NATURAL RESOURCES MANAGEMENT PLAN

RAMSEY COUNTY PARKS AND RECREATION

SEPTEMBER 2008

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Introduction

Ramsey County is the smallest county in the state at 156 square miles with a population density of over 3000 people per square mile. All of Ramsey County's parks are located in one of the most urbanized regions of the State and surrounded by a highly fragmented and developed landscape. This population density puts tremendous pressure on the natural resources in the 6500 acres of parks and open spaces managed by the Ramsey County Parks and Recreation Department (RCPRD). This plan will guide the management of the natural resources, maintaining and improving the natural resources for wildlife habitat, while providing recreational opportunities and access for our park users.

The mission of Ramsey County is: "…working with you to improve our quality of life …". The Ramsey County Board of Commissioners strategic goals include: "Protect our natural resources and the quality of our environment." This was reinforced by the approval of this plan by the County Board of Commissioners on September 23, 2008 (Appendix 1). The RCPRD believes this will be accomplished, in part, by preserving, maintaining and managing a system of parks, open spaces and special use areas. Our commitment to this effort includes acquiring, protecting and managing unique and fragile natural resources which contribute positively to the urban landscape and perform critical natural functions.

Time is a critical factor in implementation of this Natural Resources Management Plan. Conserving and improving our natural resources will become increasingly difficult and more costly as time progresses. Realizing that to do nothing is not an acceptable option, priority restoration, which can be implemented with minimal resources, will be targeted first for implementation, with a goal of ongoing and progressive natural resource management.

Goal of Natural Resources Plan

The RCPRD's goal in managing plant, animal and water resources is:

TO PROVIDE ADEQUATE SUSTAINABLE HABITAT TO SUPPORT POPULATIONS OF NATIVE WILDLIFE SPECIES WITHIN THE COUNTY'S PARK SYSTEM.

By focusing on wildlife habitat all of the natural resources will be enhanced. The types of wildlife that are targeted are those of conservation concern, such as, grassland songbirds, shorebirds, turtles, and numerouse species of small mammals as defined by the Minnesota Department of Natural Resources, *Tomorrow's Habitat for the Wild and Rare Species Guide* (Appendix 2). Many of these wildlife species and other wildlife native to Ramsey County (Appendix 3) require large areas of habitat containing a great number and variety of natural resources. The RCPRD will work to manage the diversity and numbers of our natural resources to provide the largest possible parcels of key wildlife habitats within the Ramsey County park system.

Lupines at Tamarack Prairie

Desired Outcomes

Desired outcomes of managing our natural resources for wildlife habitat development and restoration:

- Protect high-quality environmental sensitive areas
- Restoration of degraded natural resources
- Maintenance of critical natural processes
- Incorporate natural resource management into park maintenance
- Increase awareness and appreciation of natural resources
- Promote a positive environmental ethic

Section 1
Key Wildlife Habitats

The key wildlife habitats the RCPRD will target are:

Prairie - Open grassy habitats of native species, dominated by big bluestem, little bluestem, Indiangrass, and or side-oats grama. They may include scattered trees, especially bur oaks, normally on drier slopes.

Savannas – A transitional habitat between woodland and grassland with open grown bur, northern pin and white oaks. The density of trees is highly variable, but open enough to allow a grass based understory. Mainly located on drier hillsides.

Oak Woods - Habitat dominated by bur, white, northern pin and northern red oaks. Other common tree species are American elm, quaking aspen, and green ash. Common understory trees are cherries, hazel and blackberries. The understory has sedges, white snakeroot, wild geranium, and scattered prairie species. Oak woods are located on drier sites than mesic forests.

Mesic Forest - A mixture of sugar maple, basswood, green ash, northern red and white oaks with hop hornbeam, alternate leaved dogwood, and hazel in the understory. The wildflowers include wild ginger, jack in the pulpit, cohosh, and bloodroot. These woods tend to be found on north facing slopes and level areas.

Floodplain Forest – Habitat dominated by silver maple and cottonwood with box elder and green ash. The midstory and understory are open due to regular flooding. Wood nettle is the dominant understory plant.

Wetlands - Lowlands with a variety of non-woody vegetation types. Includes cattail, wet meadows, and reed canary swales.

Other wildlife habitats that will be managed are:

Old field - Open grassy habitats of non-native species. There can be scattered trees and shrubs. Old fields can be found on a variety of slopes and soils. These are old agricultural sites. Low diversity of forbs.

