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MLCCS Code	Qualitative Rank	Acres
32110	C	

Area 8-9

Oak forest

Canopy	
<i>Fraxinus nigra</i>	Black ash
<i>Acer negundo</i>	Box elder
<i>Prunus serotina</i>	Black cherry
<i>Ulmus americana</i>	American elm

Shrub	
<i>Corylus americana</i>	American hazelnut
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Cornus racemosa</i>	Gray dogwood

Ground	
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Carex lacustris</i>	Lake sedge
<i>Carex lacustris</i>	Lake sedge
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Solidago gigantea</i>	Giant goldenrod
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Eupatorium maculatum</i>	Spotted Joe pye weed
<i>Elymus hystrix</i>	Bottlebrush grass

MLCCS Code	Qualitative Rank	Acres
32110	C	

By-Community Species Lists

Area 9-1				MLCCS Code	Qualitative Rank	Acres
Aspen forest				32160	B	
Canopy		Shrub		Ground		
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Corylus americana</i>	American hazelnut	<i>Circaea lutetiana</i> var.	Common enchanter's	
<i>Populus tremuloides</i>	Quaking aspen	<i>Ribes nigrum</i>	Black currant	<i>Carex pensylvanica</i> var.	Sun-loving sedge	
				<i>Carex pensylvanica</i> var.	Sun-loving sedge	
				<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil	
				<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle	
Area 9-2				MLCCS Code	Qualitative Rank	Acres
Aspen forest				32160	C	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Hydrophyllum virginianum</i>	Virginia waterleaf	
		<i>Ribes sativum</i>	Red currant	<i>Circaea lutetiana</i> var.	Common enchanter's	
<i>Prunus serotina</i>	Black cherry	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Circaea lutetiana</i> var.	Common enchanter's	
				<i>Solidago canadensis</i>	Canada goldenrod	
<i>Quercus ellipsoidalis</i>	Northern pin oak			<i>Parthenocissus vitacea</i>	Virginia creeper	
				<i>Poa pratensis</i>	Kentucky bluegrass	
				<i>Galium aparine</i>	Cleavers	
Area 9-5				MLCCS Code	Qualitative Rank	Acres
Oak forest				32110	D	
Canopy		Shrub		Ground		
<i>Prunus serotina</i>	Black cherry	<i>Corylus americana</i>	American hazelnut	<i>Onoclea sensibilis</i>	Sensitive fern	
		<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry	<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle	
<i>Acer saccharum</i>	Sugar maple	<i>Vitis riparia</i>	Wild grape	<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle	
				<i>Solidago canadensis</i>	Canada goldenrod	
<i>Quercus alba</i>	White oak			<i>Phalaris arundinacea</i>	Reed canary grass	
<i>Quercus ellipsoidalis</i>	Northern pin oak			<i>Parthenocissus vitacea</i>	Virginia creeper	
				<i>Carex pensylvanica</i> var.	Sun-loving sedge	
				<i>Osmunda claytoniana</i>	Interrupted fern	

By-Community Species Lists

Area 9-6

Oak forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus alba</i>	White oak
<i>Quercus rubra</i>	Northern red oak
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Geranium maculatum</i>	Wild geranium
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Veronicastrum virginicum</i>	Culver's root
<i>Aquilegia canadensis</i>	Columbine

MLCCS Code	Qualitative Rank	Acres
32110	C	

By-Community Species Lists

Area 9-7

Black ash swamp seepage subtype

Canopy

<i>Ulmus americana</i>	American elm
<i>Fraxinus nigra</i>	Black ash
<i>Celtis occidentalis</i>	Hackberry
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Caltha palustris</i>	Common marsh marigold
<i>Eupatorium maculatum</i>	Spotted Joe pye weed
<i>Eupatorium maculatum</i>	Spotted Joe pye weed
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Laportea canadensis</i>	Wood nettle
<i>Carex lacustris</i>	Lake sedge
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Solidago gigantea</i>	Giant goldenrod
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Geranium maculatum</i>	Wild geranium
<i>Asclepias incarnata</i> var.	Swamp milkweed
<i>Galium aparine</i>	Cleavers
<i>Elymus hystrix</i>	Bottlebrush grass
<i>Convolvulus arvensis</i>	Field bindweed
<i>Pilea pumila</i>	Dwarf clearweed
<i>Stachys palustris</i>	Woundwort

MLCCS Code	Qualitative Rank	Acres
32311	A	

By-Community Species Lists

Area 9-9

Lowland hardwood forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Fraxinus nigra</i>	Black ash
<i>Ulmus rubra</i>	Red elm
<i>Tilia americana</i>	Basswood

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
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Ground

<i>Laportea canadensis</i>	Wood nettle
<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Athyrium filix-femina</i> var.	Lady fern
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Carex intumescens</i>	Bladder sedge
<i>Trillium grandiflorum</i>	Large-flowered trillium

MLCCS Code

32220

Qualitative Rank

C

Acres

Area 9-11

Lowland hardwood forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Ulmus rubra</i>	Red elm
<i>Ulmus americana</i>	American elm
<i>Tilia americana</i>	Basswood
<i>Fraxinus nigra</i>	Black ash
<i>Fraxinus pennsylvanica</i> var. <i>pennsylvanica</i>	Green ash

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Vitis riparia</i>	Wild grape
<i>Rhus glabra</i>	Smooth sumac

Ground

<i>Laportea canadensis</i>	Wood nettle
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Phalaris arundinacea</i>	Reed canary grass

MLCCS Code

32220

Qualitative Rank

C

Acres

By-Community Species Lists

Area 9-12				MLCCS Code	Qualitative Rank	Acres
Temporarily flooded deciduous forest				32200	C	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Frangula alnus</i>	Alder buckthorn	<i>Parthenocissus vitacea</i>	Virginia creeper	
<i>Acer saccharum</i>	Sugar maple	<i>Cornus racemosa</i>	Gray dogwood	<i>Onoclea sensibilis</i>	Sensitive fern	
<i>Fraxinus pennsylvanica</i> <i>var. pennsylvanica</i>	Green ash	<i>Echinocystis lobata</i>	Wild cucumber	<i>Onoclea sensibilis</i>	Sensitive fern	
				<i>Carex lacustris</i>	Lake sedge	
				<i>Scirpus cyperinus</i>	Woolgrass	
				<i>Phalaris arundinacea</i>	Reed canary grass	
				<i>Polygonum amphibium</i>	Water smartweed	
				<i>Stachys palustris</i>	Woundwort	

Area 9-13				MLCCS Code	Qualitative Rank	Acres
Oak forest				32110	C	
Canopy		Shrub		Ground		
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Carex pensylvanica var.</i>	Sun-loving sedge	
<i>Quercus alba</i>	White oak	<i>Corylus americana</i>	American hazelnut	<i>Phalaris arundinacea</i>	Reed canary grass	
<i>Quercus macrocarpa</i>	Bur oak	<i>Ribes nigrum</i>	Black currant	<i>Phalaris arundinacea</i>	Reed canary grass	
		<i>Rhus glabra</i>	Smooth sumac	<i>Solidago canadensis</i>	Canada goldenrod	
				<i>Circaea lutetiana var.</i>	Common enchanter's	
				<i>Parthenocissus vitacea</i>	Virginia creeper	

Area 9-14				MLCCS Code	Qualitative Rank	Acres
Aspen forest				32160	C	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Rhamnus cathartica</i>	Common buckthorn	
<i>Ulmus rubra</i>	Red elm	<i>Vitis riparia</i>	Wild grape	<i>Parthenocissus vitacea</i>	Virginia creeper	
		<i>Cornus racemosa</i>	Gray dogwood	<i>Parthenocissus vitacea</i>	Virginia creeper	
				<i>Polygonatum biflorum</i>	Giant Solomon's seal	

By-Community Species Lists

Area 9-15

Oak forest

Canopy

<i>Quercus alba</i>	White oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry
<i>Populus tremuloides</i>	Quaking aspen
<i>Fraxinus pennsylvanica</i> <i>var. pennsylvanica</i>	Green ash

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rubus idaeus var. strigosus</i>	Red raspberry
<i>Corylus americana</i>	American hazelnut
<i>Vitis riparia</i>	Wild grape

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica var.</i>	Sun-loving sedge
<i>Carex pensylvanica var.</i>	Sun-loving sedge
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Galium boreale</i>	Northern bedstraw

MLCCS Code

32110

Qualitative Rank

D

Acres

Area 9-17

Wet meadow

Canopy

Shrub

<i>Salix sp.</i>	Undetermined willow
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Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Calamagrostis canadensis</i>	Bluejoint
<i>Sagittaria latifolia</i>	Broad-leaved arrowhead
<i>Scirpus cyperinus</i>	Woolgrass
<i>Polygonum amphibium</i>	Water smartweed
<i>Carex lacustris</i>	Lake sedge
<i>Polygonum sagittatum</i>	Arrow-leaved tearthumb
<i>Carex lasiocarpa var.</i>	Wiregrass sedge

MLCCS Code

61420

Qualitative Rank

B

Acres

By-Community Species Lists

Area 9-18

Willow swamp

Canopy

Shrub

Salix exigua
Salix sp.

Sandbar willow
Undetermined willow

Ground

Calamagrostis canadensis
Scirpus cyperinus
Sagittaria latifolia

MLCCS Code

52430

Qualitative Rank

C

Acres

Area 10-1

Oak forest

Canopy

Quercus macrocarpa

Bur oak

Quercus alba

White oak

Prunus serotina

Black cherry

Acer negundo

Box elder

Populus tremuloides

Quaking aspen

Celtis occidentalis

Hackberry

Acer saccharum

Sugar maple

Acer saccharinum

Silver maple

Shrub

Ribes nigrum
Rhamnus cathartica
Acer negundo

Sambucus canadensis
Lonicera tatarica
Ostrya virginiana
Rubus occidentalis
Vitis riparia

Black currant
Common buckthorn
Box elder

Common elder
Tartarian honeysuckle
Ironwood
Black raspberry
Wild grape

Ground

Parthenocissus vitacea
Carex pensylvanica var.
Carex pensylvanica var.
Carex blanda
Hydrophyllum virginianum

Leonurus sibiricus
Nepeta cataria
Circaea lutetiana var.
Arisaema triphyllum
Toxicodendron radicans
Desmodium glutinosum
Urtica dioica ssp. gracilis
Bromus inermis

Virginia creeper
Sun-loving sedge
Sun-loving sedge
Charming sedge
Virginia waterleaf

Motherwort
Catnip
Common enchanter's
Jack-in-the-pulpit
Common poison ivy
Pointed-leaved tick trefoil
Stinging nettle
Smooth brome

MLCCS Code

32110

Qualitative Rank

C

Acres

By-Community Species Lists

Area 10-2

Aspen forest - saturated soils

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Cornus racemosa</i>	Gray dogwood
<i>Populus tremuloides</i>	Quaking aspen
<i>Ostrya virginiana</i>	Ironwood

Ground

<i>Carex gracillima</i>	Graceful sedge
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Bromus inermis</i>	Smooth brome

MLCCS Code

32330

Qualitative Rank

C

Acres

Area 10-3

Aspen forest - saturated soils

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Prunus serotina</i>	Black cherry
<i>Quercus alba</i>	White oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Sambucus canadensis</i>	Common elder
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Corylus americana</i>	American hazelnut

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Nepeta cataria</i>	Catnip
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Vitis riparia</i>	Wild grape
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Athyrium filix-femina</i> var.	Lady fern
<i>Maianthemum canadense</i>	Canada mayflower

MLCCS Code

32330

Qualitative Rank

C

Acres

By-Community Species Lists

Area 10-4

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Acer negundo</i>	Box elder
<i>Prunus serotina</i>	Black cherry
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Acer negundo</i>	Box elder
<i>Ribes nigrum</i>	Black currant

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Circaea lutetiana</i> var.	Common enchanter's

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 10-5

Aspen forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Salix nigra</i>	Black willow

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ostrya virginiana</i>	Ironwood
<i>Ribes nigrum</i>	Black currant

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Galium aparine</i>	Cleavers
<i>Galium aparine</i>	Cleavers
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Vitis riparia</i>	Wild grape
<i>Geranium maculatum</i>	Wild geranium
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Carex pensylvanica</i> var.	Sun-loving sedge

MLCCS Code

32160

Qualitative Rank

C

Acres

By-Community Species Lists

Area 10-6

Oak forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Prunus serotina</i>	Black cherry
<i>Celtis occidentalis</i>	Hackberry
<i>Acer negundo</i>	Box elder

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Laportea canadensis</i>	Wood nettle
<i>Geranium maculatum</i>	Wild geranium
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Stipa spartea</i>	Porcupine grass
<i>Artemisia ludoviciana</i> var.	White sage
<i>Quercus macrocarpa</i>	Bur oak
<i>Juniperus virginiana</i> var.	Eastern red cedar
<i>Lespedeza capitata</i>	Round-headed bush clover
<i>Rhus hirta</i>	Staghorn sumac

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 10-7

Altered/non-native deciduous forest

Canopy

<i>Acer negundo</i>	Box elder
<i>Ulmus americana</i>	American elm
<i>Prunus serotina</i>	Black cherry
<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Corylus americana</i>	American hazelnut

Ground

<i>Leonurus sibiricus</i>	Motherwort
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Berteroa incana</i>	Hoary alyssum
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Solidago canadensis</i>	Canada goldenrod
<i>Eupatorium rugosum</i>	White snakeroot

MLCCS Code

32170

Qualitative Rank

NA

Acres

By-Community Species Lists

Area 10-8

Oak woodland-brushland

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Acer negundo</i>	Box elder
<i>Quercus alba</i>	White oak
<i>Prunus serotina</i>	Black cherry
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Vitis riparia</i>	Wild grape
<i>Ribes nigrum</i>	Black currant
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ostrya virginiana</i>	Ironwood
<i>Sambucus canadensis</i>	Common elder
<i>Lonicera tatarica</i>	Tartarian honeysuckle

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Leonurus sibiricus</i>	Motherwort
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Circaea alpina</i> var. <i>alpina</i>	Alpine enchanter's

MLCCS Code	Qualitative Rank	Acres
42120	C	

By-Community Species Lists

Area 10-9

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus rubra</i>	Northern red oak
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Cornus racemosa</i>	Gray dogwood
<i>Cornus sericea</i>	Red-osier dogwood

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Eupatorium maculatum</i>	Spotted Joe pye weed
<i>Eupatorium maculatum</i>	Spotted Joe pye weed
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Solidago canadensis</i>	Canada goldenrod
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Pycnanthemum</i>	Virginia mountain mint
<i>Lespedeza capitata</i>	Round-headed bush clover
<i>Carex stricta</i>	Tussock sedge
<i>Eupatorium perfoliatum</i>	Common boneset
<i>Carex</i> sp.	Undetermined sedge
<i>Asclepias incarnata</i> var.	Swamp milkweed
<i>Gentiana andrewsii</i>	Bottle gentian
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Asclepias incarnata</i> var.	Swamp milkweed
<i>Carex</i> sp.	Undetermined sedge
<i>Gentiana andrewsii</i>	Bottle gentian

MLCCS Code	Qualitative Rank	Acres
32160	B	

By-Community Species Lists

Area 10-10

Aspen forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Prunus serotina</i>	Black cherry
<i>Celtis occidentalis</i>	Hackberry
<i>Acer negundo</i>	Box elder

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Geranium maculatum</i>	Wild geranium
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Stipa spartea</i>	Porcupine grass
<i>Artemisia ludoviciana</i> var.	White sage
<i>Quercus macrocarpa</i>	Bur oak
<i>Juniperus virginiana</i> var.	Eastern red cedar
<i>Lespedeza capitata</i>	Round-headed bush clover
<i>Rhus hirta</i>	Staghorn sumac

MLCCS Code

32160

Qualitative Rank

C

Acres

Area 11-1

Altered/non-native deciduous forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Acer negundo</i>	Box elder
<i>Tilia americana</i>	Basswood
<i>Fraxinus pennsylvanica</i> var. <i>pennsylvanica</i>	Green ash
<i>Acer saccharinum</i>	Silver maple
<i>Ulmus americana</i>	American elm
<i>Quercus alba</i>	White oak

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Ribes sativum</i>	Red currant
<i>Rubus occidentalis</i>	Black raspberry
<i>Vitis riparia</i>	Wild grape

Ground

<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Laportea canadensis</i>	Wood nettle
<i>Carex sprengeii</i>	Sprengel's sedge
<i>Stachys tenuifolia</i>	Narrow-leaved hedge nettle
<i>Leonurus cardiaca</i>	Common motherwort
<i>Polygonatum biflorum</i>	Giant Solomon's seal

MLCCS Code

32170

Qualitative Rank

NA

Acres

By-Community Species Lists

Area 11-2

Oak woodland-brushland

Canopy		Shrub		Ground	
<i>Quercus alba</i>	White oak	<i>Corylus americana</i>	American hazelnut	<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Quercus macrocarpa</i>	Bur oak	<i>Ribes nigrum</i>	Black currant	<i>Circaea lutetiana</i> var.	Common enchanter's
		<i>Rubus occidentalis</i>	Black raspberry	<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Prunus serotina</i>	Black cherry	<i>Vitis riparia</i>	Wild grape	<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Poa pratensis</i>	Kentucky bluegrass
				<i>Berteroa incana</i>	Hoary alyssum
<i>Populus tremuloides</i>	Quaking aspen			<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
				<i>Bromus inermis</i>	Smooth brome
				<i>Artemisia ludoviciana</i> var.	White sage

Area 11-3

Cattail marsh - seasonally flooded

Canopy		Shrub		Ground	
		<i>Salix exigua</i>	Sandbar willow	<i>Typha angustifolia</i>	Narrow-leaved cattail
				<i>Sagittaria latifolia</i>	Broad-leaved arrowhead
				<i>Phalaris arundinacea</i>	Reed canary grass
				<i>Asclepias incarnata</i> var.	Swamp milkweed
				<i>Verbena hastata</i>	Blue vervain
				<i>Scirpus cyperinus</i>	Woolgrass
				<i>Carex stricta</i>	Tussock sedge
				<i>Calamagrostis canadensis</i>	Bluejoint

By-Community Species Lists

Area 11-4

Altered/non-native deciduous forest

Canopy		Shrub		Ground		MLCCS Code	Qualitative Rank	Acres
<i>Quercus ellipsoidalis</i>		<i>Acer negundo</i>		<i>Bromus inermis</i>		32170	NA	
<i>Fraxinus pennsylvanica</i>		<i>Rhus hirta</i>		<i>Solidago canadensis</i>				
<i>var. pennsylvanica</i>				<i>Solidago canadensis</i>				
<i>Populus tremuloides</i>				<i>Berteroa incana</i>				
<i>Juniperus virginiana</i> var. <i>virginiana</i>								
<i>Quercus macrocarpa</i>								
<i>Acer negundo</i>								

Area 11-5

Willow swamp - saturated soils

Canopy		Shrub		Ground		MLCCS Code	Qualitative Rank	Acres
		<i>Salix</i> sp.		<i>Typha angustifolia</i>		52360	C	
				<i>Carex lacustris</i>				
				<i>Asclepias incarnata</i> var.				
				<i>Sagittaria latifolia</i>				
				<i>Verbena hastata</i>				
				<i>Phalaris arundinacea</i>				
				<i>Polygonum sagittatum</i>				

By-Community Species Lists

Area 13-1

Oak forest

Canopy		Shrub		Ground	
<i>Celtis occidentalis</i>	Hackberry	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Galium aparine</i>	Cleavers
		<i>Ribes nigrum</i>	Black currant	<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Cornus racemosa</i>	Gray dogwood	<i>Matteuccia struthiopteris</i>	Ostrich fern
				<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Ulmus americana</i>	American elm			<i>Geranium maculatum</i>	Wild geranium
<i>Quercus alba</i>	White oak			<i>Phalaris arundinacea</i>	Reed canary grass
				<i>Amphicarpaea bracteata</i>	Hog peanut
				<i>Polygonatum biflorum</i>	Giant Solomon's seal

Area 13-2

Floodplain forest silver maple subtype

Canopy		Shrub		Ground	
<i>Populus deltoides</i> var. <i>occidentalis</i>	Cottonwood	<i>Ostrya virginiana</i>	Ironwood	<i>Phalaris arundinacea</i>	Reed canary grass
<i>Acer saccharinum</i>	Silver maple			<i>Vitis riparia</i>	Wild grape
<i>Fraxinus pennsylvanica</i> var. <i>pennsylvanica</i>	Green ash			<i>Echinocystis lobata</i>	Wild cucumber
<i>Acer negundo</i>	Box elder			<i>Pilea pumila</i>	Dwarf clearweed

By-Community Species Lists

Area 13-3

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus rubra</i>	Northern red oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus alba</i>	White oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Ribes americanum</i>	Wild black currant
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Vitis riparia</i>	Wild grape
<i>Vitis riparia</i>	Wild grape
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Monarda fistulosa</i>	Wild bergamot
<i>Solidago canadensis</i>	Canada goldenrod
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Amorpha canescens</i>	Leadplant
<i>Stipa spartea</i>	Porcupine grass
<i>Centaurea maculosa</i>	Spotted knapweed
<i>Artemisia ludoviciana</i> var.	White sage
<i>Rudbeckia hirta</i> var.	Black-eyed Susan
<i>Verbena stricta</i>	Hoary vervain

MLCCS Code	Qualitative Rank	Acres
42120	C	

By-Community Species Lists

Area 13-4

Oak woodland-brushland

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Prunus serotina</i>	Black cherry
<i>Tilia americana</i>	Basswood
<i>Celtis occidentalis</i>	Hackberry
<i>Quercus rubra</i>	Northern red oak
<i>Fraxinus pennsylvanica</i> <i>var. pennsylvanica</i>	Green ash
<i>Acer saccharinum</i>	Silver maple
<i>Acer negundo</i>	Box elder

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Ribes nigrum</i>	Black currant
<i>Sambucus canadensis</i>	Common elder
<i>Rubus occidentalis</i>	Black raspberry
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Vitis riparia</i>	Wild grape
<i>Vitis riparia</i>	Wild grape
<i>Laportea canadensis</i>	Wood nettle
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Echinocystis lobata</i>	Wild cucumber
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Alliaria petiolata</i>	Garlic mustard