Pine Plantation - Planted stands of red, white, jack or Scotch pine. Not a native community

Mixed Woods - This is a catch all for other woodland types. It includes, ash and aspen stands, second growth non-oak woods, and box elder thickets. These can be found on a variety of slopes and soils.

Tamarack Swamp- Wetlands with a dominance of Tamarack. Shrubs include alder, poison sumac, red-osier dogwood.

Shrub Swamp - Wetlands dominated by alder and willow.

Active Use - Areas developed for public use, such as, picnic areas and beaches. These are mainly turf areas of blue grass and rye grass that is regularly mowed, but may include small areas of other habitats.

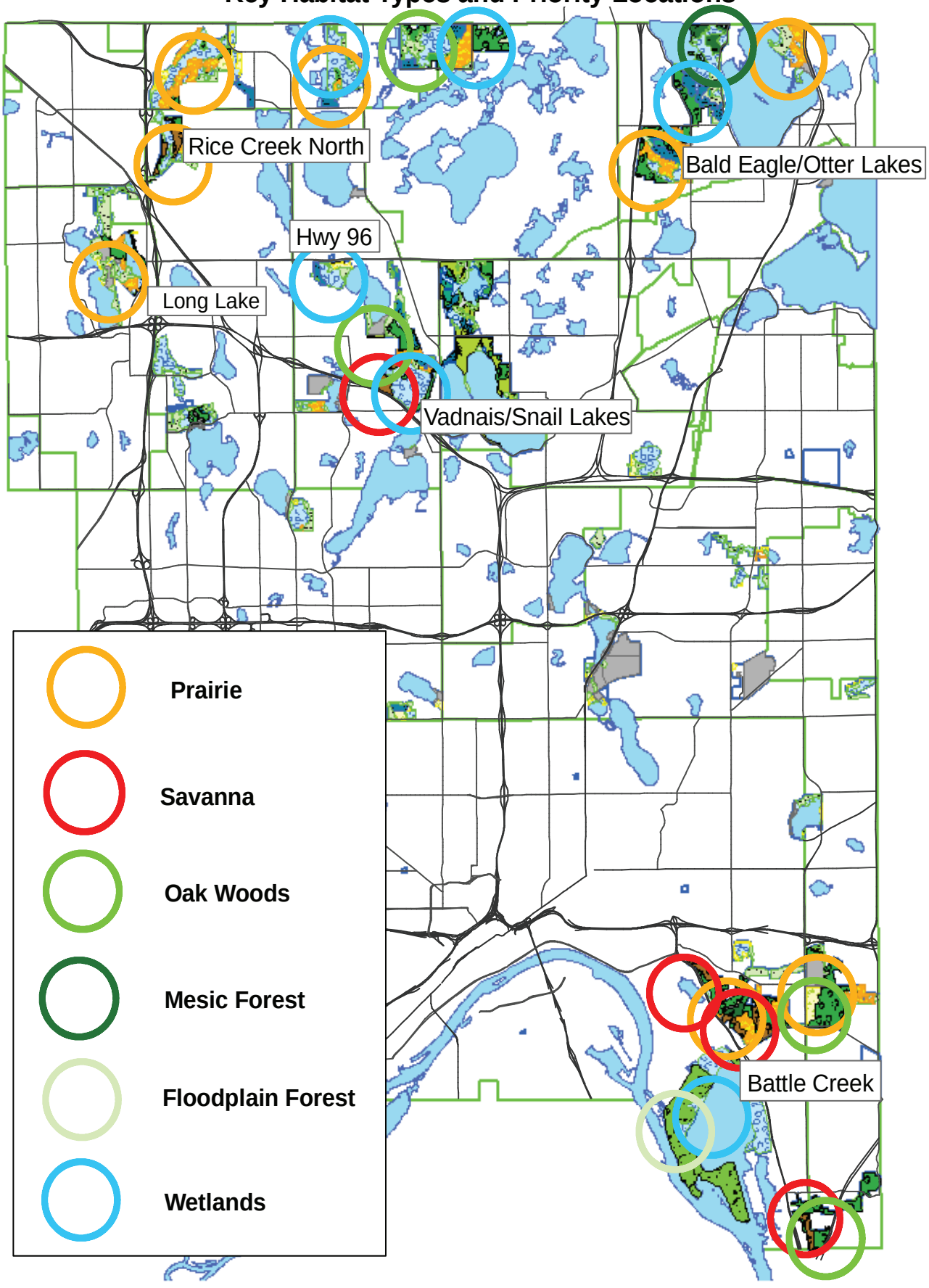
Within the RCPRD park system primary sites for natural resource management and the establishment of key habitats have been identified and prioritized. Staff reviewed existing habitat data and visited all park units to evaluate existing habitats and restoration potential. Priorities are based on the location and size of existing habitats and those that present the best opportunity for restoration and/or expansion now and into the future. Not all habitat types are, or will be, located in all park units.

Wild Turkeys Along the Mississippi Bluffs

Ramsey County Parks and Recreation Department
Key Native Habitats and Priority Sites

	Current (Acres)	Goal
Prairies	**350**	**600**
Rice Creek North		
Shoreview	40	79
Arden Hills	0	31
Bald Eagle/Otter Lakes		
Benson Prairie	57	57
Tamarack	75	105
Battle Creek		
East	16	33
West	50	80
Long Lake	12	28
Turtle Creek	5	16
Other Small Prairies	*95*	*171*
Savannas	**20**	**190**
Battle Creek	20	78
Vadnais/Snail Lakes	0	28
Rice Creek North	0	40
Fish Creek	0	30
Other Small Savannas	*0*	*14*
Oak Woods	**770**	**1170**
Battle Creek	200	256
Vadnais/Snail Lakes	72	72
Fish Creek	60	65
Poplar Lake	70	140
Other Small Oak Woods	*368*	*737*
Mesic Forest	**51**	**91**
Bald Eagle/Otter Lakes	51	85
Other Small Mesic Forest	*0*	*6*
Floodplain Forest	**405**	**405**
Battle Creek		
Pig's Eye	405	405
Other Small Floodplain Forest	*0*	*0*
Wetlands	**1640**	**1665**
Bald Eagle/Otter Lakes		
Otter Unit	195	195
Vadnais/Snail Lakes		
Grass Lake	150	150
Battle Creek		
Pig's Eye	150	150
Hwy 96	61	61
Poplar Lake	106	106
Turtle Creek	155	155
Other Small Wetlands	*823*	*848*

Key Habitat Types and Priority Locations



Section 2
Vegetation Management

Introduction

Effective management of native habitats requires that degraded or disturbed habitats be restored to function as quality habitats for a diverse native wildlife community and to protect water resources. Where feasible, RCPRD actively manages its properties to achieve well-functioning native habitats. Management of native habitats varies by habitat type, size and quality. To establish a framework for this management, the RCPRD Commission endorsed a Habitat Management Policy in 2004.

Upland sites will be managed toward priority habitats that include prairies, savannas, oak woods, and mesic forest. Wetlands will be managed toward wet meadows, shrub swamp, tamarack, and quality cattail stands. The decision of what type of habitat a site will be managed toward will depend on the site size, location, existing site vegetation and vegetation adjacent to the site, the existing park master plan and specific wildlife needs.

Site size is a critical factor for determining habitat outcomes because some habitat types, such as oak woods and mesic forests, cannot be effectively managed on small areas. Site location may guide or limit management tools that can be employed. For example, areas adjacent to highways, schools or houses may not be suitable for habitats where prescribed fire is used as a management tool.

The existing vegetation may also help guide the future vegetation. Large forested areas will continue to be forests. Old fields, which were previously disturbed areas dominated by non-native and weedy species, can be managed for a variety of upland habitats depending on surrounding vegetation and historic records. For example, a small old field surrounded by woods would suggest it be managed toward woods, while a site adjacent to other open habitats may be managed toward prairies.

Park master plans will guide the level and type of management. Areas designated for future recreational development will not be actively managed or managed toward a habitat suitable for the future development project. Habitats adjacent to active use areas will be managed toward a native habitat that enhances the active use.

Areas with rare and/or unique wildlife species will be managed to enhance the habitat needed to support those species.

Rue Anemone at Fish Creek

Prescribed Prairie Burn at Tamarack

Specific Habitat Management

Woodlands

RCPRD has approximately 2500 hundred acres of woodland. The three forest types most actively managed are the oak woods, mesic forest, and floodplain forest. Management consists of invasive species control, in the form of buckthorn removal and prescribed burns in the woodlands. Much of the existing woodlands still need buckthorn control.