MLCCS Code

42120

Qualitative Rank

B

Acres

Area 13-5

Willow swamp

Canopy

<i>Acer negundo</i>	Box elder
<i>Populus tremuloides</i>	Quaking aspen

Shrub

<i>Salix serissima</i>	Autumn willow
<i>Cornus sericea</i>	Red-osier dogwood

Ground

<i>Carex lacustris</i>	Lake sedge
<i>Calamagrostis canadensis</i>	Bluejoint
<i>Calamagrostis canadensis</i>	Bluejoint
<i>Typha angustifolia</i>	Narrow-leaved cattail
<i>Asclepias incarnata</i> var.	Swamp milkweed
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Polygonum sagittatum</i>	Arrow-leaved tearthumb
<i>Rumex orbiculatus</i>	Great water dock
<i>Polygonum sagittatum</i>	Arrow-leaved tearthumb

MLCCS Code

52430

Qualitative Rank

B

Acres

By-Community Species Lists

Area 14-1

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Ulmus americana</i>	American elm
<i>Ostrya virginiana</i>	Ironwood
<i>Acer negundo</i>	Box elder
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ribes nigrum</i>	Black currant
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Sambucus racemosa</i>	Red-berried elder

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Vitis riparia</i>	Wild grape
<i>Galium aparine</i>	Cleavers
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Eupatorium rugosum</i>	White snakeroot

MLCCS Code

32160

Qualitative Rank

C

Acres

Area 14-2

Grassland with sparse deciduous trees

Canopy

<i>Quercus macrocarpa</i>	Bur oak
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Shrub

<i>Populus tremuloides</i>	Quaking aspen
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Cirsium arvense</i>	Canada thistle
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Solidago canadensis</i>	Canada goldenrod
<i>Achillea millefolium</i>	Yarrow
<i>Asclepias syriaca</i>	Common milkweed
<i>Lycopus uniflorus</i>	Northern bugleweed

MLCCS Code

62100

Qualitative Rank

C

Acres

By-Community Species Lists

Area 14-3

Oak forest

Canopy

<i>Celtis occidentalis</i>	Hackberry
<i>Ulmus americana</i>	American elm
<i>Quercus alba</i>	White oak
<i>Acer negundo</i>	Box elder
<i>Acer saccharum</i>	Sugar maple

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Ostrya virginiana</i>	Ironwood
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Eupatorium rugosum</i>	White snakeroot
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Alliaria petiolata</i>	Garlic mustard
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Thalictrum thalictroides</i>	Rue anemone
<i>Polygonatum biflorum</i>	Giant Solomon's seal

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 14-4

Oak forest

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Ulmus americana</i>	American elm
<i>Prunus serotina</i>	Black cherry
<i>Acer negundo</i>	Box elder
<i>Celtis occidentalis</i>	Hackberry
<i>Quercus alba</i>	White oak
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Sambucus canadensis</i>	Common elder
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Ribes nigrum</i>	Black currant
<i>Ostrya virginiana</i>	Ironwood
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Acer negundo</i>	Box elder

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Eupatorium rugosum</i>	White snakeroot
<i>Eupatorium rugosum</i>	White snakeroot
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Alliaria petiolata</i>	Garlic mustard
<i>Galium aparine</i>	Cleavers
<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Polygonatum biflorum</i>	Giant Solomon's seal

MLCCS Code

32110

Qualitative Rank

B

Acres

By-Community Species Lists

Area 14-5

Oak forest

Canopy

<i>Acer negundo</i>	Box elder
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Ostrya virginiana</i>	Ironwood
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Berteroa incana</i>	Hoary alyssum
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Lotus corniculatus</i>	Bird's foot trefoil
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Asclepias syriaca</i>	Common milkweed
<i>Vitis riparia</i>	Wild grape
<i>Galium aparine</i>	Cleavers
<i>Alliaria petiolata</i>	Garlic mustard
<i>Melilotus officinalis</i>	Yellow sweet clover

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 14-6

Oak forest

Canopy

<i>Prunus serotina</i>	Black cherry
<i>Acer negundo</i>	Box elder
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus rubra</i>	Northern red oak
<i>Celtis occidentalis</i>	Hackberry
<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus alba</i>	White oak
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Sambucus canadensis</i>	Common elder
<i>Ribes nigrum</i>	Black currant
<i>Acer negundo</i>	Box elder
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Eupatorium rugosum</i>	White snakeroot
<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Galium aparine</i>	Cleavers
<i>Geranium maculatum</i>	Wild geranium
<i>Alliaria petiolata</i>	Garlic mustard
<i>Echinocystis lobata</i>	Wild cucumber

MLCCS Code

32110

Qualitative Rank

C

Acres

By-Community Species Lists

Area 14-7

Oak forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Ulmus americana</i>	American elm
<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ribes nigrum</i>	Black currant
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Galium aparine</i>	Cleavers
<i>Galium aparine</i>	Cleavers
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Vitis riparia</i>	Wild grape
<i>Eupatorium rugosum</i>	White snakeroot
<i>Solidago canadensis</i>	Canada goldenrod
<i>Poa pratensis</i>	Kentucky bluegrass

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 14-8

Grassland with sparse conifer or mixed deciduous/coniferous trees - altered/non-native

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Acer negundo</i>	Box elder
<i>Populus tremuloides</i>	Quaking aspen

Shrub

<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Corylus americana</i>	American hazelnut
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ulmus pumila</i>	Siberian elm

Ground

<i>Berteroa incana</i>	Hoary alyssum
<i>Verbena stricta</i>	Hoary vervain
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Artemisia absinthium</i>	Absinthe wormwood

MLCCS Code

62220

Qualitative Rank

NA

Acres

By-Community Species Lists

Area 14-9

Oak woodland-brushland

Canopy

<i>Quercus alba</i>	White oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Prunus serotina</i>	Black cherry
<i>Populus tremuloides</i>	Quaking aspen
<i>Acer negundo</i>	Box elder

Shrub

<i>Populus tremuloides</i>	Quaking aspen
<i>Sambucus canadensis</i>	Common elder
<i>Ribes nigrum</i>	Black currant
<i>Quercus alba</i>	White oak

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Impatiens capensis</i>	Spotted touch-me-not

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 14-10

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Ulmus americana</i>	American elm
<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ribes nigrum</i>	Black currant
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Galium aparine</i>	Cleavers
<i>Galium aparine</i>	Cleavers
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Vitis riparia</i>	Wild grape
<i>Eupatorium rugosum</i>	White snakeroot
<i>Solidago canadensis</i>	Canada goldenrod
<i>Poa pratensis</i>	Kentucky bluegrass

MLCCS Code

32160

Qualitative Rank

C

Acres

By-Community Species Lists

Area 15-1

Oak forest dry subtype

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Prunus serotina</i>	Black cherry
<i>Quercus alba</i>	White oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Ulmus americana</i>	American elm

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Vitis riparia</i>	Wild grape
<i>Lonicera tatarica</i>	Tartarian honeysuckle

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Leonurus sibiricus</i>	Motherwort
<i>Circaea lutetiana</i> var.	Common enchanter's

MLCCS Code

32113

Qualitative Rank

D

Acres

Area 15-2

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus alba</i>	White oak
<i>Acer negundo</i>	Box elder
<i>Prunus serotina</i>	Black cherry
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Corylus americana</i>	American hazelnut
<i>Ribes nigrum</i>	Black currant
<i>Rubus occidentalis</i>	Black raspberry

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Solidago gigantea</i>	Giant goldenrod
<i>Solidago gigantea</i>	Giant goldenrod
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Eupatorium rugosum</i>	White snakeroot
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Galium aparine</i>	Cleavers
<i>Echinocystis lobata</i>	Wild cucumber
<i>Parthenocissus</i>	Woodbine

MLCCS Code

32160

Qualitative Rank

D

Acres

By-Community Species Lists

Area 15-3

Dry prairie

Canopy		Shrub		Ground		MLCCS Code	Qualitative Rank	Acres
<i>Quercus macrocarpa</i>		<i>Juniperus virginiana</i> var. <i>virginiana</i>		<i>Bromus inermis</i>		61210	C	
		<i>Malus</i> sp.		<i>Lolium perenne</i>				
				<i>Parthenocissus vitacea</i>				
				<i>Artemisia ludoviciana</i> var.				
				<i>Poa pratensis</i>				
				<i>Stipa spartea</i>				
				<i>Lespedeza capitata</i>				
				<i>Verbena stricta</i>				
				<i>Andropogon gerardii</i>				
				<i>Rosa arkansana</i>				

Area 15-4

Aspen forest

Canopy		Shrub		Ground		MLCCS Code	Qualitative Rank	Acres
<i>Populus tremuloides</i>		<i>Rubus idaeus</i> var. <i>strigosus</i>		<i>Solidago gigantea</i>		32160	C	
<i>Prunus serotina</i>		<i>Zanthoxylum americanum</i>		<i>Achillea millefolium</i>				
<i>Quercus ellipsoidalis</i>		<i>Ribes nigrum</i>		<i>Achillea millefolium</i>				
		<i>Corylus americana</i>		<i>Parthenocissus vitacea</i>				
				<i>Vitis riparia</i>				
				<i>Solidago canadensis</i>				

By-Community Species Lists

Area 15-5

Oak forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Ulmus americana</i>	American elm

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Corylus americana</i>	American hazelnut
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Toxicodendron radicans</i>	Common poison ivy
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Vitis riparia</i>	Wild grape
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Solidago gigantea</i>	Giant goldenrod
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Anemone quinquefolia</i>	Wood anemone

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 15-6

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry
<i>Populus tremuloides</i>	Quaking aspen
<i>Acer negundo</i>	Box elder
<i>Quercus alba</i>	White oak

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Sambucus racemosa</i>	Red-berried elder
<i>Acer ginnala</i>	Amur maple

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Vitis riparia</i>	Wild grape
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Convolvulus arvensis</i>	Field bindweed

MLCCS Code

42120

Qualitative Rank

C

Acres

By-Community Species Lists

Area 15-8

Mixed emergent marsh - seasonally flooded

Canopy	Shrub	Ground	MLCCS Code	Qualitative Rank	Acres
			61520	C	
		<i>Typha angustifolia</i>	Narrow-leaved cattail		
		<i>Typha latifolia</i>	Broad-leaved cattail		
		<i>Leersia oryzoides</i> var.	Rice cut grass		
		<i>Polygonum lapathifolium</i>	Nodding smartweed		
		<i>Sagittaria latifolia</i>	Broad-leaved arrowhead		
		<i>Eupatorium perfoliatum</i>	Common boneset		

Area 15-9

Wet meadow

Canopy	Shrub	Ground	MLCCS Code	Qualitative Rank	Acres
			61420	B	
	<i>Spiraea tomentosa</i> var.	Steeplebush			
	<i>Salix exigua</i>	Sandbar willow			
		<i>Carex lacustris</i>	Lake sedge		
		<i>Phalaris arundinacea</i>	Reed canary grass		
		<i>Verbena hastata</i>	Blue vervain		
		<i>Eupatorium perfoliatum</i>	Common boneset		
		<i>Euthamia graminifolia</i>	Grass-leaved goldenrod		
		<i>Polygonum amphibium</i>	Water smartweed		
		<i>Scutellaria galericulata</i>	Marsh skullcap		
		<i>Polygonum lapathifolium</i>	Nodding smartweed		

By-Community Species Lists

Area 15-10

Wet meadow

Canopy
Populus tremuloides Quaking aspen

Shrub

Ground
Carex lacustris Lake sedge
Scirpus cyperinus Woolgrass
Typha latifolia Broad-leaved cattail
Typha angustifolia Narrow-leaved cattail
Phalaris arundinacea Reed canary grass
Polygonum arifolium Halberd-leaved tearthumb
Sagittaria latifolia Broad-leaved arrowhead
Carex lasiocarpa var. Wiregrass sedge

MLCCS Code
61420
Qualitative Rank
C
Acres

Area 15-11

Oak forest red maple subtype

Canopy
Populus tremuloides Quaking aspen
Quercus ellipsoidalis Northern pin oak
Quercus alba White oak
Prunus serotina Black cherry
Quercus macrocarpa Bur oak
Celtis occidentalis Hackberry

Shrub
Corylus americana American hazelnut
Cornus racemosa Gray dogwood
Zanthoxylum americanum Prickly ash
Sambucus canadensis Common elder
Ribes nigrum Black currant
Vitis riparia Wild grape

Ground
Carex pensylvanica var. Sun-loving sedge
Parthenocissus vitacea Virginia creeper
Parthenocissus vitacea Virginia creeper
Solidago canadensis Canada goldenrod
Carex intumescens Bladder sedge
Hydrophyllum virginianum Virginia waterleaf
Circaea lutetiana var. Common enchanter's
Eupatorium rugosum White snakeroot
Leonurus cardiaca Common motherwort

MLCCS Code
32111
Qualitative Rank
C
Acres

By-Community Species Lists

Area 15-12

Aspen forest - saturated soils

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Sambucus racemosa</i>	Red-berried elder
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Corylus americana</i>	American hazelnut

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Solidago gigantea</i>	Giant goldenrod
<i>Solidago gigantea</i>	Giant goldenrod
<i>Eupatorium perfoliatum</i>	Common boneset
<i>Parthenocissus vitacea</i>	Virginia creeper

MLCCS Code

32330

Qualitative Rank

C

Acres

Area 15-13

Wet meadow

Canopy

<i>Populus tremuloides</i>	Quaking aspen
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Shrub

<i>Salix exigua</i>	Sandbar willow
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Ground

<i>Dulichium arundinaceum</i>	Three-way sedge
<i>Scirpus cyperinus</i>	Woolgrass
<i>Sagittaria latifolia</i>	Broad-leaved arrowhead
<i>Carex lacustris</i>	Lake sedge
<i>Typha angustifolia</i>	Narrow-leaved cattail
<i>Typha latifolia</i>	Broad-leaved cattail
<i>Calamagrostis canadensis</i>	Bluejoint
<i>Polygonum amphibium</i>	Water smartweed
<i>Asclepias incarnata</i> var.	Swamp milkweed
<i>Carex lasiocarpa</i> var.	Wiregrass sedge

MLCCS Code

61420

Qualitative Rank

C

Acres

By-Community Species Lists

Area 15-14

Aspen forest - saturated soils

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus alba</i>	White oak
<i>Prunus serotina</i>	Black cherry
<i>Quercus macrocarpa</i>	Bur oak
<i>Celtis occidentalis</i>	Hackberry

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Cornus racemosa</i>	Gray dogwood
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Sambucus canadensis</i>	Common elder
<i>Ribes nigrum</i>	Black currant
<i>Vitis riparia</i>	Wild grape

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Solidago canadensis</i>	Canada goldenrod
<i>Carex intumescens</i>	Bladder sedge
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Eupatorium rugosum</i>	White snakeroot
<i>Leonurus cardiaca</i>	Common motherwort

MLCCS Code

32330

Qualitative Rank

C

Acres

Area 16-1

Oak woodland-brushland

Canopy

<i>Prunus serotina</i>	Black cherry
<i>Quercus macrocarpa</i>	Bur oak
<i>Tilia americana</i>	Basswood
<i>Quercus rubra</i>	Northern red oak

Shrub

<i>Quercus rubra</i>	Northern red oak
<i>Corylus americana</i>	American hazelnut
<i>Quercus macrocarpa</i>	Bur oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Ostrya virginiana</i>	Ironwood

Ground

<i>Poa pratensis</i>	Kentucky bluegrass
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Bromus inermis</i>	Smooth brome
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Quercus rubra</i>	Northern red oak

MLCCS Code

42120

Qualitative Rank

C

Acres

By-Community Species Lists

Area 16-2

Oak woodland-brushland

Canopy		Shrub		Ground	
<i>Quercus rubra</i>	Northern red oak	<i>Corylus americana</i>	American hazelnut	<i>Carex pensylvanica</i> var.	Sun-loving sedge
		<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry	<i>Eupatorium rugosum</i>	White snakeroot
<i>Quercus macrocarpa</i>	Bur oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Eupatorium rugosum</i>	White snakeroot
				<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Prunus serotina</i>	Black cherry			<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Populus tremuloides</i>	Quaking aspen			<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
				<i>Nepeta cataria</i>	Catnip
<i>Acer negundo</i>	Box elder				

Area 16-3

Altered/non-native deciduous forest

Canopy		Shrub		Ground	
<i>Populus tremuloides</i>	Quaking aspen	<i>Corylus americana</i>	American hazelnut	<i>Carex pensylvanica</i> var.	Sun-loving sedge
		<i>Vitis riparia</i>	Wild grape	<i>Phalaris arundinacea</i>	Reed canary grass
<i>Acer negundo</i>	Box elder	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Phalaris arundinacea</i>	Reed canary grass
				<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Prunus serotina</i>	Black cherry	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Quercus ellipsoidalis</i>	Northern pin oak				

By-Community Species Lists

Area 16-4

Wet meadow

Canopy

Shrub

Ground

MLCCS Code 61420 Qualitative Rank B Acres

- Carex lacustris Lake sedge
- Solidago gigantea Giant goldenrod
- Scirpus cyperinus Woolgrass
- Asclepias incarnata var. Swamp milkweed
- Phalaris arundinacea Reed canary grass
- Typha angustifolia Narrow-leaved cattail
- Polygonum arifolium Halberd-leaved tearthumb
- Polygonum lapathifolium Nodding smartweed
- Sagittaria latifolia Broad-leaved arrowhead
- Calamagrostis canadensis Bluejoint
- Glyceria sp. Undetermined manna

Area 16-5

Lowland hardwood forest

Canopy

- Populus tremuloides Quaking aspen
- Ulmus americana American elm
- Quercus rubra Northern red oak
- Prunus serotina Black cherry

Shrub

- Ostrya virginiana Ironwood
- Corylus americana American hazelnut

Ground

- Phalaris arundinacea Reed canary grass
- Parthenocissus vitacea Virginia creeper
- Parthenocissus vitacea Virginia creeper
- Carex pensylvanica var. Sun-loving sedge
- Carex blanda Charming sedge
- Geranium maculatum Wild geranium
- Matteuccia struthiopteris Ostrich fern
- Rhamnus cathartica Common buckthorn
- Circaea lutetiana var. Common enchanter's

MLCCS Code 32220 Qualitative Rank C Acres

By-Community Species Lists

Area 16-6

Aspen forest - saturated soils

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus rubra</i>	Northern red oak
<i>Prunus serotina</i>	Black cherry

Shrub

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Carex blanda</i>	Charming sedge
<i>Geranium maculatum</i>	Wild geranium
<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Circaea lutetiana</i> var.	Common enchanter's

MLCCS Code

32330

Qualitative Rank

C

Acres

Area 16-8

Oak forest

Canopy

<i>Quercus alba</i>	White oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Ulmus americana</i>	American elm
<i>Quercus rubra</i>	Northern red oak
<i>Pinus resinosa</i>	Red pine
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Geranium maculatum</i>	Wild geranium
<i>Parthenocissus vitacea</i>	Virginia creeper

MLCCS Code

32110

Qualitative Rank

C

Acres

By-Community Species Lists

Area 16-9		MLCCS Code		Qualitative Rank	Acres
Saturated altered/non-native dominated graminoid vegetation		61480		NA	
Canopy	Shrub	Ground			
		<i>Phalaris arundinacea</i>	Reed canary grass		
		<i>Carex stricta</i>	Tussock sedge		
		<i>Calamagrostis canadensis</i>	Bluejoint		
		<i>Scirpus cyperinus</i>	Woolgrass		
		<i>Polygonum amphibium</i>	Water smartweed		
		<i>Typha angustifolia</i>	Narrow-leaved cattail		
		<i>Polygonum arifolium</i>	Halberd-leaved tearthumb		
		<i>Glyceria sp.</i>	Undetermined manna		

Area 16-10		MLCCS Code		Qualitative Rank	Acres
Aspen forest - saturated soils		32330		C	
Canopy	Shrub	Ground			
<i>Populus tremuloides</i>	Quaking aspen	<i>Phalaris arundinacea</i>	Reed canary grass		
		<i>Onoclea sensibilis</i>	Sensitive fern		
		<i>Solidago gigantea</i>	Giant goldenrod		
		<i>Urtica dioica ssp. gracilis</i>	Stinging nettle		
		<i>Urtica dioica ssp. gracilis</i>	Stinging nettle		
		<i>Eupatorium perfoliatum</i>	Common boneset		
		<i>Veronicastrum virginicum</i>	Culver's root		
		<i>Carex stricta</i>	Tussock sedge		
		<i>Scirpus atrovirens</i>	Dark green bulrush		

By-Community Species Lists

Area 17-1

Oak woodland-brushland

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Prunus serotina</i>	Black cherry
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Acer negundo</i>	Box elder
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Solidago canadensis</i>	Canada goldenrod
<i>Amorpha canescens</i>	Leadplant
<i>Amorpha canescens</i>	Leadplant
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Monarda fistulosa</i>	Wild bergamot
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Andropogon gerardii</i>	Big bluestem
<i>Asclepias syriaca</i>	Common milkweed
<i>Elymus hystrix</i>	Bottlebrush grass
<i>Geranium maculatum</i>	Wild geranium
<i>Bromus inermis</i>	Smooth brome

MLCCS Code

42120

Qualitative Rank

B

Acres

Area 17-2

Oak woodland-brushland

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus alba</i>	White oak
<i>Salix nigra</i>	Black willow
<i>Prunus serotina</i>	Black cherry
<i>Populus tremuloides</i>	Quaking aspen

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Corylus americana</i>	American hazelnut
<i>Populus tremuloides</i>	Quaking aspen
<i>Ribes nigrum</i>	Black currant
<i>Vitis riparia</i>	Wild grape
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Eupatorium rugosum</i>	White snakeroot
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Galium aparine</i>	Cleavers
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle

MLCCS Code

42120

Qualitative Rank

C

Acres

By-Community Species Lists

Area 17-3

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus alba</i>	White oak
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Galium aparine</i>	Cleavers

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 17-4

Oak forest dry subtype

Canopy

<i>Quercus alba</i>	White oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Populus tremuloides</i>	Quaking aspen

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Vitis riparia</i>	Wild grape
<i>Ribes nigrum</i>	Black currant
<i>Acer negundo</i>	Box elder

Ground

<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Galium aparine</i>	Cleavers
<i>Galium aparine</i>	Cleavers
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Eupatorium rugosum</i>	White snakeroot
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Leonurus cardiaca</i>	Common motherwort

MLCCS Code

32113

Qualitative Rank

C

Acres

By-Community Species Lists

Area 17-5

Oak forest

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Pinus resinosa</i>	Red pine
<i>Acer negundo</i>	Box elder

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Rhamnus cathartica</i>	Common buckthorn

MLCCS Code

32110

Qualitative Rank

D

Acres

Area 17-6

Oak woodland-brushland

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Quercus macrocarpa</i>	Bur oak
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Corylus americana</i>	American hazelnut

Ground

<i>Solidago canadensis</i>	Canada goldenrod
<i>Bromus inermis</i>	Smooth brome
<i>Bromus inermis</i>	Smooth brome
<i>Achillea millefolium</i>	Yarrow
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Fragaria virginiana</i>	Common strawberry
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Carex</i> sp.	Undetermined sedge
<i>Andropogon gerardii</i>	Big bluestem
<i>Sorghastrum nutans</i>	Indian grass
<i>Pycnanthemum</i>	Virginia mountain mint

MLCCS Code

42120

Qualitative Rank

B

Acres

By-Community Species Lists

Area 17-7

Oak woodland-brushland

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Juniperus virginiana</i> var.	Eastern red cedar
<i>virginiana</i>	

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Eupatorium rugosum</i>	White snakeroot
<i>Eupatorium rugosum</i>	White snakeroot
<i>Alliaria petiolata</i>	Garlic mustard
<i>Stipa spartea</i>	Porcupine grass
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Galium aparine</i>	Cleavers

MLCCS Code

42120

Qualitative Rank

B

Acres

Area 17-8

Lowland hardwood forest

Canopy

<i>Acer negundo</i>	Box elder
<i>Ulmus americana</i>	American elm
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Prunus serotina</i>	Black cherry
<i>Celtis occidentalis</i>	Hackberry

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ribes nigrum</i>	Black currant
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Corylus americana</i>	American hazelnut
<i>Vitis riparia</i>	Wild grape
<i>Ulmus americana</i>	American elm

Ground

<i>Eupatorium rugosum</i>	White snakeroot
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Osmunda claytoniana</i>	Interrupted fern

MLCCS Code

32220

Qualitative Rank

C

Acres

By-Community Species Lists

Area 17-9

Oak forest

Canopy

<i>Quercus alba</i>	White oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Ribes nigrum</i>	Black currant
<i>Ostrya virginiana</i>	Ironwood

Ground

<i>Alliaria petiolata</i>	Garlic mustard
<i>Eupatorium rugosum</i>	White snakeroot
<i>Eupatorium rugosum</i>	White snakeroot
<i>Galium aparine</i>	Cleavers
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica</i> var.	Sun-loving sedge

MLCCS Code

32110

Qualitative Rank

D

Acres

Area 17-10

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rosa arkansana</i>	Prairie rose

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Artemisia ludoviciana</i> var.	White sage
<i>Artemisia ludoviciana</i> var.	White sage
<i>Elytrigia repens</i>	Quackgrass
<i>Stipa spartea</i>	Porcupine grass
<i>Rudbeckia hirta</i> var.	Black-eyed Susan
<i>Amorpha canescens</i>	Leadplant
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Phlox pilosa</i> var. <i>fulgida</i>	Prairie phlox
<i>Phleum pratense</i>	Timothy

MLCCS Code

42120

Qualitative Rank

B

Acres

By-Community Species Lists

Area 17-12

Oak forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Acer negundo</i>	Box elder
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Solidago canadensis</i>	Canada goldenrod
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Galium</i> sp.	Undetermined species of

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 17-13

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Prunus serotina</i>	Black cherry
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Acer negundo</i>	Box elder
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Bromus inermis</i>	Smooth brome
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Amorpha canescens</i>	Leadplant
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Monarda fistulosa</i>	Wild bergamot
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Andropogon gerardii</i>	Big bluestem
<i>Asclepias syriaca</i>	Common milkweed
<i>Elymus hystrix</i>	Bottlebrush grass
<i>Geranium maculatum</i>	Wild geranium

MLCCS Code

32160

Qualitative Rank

B

Acres

By-Community Species Lists

Area 17-14

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Prunus serotina</i>	Black cherry
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Acer negundo</i>	Box elder
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Bromus inermis</i>	Smooth brome
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Amorpha canescens</i>	Leadplant
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Monarda fistulosa</i>	Wild bergamot
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Andropogon gerardii</i>	Big bluestem
<i>Asclepias syriaca</i>	Common milkweed
<i>Elymus hystrix</i>	Bottlebrush grass
<i>Geranium maculatum</i>	Wild geranium

MLCCS Code

32160

Qualitative Rank

B

Acres

Area 17-15

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Quercus macrocarpa</i>	Bur oak
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Corylus americana</i>	American hazelnut

Ground

<i>Solidago canadensis</i>	Canada goldenrod
<i>Bromus inermis</i>	Smooth brome
<i>Bromus inermis</i>	Smooth brome
<i>Achillea millefolium</i>	Yarrow
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Fragaria virginiana</i>	Common strawberry
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Carex</i> sp.	Undetermined sedge
<i>Andropogon gerardii</i>	Big bluestem
<i>Sorghastrum nutans</i>	Indian grass
<i>Pycnanthemum</i>	Virginia mountain mint

MLCCS Code

32160

Qualitative Rank

C

Acres

By-Community Species Lists

Area 17-16			MLCCS Code	Qualitative Rank	Acres
Aspen forest			32160	C	
Canopy					
<i>Populus tremuloides</i>	Quaking aspen				
<i>Quercus macrocarpa</i>	Bur oak				
<i>Quercus alba</i>	White oak				
<i>Quercus ellipsoidalis</i>	Northern pin oak				
Shrub					
<i>Corylus americana</i>	American hazelnut				
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry				
<i>Acer negundo</i>	Box elder				
<i>Rhamnus cathartica</i>	Common buckthorn				
Ground					
<i>Carex pensylvanica</i> var.	Sun-loving sedge				
<i>Parthenocissus vitacea</i>	Virginia creeper				
<i>Parthenocissus vitacea</i>	Virginia creeper				
<i>Galium</i> sp.	Undetermined species of				
<i>Solidago canadensis</i>	Canada goldenrod				
<i>Phalaris arundinacea</i>	Reed canary grass				

Area 17-17			MLCCS Code	Qualitative Rank	Acres
Aspen forest			32160	C	
Canopy					
<i>Populus tremuloides</i>	Quaking aspen				
<i>Quercus macrocarpa</i>	Bur oak				
<i>Quercus alba</i>	White oak				
<i>Quercus ellipsoidalis</i>	Northern pin oak				
Shrub					
<i>Corylus americana</i>	American hazelnut				
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry				
<i>Acer negundo</i>	Box elder				
<i>Rhamnus cathartica</i>	Common buckthorn				
Ground					
<i>Carex pensylvanica</i> var.	Sun-loving sedge				
<i>Parthenocissus vitacea</i>	Virginia creeper				
<i>Parthenocissus vitacea</i>	Virginia creeper				
<i>Galium</i> sp.	Undetermined species of				
<i>Solidago canadensis</i>	Canada goldenrod				
<i>Phalaris arundinacea</i>	Reed canary grass				

Area 18-1			MLCCS Code	Qualitative Rank	Acres
Oak woodland-brushland			42120	C	
Canopy					
<i>Quercus macrocarpa</i>	Bur oak				
<i>Quercus alba</i>	White oak				
<i>Prunus serotina</i>	Black cherry				
Shrub					
<i>Zanthoxylum americanum</i>	Prickly ash				
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar				
<i>Acer negundo</i>	Box elder				
<i>Vitis riparia</i>	Wild grape				
<i>Rhamnus cathartica</i>	Common buckthorn				
Ground					
<i>Parthenocissus vitacea</i>	Virginia creeper				
<i>Galium aparine</i>	Cleavers				
<i>Galium aparine</i>	Cleavers				
<i>Vitis riparia</i>	Wild grape				

By-Community Species Lists

Area 18-2

Oak forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Acer negundo</i>	Box elder

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ribes nigrum</i>	Black currant
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Oxalis stricta</i>	Yellow wood sorrel
<i>Oxalis stricta</i>	Yellow wood sorrel
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Polygonatum biflorum</i>	Giant Solomon's seal

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 18-3

Oak woodland-brushland

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Prunus serotina</i>	Black cherry
<i>Lonicera tatarica</i>	Tartarian honeysuckle

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Blephilia hirsuta</i>	Woodmint
<i>Blephilia hirsuta</i>	Woodmint
<i>Vitis riparia</i>	Wild grape
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Polygonatum biflorum</i>	Giant Solomon's seal

MLCCS Code

42120

Qualitative Rank

C

Acres

By-Community Species Lists

Area 18-4

Oak forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ribes nigrum</i>	Black currant
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Galium aparine</i>	Cleavers
<i>Galium aparine</i>	Cleavers
<i>Blephilia hirsuta</i>	Woodmint
<i>Circaea lutetiana</i> var.	Common enchanter's

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 18-5

Upland deciduous forest

Canopy

<i>Quercus alba</i>	White oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Celtis occidentalis</i>	Hackberry
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Ribes sativum</i>	Red currant
<i>Corylus americana</i>	American hazelnut
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Vitis riparia</i>	Wild grape

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Blephilia hirsuta</i>	Woodmint
<i>Blephilia hirsuta</i>	Woodmint
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Galium aparine</i>	Cleavers
<i>Cirsium arvense</i>	Canada thistle
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Phalaris arundinacea</i>	Reed canary grass

MLCCS Code

32100

Qualitative Rank

C

Acres

Area 18-6

Lowland hardwood forest

Canopy

<i>Celtis occidentalis</i>	Hackberry
<i>Prunus serotina</i>	Black cherry
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Vitis riparia</i>	Wild grape
<i>Fragaria virginiana</i>	Common strawberry

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Galium aparine</i>	Cleavers
<i>Galium aparine</i>	Cleavers
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Solidago gigantea</i>	Giant goldenrod

MLCCS Code

32220

Qualitative Rank

C

Acres

By-Community Species Lists

Area 18-7

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Corylus americana</i>	American hazelnut
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Rubus occidentalis</i>	Black raspberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Berteroa incana</i>	Hoary alyssum
<i>Fragaria virginiana</i>	Common strawberry
<i>Fragaria virginiana</i>	Common strawberry
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Elytrigia repens</i>	Quackgrass
<i>Quercus macrocarpa</i>	Bur oak
<i>Toxicodendron radicans</i>	Common poison ivy
<i>Blephilia hirsuta</i>	Woodmint
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Leonurus cardiaca</i>	Common motherwort

MLCCS Code	Qualitative Rank	Acres
42120	C	

By-Community Species Lists

Area 18-8

Lowland hardwood forest

Canopy

<i>Prunus serotina</i>	Black cherry
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Ulmus americana</i>	American elm
<i>Populus tremuloides</i>	Quaking aspen
<i>Acer negundo</i>	Box elder
<i>Celtis occidentalis</i>	Hackberry

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Glechoma hederacea</i>	Creeping Charlie
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Blephilia hirsuta</i>	Woodmint
<i>Asclepias syriaca</i>	Common milkweed
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Solidago gigantea</i>	Giant goldenrod
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Eupatorium rugosum</i>	White snakeroot
<i>Osmunda claytoniana</i>	Interrupted fern
<i>Galium</i> sp.	Undetermined species of
<i>Verbascum thapsus</i>	Common mullein

MLCCS Code	Qualitative Rank	Acres
32220	B	

By-Community Species Lists

Area 18-9				MLCCS Code	Qualitative Rank	Acres
Altered/non-native deciduous forest				32170	NA	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Ribes nigrum</i>	Black currant	<i>Eupatorium rugosum</i>	White snakeroot	
<i>Acer negundo</i>	Box elder	<i>Lonicera tatarica</i>	Tartarian honeysuckle	<i>Parthenocissus vitacea</i>	Virginia creeper	
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Parthenocissus vitacea</i>	Virginia creeper	
<i>Prunus serotina</i>	Black cherry	<i>Corylus americana</i>	American hazelnut	<i>Carex pensylvanica</i> var.	Sun-loving sedge	
<i>Quercus alba</i>	White oak	<i>Vitis riparia</i>	Wild grape	<i>Blephilia hirsuta</i>	Woodmint	
<i>Celtis occidentalis</i>	Hackberry			<i>Solidago gigantea</i>	Giant goldenrod	
<i>Ulmus americana</i>	American elm			<i>Solidago rigida</i>	Stiff goldenrod	
<i>Quercus macrocarpa</i>	Bur oak			<i>Berteroa incana</i>	Hoary alyssum	

By-Community Species Lists

Area 18-10

Cattail marsh - seasonally flooded

Canopy

Shrub

Salix exigua
Salix nigra

Sandbar willow
Black willow

Ground

Bromus inermis
Verbena stricta
Penstemon grandiflorus
Rudbeckia hirta var.
Lespedeza capitata
Artemisia ludoviciana var.
Onoclea sensibilis
Plantago major
Verbena hastata
Anemone canadensis
Phlox maculata
Centaurea maculosa
Sporobolus sp.
Typha sp.
Dalea purpurea var.
Smooth brome
Hoary vervain
Large-flowered beard
Black-eyed Susan
Round-headed bush clover
White sage
Sensitive fern
Common plantain
Blue vervain
Canada anemone
Wild sweet William
Spotted knapweed
Undetermined dropseed
Undetermined cattail
Purple prairie clover

MLCCS Code

61510

Qualitative Rank

B

Acres

Area 18-11

Oak forest

Canopy

Quercus macrocarpa Bur oak
Quercus ellipsoidalis Northern pin oak
Prunus serotina Black cherry

Shrub

Acer negundo Box elder
Zanthoxylum americanum Prickly ash
Ribes nigrum Black currant
Rubus idaeus var. strigosus Red raspberry
Vitis riparia Wild grape
Prunus serotina Black cherry
Lonicera tatarica Tartarian honeysuckle
Rhamnus cathartica Common buckthorn

Ground

Parthenocissus vitacea Virginia creeper
Circaea lutetiana var. Common enchanter's
Circaea lutetiana var. Common enchanter's
Toxicodendron radicans Common poison ivy
Hydrophyllum virginianum Virginia waterleaf
Fragaria virginiana Common strawberry
Poa pratensis Kentucky bluegrass
Fragaria sp. Undetermined species of
Smilacina sp. Undetermined species of

MLCCS Code

32110

Qualitative Rank

C

Acres

By-Community Species Lists

Area 18-12

Upland deciduous forest

MLCCS Code 32100
Qualitative Rank C
Acres

Canopy	
<i>Acer negundo</i>	Box elder
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Ulmus americana</i>	American elm
<i>Quercus macrocarpa</i>	Bur oak

Shrub	
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Acer negundo</i>	Box elder
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Ostrya virginiana</i>	Ironwood

Ground	
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Galium aparine</i>	Cleavers
<i>Vitis riparia</i>	Wild grape

By-Community Species Lists

Area 18-13

Dry prairie

Canopy

Shrub

Ground

MLCCS Code

Qualitative Rank

Acres

61210

B

<i>Schizachyrium scoparium</i>	Little bluestem
<i>Elytrigia repens</i>	Quackgrass
<i>Berteroa incana</i>	Hoary alyssum
<i>Verbena stricta</i>	Hoary vervain
<i>Asclepias syriaca</i>	Common milkweed
<i>Verbascum thapsus</i>	Common mullein
<i>Sporobolus</i> sp.	Undetermined dropseed
<i>Achillea millefolium</i>	Yarrow
<i>Centaurea maculosa</i>	Spotted knapweed
<i>Lupinus perennis</i>	Wild lupine
<i>Rudbeckia hirta</i> var.	Black-eyed Susan
<i>Lespedeza capitata</i>	Round-headed bush clover
<i>Artemisia ludoviciana</i> var.	White sage
<i>Bouteloua hirsuta</i>	Hairy grama
<i>Andropogon gerardii</i>	Big bluestem
<i>Dalea purpurea</i> var.	Purple prairie clover
<i>Koeleria</i> sp.	Undetermined species of
<i>Bouteloua curtipendula</i>	Side-oats grama
<i>Dalea purpurea</i> var.	Purple prairie clover
<i>Koeleria</i> sp.	Undetermined species of

By-Community Species Lists

Area 18-14

Altered/non-native temporarily flooded deciduous forest

MLCCS Code 32240
Qualitative Rank NA
Acres

Canopy		Shrub	
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Zanthoxylum americanum</i>	Prickly ash
<i>Populus tremuloides</i>	Quaking aspen	<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Populus deltoides</i> var. <i>occidentalis</i>	Cottonwood	<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Prunus serotina</i>	Black cherry		
<i>Ulmus americana</i>	American elm		
<i>Acer negundo</i>	Box elder		

Ground	
<i>Bromus inermis</i>	Smooth brome
<i>Vitis riparia</i>	Wild grape
<i>Vitis riparia</i>	Wild grape
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Blephilia hirsuta</i>	Woodmint
<i>Berteroa incana</i>	Hoary alyssum
<i>Plantago major</i>	Common plantain

Area 18-15

Oak forest dry subtype

MLCCS Code 32113
Qualitative Rank C
Acres

Canopy		Shrub	
<i>Quercus macrocarpa</i>	Bur oak	<i>Rhamnus cathartica</i>	Common buckthorn
<i>Prunus serotina</i>	Black cherry	<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Zanthoxylum americanum</i>	Prickly ash
		<i>Corylus americana</i>	American hazelnut
		<i>Ribes nigrum</i>	Black currant

Ground	
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Amorpha canescens</i>	Leadplant
<i>Amorpha canescens</i>	Leadplant
<i>Asclepias syriaca</i>	Common milkweed
<i>Solidago canadensis</i>	Canada goldenrod
<i>Eupatorium rugosum</i>	White snakeroot
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Galium aparine</i>	Cleavers
<i>Hydrophyllum virginianum</i>	Virginia waterleaf

By-Community Species Lists

Area 18-16

Oak forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Poa pratensis</i>	Kentucky bluegrass
<i>Amorpha canescens</i>	Leadplant
<i>Amorpha canescens</i>	Leadplant
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Verbascum thapsus</i>	Common mullein
<i>Andropogon gerardii</i>	Big bluestem
<i>Berteroa incana</i>	Hoary alyssum
<i>Galium aparine</i>	Cleavers
<i>Leonurus sibiricus</i>	Motherwort
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Fragaria virginiana</i>	Common strawberry
<i>Equisetum</i> sp.	Undetermined horsetail

MLCCS Code

32110

Qualitative Rank

C

Acres

Area 18-17

Dry prairie

Canopy

<i>Quercus macrocarpa</i>	Bur oak
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Shrub

<i>Pinus strobus</i>	White pine
<i>Rubus occidentalis</i>	Black raspberry
<i>Quercus macrocarpa</i>	Bur oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Vitis riparia</i>	Wild grape
<i>Picea pungens</i> var. <i>glauca</i>	Colorado blue spruce
<i>Rhus glabra</i>	Smooth sumac

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Asclepias syriaca</i>	Common milkweed
<i>Artemisia ludoviciana</i> var.	White sage
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Verbena stricta</i>	Hoary vervain
<i>Berteroa incana</i>	Hoary alyssum
<i>Sporobolus</i> sp.	Undetermined dropseed

MLCCS Code

61210

Qualitative Rank

C

Acres

By-Community Species Lists

Area 18-18				MLCCS Code	Qualitative Rank	Acres
Oak forest				32110	C	
Canopy		Shrub		Ground		
<i>Quercus macrocarpa</i>	Bur oak	<i>Ribes nigrum</i>	Black currant	<i>Berteroa incana</i>	Hoary alyssum	
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Rubus idaeus var. strigosus</i>	Red raspberry	<i>Fragaria virginiana</i>	Common strawberry	
		<i>Corylus americana</i>	American hazelnut	<i>Fragaria virginiana</i>	Common strawberry	
		<i>Lonicera tatarica</i>	Tartarian honeysuckle	<i>Hydrophyllum virginianum</i>	Virginia waterleaf	
		<i>Rubus occidentalis</i>	Black raspberry	<i>Poa pratensis</i>	Kentucky bluegrass	
		<i>Rhamnus cathartica</i>	Common buckthorn	<i>Carex pensylvanica var.</i>	Sun-loving sedge	
		<i>Zanthoxylum americanum</i>	Prickly ash	<i>Elytrigia repens</i>	Quackgrass	
				<i>Quercus macrocarpa</i>	Bur oak	
				<i>Toxicodendron radicans</i>	Common poison ivy	
				<i>Leonurus cardiaca</i>	Common motherwort	
				<i>Parthenocissus vitacea</i>	Virginia creeper	

Area 18-21				MLCCS Code	Qualitative Rank	Acres
Aspen forest				32160	C	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Ribes nigrum</i>	Black currant	<i>Eupatorium rugosum</i>	White snakeroot	
<i>Acer negundo</i>	Box elder	<i>Lonicera tatarica</i>	Tartarian honeysuckle	<i>Parthenocissus vitacea</i>	Virginia creeper	
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Parthenocissus vitacea</i>	Virginia creeper	
<i>Prunus serotina</i>	Black cherry	<i>Corylus americana</i>	American hazelnut	<i>Carex pensylvanica var.</i>	Sun-loving sedge	
<i>Quercus alba</i>	White oak	<i>Vitis riparia</i>	Wild grape	<i>Leonurus cardiaca</i>	Common motherwort	
<i>Celtis occidentalis</i>	Hackberry			<i>Solidago gigantea</i>	Giant goldenrod	
<i>Ulmus americana</i>	American elm			<i>Solidago rigida</i>	Stiff goldenrod	
<i>Quercus macrocarpa</i>	Bur oak			<i>Berteroa incana</i>	Hoary alyssum	

By-Community Species Lists

Area 18-23

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Poa pratensis</i>	Kentucky bluegrass
<i>Amorpha canescens</i>	Leadplant
<i>Amorpha canescens</i>	Leadplant
<i>Equisetum</i> sp.	Undetermined horsetail
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Verbascum thapsus</i>	Common mullein
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Andropogon gerardii</i>	Big bluestem
<i>Berteroa incana</i>	Hoary alyssum
<i>Galium aparine</i>	Cleavers
<i>Leonurus cardiaca</i>	Common motherwort
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Fragaria virginiana</i>	Common strawberry