Proposed restoration plantings will increase the acreage of oak woods and mesic woods. Long term management concerns include buckthorn control and control of new invasive species, especially insects that could significantly impact the woodlands.

Grasslands

RCPRD has approximately 350 acres of managed prairie in 19 parcels located in 10 park units. Over 300 acres of the prairie has been planted. The first prairies were planted in 1989, with most of sites planted since 2001. Future plantings of 290 additional acres are planned. Locations and sizes can be found in park habitat specific management plans.

RCPRD manages its prairies with fire, mowing and selective herbiciding. Burns are conducted in the spring by trained crews. RCPRD's goal is to burn approximately one-third of the prairies each year. Mowing and herbicides are used on an as needed basis to control invasive weeds.

The amount of old field habitat will be greatly reduced as habitats are restored to woodlands and prairies.

Joe-Pye-Weed at Poplar Lake Wet Meadow

Wetlands

RCPRD has approximately 1640 acres of wetlands in open marsh, wet meadows, shrub swamp and tamarack swamp. The composition of wetland types and sizes will not change very much over time.

Wetland vegetation management is undertaken in conjunction with watershed district projects. Invasive species control in wetlands of currently established species will be predominately controlled by use of biocontrol agents. New species will be controlled using the best management practices recommended by the Minnesota Department of Natural Resources.

Rice Creek Remeander

Tamarack Lake Shoreline

Active Use Areas

Active use areas are not managed for natural habitats, but management practices may be used to support and protect adjacent native habitats. These include proper and judicious use of pesticides and herbicides, promotion and care of large canopy trees, and limiting mowing to needed space.

Natural resource management projects should compliment adjacent active use areas, such as, paved and unpaved trails and picnic areas. Accommodating access to natural resource areas helps strengthen the connection between people and nature.

Impacts on natural resource components should be considered in the planning, design and operation of active use areas.

Rare Species

Rare species are monitored where they are known. RCPRD currently tracks Kitten Tails, Illinois Tickfoil, Skunk Cabbage, and Showy Lady Slippers. No active surveys are conducted to locate rare species.

Many plant species can be maintained on small parcels, especially those requiring special environmental conditions. Some of these special conditions are found in rock outcrops, skunk cabbage seeps and tamarack swamps. These areas will be managed within the context of the larger surrounding key habitats with consideration for the rare species found at the site.

Invasive Plant Species

The major management issue effecting the native habitats managed by the RCPRD is invasive plant species. These are species not native to the area that damage the native habitats by displacing or directly killing native species.

Invasive species control is expensive and can be a long-term financial problem. Restoration projects should include the cost of long-term invasives management. The RCPRD will work with the Ramsey County Cooperative Weed Management Area and the Minnesota Invasives Species Advisory Council to stay in front of new species and keep up on best management practices.

Invasive species management is becoming a larger portion of natural resource activities. Invasive species management is done at three levels: eradication, containment, and suppression. Eradication is only possible in cases of small isolated infestations. This is rarely used because most infestations are not found until they are well established. Containment can be used for species that are slow to spread and have defined boundaries. The RCPRD works closely with the Minnesota Department of Natural Resources Invasive Species Program for monitoring and removal assistance.

The RCPRD has been applying biocontrol where available. Species where biocontrol efforts have been effective include: purple loosestrife, leafy spurge, and spotted knapweed. The RCPRD is working with the Minnesota Department of Natural Resources on biocontrol for garlic mustard. Mechanical control and herbicide are being used on buckthorn, knotweed, tansy, burdock and thistle. These control measures are undertaken in partnership with the National Park Service, Great River Greening, and St. Paul Audubon.

Current Risks

Woody
- Common Buckthorn
- Glossy Buckthorn
- Black Locust
- Siberian Elm
- Honeysuckle

Herbacious
- Spotted Knapweed
- Thistles
- Leafy spurge
- Tansy
- Garlic Mustard
- Bird's Foot Trefoil
- Crowned Vetch

Aquatic
- Eurasian Water milfoil
- Curly Leaf Pond Weed
- Purple Loosestrife

Potential Risks

Woody
- Autumn Olive
- Norway Maple
- Species not yet in Minnesota

Herbacious
- Starthistle
- Wild Parsnip
- Amur Silver Grass
- Species not yet in Minnesota

Aquatic
- Flowering Rush
- Yellow Iris
- Hydrilla
- Species not yet in Minnesota

Management Conflicts - Vegetation

Some vegetation management practices are difficult to conduct in urban areas. Prescribed burning is seen as a major concern by some residents because of potential for escaped fires and smoke. The location of adjacent houses and schools limit the use of this tool because of health concerns over smoke. Weather, especially wind direction and speed, restricts the available times and locations for burning because of limitations on drifting smoke.