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 19-1

Oak forest

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Celtis occidentalis</i>	Hackberry
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Rubus occidentalis</i>	Black raspberry
<i>Zanthoxylum americanum</i>	Prickly ash

Ground

<i>Poa pratensis</i>	Kentucky bluegrass
<i>Glechoma hederacea</i>	Creeping Charlie
<i>Glechoma hederacea</i>	Creeping Charlie
<i>Solidago canadensis</i>	Canada goldenrod
<i>Bromus inermis</i>	Smooth brome
<i>Viola</i> sp.	Undetermined violet

MLCCS Code

32110

Qualitative Rank

C

Acres

By-Community Species Lists

Area 20-1				MLCCS Code	Qualitative Rank	Acres
Saturated altered/non-native dominated graminoid vegetation				61480	NA	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Salix exigua</i>	Sandbar willow	<i>Phalaris arundinacea</i>	Reed canary grass	
		<i>Salix sp.</i>	Undetermined willow	<i>Typha angustifolia</i>	Narrow-leaved cattail	
<i>Acer negundo</i>	Box elder			<i>Typha angustifolia</i>	Narrow-leaved cattail	
				<i>Asclepias incarnata</i> var.	Swamp milkweed	
				<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle	
				<i>Solidago gigantea</i>	Giant goldenrod	

Area 21-1				MLCCS Code	Qualitative Rank	Acres
Red pine trees on upland soils				21113	NA	
Canopy		Shrub		Ground		
<i>Pinus resinosa</i>	Red pine	<i>Pinus resinosa</i>	Red pine	<i>Bromus inermis</i>	Smooth brome	
<i>Ulmus americana</i>	American elm	<i>Ulmus pumila</i>	Siberian elm	<i>Artemisia ludoviciana</i> var.	White sage	
<i>Juniperus virginiana</i> var.	Eastern red cedar	<i>Juniperus virginiana</i> var.	Eastern red cedar	<i>Artemisia ludoviciana</i> var.	White sage	
		<i>virginiana</i>		<i>Poa pratensis</i>	Kentucky bluegrass	
<i>virginiana</i>				<i>Coronilla varia</i>	Crownvetch	
				<i>Berteroa incana</i>	Hoary alyssum	
				<i>Verbascum thapsus</i>	Common mullein	
				<i>Verbena stricta</i>	Hoary vervain	
				<i>Solidago canadensis</i>	Canada goldenrod	
				<i>Stipa spartea</i>	Porcupine grass	
				<i>Rosa arkansana</i>	Prairie rose	

By-Community Species Lists

Area 21-2				MLCCS Code	Qualitative Rank	Acres
Temporarily flooded altered/non-native dominated grassland				61330	NA	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Populus tremuloides</i>	Quaking aspen	<i>Phalaris arundinacea</i>	Reed canary grass	
		<i>Cornus racemosa</i>	Gray dogwood	<i>Berteroa incana</i>	Hoary alyssum	
<i>Salix nigra</i>	Black willow	<i>Juniperus virginiana</i> var.	Eastern red cedar	<i>Berteroa incana</i>	Hoary alyssum	
		<i>virginiana</i>		<i>Solidago gigantea</i>	Giant goldenrod	
				<i>Solidago canadensis</i>	Canada goldenrod	
				<i>Iris versicolor</i>	Northern blue flag	
				<i>Onoclea sensibilis</i>	Sensitive fern	
				<i>Carex stricta</i>	Tussock sedge	
				<i>Achillea millefolium</i>	Yarrow	

Area 21-3				MLCCS Code	Qualitative Rank	Acres
Aspen forest				32160	C	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Populus tremuloides</i>	Quaking aspen	<i>Phalaris arundinacea</i>	Reed canary grass	
		<i>Cornus racemosa</i>	Gray dogwood	<i>Berteroa incana</i>	Hoary alyssum	
<i>Salix nigra</i>	Black willow	<i>Juniperus virginiana</i> var.	Eastern red cedar	<i>Berteroa incana</i>	Hoary alyssum	
		<i>virginiana</i>		<i>Solidago gigantea</i>	Giant goldenrod	
				<i>Solidago canadensis</i>	Canada goldenrod	
				<i>Onoclea sensibilis</i>	Sensitive fern	
				<i>Carex stricta</i>	Tussock sedge	
				<i>Achillea millefolium</i>	Yarrow	
				<i>Iris versicolor</i>	Northern blue flag	

By-Community Species Lists

Area 21-4

Cattail marsh - seasonally flooded

Canopy

Shrub

- Acer negundo

Rubus idaeus var. strigosus
- Box elder

Red raspberry

Ground

- Calamagrostis canadensis

Typha angustifolia

Verbena hastata

Urtica dioica ssp. gracilis

Phalaris arundinacea

Polygonum amphibium

Cirsium arvense

Carex lacustris

Solidago gigantea
- Bluejoint

Narrow-leaved cattail

Blue vervain

Stinging nettle

Reed canary grass

Water smartweed

Canada thistle

Lake sedge

Giant goldenrod

MLCCS Code

61510

Qualitative Rank

B

Acres

Area 21-5

Wet prairie

Canopy

- Acer negundo

Populus tremuloides
- Box elder

Quaking aspen

Shrub

- Salix amygdaloides

Rubus idaeus var. strigosus
- Peach-leaved willow

Red raspberry

Ground

- Calamagrostis canadensis

Veronicastrum virginicum

Veronicastrum virginicum

Astragalus canadensis

Verbena hastata

Poa pratensis
- Bluejoint

Culver's root

Culver's root

Canada milk vetch

Blue vervain

Kentucky bluegrass

MLCCS Code

61310

Qualitative Rank

B

Acres

By-Community Species Lists

Area 22-1

Oak woodland-brushland

Canopy

<i>Quercus rubra</i>	Northern red oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Prunus serotina</i>	Black cherry
<i>Ulmus americana</i>	American elm
<i>Corylus americana</i>	American hazelnut

Ground

<i>Osmorhiza claytonii</i>	Clayton's sweet cicely
<i>Phryma leptostachya</i>	Lopseed
<i>Phryma leptostachya</i>	Lopseed
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Galium triflorum</i>	Sweet-scented bedstraw
<i>Cerastium arvense</i>	Field chickweed
<i>Arctium minus</i>	Common burdock
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Galium aparine</i>	Cleavers
<i>Schizachne purpurascens</i>	False melic grass
<i>Maianthemum canadense</i>	Canada mayflower
<i>Smilacina stellata</i> var.	Starry false Solomon's seal
<i>Convolvulus arvensis</i>	Field bindweed
<i>Hackelia virginiana</i>	Virginia stickseed
<i>Silene latifolia</i>	White campion
<i>Aster</i> sp.	Undetermined species of
<i>Asclepias viridiflora</i>	Green milkweed
<i>Carex</i> sp.	Undetermined sedge
<i>Sanicula</i> sp.	Undetermined species of

MLCCS Code	Qualitative Rank	Acres
42120	C	

By-Community Species Lists

Area 22-2

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus rubra</i>	Northern red oak
<i>Prunus serotina</i>	Black cherry
<i>Acer negundo</i>	Box elder

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Cornus racemosa</i>	Gray dogwood
<i>Ribes cynosbati</i>	Prickly gooseberry
<i>Acer ginnala</i>	Amur maple
<i>Prunus serotina</i>	Black cherry
<i>Spiraea alba</i>	White meadowsweet
<i>Rubus flagellaris</i>	Northern dewberry

Ground

<i>Maianthemum canadense</i>	Canada mayflower
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex</i> sp.	Undetermined sedge
<i>Prunus serotina</i>	Black cherry
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Thalictrum dioicum</i>	Early meadow-rue
<i>Dioscorea villosa</i>	Wild yam
<i>Galium triflorum</i>	Sweet-scented bedstraw
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Quercus macrocarpa</i>	Bur oak
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Carex stricta</i>	Tussock sedge
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Cicuta maculata</i> var.	Spotted water hemlock
<i>Geum</i> sp.	Undetermined species of
<i>Aster</i> sp.	Undetermined species of

MLCCS Code

32160

Qualitative Rank

B

Acres

By-Community Species Lists

Area 22-3

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus alba</i>	White oak
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Viburnum lentago</i>	Nannyberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Prunus serotina</i>	Black cherry

Ground

<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Toxicodendron radicans</i>	Common poison ivy
<i>Taraxacum officinale</i>	Common dandelion
<i>Galium triflorum</i>	Sweet-scented bedstraw
<i>Vitis riparia</i>	Wild grape
<i>Osmorhiza claytonii</i>	Clayton's sweet cicely
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Phryma leptostachya</i>	Lopseed
<i>Hackelia virginiana</i>	Virginia stickseed
<i>Viola palmata</i> var.	Bearded birdfoot violet

MLCCS Code

42120

Qualitative Rank

B

Acres

Area 22-4

Cattail marsh - seasonally flooded

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Fraxinus pennsylvanica</i> var. <i>pennsylvanica</i>	Green ash

Shrub

<i>Salix</i> sp.	Undetermined willow
<i>Cornus sericea</i>	Red-osier dogwood
<i>Salix amygdaloides</i>	Peach-leaved willow
<i>Salix amygdaloides</i>	Peach-leaved willow
<i>Sambucus canadensis</i>	Common elder

Ground

<i>Typha angustifolia</i>	Narrow-leaved cattail
<i>Eupatorium perfoliatum</i>	Common boneset
<i>Eupatorium perfoliatum</i>	Common boneset
<i>Asclepias incarnata</i> var.	Swamp milkweed
<i>Verbena hastata</i>	Blue vervain
<i>Calamagrostis canadensis</i>	Bluejoint
<i>Sagittaria latifolia</i>	Broad-leaved arrowhead
<i>Phalaris arundinacea</i>	Reed canary grass

MLCCS Code

61510

Qualitative Rank

B

Acres

By-Community Species Lists

Area 22-5

Mixed emergent marsh

Canopy	Shrub	Ground	MLCCS Code	Qualitative Rank	Acres
			61620	C	
		Carex lacustris	Lake sedge		
		Typha angustifolia	Narrow-leaved cattail		
		Polygonum amphibium	Water smartweed		
		Sagittaria latifolia	Broad-leaved arrowhead		
		Scirpus cyperinus	Woolgrass		
		Scutellaria galericulata	Marsh skullcap		

Area 22-6

Alder swamp - saturated soils

Canopy	Shrub	Ground	MLCCS Code	Qualitative Rank	Acres
			52350	C	
	Salix exigua	Sandbar willow			
	Salix amygdaloides	Peach-leaved willow			
	Cornus sericea	Red-osier dogwood			
	Vitis riparia	Wild grape			
		Agrostis stolonifera	Redtop		
		Eupatorium maculatum	Spotted Joe pye weed		
		Solidago gigantea	Giant goldenrod		
		Poa pratensis	Kentucky bluegrass		
		Veronicastrum virginicum	Culver's root		
		Carex sp.	Undetermined sedge		
		Astragalus canadensis	Canada milk vetch		

By-Community Species Lists

Area 22-7

Aspen forest - saturated soils

Canopy		Shrub		Ground	
<i>Populus tremuloides</i>	Quaking aspen	<i>Lonicera tatarica</i>	Tartarian honeysuckle	<i>Parthenocissus vitacea</i>	Virginia creeper
		<i>Cornus racemosa</i>	Gray dogwood	<i>Solidago canadensis</i>	Canada goldenrod
<i>Quercus ellipsoidalis</i>	Northern pin oak			<i>Solidago canadensis</i>	Canada goldenrod
				<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Tilia americana</i>	Basswood			<i>Poa pratensis</i>	Kentucky bluegrass
<i>Acer saccharinum</i>	Silver maple				

Area 22-9

Aspen forest

Canopy		Shrub		Ground	
<i>Populus tremuloides</i>	Quaking aspen	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Circaea lutetiana</i> var.	Common enchanter's
		<i>Acer negundo</i>	Box elder	<i>Phryma leptostachya</i>	Lopseed
<i>Quercus ellipsoidalis</i>	Northern pin oak			<i>Phryma leptostachya</i>	Lopseed
				<i>Smilacina stellata</i> var.	Starry false Solomon's seal
<i>Acer saccharinum</i>	Silver maple			<i>Arisaema triphyllum</i>	Jack-in-the-pulpit
				<i>Carex rosea</i>	Starry sedge
				<i>Parthenocissus vitacea</i>	Virginia creeper
				<i>Toxicodendron radicans</i>	Common poison ivy
				<i>Maianthemum canadense</i>	Canada mayflower
				<i>Alliaria petiolata</i>	Garlic mustard
				<i>Thalictrum dioicum</i>	Early meadow-rue
				<i>Athyrium filix-femina</i> var.	Lady fern
				<i>Geranium maculatum</i>	Wild geranium
				<i>Botrychium virginianum</i>	Rattlesnake fern
				<i>Leonurus cardiaca</i>	Common motherwort
				<i>Hackelia virginiana</i>	Virginia stickseed
				<i>Arctium minus</i>	Common burdock
				<i>Sanicula</i> sp.	Undetermined species of

By-Community Species Lists

Area 23-1

Oak woodland-brushland

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus alba</i>	White oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Salix</i> sp.	Undetermined willow species

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Rubus occidentalis</i>	Black raspberry
<i>Quercus rubra</i>	Northern red oak
<i>Cornus racemosa</i>	Gray dogwood

Ground

<i>Poa pratensis</i>	Kentucky bluegrass
<i>Achillea millefolium</i>	Yarrow
<i>Achillea millefolium</i>	Yarrow
<i>Quercus alba</i>	White oak
<i>Galium aparine</i>	Cleavers
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Potentilla</i> sp.	Undetermined species of

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 23-2

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Quercus rubra</i>	Northern red oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Vitis riparia</i>	Wild grape

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Poa pratensis</i>	Kentucky bluegrass

MLCCS Code

32160

Qualitative Rank

C

Acres

By-Community Species Lists

Area 23-3

Oak woodland-brushland

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Acer negundo</i>	Box elder
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rhamnus cathartica</i>	Common buckthorn

MLCCS Code

42120

Qualitative Rank

D

Acres

Area 23-4

Dry prairie

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar

Shrub

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Panicum virgatum</i>	Switchgrass
<i>Stipa spartea</i>	Porcupine grass
<i>Schizachyrium scoparium</i>	Little bluestem
<i>Andropogon gerardii</i>	Big bluestem
<i>Coronilla varia</i>	Crownvetch

MLCCS Code

61210

Qualitative Rank

C

Acres

By-Community Species Lists

Area 23-5

Aspen forest

Canopy

<i>Acer negundo</i>	Box elder
<i>Salix nigra</i>	Black willow
<i>Populus tremuloides</i>	Quaking aspen
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Populus deltoides</i> var. <i>occidentalis</i>	Cottonwood

Shrub

<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Salix exigua</i>	Sandbar willow
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Corylus americana</i>	American hazelnut
<i>Cornus racemosa</i>	Gray dogwood
<i>Vitis riparia</i>	Wild grape
<i>Vitis riparia</i>	Wild grape

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Cirsium arvense</i>	Canada thistle

MLCCS Code

32160

Qualitative Rank

C

Acres

Area 23-8

Aspen forest

Canopy

<i>Populus tremuloides</i>	Quaking aspen
<i>Acer negundo</i>	Box elder
<i>Salix</i> sp.	Undetermined willow species

Shrub

<i>Cornus sericea</i>	Red-osier dogwood
<i>Acer negundo</i>	Box elder
<i>Populus tremuloides</i>	Quaking aspen
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Ribes nigrum</i>	Black currant
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Phalaris arundinacea</i>	Reed canary grass
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Eupatorium perfoliatum</i>	Common boneset
<i>Carex stricta</i>	Tussock sedge
<i>Carex lacustris</i>	Lake sedge

MLCCS Code

32160

Qualitative Rank

C

Acres

By-Community Species Lists

Area 23-10

Oak woodland-brushland

Canopy

<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Populus tremuloides</i>	Quaking aspen

Shrub

<i>Rhus hirta</i>	Staghorn sumac
<i>Cornus racemosa</i>	Gray dogwood
<i>Ribes nigrum</i>	Black currant
<i>Corylus americana</i>	American hazelnut

Ground

<i>Salix</i> sp.	Undetermined willow
<i>Andropogon gerardii</i>	Big bluestem
<i>Quercus macrocarpa</i>	Bur oak
<i>Centaurea maculosa</i>	Spotted knapweed
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Bromus inermis</i>	Smooth brome
<i>Penstemon grandiflorus</i>	Large-flowered beard

MLCCS Code	Qualitative Rank	Acres
42120	B	

By-Community Species Lists

Area 23-11

Dry prairie

Canopy

Shrub

Salix exigua
Populus tremuloides

Sandbar willow
Quaking aspen

Ground

Schizachyrium scoparium
Asclepias tuberosa var.
Lespedeza capitata
Berteroa incana
Andropogon gerardii
Cirsium arvense
Achillea millefolium
Verbena stricta
Poa pratensis
Centaurea maculosa
Dalea purpurea var.
Panicum virgatum
Elymus canadensis
Dalea candida
Koeleria pyramidata

MLCCS Code

61210

Qualitative Rank

B

Acres

Area 23-13

Cattail marsh - seasonally flooded

Canopy

Shrub

Salix exigua

Sandbar willow

Ground

Typha angustifolia
Carex stricta
Eupatorium maculatum
Verbena hastata
Scirpus cyperinus
Sagittaria latifolia

MLCCS Code

61510

Qualitative Rank

C

Acres

Narrow-leaved cattail
Tussock sedge
Spotted Joe pye weed
Blue vervain
Woolgrass
Broad-leaved arrowhead

By-Community Species Lists

Area 23-14

Willow swamp

Canopy

Populus tremuloides Quaking aspen
Acer negundo Box elder

Shrub

Salix exigua Sandbar willow

Ground

Phalaris arundinacea Reed canary grass
Typha angustifolia Narrow-leaved cattail
Asclepias incarnata var. Swamp milkweed
Verbena hastata Blue vervain
Urtica dioica ssp. gracilis Stinging nettle
Solidago gigantea Giant goldenrod
Carex lacustris Lake sedge

MLCCS Code

52430

Qualitative Rank

C

Acres

Area 23-15

Altered/non-native dominated upland shrubland

Canopy

Populus tremuloides Quaking aspen
Acer negundo Box elder

Shrub

Rubus idaeus var. strigosus Red raspberry
Lonicera tatarica Tartarian honeysuckle

Ground

Cirsium arvense Canada thistle
Toxicodendron radicans Common poison ivy
Toxicodendron radicans Common poison ivy
Phalaris arundinacea Reed canary grass
Stachys tenuifolia Narrow-leaved hedge nettle

MLCCS Code

52130

Qualitative Rank

NA

Acres

By-Community Species Lists

Area 24-1

Altered/non-native deciduous forest

Canopy

<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Populus tremuloides</i>	Quaking aspen
<i>Fraxinus pennsylvanica</i> var. <i>pennsylvanica</i>	Green ash
<i>Gleditsia triacanthos</i>	Honey locust

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Ostrya virginiana</i>	Ironwood
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Rumex acetosa</i>	Green sorrel
<i>Achillea millefolium</i>	Yarrow
<i>Achillea millefolium</i>	Yarrow
<i>Berteroa incana</i>	Hoary alyssum
<i>Bromus inermis</i>	Smooth brome
<i>Parthenocissus vitacea</i>	Virginia creeper

MLCCS Code

32170

Qualitative Rank

NA

Acres

Area 24-2

Eastern Red Cedar woodland

Canopy

<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Fraxinus pennsylvanica</i> var. <i>pennsylvanica</i>	Green ash
<i>Gleditsia triacanthos</i>	Honey locust

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Sambucus canadensis</i>	Common elder
<i>Lonicera tatarica</i>	Tartarian honeysuckle

Ground

<i>Bromus inermis</i>	Smooth brome
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Berteroa incana</i>	Hoary alyssum

MLCCS Code

41130

Qualitative Rank

NN

Acres

By-Community Species Lists

Area 24-3

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Acer negundo</i>	Box elder

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry
<i>Ribes nigrum</i>	Black currant

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Glechoma hederacea</i>	Creeping Charlie

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 24-4

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Acer negundo</i>	Box elder
<i>Celtis occidentalis</i>	Hackberry

Shrub

<i>Sambucus canadensis</i>	Common elder
<i>Rhus hirta</i>	Staghorn sumac

Ground

<i>Nepeta cataria</i>	Catnip
<i>Viola</i> sp.	Undetermined violet
<i>Viola</i> sp.	Undetermined violet
<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle
<i>Arctium minus</i>	Common burdock
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Glechoma hederacea</i>	Creeping Charlie
<i>Quercus macrocarpa</i>	Bur oak

MLCCS Code

42120

Qualitative Rank

C

Acres

By-Community Species Lists

Area 24-5				MLCCS Code	Qualitative Rank	Acres
Oak woodland-brushland				42120	C	
Canopy		Shrub		Ground		
<i>Quercus macrocarpa</i>	Bur oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Vitis riparia</i>	Wild grape	
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Ribes nigrum</i>	Black currant	<i>Parthenocissus vitacea</i>	Virginia creeper	
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar	<i>Acer negundo</i>	Box elder	<i>Parthenocissus vitacea</i>	Virginia creeper	
		<i>Sambucus canadensis</i>	Common elder	<i>Bromus inermis</i>	Smooth brome	
<i>Acer negundo</i>	Box elder			<i>Arctium minus</i>	Common burdock	
				<i>Glechoma hederacea</i>	Creeping Charlie	
				<i>Urtica dioica</i> ssp. <i>gracilis</i>	Stinging nettle	
				<i>Circaea lutetiana</i> var.	Common enchanter's	
				<i>Nepeta cataria</i>	Catnip	
				<i>Berteroa incana</i>	Hoary alyssum	

Area 24-6				MLCCS Code	Qualitative Rank	Acres
Altered/non-native deciduous woodland				42130	NA	
Canopy		Shrub		Ground		
<i>Quercus macrocarpa</i>	Bur oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Poa pratensis</i>	Kentucky bluegrass	
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Vitis riparia</i>	Wild grape	
				<i>Vitis riparia</i>	Wild grape	
				<i>Parthenocissus vitacea</i>	Virginia creeper	

Area 24-7				MLCCS Code	Qualitative Rank	Acres
Oak woodland-brushland				42120	D	
Canopy		Shrub		Ground		
<i>Fraxinus pennsylvanica</i> var. <i>pennsylvanica</i>	Green ash	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Bromus inermis</i>	Smooth brome	

By-Community Species Lists

Area 24-8

Cattail marsh - semipermanently flooded

Canopy	Shrub	Ground	MLCCS Code	Qualitative Rank	Acres
			61610	D	
		<i>Typha latifolia</i>			Broad-leaved cattail
		<i>Typha angustifolia</i>			Narrow-leaved cattail
		<i>Polygonum amphibium</i>			Water smartweed
		<i>Asclepias incarnata</i> var.			Swamp milkweed
		<i>Parthenocissus vitacea</i>			Virginia creeper
		<i>Carex</i> sp.			Undetermined sedge
		<i>Lycopus uniflorus</i>			Northern bugleweed
		<i>Typha x glauca</i>			Hybrid cattail

Area 24-9

Cattail marsh - semipermanently flooded

Canopy	Shrub	Ground	MLCCS Code	Qualitative Rank	Acres
			61610	C	
		<i>Typha angustifolia</i>			Narrow-leaved cattail
		<i>Carex stricta</i>			Tussock sedge
		<i>Carex lacustris</i>			Lake sedge
		<i>Carex</i> sp.			Undetermined sedge
		<i>Polygonum amphibium</i>			Water smartweed
		<i>Asclepias incarnata</i> var.			Swamp milkweed
		<i>Scutellaria galericulata</i>			Marsh skullcap
		<i>Cirsium arvense</i>			Canada thistle
		<i>Phalaris arundinacea</i>			Reed canary grass
		<i>Sagittaria latifolia</i>			Broad-leaved arrowhead
		<i>Scirpus cyperinus</i>			Woolgrass
		<i>Campanula aparinoides</i>			Marsh bellflower
		<i>Calamagrostis canadensis</i>			Bluejoint
		<i>Scrophularia lanceolata</i>			Lance-leaved figwort

By-Community Species Lists

Area 24-10

Cattail marsh - semipermanently flooded

Canopy

Populus tremuloides Quaking aspen

Shrub

Salix exigua
Cornus racemosa
Cornus sericea

Sandbar willow
Gray dogwood
Red-osier dogwood

Ground

Typha angustifolia
Phalaris arundinacea
Asclepias incarnata var.
Polygonum amphibium
Sagittaria latifolia
Scirpus atrovirens
Glyceria sp.
Scirpus cyperinus
Verbena hastata
Eupatorium perfoliatum
Polygonum lapathifolium
Mimulus ringens var.
Onoclea sensibilis
Carex bebbii
Carex stricta

Narrow-leaved cattail
Reed canary grass
Swamp milkweed
Water smartweed
Broad-leaved arrowhead
Dark green bulrush
Undetermined manna
Woolgrass
Blue vervain
Common boneset
Nodding smartweed
Blue monkey flower
Sensitive fern
Bebb's sedge
Tussock sedge

MLCCS Code

61610

Qualitative Rank

C

Acres

Area 24-11

Aspen forest - saturated soils

Canopy

Populus tremuloides Quaking aspen

Shrub

Vitis riparia
Lonicera tatarica
Populus tremuloides

Wild grape
Tartarian honeysuckle
Quaking aspen

Ground

Poa pratensis
Stachys tenuifolia
Carex lacustris
Pycnanthemum
Parthenocissus vitacea
Cirsium arvense
Gentiana sp.

Kentucky bluegrass
Narrow-leaved hedge nettle
Lake sedge
Virginia mountain mint
Virginia creeper
Canada thistle
Undetermined gentiana

MLCCS Code

32330

Qualitative Rank

C

Acres

By-Community Species Lists

Area 24-13

Cattail marsh - semipermanently flooded

Canopy		Shrub		Ground	
<i>Salix nigra</i>	Black willow	<i>Salix exigua</i>	Sandbar willow	<i>Typha angustifolia</i>	Narrow-leaved cattail
		<i>Vitis riparia</i>	Wild grape	<i>Solidago gigantea</i>	Giant goldenrod
<i>Acer negundo</i>	Box elder	<i>Spiraea tomentosa</i> var.	Steeplebush	<i>Solidago gigantea</i>	Giant goldenrod
				<i>Carex lacustris</i>	Lake sedge
<i>Populus tremuloides</i>	Quaking aspen			<i>Scirpus cyperinus</i>	Woolgrass
				<i>Cirsium arvense</i>	Canada thistle
				<i>Sagittaria latifolia</i>	Broad-leaved arrowhead
				<i>Asclepias incarnata</i> var.	Swamp milkweed
				<i>Polygonum sagittatum</i>	Arrow-leaved tearthumb
				<i>Impatiens capensis</i>	Spotted touch-me-not

Area 25-1

Lowland hardwood forest

Canopy		Shrub		Ground	
<i>Quercus macrocarpa</i>	Bur oak	<i>Lonicera tatarica</i>	Tartarian honeysuckle	<i>Solidago canadensis</i>	Canada goldenrod
		<i>Ulmus pumila</i>	Siberian elm	<i>Solidago rigida</i>	Stiff goldenrod
<i>Quercus ellipsoidalis</i>	Northern pin oak	<i>Rhamnus cathartica</i>	Common buckthorn	<i>Solidago rigida</i>	Stiff goldenrod
				<i>Centaurea maculosa</i>	Spotted knapweed
<i>Salix nigra</i>	Black willow	<i>Cornus racemosa</i>	Gray dogwood	<i>Stachys tenuifolia</i>	Narrow-leaved hedge nettle
		<i>Zanthoxylum americanum</i>	Prickly ash		
<i>Acer negundo</i>	Box elder	<i>Vitis riparia</i>	Wild grape	<i>Phalaris arundinacea</i>	Reed canary grass
<i>Populus deltoides</i> var. <i>occidentalis</i>	Cottonwood	<i>Corylus americana</i>	American hazelnut		
		<i>Rubus occidentalis</i>	Black raspberry		
		<i>Rhus hirta</i>	Staghorn sumac		
		<i>Salix exigua</i>	Sandbar willow		

By-Community Species Lists

Area 25-2				MLCCS Code	Qualitative Rank	Acres
Cattail marsh - semipermanently flooded				61610	B	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Salix exigua</i>	Sandbar willow	<i>Typha</i> sp.	Undetermined cattail	
		<i>Vitis riparia</i>	Wild grape	<i>Carex lacustris</i>	Lake sedge	
		<i>Alnus incana</i> ssp. <i>rugosa</i>	Speckled alder	<i>Asclepias incarnata</i> var.	Swamp milkweed	
		<i>Cornus racemosa</i>	Gray dogwood	<i>Impatiens capensis</i>	Spotted touch-me-not	
		<i>Cornus sericea</i>	Red-osier dogwood			
				<i>Glyceria</i> sp.	Undetermined manna	
				<i>Sagittaria latifolia</i>	Broad-leaved arrowhead	
				<i>Phalaris arundinacea</i>	Reed canary grass	
				<i>Polygonum sagittatum</i>	Arrow-leaved tearthumb	
				<i>Verbena hastata</i>	Blue vervain	
				<i>Mimulus ringens</i> var.	Blue monkey flower	
				<i>Alisma subcordatum</i>	Heart-leaved water plantain	

Area 25-3				MLCCS Code	Qualitative Rank	Acres
Aspen forest				32160	C	
Canopy		Shrub		Ground		
<i>Populus tremuloides</i>	Quaking aspen	<i>Rubus occidentalis</i>	Black raspberry	<i>Bromus inermis</i>	Smooth brome	
		<i>Vitis riparia</i>	Wild grape	<i>Populus tremuloides</i>	Quaking aspen	
<i>Salix nigra</i>	Black willow	<i>Populus tremuloides</i>	Quaking aspen	<i>Populus tremuloides</i>	Quaking aspen	
				<i>Solidago canadensis</i>	Canada goldenrod	
<i>Quercus rubra</i>	Northern red oak	<i>Cornus racemosa</i>	Gray dogwood	<i>Onoclea sensibilis</i>	Sensitive fern	
		<i>Cornus sericea</i>	Red-osier dogwood			
				<i>Parthenocissus vitacea</i>	Virginia creeper	
		<i>Lonicera tatarica</i>	Tartarian honeysuckle			
		<i>Rhamnus cathartica</i>	Common buckthorn	<i>Carex lacustris</i>	Lake sedge	
				<i>Stachys tenuifolia</i>	Narrow-leaved hedge nettle	

By-Community Species Lists

Area 25-4

Oak woodland-brushland

Canopy

<i>Quercus rubra</i>	Northern red oak
<i>Quercus macrocarpa</i>	Bur oak
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Vitis riparia</i>	Wild grape
<i>Rubus occidentalis</i>	Black raspberry
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Zanthoxylum americanum</i>	Prickly ash
<i>Sambucus racemosa</i>	Red-berried elder

Ground

<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Matteuccia struthiopteris</i>	Ostrich fern
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Bromus inermis</i>	Smooth brome

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 25-5

Wet meadow

Canopy

Shrub

Ground

<i>Carex lacustris</i>	Lake sedge
<i>Asclepias incarnata</i> var.	Swamp milkweed
<i>Polygonum amphibium</i>	Water smartweed
<i>Polygonum sagittatum</i>	Arrow-leaved tearthumb
<i>Typha</i> sp.	Undetermined cattail
<i>Verbena hastata</i>	Blue vervain
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Mimulus ringens</i> var.	Blue monkey flower
<i>Scirpus</i> sp.	Undetermined species of

MLCCS Code

61420

Qualitative Rank

B

Acres

By-Community Species Lists

Area	25-6			MLCCS Code	Qualitative Rank	Acres
	Wet meadow			61420	B	
Canopy		Shrub		Ground		
		<i>Salix exigua</i>	Sandbar willow	<i>Carex lacustris</i>	Lake sedge	
				<i>Polygonum amphibium</i>	Water smartweed	
				<i>Scirpus cyperinus</i>	Woolgrass	
				<i>Phalaris arundinacea</i>	Reed canary grass	
				<i>Asclepias incarnata</i> var.	Swamp milkweed	
				<i>Echinocystis lobata</i>	Wild cucumber	
				<i>Iris versicolor</i>	Northern blue flag	
				<i>Rudbeckia hirta</i> var.	Black-eyed Susan	
				<i>Carex stricta</i>	Tussock sedge	
				<i>Verbena hastata</i>	Blue vervain	
				<i>Eupatorium perfoliatum</i>	Common boneset	
				<i>Ratibida pinnata</i>	Gray-headed coneflower	
				<i>Desmodium canadense</i>	Canada tick trefoil	
				<i>Monarda fistulosa</i>	Wild bergamot	

Area	25-7			MLCCS Code	Qualitative Rank	Acres
	Cattail marsh - semipermanently flooded			61610	C	
Canopy		Shrub		Ground		
		<i>Populus tremuloides</i>	Quaking aspen	<i>Typha</i> sp.	Undetermined cattail	
		<i>Salix exigua</i>	Sandbar willow	<i>Carex lacustris</i>	Lake sedge	
				<i>Scirpus cyperinus</i>	Woolgrass	
				<i>Sagittaria latifolia</i>	Broad-leaved arrowhead	

By-Community Species Lists

Area 26-1

Oak woodland-brushland

Canopy

<i>Quercus rubra</i>	Northern red oak
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar
<i>Prunus serotina</i>	Black cherry
<i>Acer negundo</i>	Box elder
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Corylus americana</i>	American hazelnut
<i>Ribes americanum</i>	Wild black currant
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Toxicodendron radicans</i> var. <i>negundo</i>	Common poison ivy

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Hackelia virginiana</i>	Virginia stickseed
<i>Hackelia virginiana</i>	Virginia stickseed
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Amphicarpaea bracteata</i>	Hog peanut
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Fragaria vesca</i> var.	Wood strawberry
<i>Taraxacum officinale</i>	Common dandelion
<i>Antennaria plantaginifolia</i>	Plantain-leaved pussytoes
<i>Galium boreale</i>	Northern bedstraw
<i>Quercus macrocarpa</i>	Bur oak
<i>Plantago major</i>	Common plantain
<i>Geum triflorum</i>	Prairie smoke

MLCCS Code	Qualitative Rank	Acres
42120	C	

By-Community Species Lists

Area 26-2

Aspen forest - saturated soils

Canopy

Populus tremuloides Quaking aspen

Shrub

Populus tremuloides Quaking aspen
Salix bebbiana Bebb's willow
Cornus sericea Red-osier dogwood

Ground

Zizia aurea Golden alexanders
Eupatorium perfoliatum Common boneset
Eupatorium maculatum Spotted Joe pye weed
Onoclea sensibilis Sensitive fern
Carex lacustris Lake sedge
Equisetum sp. Undetermined horsetail
Solidago gigantea Giant goldenrod
Rumex orbiculatus Great water dock
Carex haydenii Hayden's sedge
Gentiana andrewsii Bottle gentian
Pycnanthemum Virginia mountain mint
Pedicularis lanceolata Swamp lousewort

MLCCS Code

32330

Qualitative Rank

B

Acres

Area 26-3

Aspen forest

Canopy

Populus tremuloides Quaking aspen

Salix nigra Black willow

Shrub

Rhamnus cathartica Common buckthorn
Populus tremuloides Quaking aspen
Lonicera tatarica Tartarian honeysuckle

Vitis riparia Wild grape

Ground

Anemone canadensis Canada anemone
Maianthemum canadense Canada mayflower
Maianthemum canadense Canada mayflower
Amphicarpaea bracteata Hog peanut
Onoclea sensibilis Sensitive fern
Equisetum sp. Undetermined horsetail
Phryma leptostachya Lopseed
Circaea lutetiana var. Common enchanter's

MLCCS Code

32160

Qualitative Rank

C

Acres

By-Community Species Lists

Area 26-4

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Acer negundo</i>	Box elder
<i>Acer saccharum</i>	Sugar maple
<i>Prunus serotina</i>	Black cherry

Shrub

<i>Zanthoxylum americanum</i>	Prickly ash
<i>Apocynum androsaemifolium</i>	Spreading dogbane
<i>Ribes americanum</i>	Wild black currant
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Prunus virginiana</i>	Chokecherry
<i>Rhus sp.</i>	Undetermined species of sumac

Ground

<i>Vitis riparia</i>	Wild grape
<i>Bromus inermis</i>	Smooth brome
<i>Bromus inermis</i>	Smooth brome
<i>Toxicodendron radicans</i>	Common poison ivy
<i>Anemone canadensis</i>	Canada anemone
<i>Galium aparine</i>	Cleavers
<i>Euphorbia esula</i>	Leafy spurge
<i>Rubus idaeus var. strigosus</i>	Red raspberry
<i>Phalaris arundinacea</i>	Reed canary grass

MLCCS Code

42120

Qualitative Rank

C

Acres

Area 26-5

Oak forest dry subtype

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Acer negundo</i>	Box elder
<i>Prunus serotina</i>	Black cherry
<i>Celtis occidentalis</i>	Hackberry

Shrub

<i>Rubus idaeus var. strigosus</i>	Red raspberry
<i>Ribes americanum</i>	Wild black currant
<i>Rhamnus cathartica</i>	Common buckthorn

Ground

<i>Eupatorium rugosum</i>	White snakeroot
<i>Arctium minus</i>	Common burdock
<i>Arctium minus</i>	Common burdock
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Urtica dioica ssp. gracilis</i>	Stinging nettle

MLCCS Code

32113

Qualitative Rank

C

Acres

By-Community Species Lists

Area 27-1				MLCCS Code	Qualitative Rank	Acres
Oak woodland-brushland				42120	C	
Canopy		Shrub		Ground		
<i>Quercus alba</i>	White oak	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Anemone canadensis</i>	Canada anemone	
<i>Quercus macrocarpa</i>	Bur oak	<i>Apocynum androsaemifolium</i>	Spreading dogbane	<i>Quercus alba</i>	White oak	
				<i>Quercus alba</i>	White oak	
				<i>Poa pratensis</i>	Kentucky bluegrass	
				<i>Euphorbia esula</i>	Leafy spurge	
				<i>Achillea millefolium</i>	Yarrow	

Area 27-2				MLCCS Code	Qualitative Rank	Acres
Grassland with sparse deciduous trees - altered/non-native dominated vegetation				62140	B	
Canopy		Shrub		Ground		
<i>Quercus macrocarpa</i>	Bur oak	<i>Quercus macrocarpa</i>	Bur oak	<i>Solidago rigida</i>	Stiff goldenrod	
<i>Juniperus virginiana</i> var. <i>virginiana</i>	Eastern red cedar			<i>Solidago canadensis</i>	Canada goldenrod	
				<i>Lithospermum canescens</i>	Hoary puccoon	
				<i>Geranium maculatum</i>	Wild geranium	
				<i>Amorpha canescens</i>	Leadplant	
				<i>Bouteloua curtipendula</i>	Side-oats grama	
				<i>Bromus inermis</i>	Smooth brome	
				<i>Poa pratensis</i>	Kentucky bluegrass	
				<i>Geum triflorum</i>	Prairie smoke	
				<i>Delphinium carolinianum</i>	Prairie larkspur	
				<i>Viola pedata</i>	Beardless birdfoot violet	
				<i>Heuchera richardsonii</i>	Alumroot	

By-Community Species Lists

Area 27-3

Birch bog, spiraea shrublan - semipermanently flooded

Canopy

Salix nigra Black willow

Shrub

Salix exigua Sandbar willow

Ground

Carex lacustris Lake sedge
Carex stricta Tussock sedge
Polygonum amphibium Water smartweed
Phalaris arundinacea Reed canary grass
Asclepias incarnata var. Swamp milkweed
Eupatorium perfoliatum Common boneset
Polygonum sagittatum Arrow-leaved tearthumb
Sagittaria latifolia Broad-leaved arrowhead
Scirpus cyperinus Woolgrass
Polygonum lapathifolium Nodding smartweed
Verbena hastata Blue vervain

MLCCS Code 52530
Qualitative Rank B
Acres

By-Community Species Lists

Area 27-4

Cattail marsh - seasonally flooded

MLCCS Code61510

Qualitative RankB

Acres

Canopy	Shrub		Ground
	<i>Spiraea tomentosa</i> var.	Steeplebush	<i>Phalaris arundinacea</i>
			<i>Typha</i> sp.
			<i>Polygonum amphibium</i>
			<i>Scirpus cyperinus</i>
			<i>Polygonum sagittatum</i>
			<i>Polygonum lapathifolium</i>
			<i>Carex stricta</i>
			<i>Carex lacustris</i>
			<i>Calamagrostis canadensis</i>
			<i>Sagittaria latifolia</i>
			<i>Verbena hastata</i>
			<i>Asclepias incarnata</i> var.
			<i>Eupatorium perfoliatum</i>

Reed canary grass
Undetermined cattail
Water smartweed
Woolgrass
Arrow-leaved tearthumb
Nodding smartweed
Tussock sedge
Lake sedge
Bluejoint
Broad-leaved arrowhead
Blue vervain
Swamp milkweed
Common boneset

Area 27-5

Cattail marsh - semipermanently flooded

MLCCS Code61610

Qualitative RankC

Acres

Canopy	Shrub	Ground
		<i>Typha x glauca</i>
		<i>Typha latifolia</i>
		<i>Phalaris arundinacea</i>
		<i>Carex lacustris</i>
		<i>Sagittaria latifolia</i>
		<i>Polygonum amphibium</i>
		<i>Typha angustifolia</i>

Hybrid cattail
Broad-leaved cattail
Reed canary grass
Lake sedge
Broad-leaved arrowhead
Water smartweed
Narrow-leaved cattail

By-Community Species Lists

Area 27-6		MLCCS Code		Qualitative Rank	Acres
Saturated altered/non-native dominated graminoid vegetation		61480		NA	
Canopy		Shrub		Ground	
<i>Populus tremuloides</i>	Quaking aspen	<i>Salix exigua</i>	Sandbar willow	<i>Phalaris arundinacea</i>	Reed canary grass
		<i>Salix amygdaloides</i>	Peach-leaved willow	<i>Polygonum amphibium</i>	Water smartweed
<i>Salix nigra</i>	Black willow	<i>Populus tremuloides</i>	Quaking aspen	<i>Polygonum amphibium</i>	Water smartweed
				<i>Carex lacustris</i>	Lake sedge
		<i>Spiraea tomentosa</i> var.	Steeplebush	<i>Scirpus cyperinus</i>	Woolgrass
				<i>Carex</i> sp.	Undetermined sedge
				<i>Asclepias incarnata</i> var.	Swamp milkweed
				<i>Cirsium arvense</i>	Canada thistle
				<i>Stachys tenuifolia</i>	Narrow-leaved hedge nettle
				<i>Eupatorium perfoliatum</i>	Common boneset
				<i>Campanula aparinoides</i>	Marsh bellflower
				<i>Artemisia ludoviciana</i> var.	White sage
				<i>Solidago gigantea</i>	Giant goldenrod
				<i>Dalea candida</i>	White prairie clover
				<i>Bromus inermis</i>	Smooth brome

Area 27-10		MLCCS Code		Qualitative Rank	Acres
Oak woodland-brushland		42120		C	
Canopy		Shrub		Ground	
<i>Quercus alba</i>	White oak	<i>Zanthoxylum americanum</i>	Prickly ash	<i>Anemone canadensis</i>	Canada anemone
<i>Quercus macrocarpa</i>	Bur oak	<i>Apocynum androsaemifolium</i>	Spreading dogbane	<i>Quercus alba</i>	White oak
				<i>Quercus alba</i>	White oak
				<i>Poa pratensis</i>	Kentucky bluegrass
				<i>Euphorbia esula</i>	Leafy spurge
				<i>Achillea millefolium</i>	Yarrow

By-Community Species Lists

Area 28-1

Semipermanently flooded altered/non-native dominated vegetation

MLCCS Code 61630
Qualitative Rank NA
Acres

Canopy

Shrub

- Acer negundo

Salix exigua

Cornus sericea
- Box elder

Sandbar willow

Red-osier dogwood

Ground

- Phalaris arundinacea

Solidago gigantea

Verbena hastata

Urtica dioica ssp. gracilis

Eupatorium purpureum

Polygonum amphibium

Panicum virgatum

Poa pratensis

Cirsium arvense

Centaurea maculosa

Phragmites australis

Sagittaria latifolia

Convolvulus arvensis
- Reed canary grass

Giant goldenrod

Blue vervain

Stinging nettle

Sweet Joe pye weed

Water smartweed

Switchgrass

Kentucky bluegrass

Canada thistle

Spotted knapweed

Common reed grass

Broad-leaved arrowhead

Field bindweed

By-Community Species Lists

Area 29-1

Oak forest

Canopy

<i>Celtis occidentalis</i>	Hackberry
<i>Acer negundo</i>	Box elder
<i>Ulmus americana</i>	American elm
<i>Quercus rubra</i>	Northern red oak
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus macrocarpa</i>	Bur oak

Shrub

<i>Ribes nigrum</i>	Black currant
<i>Vitis riparia</i>	Wild grape

Ground

<i>Poa pratensis</i>	Kentucky bluegrass
<i>Leonurus cardiaca</i>	Common motherwort
<i>Leonurus cardiaca</i>	Common motherwort
<i>Laportea canadensis</i>	Wood nettle
<i>Phalaris arundinacea</i>	Reed canary grass
<i>Urtica dioica ssp. gracilis</i>	Stinging nettle
<i>Carex blanda</i>	Charming sedge
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago gigantea</i>	Giant goldenrod
<i>Eupatorium rugosum</i>	White snakeroot
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Circaea lutetiana var.</i>	Common enchanter's

MLCCS Code 32110 Qualitative Rank C Acres

By-Community Species Lists

Area 29-2

Semipermanently flooded altered/non-native dominated vegetation

MLCCS Code

61630

Qualitative Rank

NA

Acres

Canopy

Populus tremuloides

Quaking aspen

Shrub

Rhus hirta

Populus tremuloides

Salix exigua

Staghorn sumac

Quaking aspen

Sandbar willow

Ground

Typha sp.