Rainfall, or lack thereof, can affect the germination and survival of seeds and plants, especially trees. Supplemental watering outside of active use areas is very limited and will continue to be limited in the park system because of availability and expense.

Invasive Plant - Tansy in Battle Creek

Buckthorn Cutting at Tony Schmidt

Section 3
Wildlife Management

Introduction

There are several species of wildlife found within the RCPRD System that warrant population monitoring and, as appropriate, population management. For those species specific management plans will be developed. At this time White-tailed Deer have exceeded the available habitat and Canada Geese have exceeded the social tolerance. The RCPRD has developed specific plans for deer and goose management. Other species of wildlife, such as raccoon, beavers, turkeys and coyotes may occasionally become problems. The RCPRD will deal with these on an as needed basis. Control may include removal or harassment. The RCPRD will continue to research and use cost effective wildlife management control measures as they are developed

Deer Management

Background

In 1999, the RCPRD established a Cooperative Deer Management Program. Prior to that, the Cities of St. Paul and North Oaks, the Twin Cities Army Ammunition Plant and H.B. Fuller Company had been involved in deer management and reduction programs. These programs varied from occasional removal of a few deer to regular programs removing several hundred deer. Maplewood, St. Paul, Shoreview, and White Bear Township showed interest in receiving additional information and/or assistance on deer management issues.

The RCPRD properties are the main blocks of land within the county that can support deer populations. Moderate deer browse damage is noticeable in most properties. Moderate to severe rub damage on new plantings is common in Snail Lake Regional Park and Tamarack Nature Center. The Aerial Deer Surveys starting in 1999 (in RCPRD Natural Resources files), conducted by RCPRD, originally showed four areas with a potential need for some control. The areas included Turtle Creek Open Space, Poplar Lake Open Space, the Otter Lake and Tamarack portions of Bald Eagle - Otter Lake Regional Park, and Pigs Eye/Battle Creek (including Maplewood south of I-94). The density of deer in and around these sites exceeded 50 deer per square mile. The Vadnais - Snail Lakes Regional Park also approached that level. The Minnesota Department of Natural Resources normally recommends a density of less than 25 deer per square mile. Studies have shown that

densities above that level leads to vegetation damage. The number of areas with high deer densities has increased over the years to include most parks with natural habitats.

The RCPRD has used archery as its main deer control tool. Hunts have been conducted at 11 locations. Records of these hunts are on file at the RCPRD. Sharpshooting was used once in the South Maplewood/Highwood area. This was a cooperative program with the Cities of St. Paul and Maplewood.

Objectives

The objectives of the Cooperative Deer Management Program are:

1. To maintain a deer herd at levels that will not affect the diversity of plants in the parks or alter the rate of natural succession.
2. To assist the municipalities in reducing deer/car collisions and other local deer complaints.
3. To maintain a deer herd at a level that minimizes damage to landscape plantings on County property.
4. To maintain a healthy deer herd on those sites large enough to sustain them.

White Tailed Deer in Battle Creek

Deer Management Options

There have been a number of deer management options offered over the years (McAninch, J.B. (ed). 1995). Some managment options are not feasible in Ramsey County and have not been included in this plan. The following options give a range of techniques to address different population levels. The options outlined below will involve the full participation of the surrounding cities.

1. Controlled Archery Hunts during Normal Season. In areas with moderate browse and a record of complaints and or deer/car collisions, general archery hunting could be used. The Metro Bow Hunters Resource Base (MBRB) can provide qualified hunters to hunt specific park sites. Special restrictions can be imposed to limit the times of hunting and the taking of bucks. The hunting period would extend over a number of weeks with low numbers of hunters in the field at any one time. This kind of hunt is preferred because it is generally non-disruptive, low-cost and involves low-staff time. These hunts are also effective on small (<200 acres) parcels. Sites are posted with signs informing users that a hunt is in progress and the site may or may not be closed to other activities. The cities provide special permits or give standing authority to the RCPRD for these hunts. The cost of this type of hunt are minimal.