Poa pratensis

Berteroa incana

Phalaris arundinacea

Solidago canadensis

Polygonum amphibium

Carex sp.

Rudbeckia hirta var.

Pycnanthemum

Melilotus alba

Solidago gigantea

Artemisia absinthium

Solidago rigida

Undetermined cattail

Kentucky bluegrass

Hoary alyssum

Reed canary grass

Canada goldenrod

Water smartweed

Undetermined sedge

Black-eyed Susan

Virginia mountain mint

White sweet clover

Giant goldenrod

Absinthe wormwood

Stiff goldenrod

Area 29-3

Oak forest

MLCCS Code

32110

Qualitative Rank

D

Acres

Canopy

Quercus macrocarpa

Bur oak

Acer negundo

Box elder

Celtis occidentalis

Hackberry

Quercus alba

White oak

Shrub

Ribes nigrum

Ostrya virginiana

Acer negundo

Black currant

Ironwood

Box elder

Vitis riparia

Lonicera tatarica

Zanthoxylum americanum

Rhamnus cathartica

Wild grape

Tartarian honeysuckle

Prickly ash

Common buckthorn

Ground

Eupatorium rugosum

Glechoma hederacea

Glechoma hederacea

Leonurus cardiaca

Bromus inermis

Hydrophyllum virginianum

White snakeroot

Creeping Charlie

Creeping Charlie

Common motherwort

Smooth brome

Virginia waterleaf

By-Community Species Lists

Area 36-1

Oak forest mesic subtype

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Tilia americana</i>	Basswood
<i>Acer saccharinum</i>	Silver maple
<i>Fraxinus pennsylvanica</i> <i>var. pennsylvanica</i>	Green ash
<i>Quercus ellipsoidalis</i>	Northern pin oak
<i>Quercus rubra</i>	Northern red oak
<i>Celtis occidentalis</i>	Hackberry
<i>Acer negundo</i>	Box elder

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Tilia americana</i>	Basswood
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Vitis riparia</i>	Wild grape

Ground

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Geranium maculatum</i>	Wild geranium
<i>Geranium maculatum</i>	Wild geranium
<i>Hydrophyllum virginianum</i>	Virginia waterleaf
<i>Toxicodendron radicans</i>	Common poison ivy
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Onoclea sensibilis</i>	Sensitive fern
<i>Desmodium glutinosum</i>	Pointed-leaved tick trefoil
<i>Circaea lutetiana</i> var.	Common enchanter's

MLCCS Code

32112

Qualitative Rank

C

Acres

Area 36-2

Oak woodland-brushland

Canopy

<i>Quercus macrocarpa</i>	Bur oak
<i>Quercus rubra</i>	Northern red oak
<i>Quercus ellipsoidalis</i>	Northern pin oak

Shrub

<i>Rhamnus cathartica</i>	Common buckthorn
<i>Vitis riparia</i>	Wild grape
<i>Ribes nigrum</i>	Black currant
<i>Rubus idaeus</i> var. <i>strigosus</i>	Red raspberry

Ground

<i>Carex pensylvanica</i> var.	Sun-loving sedge
<i>Solidago canadensis</i>	Canada goldenrod
<i>Solidago canadensis</i>	Canada goldenrod
<i>Circaea lutetiana</i> var.	Common enchanter's
<i>Impatiens capensis</i>	Spotted touch-me-not
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Euphorbia esula</i>	Leafy spurge
<i>Alliaria petiolata</i>	Garlic mustard
<i>Poa pratensis</i>	Kentucky bluegrass

MLCCS Code

42120

Qualitative Rank

C

Acres

By-Community Species Lists

Area 36-3

Cattail marsh - semipermanently flooded

Canopy	Shrub	Ground	MLCCS Code	Qualitative Rank	Acres
		<i>Typha</i> sp. <i>Phalaris arundinacea</i>	61610	C	
		Undetermined cattail Reed canary grass			

Area 36-4

Alder swamp - saturated soils

Canopy	Shrub	Ground	MLCCS Code	Qualitative Rank	Acres
<i>Acer negundo</i> <i>Populus tremuloides</i> <i>Salix nigra</i>	Box elder Quaking aspen Black willow	<i>Salix exigua</i> <i>Cornus racemosa</i> <i>Cornus sericea</i> <i>Rhamnus cathartica</i>	52350	C	
	Sandbar willow Gray dogwood Red-osier dogwood Common buckthorn	<i>Solidago canadensis</i> <i>Rudbeckia hirta</i> var. <i>Rudbeckia hirta</i> var. <i>Panicum virgatum</i> <i>Bromus inermis</i> <i>Verbena hastata</i> <i>Phalaris arundinacea</i> <i>Cirsium arvense</i> <i>Polygonum amphibium</i> <i>Scirpus validus</i> <i>Asclepias incarnata</i> var. <i>Carex lacustris</i> <i>Toxicodendron radicans</i> <i>Sagittaria latifolia</i> <i>Euphorbia esula</i> <i>Mimulus ringens</i> var. <i>Alisma subcordatum</i>	Canada goldenrod Black-eyed Susan Black-eyed Susan Switchgrass Smooth brome Blue vervain Reed canary grass Canada thistle Water smartweed Soft stem bulrush Swamp milkweed Lake sedge Common poison ivy Broad-leaved arrowhead Leafy spurge Blue monkey flower Heart-leaved water plantain		

NATURAL COMMUNITY DESCRIPTIONS

Community: 1-1
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community
Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

Threatened /
Endangered

Community Description:

Oak woodland.

Canopy dominated by Q. macrocarpa and Q. ellipsoides.

Shrub layer w/ corylus americana.

Ground layer mostly dominated by those listed above.

Slightly disturbed by human activity-ATV trails and brush piles.

Restoration Comments:

Community: 1-2
Community Type: Oak forest mesic subtype
Qualitative Rank: C - Moderate condition natural community
Additional Modifier:

Field Check Level: Viewed the site from a distance

Restoration Potential:

MCBS Site: Biodiversity

Threatened /
Endangered

Community Description:

Restoration Comments:

Community: 1-3
Community Type: Oak forest mesic subtype
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Mesic hardwood (oak) forest. Very tall oak trees over a canopy of basswood, box elder, black cherry and quaking aspen. Understory species diverse.

Restoration Comments:

Community: 1-4
Community Type: Oak forest mesic subtype
Qualitative Rank: A - High quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Mesic oak forest. Tall, straight growing oaks with an understory trending towards maple/basswood. Several forb species in understory. Slightly better quality than 1-3.

Restoration Comments:

Community: 1-5
Community Type: Oak forest mesic subtype
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Mesic oak forest. Oaks dominate canopy layer w/ basswood, cherry, big-toothed aspen in sub-canopy. Shrub layer dense making ground layer not too diverse.

Restoration Comments:

Community: 2-1
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 2-2
Community Type: Floodplain forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Woodland just above a small stream. Area is likely grazed occasionally by horses. Some diversity in ground layer.

Restoration Comments:

Community: 2-3
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Canopy 40% oak, most are not open grown. Shrub layer dominated by ostrya virginiana. Understory moderately diverse, but dominated by early successional species. Area was likely grazed in the past.

Restoration Comments:

Community: 2-4
Community Type: Floodplain forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Canopy dominated by Tilia and Boxelder with scattered Q. macrocarpa found along a stream corridor. Plants typical of a disturbed area.

Restoration Comments:

Community: 2-5
Community Type: Maple-basswood forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Maple/basswood woodland. Ground layer disturbed by human activity (ATV's, etc). Shrub layer is not extensive.

Restoration Comments:

Community: 2-7
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 2-8
Community Type: Saturated altered/non-native dominated graminoid vegetation
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Flanked with bur oak and slippery elm (adjacent polygon). Wetland, mostly dominated by reed canary grass, but with good forb diversity intermixed. Flanking small stream.

Restoration Comments:

Community: 2-9
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 2-10
Community Type: Seepage meadow
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Grazed wetland on streambank, flanking streambed, sitting slightly above. Stream used by sandhill cranes (observed).

Restoration Comments:

Community: 2-11
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Grazed 42120. Disturbed grazed 42120. Understory dominated by common pasture plants.

Restoration Comments:

Community: 2-12
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 2-13
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Oak woodland bordering wetland complex w/ actively flowing stream. Partially parkland. Very tall, straight growing oak trees. No low spreading branches.

Restoration Comments:

Community: 2-14
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Some oak wilt. Island of oak woodland brushland in sea of non-native grass w/ planted conifers. Some remnant plant species remain in ground layer such as amorphia.

Restoration Comments:

Community: 2-15
Community Type: Floodplain forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Likely grazed in the past. Bulk of tree species on upland slope from stream. Tree mixture, oaks less than 30% of canopy. Mostly boxelder and basswood.

Restoration Comments:

Community: 2-16
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Likely grazed in the past. Shrub and herb layer sparse. Some oaks 20 inches plus in size.

Restoration Comments:

Community: 2-18
Community Type: Floodplain forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Low riparian area w/ willow shrubs, reed canary grass.

Restoration Comments:

Community: 3-1
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Part aspen woodland (32160) and part oak woodland (mostly oak woodland 32110).
Disturbed.

Restoration Comments:

Community: 3-2
Community Type: Altered/non-native deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Altered woodland/brushland. Dominated by larger oaks with boxelder.

Restoration Comments:

Community: 3-4
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 3-5
Community Type: Cattail marsh - seasonally flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Cattail marsh surrounded by aspen woodland.

Restoration Comments:

Community: 3-7
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

oak brushland flanked with 32160 (aspen forest)

Restoration Comments:

Community: 3-9
Community Type: Medium-tall grass altered/non-native dominated grassland
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Non-native grassland with sparse shrubs.

Restoration Comments:

Community: 3-10
Community Type: Aspen forest - temporarily flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 3-11
Community Type: Mixed emergent marsh - intermittently exposed
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Cattail marsh with scattered shrubs.

Restoration Comments:

Community: 3-13
Community Type: Wet meadow
Qualitative Rank: A - High quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Very nice quality wet meadow. Hiked with property owner on 8.2.07. Owner indicated he mows area periodically (every year or couple years) and this is quite apparently a strong benefit to wetland quality. Mowed areas much better quality than unmowed areas. Soils dry and peaty (very bouncy under foot). Owner indicated 20-30 feet peat depth. No knowledge of past grazing. Ditched along eastern edge. Owner expressed interest in localized excavating (peat mining to create open water areas) and in using native species for plantings, and possibly utilizing prescribed burn as a management tool.

Restoration Comments:

Community: 3-14
Community Type: Oak forest
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Oak woods on northwest corner of property. Brief survey, but overall appears to be good quality--checked from trail. Patchy (60-75%) canopy of mixed oak and aspen over black cherry. Very dense shrub layer dominated by a mix of native species. Ground layer not readily discernible from trail, but appears to be good quality.

Restoration Comments:

Community: 3-15
Community Type: Cattail marsh - seasonally flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Cattail marsh, ditched. Dominated by narrow leaved cattail with scattered forbs. Moderate quality, due to overall diversity. Would probably improve with mowing, similar to adjacent wet meadow. Grades into 412-6 (heavier levels of reed canary grass) on southeast portion.

Restoration Comments:

Community: 3-16
Community Type: Altered/non-native dominated upland shrubland
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Grass field with many shrubs. 50-75% shrub cover.

Restoration Comments:

Community: 4-1
Community Type: Grassland with sparse conifer or mixed
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Grassland with sparse shrubs and trees and mowed turf. Diversity of native plants fairly good. 62220-area with shrubs/trees- lots of sumac, ground layer dominated by smooth brome with natives intermixed.

Restoration Comments:

Community: 4-2
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

Threatened /
Endangered

Community Description:

Oak woodland with very dense shrub layer. Shading from shrub layer makes understory diversity somewhat low.

Restoration Comments:

Community: 4-17
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site: Biodiversity

Threatened /
Endangered

Community Description:

Moist aspen woodland.

Restoration Comments:

Community: 5-1

Community Type:

Qualitative Rank:

Additional Modifier:

Field Check Level: Site not visited

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

No access to this site.

Restoration Comments:

Community: 5-2

Community Type: Oak woodland-brushland

Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Viewed the site from a distance

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland-brushland--likely grazed in the past-trails/fences. Fringe of black ash along wetland, but outside polygon.

Restoration Comments:

Community: 5-3
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Saturated aspen woodland bordering a large wetland complex. Shrub layer with dogwoods, raspberries, hazelnut. Small strip of salix exigua connects aspen woodland to adjacent oak woodland.

Restoration Comments:

Community: 5-4
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Some oak wilt. Oak woodland, large oaks, some open grown. Small pocket of black ash seepage area, 32310, all bordering a larger wetland complex. Understory diversity fairly good.

Restoration Comments:

Community: 5-5
Community Type: Oak forest red maple subtype
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

75-100% canopy closure. Variety of tree species, oak about 25-30% of canopy. Fairly good diversity in understory. Mostly dominated by oak species and sugar maple.

Restoration Comments:

Community: 6-1R24
Community Type: Oak forest
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Oak woodland. Very dense shrub layer shades out most understory growth. Many downed trees, dense brush--disturbed. Most oaks small in diameter, growing straight up. Portion of polygon in mowed turf with scattered large oak trees.

Restoration Comments:

Community: 6-1
Community Type: Altered/non-native deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Non-native woodland. Ground layer sparse and lacking diversity. Dominated by shrubs, early successional/prickly.

Restoration Comments:

Community: 6-2
Community Type: Oak woodland-brushland
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

50-70% canopy closure. 42120 w/ patches of 32170 throughout. Area was likely grazed in the past. Oak species predominant in most areas, but with hackberry/boxelder patches throughout.

Restoration Comments:

Community: 6-3
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Ground layer with mostly carex pennsylvanica.

Restoration Comments:

Community: 6-4
Community Type: Aspen forest - temporarily flooded
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland. Understory covered with penn. Sedge, other areas not very diverse.

Restoration Comments:

Community: 6-6
Community Type: Aspen forest - temporarily flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Aspen island in a large wetland complex. Shrub layer absent. Ground layer mostly phalaris arundinacea (reed canary grass).

Restoration Comments:

Community: 6-7
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Aspen woodland bordering wetland complex. Shrub layer generally absent except for small amount of red osier dogwood on edge. Ground layer dominated by sensitive fern.

Restoration Comments:

Community: 7-1
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Possibly grazed in the past, some parts possibly still grazed. Altered by human activity. Overgrown with shrub species.

Restoration Comments:

Community: 7-2
Community Type: Grassland with sparse conifer or mixed
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Non-native grassland w/ sparse cedar trees.

Restoration Comments:

Community: 7-3
Community Type: Altered/non-native deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Possibly logged or disturbed in the past (within the last 15 years or so). Woodland almost impenetrable due to slash and shrub growth (prickly ash). Presence of old logging trails. Oaks dominant in the past most likely, but now appears altered.

Restoration Comments:

Community: 7-4
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Disturbed oak woodland, possibly logged in the past.

Restoration Comments:

Community: 7-6
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland. Quality native vegetation below. Just above a large wetland complex. Some standing dead oaks, probably due to oak wilt.

Restoration Comments:

Community: 8-1
Community Type: Medium-tall grass altered/non-native dominated grassland
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Open grassland mostly dominated by non-native grasses, especially brome. Some moderate quality prairie vegetation. Forbs/grasses at edge.

Restoration Comments:

Community: 8-2
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 8-3
Community Type: Oak forest
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland upslope from wetland complex. Understory vegetation moderately diverse. Some buckthorn present (3).

Restoration Comments:

Community: 8-4
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Disturbed oak woodland, a few oaks are open grown but most do not have lower branches.

Restoration Comments:

Community: 8-5
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Many standing dead oaks, oak wilt is an issue on this site. Disturbed oak woodland/brushland, perhaps grazed in the past. Many oak trees, some large and open grown (but without many lower branches). Prickly ash very dense in some areas.

Restoration Comments:

Community: 8-6
Community Type: Grassland with sparse conifer or mixed
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Grass dominated old pasture with scattered trees and shrubs. Mostly brome with some native forbs. Sand blow out in center, does not support much vegetation.

Restoration Comments:

Community: 8-7
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland/brushland with several open grown oaks, some 20 inches plus in size. Understory of brome, prickly ash and oak saplings.

Restoration Comments:

Community: 8-8
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

oak woodland only viewed from edge.

Restoration Comments:

Community: 8-9
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

A wooded swamp bordering a wetland.

Restoration Comments:

Community: 9-1
Community Type: Aspen forest
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Small woodland island. Dominated by aspen on edge, oaks in the center. Surrounded by higher quality wetland complex w/ many native species.

Restoration Comments:

Community: 9-2
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 9-5
Community Type: Oak forest
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak wilt on site. Moist oak woodland bordering wetland. Most oaks have oak wilt.

Restoration Comments:

Community: 9-6
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland with aspen fringe at wetland edge. Oak wilt present. Several standing dead white oaks.

Restoration Comments:

Community: 9-7
Community Type: Black ash swamp seepage subtype
Qualitative Rank: A - High quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Black ash swamp. Seepage areas present--grading up to oak woodland.

Restoration Comments:

Community: 9-9
Community Type: Lowland hardwood forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Lowland hardwood forest. Variety of wet tree species, not many invasive species but understory dominated by wood nettle. Stands of jewelweed (spotted touch me not) may indicate the presence of seepage.

Restoration Comments:

Community: 9-11
Community Type: Lowland hardwood forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Lowland forest, water tolerant tree and plant species. Shrub layer lacking.

Restoration Comments:

Community: 9-12
Community Type: Temporarily flooded deciduous forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

moist aspen woodland borders a wetland.

Restoration Comments:

Community: 9-13
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland on upslope above wetland and aspen woodland. Dramatic break between plant communities due to steep ridge.

Restoration Comments:

Community: 9-14
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Aspen woodland. Forest floor dominated by common buckthorn seedlings.

Restoration Comments:

Community: 9-15
Community Type: Oak forest
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Some oak wilt. Area has been logged or cleared recently. Upslope from small wetland.

Restoration Comments:

Community: 9-17
Community Type: Wet meadow
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Calamagrostis and wiregrass dominated wetland. Rich fen community???

Restoration Comments:

Community: 9-18
Community Type: Willow swamp
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Shrub wetland.

Restoration Comments:

Community: 10-1
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland with invasive shrub layer around a seasonally flooded silver maple subtype.

Restoration Comments:

Community: 10-2
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 10-3
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak/cherry woodland. Aspen woodland around wetland (see map).

Restoration Comments:

Community: 10-4
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Overgrown oak woodland/brushland (disturbed). Large amounts of prickly ash, ground layer quite sparse. Possibly grazed in the past.

Restoration Comments:

Community: 10-5
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Some standing dead oaks--oak wilt?? Oak woodland, disturbed, now dense buckthorn layer. Grazed in the past (fences/trails).

Restoration Comments:

Community: 10-6
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

There are small pockets of prairie scattered throughout this polygon.

Restoration Comments:

Community: 10-7
Community Type: Altered/non-native deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Disturbed woodland non native composition. Thick layer of buckthorn and honeysuckle.

Restoration Comments:

Community: 10-8
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Viewed the site from a distance

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Some large open grown bur oaks. Overgrown oak brushland. Understory somewhat lacking.

Restoration Comments:

Community: 10-9
Community Type: Aspen forest
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Seepage area draining toward trott brook dominated by populus tremuloides with a diverse understory of wetland plants. Some areas more upland, dry with aspen, oaks, and carex pensylvanica with prickly ash and honeysuckle.

Restoration Comments:

Community: 10-10
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

There are small pockets of prairie scattered throughout this polygon.

Restoration Comments:

Community: 11-1
Community Type: Altered/non-native deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Green ash, elm, oaks, boxelder: mix of species dominating upland slope of the woodland.
Silver maple (32211) along river.

Restoration Comments:

Community: 11-2
Community Type: Oak woodland-brushland
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak Wilt. 42120. Areas logged or cleared. Oak woodland/brushland. Canopy dominated by assorted oak sp. Oak Wilt very prevalent. Understory with currant and raspberry. Area was likely logged or cleared recently, maybe due to oak wilt.

Restoration Comments:

Community: 11-3
Community Type: Cattail marsh - seasonally flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Cattail marsh with moderate diversity along edge.

Restoration Comments:

Community: 11-4
Community Type: Altered/non-native deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Grazed/disturbed/modified woodland.

Restoration Comments:

Community: 11-5
Community Type: Willow swamp - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Shrub (willow) dominated wetland on saturated peat.

Restoration Comments:

Community: 13-1
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak/Elm canopy. Oak woodland situated on a shelf just above a floodplain forest.

Restoration Comments:

Community: 13-2
Community Type: Floodplain forest silver maple subtype
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Floodplain forest. Understory lacking diversity of forbs or shrubs. Area disturbed frequently and recently by flooding.

Restoration Comments:

Community: 13-3
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Small oaks, filling in with shrubs and becoming overgrown. Prairie remnant at trail edge (pockets).

Restoration Comments:

Community: 13-4
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

42120 grades into 32112 with basswood and maple trees in understory under white/red oaks.

Restoration Comments:

Community: 13-5
Community Type: Willow swamp
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Shrub wetland dominated by autumn willow and dogwood. Ground layer of carex lacustris and calamagrostis. >50% shrub cover. Saturated peat.

Restoration Comments:

Community: 14-1
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Aspen, oak, elm woodland with dense understory of shrubs. Large amount of common buckthorn. Aspen forest with mix of elm, oak and boxelder.

Restoration Comments:

Community: 14-2
Community Type: Grassland with sparse deciduous trees
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Meadow opening in woodland. Flanked with aspen, boxelder, bur oak, one large bur oak in center. Reed canary grass dominant.

Restoration Comments:

Community: 14-3
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 14-4
Community Type: Oak forest
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

oak woodland with elm, hackberry, cherry intermixed. Dense shrub layer of sambucus and raspberry. Low levels of garlic mustard and buckthorn.

Restoration Comments:

Community: 14-5
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland with boxelder upslope of a large wetland complex. Dense shrub layer.

Restoration Comments:

Community: 14-6
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

60-75% canopy closure. Openings with garlic mustard.

Restoration Comments:

Community: 14-7
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Aspen forest along wetland, grades into oak woodland. 32160 grades to 32110.

Restoration Comments:

Community: 14-8
Community Type: Grassland with sparse conifer or mixed
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Overgrazed horse pasture--currently grazed. Overgrown with absinth sage in some open areas. Slopes down to wetland--aspen trees at edge.

Restoration Comments:

Community: 14-9
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Oak brushland with overgrown shrub layer. Open area shown near house mowed to turf.

Restoration Comments:

Community: 14-10
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Aspen forest (32160) along wetland, grades into oak woodland (32110).

Restoration Comments:

Community: 15-1
Community Type: Oak forest dry subtype
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland with invasive shrubs. Possibly grazed in the past. Understory plant growth sparse and typical of disturbed woodland.

Restoration Comments:

Community: 15-2
Community Type: Aspen forest
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:
Disturbed moist woodland.

Restoration Comments:

Community: 15-3
Community Type: Dry prairie
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:
Small prairie grassland with very sparse trees (Q. macrocarpa). Also some planted and maintained shrubs.

Restoration Comments:

Community: 15-4
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Small fragment of disturbed aspen woodland. Thick layer of raspberries in understory.

Restoration Comments:

Community: 15-5
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Disturbed oak woodland with corner of aspen woodland (32160). Grazed in the past.

Restoration Comments:

Community: 15-6
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 15-8
Community Type: Mixed emergent marsh - seasonally flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Middle dominated by rice cut grass and occassional s. latifolia (broad-leaved arrowhead).
Cattails on edges near uplands.

Restoration Comments:

Community: 15-9
Community Type: Wet meadow
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Carex lacustris and reed canary grass wetland. Saturated peat. No standing water at time of visit.

Restoration Comments:

Community: 15-10
Community Type: Wet meadow
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Saturated wetland dominated by wiregrass and carex lacustris. Small island of p. tremuloides in center. Saturated peat.

Restoration Comments:

Community: 15-11
Community Type: Oak forest red maple subtype
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Aspen woodland along edge. Oak woodland upslope, disturbed. Very thick shrub layer.

Restoration Comments:

Community: 15-12
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Saturated aspen woodland. Dense shrub layer of sambucus (red berried), red raspberry and american hazelnut shades out most of ground layer except for phalaris at wetland edge.

Restoration Comments:

Community: 15-13
Community Type: Wet meadow
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Area dominated by wiregrass with pockets of cattails and open water scattered throughout. Occasional fingers of *P. tremuloides* (quaking aspen) expand into wetland area.

Restoration Comments:

Community: 15-14
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Aspen woodland along edge (32330). Oak woodland (32110) upslope, disturbed with very thick shrub layer.

Restoration Comments:

Community: 16-1
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Logged and partially cleared 42120, now 32170 area dominated by shrubs. All land adjacent being graded for development, most woodland will probably be cleared. Moderate amounts of diversity in ground layer with native savannah species spread throughout. Some areas are nice and undisturbed.

Restoration Comments:

Community: 16-2
Community Type: Oak woodland-brushland
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Much of the area has been disturbed but still recognizable as 42120. More will likely be removed with development.

Restoration Comments:

Community: 16-3
Community Type: Altered/non-native deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Altered non-native woodland buffer dominated by shrubs/slash. Area has been logged.
Almost impenetrable due to shrub layer.

Restoration Comments:

Community: 16-4
Community Type: Wet meadow
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Wet meadow surrounding cattail marsh.

Restoration Comments:

Community: 16-5
Community Type: Lowland hardwood forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 16-6
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 16-8
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Saturated 32330 along wetland edge, grades up to 32110.

Restoration Comments:

Community: 16-9
Community Type: Saturated altered/non-native dominated graminoid vegetation
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Saturated reed canary grass meadow. Low diversity.

Restoration Comments:

Community: 16-10
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Saturated aspen woodland. Portions have been disturbed by horse grazing.

Restoration Comments:

Community: 17-1
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak brushland--some open grown bur oaks with remnant understory vegetation present. Would make nice savannah restoration. Some buckthorn present. Pockets of aspen woodland around wetland complex.

Restoration Comments:

Community: 17-2
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

disturbed oak woodland. Several standing dead oak trees.

Restoration Comments:

Community: 17-3
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland/brushland on high ridge sloping toward large wetland complex.

Restoration Comments:

Community: 17-4
Community Type: Oak forest dry subtype
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Canopy is about 75% closed. Oak woodland, most oaks not open grown. Large tract of dense woodland. 21110 in portion/see map.

Restoration Comments:

Community: 17-5
Community Type: Oak forest
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Modified by human activity. Ground layer disturbed, much of it is dominated by buckthorn and raspberry. Oak woodland up on shelf above wetland complex.

Restoration Comments:

Community: 17-6
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak brushland with small prairie opening. Narrow band of aspen woodland-moist.

Restoration Comments:

Community: 17-7
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland/brushland. Prairie remnant in small open pockets.

Restoration Comments:

Community: 17-8
Community Type: Lowland hardwood forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Low mixed deciduous forest bordering large wetland complex.

Restoration Comments:

Community: 17-9
Community Type: Oak forest
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland--dense population of buckthorn.

Restoration Comments:

Community: 17-10
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland/brushland. Open grown oaks. Small amounts of native understory.

Restoration Comments:

Community: 17-12
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Standing dead trees--oak wilt. Very dense shrub layer. Small area of 32120 (see map).

Restoration Comments:

Community: 17-13
Community Type: Aspen forest
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak brushland--some open grown bur oaks with remnant understory vegetation present. Would make nice savannah restoration. Some buckthorn present. Pockets of aspen woodland around wetland complex.

Restoration Comments:

Community: 17-14
Community Type: Aspen forest
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak brushland--some open grown bur oaks with remnant understory vegetation present. Would make nice savannah restoration. Some buckthorn present. Pockets of aspen woodland around wetland complex.

Restoration Comments:

Community: 17-15
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Narrow band of aspen woodland adjacent to oak brushland.

Restoration Comments:

Community: 17-16
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Standing dead trees-oak wilt. Very dense shrub layer. Small areas of 32120 (see map).

Restoration Comments:

Community: 17-17
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Standing dead trees, oak wilt. Very dense shrub layer. Small areas of 32120.

Restoration Comments:

Community: 18-1
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Ground layer very sparse due to cover of prickly ash. Large oaks, many open grown. Oak woodland/brushland.

Restoration Comments:

Community: 18-2
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Ground layer sparse. Shrubs more common. Oak woodland with box elder more common near shore of lake.

Restoration Comments:

Community: 18-3
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

A dense oak woodland, a few (10-20%) open grown oaks, but most without lower branches. Ground layer very sparse due to shading.

Restoration Comments:

Community: 18-4
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland impenetrable due to dense buckthorn shrubs. Larger tree health issues--possibly oak wilt. Ground cover sparse due to dense buckthorn layer.

Restoration Comments:

Community: 18-5
Community Type: Upland deciduous forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland with native species scattered throughout. Some areas put into turf.

Restoration Comments:

Community: 18-6
Community Type: Lowland hardwood forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Viewed the site from a distance

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Cherry, hackberry, and oak woodland bordering a wetland complex.

Restoration Comments:

Community: 18-7
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak woodland, grading into oak brushland closer to the lake. Much of understory behind houses has been mowed or understory plants cleared.

Restoration Comments:

Community: 18-8
Community Type: Lowland hardwood forest
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Oak woodland at upper edge (32110) and aspen fringe (32230). Lowland hardwood forest majority (32220).

Restoration Comments:

Community: 18-9
Community Type: Altered/non-native deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Viewed the site from a distance

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Mixed hardwood forest on slope sloping toward wetland. Small band of 32160 along wetland edge. Mixed woodland, oaks about 30%, maybe slightly more (30-40%).

Restoration Comments:

Community: 18-10
Community Type: Cattail marsh - seasonally flooded
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Cattail marsh with upland forb dominated buffer. Decent diversity of native species in buffer. Cattail marsh surrounded by willows. Small areas of 63100 (upland forb vegetation) are present (less than 0.5 acre).

Restoration Comments:

Community: 18-11
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland. Thick shrub layer--prickly ash, buchthorn, raspberry.

Restoration Comments:

Community: 18-12
Community Type: Upland deciduous forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 18-13
Community Type: Dry prairie
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 18-14
Community Type: Altered/non-native temporarily flooded deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Grazed in the past. Altered woodland adjacent to wetland.

Restoration Comments:

Community: 18-15
Community Type: Oak forest dry subtype
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland with dense understory of brush.

Restoration Comments:

Community: 18-16
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak brushland grading into oak woodland.

Restoration Comments:

Community: 18-17
Community Type: Dry prairie
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the edge of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Grassland with some Q. macrocarpa. Rows of planted conifers.

Restoration Comments:

Community: 18-18
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Oak woodland, grading into oak brushland closer to lake. Much of understory behind homes has been mowed or understory plants cleared.

Restoration Comments:

Community: 18-21
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Small band of aspen forest along wetland edge downslope from mixed hardwood forest. Mixed woodland, oaks about 30%.

Restoration Comments:

Community: 18-23
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Oak brushland grading into oak woodland.

Restoration Comments:

Community: 19-1
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Likely grazed as the herbaceous layer is dominated by poa pratensis and viola spp. with tall straight oak trees dominating canopy. Canopy closure about 75%.

Restoration Comments:

Community: 20-1
Community Type: Saturated altered/non-native dominated graminoid vegetation
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Long linear wetland in draw. Species diversity rather low and dominated by cattail and reed canary grass. Shrubs/trees scattered throughout. Approximately 25% shrub/tree cover.

Restoration Comments:

Community: 21-1
Community Type: Red pine trees on upland soils
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Possibly abandoned pine plantation. Now overgrown with species such as eastern red cedar. Understory grasses mostly non-native. Some native herbaceous species found throughout.

Restoration Comments:

Community: 21-2
Community Type: Temporarily flooded altered/non-native dominated grassland
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 21-3
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 21-4
Community Type: Cattail marsh - seasonally flooded
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Calamagrostis meadow surrounding a pocket of narrow-leaved cattails. Reed canary grass most dominant at the edges.

Restoration Comments:

Community: 21-5
Community Type: Wet prairie
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited the entire site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Narrow band of P. tremuloides along side of wetland. Open areas contain moderate diversity of native flora.

Restoration Comments:

Community: 22-1
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Overgrown oak woodland. Canopy of scattered open-grown bur oaks with moderate to thick secondary growth of red oak and pin oak with an occasional black cherry. Shrub layer patchy, with young buckthorn and prickly ash. Ground layer a continuous, uniform cover dominated by lopseed and bedstraws, with patches of other species. Structural composition suggests past grazing. Low diversity, though could be improved with management. Better quality/diversity adjacent to site on east side.

Restoration Comments:

Community: 22-2
Community Type: Aspen forest
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Small aspen woodland/forest along south side of 156th Ave, with low/wet area in interior. Level to gently sloping terrain. Canopy cover 70-80%, dominated by young *P. tremuloides* and *Q. rubra* with an occasional black cherry. Understory and shrub layer indistinct and intergraded, total cover approximately 70-80% with much red raspberry and scattered dogwood and buckthorn. Ground layer nearly continuous, water hemlock common throughout, with dewberry. Impatiens in low central area. Young site but overall moderate to good quality.

Restoration Comments:

Community: 22-3
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Some oak wilt present. Tall, open grown canopy of mixed oak over nearly continuous 4-6' prickly ash and occasional buckthorn. Ground cover variable and ranging from 70-80% cover below gaps to about 40% where shrubs are. No strong signs of disturbance, except sparse understory/subcanopy. Grazed historically.

Restoration Comments:

Community: 22-4
Community Type: Cattail marsh - seasonally flooded
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 22-5
Community Type: Mixed emergent marsh
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 22-6
Community Type: Alder swamp - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Shrub dominated wetland with agrostis, carex spp., goldenrods, joe pye weed and other forbs. Shrub layer very dense, almost impenetrable.

Restoration Comments:

Community: 22-7
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Aspen woodland with Tilia americana present in low to moderate quantities. Ground layer somewhat bare except near edges--carex pensylvanica.

Restoration Comments:

Community: 22-9
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Patchy canopy of aspen and oak. Oak dominated at higher elevation, near road, grading to aspen in slightly lower areas. Shrub cover patchy with young trees, some buckthorn. Ground cover nearly continuous (80-95% cover) with much lopseed, enchanters nightshade, and occassional poison ivy. Terrain gently sloping toward wetland. Some oak wilt present.

Restoration Comments:

Community: 23-1
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Oak woodland on gentle upward sloping hilltop. Some red oaks large and open grown (35-40" dbh). Very sandy soils. Understory dominated by poa pratensis where open and shrub species where shade is more dense. Area could be managed for more open savanna. Invasive species very low.

Restoration Comments:

Community: 23-2
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Aspen woodland flanking wetland complex. Oak trees interspersed tending toward drier area. Sandy soils.

Restoration Comments:

Community: 23-3
Community Type: Oak woodland-brushland
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Oak woodland overgrown with cedar trees. Most oaks are large, some are open grown. Essentially no ground layer due to shading.

Restoration Comments:

Community: 23-4
Community Type: Dry prairie
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Dry sandy prairie flanked with woodland edge of eastern red cedar and quaking aspen--some aspen moving in on edges. Thick thatch layer build up. Could benefit from prescribed fire. Low forb diversity.

Restoration Comments:

Community: 23-5
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 23-8
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Moist woodland flanking a large wetland complex. Almost impenetrable due to denseness of dogwood and willow. Some wetland forbs and sedges present in understory. Most likely inundated at certain times of the year.

Restoration Comments:

Community: 23-10
Community Type: Oak woodland-brushland
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Oak woodland flanked with prairie. Some oaks large and open grown.

Restoration Comments:

Community: 23-11
Community Type: Dry prairie
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Dry remnant/planted sand prairie. Nice species diversity. Knapweed control may be needed in the future.

Restoration Comments:

Community: 23-13
Community Type: Cattail marsh - seasonally flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Semi-permanently flooded cattail marsh with carex stricta dominant. Saturated meadow with occasional willows scattered throughout.

Restoration Comments:

Community: 23-14
Community Type: Willow swamp
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:
Approximately 30% cattails.

Restoration Comments:

Community: 23-15
Community Type: Altered/non-native dominated upland shrubland
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:
Aspen woodland flanking wetland complex.

Restoration Comments:

Community: 24-1
Community Type: Altered/non-native deciduous forest
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Ash/aspen woodland. Understory disturbed and dominated by prickly ash, buckthorn and red cedar. Cedar and other shrubs have been removed and chipped in parts of this natural area.

Restoration Comments:

Community: 24-2
Community Type: Eastern Red Cedar woodland
Qualitative Rank: NN - Altered / non-native community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Stand of Eastern red cedars dense. Essentially no ground layer due to shading. Some buckthorn, elderberry present in shrub layer.

Restoration Comments:

Community: 24-3
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Possibly grazed in the past, likely by horses (maybe even currently). Oak woodland with a dense shrub layer of prickly ash and buckthorn. Some areas heavily grazed and thus in these areas the shrub layer is not as dense.

Restoration Comments:

Community: 24-4
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

80% canopy closure.

Restoration Comments:

Community: 24-5
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Evidence of current or recent grazing. Canopy cover about 50-75%. Some open grown bur oaks. Adjacent to prairie remnant with puccoon, prairie smoke, and sage.

Restoration Comments:

Community: 24-6
Community Type: Altered/non-native deciduous woodland
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Canopy cover approximately 50-75%. Open areas have poa pratensis, shady areas without much ground cover. Only looked at non-parkland portion of polygon.

Restoration Comments:

Community: 24-7
Community Type: Oak woodland-brushland
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Area less than 1 acre, majority is mowed lawn.

Restoration Comments:

Community: 24-8
Community Type: Cattail marsh - semipermanently flooded
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Narrow-leafed cattail dominated semi-permanently flooded wetland. Diversity within the cattails is low.

Restoration Comments:

Community: 24-9
Community Type: Cattail marsh - semipermanently flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Narrow leaved cattail dominated semi-permanently flooded cattail marsh with low plant diversity (61610) flanked by a strip of sedge meadow with moderate forb diversity (61420) just east of St. Francis Blvd.

Restoration Comments:

Community: 24-10
Community Type: Cattail marsh - semipermanently flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Semi-permanently flooded cattail marsh with fringe of saturated aspen woodland and moderate understory diversity.

Restoration Comments:

Community: 24-11
Community Type: Aspen forest - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:
Saturated aspen woodland.

Restoration Comments:

Community: 24-13
Community Type: Cattail marsh - semipermanently flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 25-1
Community Type: Lowland hardwood forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Shrub and willow dominated border of cattail wetland with reed canary grass. Shrub layer diverse and very thick. Understory species shaded out in most areas. Upland side has solidago rigida and canadensis, spotted knapweed. Trail going through portion of the site. Portions of oak woodland/brushland. Mid to tall non-native grassland also present within polygon.

Restoration Comments:

Community: 25-2
Community Type: Cattail marsh - semipermanently flooded
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Sedge and cattail dominated wetland with small island of speckled alder shrub wetland in the center. Saturated soils, but no standing water at time of field visit. Plant diversity moderate with minimal invasive species--412 on edges (canary reed grass).

Restoration Comments:

Community: 25-3
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Aspen woodland flanking a small wetland. Shrub layer dominated by raspberries in many areas which has displaced other herbaceous species. Down slope from large church. Likely saturated at certain times of the year, indicated by presence of some wetland species.

Restoration Comments:

Community: 25-4
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Restoration Comments:

Community: 25-5
Community Type: Wet meadow
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Approximately 30% cattails. Saturated wetland. No invasive species, decent level of species diversity. Cattails located in center in two islands, the rest of site dominated by sedges and forbs. No shrubs or tree species in the wetland. Wet meadow with about 30% cover of cattails.

Restoration Comments:

Community: 25-6
Community Type: Wet meadow
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Wet saturated meadow dominated by sedges and native forbs. Reed canary grass is very limited. Doesn't have standing water or cattails.

Restoration Comments:

Community: 25-7
Community Type: Cattail marsh - semipermanently flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Mudflat in center bordered by cattails. Cattail wetland-normally with shallow standing water (mudflat at time of inventory). Typha species dominate edges of wetland. Island in large wetland complex (lowest area).

Restoration Comments:

Community: 25-8
Community Type: Aspen forest - temporarily flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Aspen woodland island in large wetland complex, just slightly higher than adjacent wetland. Canopy dominated by P. tremuloides and A. negundo. Understory herbaceous and dominated by reed canary grass. Some prairie species found in highest areas.

Restoration Comments:

Community: 25-9
Community Type: Oak forest mesic subtype
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Oaks dominate 50-60% of canopy. Very steep slope sloping down to river. Many private river access stairs have been put in. Mesic oak forest. Oak canopy over basswood, green ash and box elder.

Restoration Comments:

Community: 26-1
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited the entire site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Small oak woodland in residential area on south side of 148th. Patchy canopy with approximately 50% cover, dominated by a mix of bur, red, and pin oak with semi-open grown form. Black cherry and box elder locally common. Understory cover is patchy with much red cedar and scattered oaks. Shrub layer patchy. Species include patches of hazel and low to moderate levels of buckthorn and honey suckle throughout. Ground cover nearly continuous (especially in openings), with much carex pensylvanica virginia stickseed. A few prairie/savanna species present. Site likely more open historically, would benefit from red cedar removal and prescribed burn. Likely grazed historically--relatively low diversity. Oak wilt present.

Restoration Comments:

Community: 26-2
Community Type: Aspen forest - saturated soils
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Margin of large wetland complex, wooded fringe. Open canopy of quaking aspen over a layer of mixed shrubs. Herbaceous layer diverse and dominated by wetland species--lake sedge, swamp lousewort, sensitive fern, etc. Shrub swamp with mature aspen stand, canopy cover approximately 30-35%.

Restoration Comments:

Community: 26-3
Community Type: Aspen forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Canopy cover about 75%. Disturbed early successional site. Narrow band of woods on moderately steep slope overlooking wetland.

Restoration Comments:

Community: 26-4
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Open grown bur oaks dominate with some black cherry and sumac. Steep east facing slope with narrow wet terrace at toe of slope adjacent to Sunfish Lake. Ground layer suggests possible grazing.

Restoration Comments:

Community: 26-5
Community Type: Oak forest dry subtype
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Forested--closed canopy dominated by bur oak (D6/7). Most likely heavily grazed in the past--low diversity in ground layer, very uniform--not grazed for extended period but heavily grazed about 10 years ago. Depressional oak forest area-fringes are disturbed upland areas.