2. Special Permit Archery Removal after the Normal Season. This is a method where the deer are hunted at specific baited sites. This technique is used outside of the regular hunting season. Special permits from the Minnesota Department of Natural Resources are needed, as well as approval from the cities. The areas around the shooting sites need to be closed. Harvested deer would have to be turned over to the Minnesota Department of Natural Resources. This option needs sites with buffers of 100 yards or more.

3. Firearm Sharpshooter Removal. Sharpshooting is an expensive technique involving law enforcement personnel or contracting with a deer removal company. Special permits from the Minnesota Department of Natural Resources are required, as well as approval from the cities. The areas around the shooting sites need to be closed. Harvested deer would have to be turned over to the Minnesota Department of Natural Resources. Animal rights groups have accepted this technique as a humane method of removing deer. Sharpshooting can be safely done on small (<20 acres) parcels. Complaints about the safety and noise can arise, but using trained marksman and silencers can minimize these concerns. This is a high cost, potentially high staff and high profile removal option. Removal costs are a minimum of $200.00 per deer, in 2005 dollars.

Deer Management Partners

Deer Management activities are conducted in partnership with numerous agencies and municipalities. Current contacts are maintained in the RCPRD Natural Resources files.

Canada Goose Management

Background

Canada Geese are an important part of wildlife heritage found in Ramsey County Parks. These large and majestic birds are enjoyable to watch, especially since they were eliminated from the metro area in the early 1900's. The reintroduction of the Canada Goose is a wildlife success story.

Unfortunately, in some areas, the reintroduction was too successful. Goose populations have increased to the point where they have become a nuisance on some RCPRD properties. Large congregations of geese and their dropping in beach areas or golf courses can create an unpleasant experience for park users.

Objectives

The objectives of the goose management plan for the RCPRD are:

1. To maintain goose flocks at levels that will not affect the water quality of the beaches or reduce the use of the adjacent picnic areas.
2. To keep geese from damaging the turf on the golf courses.

Management Options

1. Feeding Bans. The RCPRD does not allow the feeding of wildlife in the parks. Signs have been posted in problem areas.

2. Harassment. The RCPRD uses harassment to discourage geese from using the golf courses and beaches. Harassment includes the use of dogs and vehicles. Wolf decoys have been tried at Goodrich Golf Course. Harassment does not remove any geese, but helps move them to areas outside of the golf courses and swimming beaches.

3. Nest Destruction. Where feasible Canada Goose nests are destroyed by egg addling. This technique does not work on larger lakes. This technique is used on RCPRD golf courses. This activity is done under special permit from the Minnesota Department of Natural Resources.

3. Roundups. The RCPRD has worked with Dr. James Cooper of the University of Minnesota on Canada Goose control since 1992. Dr. Cooper, through the University of Minnesota is the only person permitted by the Minnesota Department of Natural Resources to roundup geese in Minnesota.

The number of sites controlled varies from year to year. There are some Ramsey County Parks that are controlled by other municipalities or organizations. Roundups cost approximately $1,000 per site/year in 2007 dollars.

Roundups are the only reliable method currently available to RCPRD for goose control in its parks and will be used by RCPRD when goose levels require it. Without roundups the goose population increases would render the beaches at Lake McCarrons County Park and Lake Josephine County Park unusable. Picnicking at these sites plus Keller Regional Park and Island Lake County Park would be much less enjoyable because of the large quantities of goose droppings in the picnic areas.

4. Hunting. Ramsey County Parks does not allow hunting on our properties. All municipalities in Ramsey County have ordinances that ban the discharge of firearms. Special hunts using an experienced organization on the county golf courses may be a viable option in the future if there is a relaxation of municipal firearms discharge ordinances and approval by the Ramsey County Board of Commissioners.

MBRB Archer in Special Hunt

Constructed Wildlife Structures

Background

The building and placement of wildlife structures, mainly bird houses, has been a common practice in wildlife management. Wildlife structures are used to replace or supplement missing habitat. The lack of natural tree cavities due to forest clearing is the main reason for the use of bird houses. Osprey poles provide habitat when large dead trees may not be available. Other structures such as bat houses and heron platforms replace habitat missing due to the lack of large trees. Specialized structures may be used to increase basking sites for turtles, nesting sites for terns and even den sites for fox. The use of wildlife structures, especially bird houses, has been instrumental in the increase of desirable wildlife species. Two successful examples are Eastern Bluebirds and Wood Ducks.