Restoration Comments:

Community: 27-1
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Non-native ground layer. Open grown oaks over impenetrable layer of prickly ash. Ground layer, where present, dominated by non-natives and old field forbs.

Restoration Comments:

Community: 27-2
Community Type: Grassland with sparse deciduous trees - altered/non-native
Qualitative Rank: B - Good quality natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversly	Threatened / Endangered
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Community Description:

Savanna restoration potential very high. 30% cover of bur oaks, open grown over non-native ground layer. Excellent savanna restoration area.

Restoration Comments:

Community: 27-3
Community Type: Birch bog, spiraea shrublan - semipermanently flooded
Qualitative Rank: B - Good quality natural community
Additional Modifier:
Field Check Level: Visited part of the site
Restoration Potential:
MCBS Site: Biodiversly Threatened /
Endangered

Community Description:
Shrub wetland dominated by sandbar and black willows. Understory diverse mixture of sedges, grasses, and forbs. Adjacent to cattail marsh.
Restoration Comments:

Community: 27-4
Community Type: Cattail marsh - seasonally flooded
Qualitative Rank: B - Good quality natural community
Additional Modifier:
Field Check Level: Visited part of the site
Restoration Potential:
MCBS Site: Biodiversly Threatened /
Endangered

Community Description:
Pockets of cattail marsh surrounded by wet meadow. Good amounts of species diversity, rather low amounts of invasives, including reed canary grass.
Restoration Comments:

Community: 27-5
Community Type: Cattail marsh - semipermanently flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Cattail marsh in saturated peat. Semi-permanently flooded area. Fringe fairly diverse mix of native forbs interspersed in reed canary grass and various sedge species.

Restoration Comments:

Community: 27-6
Community Type: Saturated altered/non-native dominated graminoid vegetation
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Cattail marsh fringe. Dominated by reed canary grass and various sedge species. A fair amount of diversity scattered throughout the reed canary grass areas. A small pocket of remnant prairie with white sage, white prairie clover and others in corner. Quaking aspen and several willow species scattered occasionally throughout on edges.

Restoration Comments:

Community: 27-10
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Non-native ground layer. Open grown oaks over impenetrable layer of prickly ash. Ground layer, where present, dominated by non-natives and old field forbs.

Restoration Comments:

Community: 28-1
Community Type: Semipermanently flooded altered/non-native dominated
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Restoration Comments:

Community: 29-1
Community Type: Oak forest
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Disturbed oak woodland with signs of grazing in the past. Canopy dominated by oak species. Subcanopy with hackberry and box elder mostly. Likely grazed in the past--shrub layer almost lacking. Ground layer has early successional species. West of Armstrong Blvd behind large lot homes.

Restoration Comments:

Community: 29-2
Community Type: Semipermanently flooded altered/non-native dominated
Qualitative Rank: NA - Native species present in a non-native dominated

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

61630 (with small areas of 61480/61220)--wet prairie dominated by various sedge species, mountain mint, and reed canary grass, upland with poa pratensis, canada goldenrod, etc.

Portion of cattail marsh flanked with wet prairie but below a non-native dominated grassland. Just west of Ramsey Town Center new development, wetland has been delineated.

Restoration Comments:

Community: 29-3
Community Type: Oak forest
Qualitative Rank: D - Poor condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Disturbed oak woodland. Likely grazed in the past. Canopy dominated by oaks with a subcanopy of hackberry and ironwood. Herbaceous layer lacking--a carpet of creeping charlie with motherwort and virginia waterleaf scattered throughout. Subcanopy with 2" shrub like trees (hackberry/ironwood).

Restoration Comments:

Community: 36-1
Community Type: Oak forest mesic subtype
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversly

**Threatened /
Endangered**

Community Description:

Mesic oak woodland upslope from river. Small line of silver maple at bank. Understory rather low diversity due to lots of shading. Buckthorn present in the shrub layer. Adjacent to apartment building.

Restoration Comments:

Community: 36-2
Community Type: Oak woodland-brushland
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Some oak wilt present. Oak woodland/brushland. Approximately 25% of oaks are open grown. Some buckthorn present as well as garlic mustard in low densities upslope from river.

Restoration Comments:

Community: 36-3
Community Type: Cattail marsh - semipermanently flooded
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site:	Biodiversity	Threatened / Endangered
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Community Description:

Open water marsh with edge of reed canary grass and typha (cattail) species. Adjacent meadow and shrub areas are much more diverse.

Restoration Comments:

Community: 36-4
Community Type: Alder swamp - saturated soils
Qualitative Rank: C - Moderate condition natural community

Additional Modifier:

Field Check Level: Visited part of the site

Restoration Potential:

MCBS Site: Biodiversity

**Threatened /
Endangered**

Community Description:

Shrub and reed canary dominated saturated portion of wetland directly adjacent to open water/cattail marsh. Species diversity is high, but interspersed in reed canary grass.

Restoration Comments:

Appendix E

Glossary of Technical Terms

¹Glossary of Technical Terms

Acre-Foot Volume of water that would cover an acre of land to a depth of one foot (43,560 cubic feet).

Alluvium Material, such as sand and gravel, deposited by running water. River terraces and outwash plains are examples of landforms composed of alluvium.

Barrens Usually refers to an area with sparse vegetation or stunted plants, caused by harsh growing conditions such as infertile, droughty, or thin soils; also, a plant community that has very sparse cover or is composed of stunted plants.

Bedrock Any solid rock exposed at the earth's surface or covered by unconsolidated material such as till, gravel, or sand.

Best Management Practices: Methods, measures, or practices to prevent or reduce water pollution, including but not limited to structural and non-structural controls, operation and maintenance procedures, and scheduling of specific activities. Acronym is BMPs.

Blowout An area, on a dune or other sand deposit, where wind has eroded a bowl-shaped hollow in the sand. Blowouts generally are sparsely vegetated.

Bluegreen algae A type of algae whose population often increases dramatically at high nutrient concentrations in lakes. They can form objectionable surface scums, cause taste and odor problems, and secrete toxins poisonous to warm-blooded animals.

Bog A wetland composed of a layer of acidic peat on which grows a specialized group of herbs and low shrubs. Bogs are distinguished from closely related poor fens by extremely nutrient-poor conditions and the absence of most of the minerotrophic species that occur in poor fens.

Bounce In Hydrologic references, the rise in level in a wetland or lake resulting from a rainstorm event. The difference in elevation between the normal water elevation and the peak water elevation of a pond for a given size runoff event.

Brushland An upland plant community composed of shrubs and tree sprouts.

Buffer strip: A band of un-maintained, preferably native, vegetation left along the edge of a stream, lake or wetland to filter runoff and/or stabilize the shoreline **Calcareous** Describes a soil or substrate that contains a significant amount of calcium carbonate.

Canopy Aerial branches and leaves of terrestrial plants; generally the tallest layer of foliage in a plant community.

Chlorophyll a The primary photosynthetic pigment in plants, a measure of the algal biomass in lakes

¹ Many of the definitions used in this section are borrowed from Minnesota's St. Croix River Valley and Anoka Sandplain, Wovcha et al., Minnesota DNR, 1995.

Colluvium A deposit of rock and soil at the base of a cliff or slope, formed by gravitational action.

Colonial nesting birds Species that nest in colonies (groups or aggregations), either with others of the same species or in mixed-species aggregations.

Cover The proportion of the ground shaded when the living plant canopy is projected vertically downward; also a general term used to describe any component of the habitat that conceals animals from view.

DBH (diameter at breast height) – a standard measure of tree trunk diameter taken approximately 4.5 feet above the ground level.

Dominant Describes a plant species that shapes the character of a community by virtue of its size, abundance, dense shade, or effects on soils. Dominant species generally influence the presence, growth, and distribution of other plant species in the community.

Degradation A decrease in quality.

Detention Pond A pond designed to catch and temporarily store runoff before discharging the water downstream. The volume of the pool of standing water in the pond is important in determining how effective the pond will be in treating the incoming stormwater.

Dissolved Oxygen (D.O.) Oxygen that is dissolved in water. Fish and other water organisms need oxygen for respiration to survive. Depletion of oxygen from water can occur as a result of chemical and biological processes, including decomposition of organic matter.

Downcutting The process by which a river or stream erodes and lowers its bed, eventually resulting in the formation of a valley or ravine.

Drift (glacial) Rock material, such as boulders, gravel, sand, silt, or clay, removed from one area and deposited in another by glaciers. Drift includes material deposited directly by glacial ice, such as till, as well as material deposited indirectly, such as outwash.

Ecosystem The interacting group of physical elements (such as soils, water, etc.), plants, animals, and human communities that inhabit a particular place.

Emergent Describes a plant capable of surviving indefinitely with its root system and lower stem in water and its upper stem above water (e.g., cattails).

Empirical Based on experiment and observation; used to describe water quality models which are developed from measured data.

End moraine A typically hilly landform composed of material deposited at the margin of a glacier.

Ephemeral habitat A temporary habitat created by low intensity, short-lived fluctuations in environmental factors.

Epilimnion: Upper warm layer of a lake during thermal stratification.

Esker A long, often serpentine hill or ridge composed of sand and gravel deposited by meltwater streams flowing in a channel in a decaying ice sheet.

Eutrophication A natural process caused by the gradual accumulation of nutrients and consequent increased biological production, and resulting in the slow filling in of a basin with accumulated sediments, silt, and organic matter. Man's activities can increase the rate at which eutrophication occurs.

Eutrophic Lake: A nutrient rich lake; usually shallow, green due to excessive algae growth and with limited oxygen in the bottom layer of water.

Exotic species A species that has been introduced to an area by humans or that is present in the area as a result of human-caused changes. (same as non native species.)

Export Coefficient An estimate of the expected annual amount of a nutrient carried from its source to a lake.

Fen a wetland community composed of sedges, grasses, forbs, and sometimes shrubs, that develops on peat in shallow basins.

Floating-leaved plants Aquatic plants that root on lake, pond, or river bottoms and have leaves that float on the water surface at the end of long, flexible stems (e.g., water-lilies).

Floodplain A flat area adjacent to a stream or river channel, created by erosion and deposition of sediment during regular flooding. Signs of ²flooding include debris caught in trees and ice scars at the bases of trees.

Flushing Rate The number of times per year that a volume of water equal to the lake's volume flows through the lake.

Forb A general term for broad-leaved, herbaceous plants.

Forest A plant community with a nearly continuous to continuous canopy (70 to 100% cover) of mature trees.

Forest-grown tree A tree that matured within a closed-canopy forest. Forest-grown trees tend to have narrow crowns and tall, straight trunks with few lower limbs.

Graminoid An herbaceous plant with linear, "grasslike" leaves that typically are oriented vertically. Graminoids include grasses, sedges, and rushes.

Greenway or Greenway Corridor A linear open space area, usually composed of natural vegetation, or vegetation that is more natural than surrounding land uses. May include paths or recreational trails.

Ground layer A vegetation layer, mostly less than 3 feet tall, of grasses, forbs, and woody plants.

Ground moraine A broad and level or gently undulating landform composed of material that was deposited underneath and sometimes at the margin of a glacier as the ice sheet melted; also referred to as a till plain.

Grove A general term for a patch of trees less than 2 acres in area.

Grub A tree or shrub whose aboveground shoots are repeatedly killed by fire or browsing but whose root system survives and continues to send up new shoots. The root system of a grub may be several hundred years old; the above ground shoots are generally much younger.

Habitat The locality, site, and particular type of local environment in which plants, animals, and other organisms live.

Herb A plant lacking a persistent above ground woody stem. Herbs include broad-leaved flowering plants, ferns, grasses, sedges, and others.

High Water Level (HWL) The peak water surface elevation in a ponding area as a result of a specific runoff event. Once the peak is reached, the pond water elevation eventually returns to its normal (standing) water level.

Hydrology The science and study of water in nature, including its circulation, distribution, and its interaction with the environment.

Hydrophyte A plant adapted to growing in water or on wet soils that are periodically saturated and deficient in oxygen.

Hypolimnion Lower cooler layer of a lake during thermal stratification.

Ice block lake A lake that occurs in a depression that was formed when a block of glacial ice was buried or surrounded by till or outwash sand, and then melted.

Ice scar A scar on a floodplain tree caused by abrasion by ice floes during spring flooding.

Impervious Surface A surface that is impermeable to the downward seepage of water; e.g., pavement and roof tops.

Inflorescence An arrangement of flowers on a plant, such as in a cluster or along a stalk.

Lacustrine Refers to features (such as sediments, landforms, plant communities, or animal communities) that were formed by or are associated with a lake.

Landform A land feature, such as plain, plateau, or valley, formed by a particular geologic process.

Life form Characteristic structural features and growth pattern of plant species (e.g., broad-leaved deciduous shrub).

Litter layer Relatively undecomposed organic matter and debris on top of soil layer.

Loading The amount of a pollutant or other substance delivered to a lake, usually expressed as a weight per unit time (i.e. pounds per year). The loading of a given constituent to a receiving water is a function of the volume of incoming water and the concentration of the constituent in the incoming water.

Loess Fine material consisting predominantly of silt with fine sand and clay. Loess is often deposited by wind.

Macrophytes Higher plants which grow in water, either submerged, emergent, or floating. Reeds and cattails are examples of emergent macrophytes.

Marsh A plant community of shallow wetland basins, dominated by herbaceous, emergent aquatic plants such as cattails and bulrushes. Marshes usually have standing water throughout the growing season.

Meltwater Water released by melting glacial ice.

Mesic A general term describing upland habitats that are intermediate between wet and dry; also used to describe plants and plant communities that occur in mesic habitats.

Mesotrophic Lake Midway in nutrient levels between eutrophic and oligotrophic lakes.

Microhabitat A small, specialized habitat.

Mineral soil A soil composed mostly of inorganic matter, including clay, silt, sand, and gravel. Mineral soils usually have less than 20% organic matter but may have organic surface layers up to 12 inches thick.

Minerotrophic A general term describing wetlands with nutrient levels that fall between very low (such as in bogs) and very high (such as in seepage meadows).

Mitigation: Actions taken to reduce an impact. Water quality mitigation measures can be non-structural (such as street sweeping, regulation of fertilizer use, and creation/protection of natural buffers to filter runoff) or structural (such as installation of detention basins). Properly designed detention basins are among the most effective and reliable measures for mitigating the water quality impacts of urban developments.

Model A mathematical representation of an event or process.

Moraine Rock and mineral debris deposited directly by glacial ice. Moraines most often consist of unsorted rock and mineral particles.

Muck A dark-colored organic soil of highly decomposed plant material in which the original plant parts are not recognizable.

MUSA (Metropolitan Urban Service Area) The area designated by the Metropolitan Council of the twin cities area to receive urban services such as central sewer, urban streets, etc.

Native habitat A habitat formed and occupied by native plants and animals and little modified by logging, farming, ditching, flood control, and the like.

Native species A species that occurs naturally within a given region.

³Native vegetation Vegetation, composed of native plants, that has been little modified by human activities such as logging, farming, ditching, or the introduction of nonnative species.

Natural area Geographic area in which the dominant plants and animals are native species.

Natural community An assemblage that tends to recur over space and time of native plants and animals that interact with each other and with their abiotic habitats in ways that have been little modified by nonnative plant and animal species. Natural communities are classified and described according to their vegetation,

successional status, topography, hydrologic conditions, landforms, substrates, soils, and natural disturbance regimes (such as wildfires, windstorms, normal flood cycles, and normal infestation by native insects and microorganisms).

Nonnative species A species that has been introduced to an area by humans or that is present in the area as a result of human-caused changes.

Non-Point Source Pollution: Refers to pollution other than that caused by discharge of pollutants through a pipe from a closed system to a receiving water. Pollution caused by runoff from farm fields or paved streets are examples of this non-point pollution.

Normal Water Level (NWL) The elevation of the surface of the standing water pool within a pond or wetland. Generally, the NWL is the elevation of the bottom of the primary outlet pipe or overland flow channel.

Nutrient Budget: An itemized estimate of nutrient inputs and outputs (usually for a period of one year), taking into account all sources and losses.

Nutrient Loading The input of nutrients to a lake

Nutrient Trap A type of pond or wetland that is effective at removing nutrients from water.

Nutrients Elements such as phosphorus and nitrogen that are required for plant growth. When excess amounts are transported in stormwater they may encourage excessive algae or other plant growth in receiving water bodies.

Oligotrophic Lake A relatively nutrient-poor lake, usually clear and deep with bottom waters high in dissolved oxygen.

Open-grown tree A tree that has matured in an open setting, such as a prairie or savanna. Open-grown trees tend to have broad crowns and thick, spreading lower limbs.

Organic soil A soil in which the upper surface layers contain more than 25% organic matter.

Outcrop Bedrock that projects above the soil.

Outwash plain A plain formed of sorted and stratified material-such as layers of sand and gravel-carried from an ice sheet and deposited by glacial meltwater.

pH A measure of the acidic or basic nature of the water; it is defined as the logarithm of the reciprocal of the hydrogen-ion concentration in moles/liter.

Parent material The weathered rock or partly weathered soil material from which topsoil develops.

Parts per billion (ppb) a unit of concentration, sometimes expressed as micrograms per liter (ug/l).

Parts per million (ppm) a unit of concentration, sometimes expressed as milligrams per liter (mg/l).

Peat soil A dark brown or black organic soil consisting largely of undecomposed or slightly decomposed plants. Peat soils usually form where persistent excessive moisture slows or inhibits the decay of plant material.

Persistent vegetation Wetland vegetation formed by emergent hydrophytic plants with stems that normally remain standing until the beginning of the following growing season (e.g., cattails and bulrushes).

Phosphorus A nutrient essential to plant growth. Phosphorus is the nutrient most commonly limiting plant growth in lakes.

Phosphorus Export The amount of phosphorus carried off of a given area of land by stormwater.

Phytoplankton Open water algae; it forms the base of the lake's food chain and produces oxygen.

Prairie An upland plant community composed of grasses and forbs. Prairies generally lack trees; shrubs, if present, are not prominent.

Presettlement A term used for convenience to denote the time period before Euro-American settlers moved into the Region. The Region was actually settled by American Indians for thousands of years before European-Americans arrived.

Range (geographic) The limits of the geographic distribution of a species or group.

Rate Control: A term that refers to controlling the rate at which water is discharged from a watershed. Rate control is often accomplished by creating ponds-either by excavation or berming- to temporarily store runoff, then discharging the stored water at a slower rate to downstream areas. Further reductions in the rate at which water is released from a pond can be accomplished by reducing the size of the outlet, such as through installation of a wall in the outlet structure with a hole (orifice) through it.

Reintroduced species Species that had been eliminated from areas where they occurred historically and were later released back into the area by humans.

Remnant A portion or fragment of a natural community that has survived while the rest of the community has been destroyed by logging, urban development, clearing of land for cultivation, and other human activities.

Residence Time The amount of time it takes for water flowing into a lake to equal the lake volume. The shorter the residence time, the more incoming water the lake is receiving relative to its volume.

Rhizome A horizontal underground plant stem.

Savanna An upland plant community formed of prairie herbs with scattered trees or groves of trees. The canopy cover of trees in a savanna is generally between 10 and 70%.

Secchi Disc A device measuring the depth of light penetration in water, typically a 9-inch, white circular plate attached to a rope. Used to measure water transparency.

Sedge Any of a number of grasslike plants of the family Cyperaceae.

Sedimentation The process by which matter (usually soil particles) settles on a substrate following transport by water, wind, or ice.

Seepage The slow, diffuse oozing of groundwater onto the earth's surface.

Shallow Lake Lakes with mean depth of less than 10 feet

Shrub layer A vegetation layer, usually less than 6 feet high, of shrubs and tree seedlings.

Shrub swamp A wetland community dominated by a nearly continuous to continuous canopy (70 to 100% cover) of shrubs, such as willows and alders.

Subcanopy A vegetation layer, composed of patches of individuals of approximately equal height, that is lower than the canopy layer; often refers to a layer of saplings, tall shrubs, or small trees between 6 and 35 feet high.

Submergent Describes an aquatic plant that grows entirely under water.

Substrate The surface layer of organic or mineral material-such as till, outwash, or bedrock-from which the soil is formed.

Succession The change in vegetation over time.

Swale A broad, shallow depression in a till plain or broad river plain.

Swamp A wetland community with a fairly continuous to continuous canopy of shrubs or trees, such as speckled alder, black ash, or tamarack. Swamps generally occur in shallow basins or wet depressions.

Talus Rocks and other coarse mineral debris that accumulate at the base of a cliff or steep slope.

Terrace A sandy and gravelly alluvial plain bordering a river. Terraces represent former river floodplains, left stranded when the river level dropped because of channel downcutting or decreased flow. Terraces are ordinarily level or nearly level and are seldom flooded.

Till Unstratified and unsorted material deposited directly by a glacier. Till consists of clay, sand, gravel, or boulders mixed in any proportion.

Till plain A broad and level or gently undulating landform composed of material that was deposited underneath and at the margin of a glacier as the ice sheet melted; also referred to as a ground moraine.

Total Phosphorus (TP) A measure of all of the different forms of phosphorus in water. Includes phosphorus dissolved in the water, suspended or incorporated in algae or other organisms.

Total Suspended Solids (TSS) Particulate material which floats in or is carried along in water (e.g., algae, soil particles).

Transitional habitat A habitat present between two adjacent natural communities (for example, the edge of a forest along a wet meadow). Transitional habitats often have features that set them apart from the habitats formed by either of the adjacent communities.

Trophic State The level of growth or productivity of a lake as measured by phosphorus content, algae abundance, or depth of light penetration.

Understory The vegetation occurring below the canopy in a plant community.

Vine A plant with a long, weak stem that grows along the ground or climbs on other vegetation for support.

Watershed: The area of land draining into a specific body of water.

Water Transparency A measure of the clarity of water. The depth at which an object can be seen in water.

Wetland Habitats where the soil is saturated or covered with water for part of the year.

Woodland A wooded habitat characterized by an interrupted tree canopy; also used as a general term to describe any tract of land with trees growing on it.

Woodland-brushland An upland plant community composed of a patchy canopy (10 to 70% cover) of mature trees and a dense understory of shrubs, tree shoots, and saplings. Usually the trees occur in scattered groves with dense thickets of brush between them.

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