The use of structures requires annual maintenance. Some organizations, such as the Bluebird Recovery Program and local sportsman clubs, have adopted areas and maintain nest boxes. Without maintenance the boxes become a ineffective and actually detrimental because they can become nest sites for undesirable species such as European Starlings and English Sparrows. In some cases, habitat management alone will not support the needs of some wildlife species in the near future. For these species, such as Bluebirds and Wood Ducks, selected use of wildlife structures provide nesting locations otherwise not available.

Objectives:

The objectives of RCPRD with respect to wildlife structures are:

1. To maintain and restore habitat so that adequate natural nesting sites are available.

2. To install appropriate structures in areas where complete habitat restoration is not feasible or will be done over a long period of time.

3. To use standardized styles and empasize partnerships in the installation and maintenance of the structures.

Current Preferred Standards

Bluebird houses built on the Peterson Box Design (Henderson 1994) can be set out in appropriate habitat. Annual results of the trails will be reported to RCPRD. Other styles may be considered by natural resources staff if an individual or organization provides information on the maintenance, cost, and effectiveness of the box.

Wood Duck boxes built out of cedar to the "The Duckman" box style (Henderson 1994) specifications are allowed in appropriate settings. Annual reports of box use will be reported to RCPRD. Other styles may be considered by natural resources staff if an individual or organization provides information on the maintenance, cost, and effectiveness of the box.

Osprey poles approved by staff are placed in appropriate habitat near open water. Osprey pole success in monitored by RCPRD staff.

Other wildlife structures are subject to approval by staff. The Tamarack Nature Center can place other structures on their site for educational and demonstration purposes with consultation with RCPRD Natural Resources staff.

Osprey Nest at Lake Josephine

Wood Duck Boxes in Poplar Lake

Nuisance Wildlife

The RCPRD will occasionally have issues with other wildlife that causes damage to a park or adjacent property or pose a health or safety risk. The species often encountered are beaver, raccoons and coyotes. The RCPRD will remove, or allow other agencies to remove, problem animals.

Rare Species

Rare species are monitored where they are known. The RCPRD currently monitor Bald Eagles, Ospreys, Red Shouldered Hawks, and Blanding's Turtles. No active surveys are conducted to locate rare species. The RCPRD works with the Minnesota Department of Natural Resources on rare animals locations.

Invasive Wildlife Species

The major management issue affecting native habitats in Ramsey County Parks are invasive species. These are species animals not native to the area that damage the native habitats by displacing or directly killing native species.

Invasive species control is an expensive and often long-term financial commitment. Restoration projects should include estimated long-term invasives management costs in the initial plan.
The RCPRD will work with the Minnesota Invasives Species Advisory Council to stay in front of new animal species and keep up on best management practices.

Current Risks

Terrestrial
- Mute Swan
- House Sparrows
- European Starling
- European Earthworms

Aquatic
- Zebra Mussels

Potential Risks

Terrestrial
- Emerald Ash Borer
- Gypsy Moth
- Other species not yet in Minnesota

Aquatic
- Rusty Crayfish
- Other species not yet in Minnesota

Section 4
Other Natural Resources Activities

Geology and Soils

Ramsey County is located in the St. Paul Baldwin Plains and Moraines and the Anoka Sand Plain subsection of Minnesota Ecological Classification System. Descriptions of those subsections and the impact of development are attached (Appendix 4 & 5). Soils and geological features will be taken into consideration in the management of all our natural resources

Limestone Bluffs in Battle Creek

Rice Creek in Rice Creek North Regional Trail

Water Resources Management

RCPRD properties are only small portions of the County's overall water resources and watersheds. Management of all water resources and water entering and passing through park properties is beyond the RCPRD's jurisdiction.

The water resources (lakes, wetlands, streams and rivers) within Ramsey County are currently managed and regulated by a variety of agencies as well as the county. These agencies include the Minnesota Department of Natural Resources, Board of Soil and Water Resources, US Army Corps of Engineers, the various Watershed Districts (Appendix 6), and the Ramsey County Conservation District. The RCPRD works with these agencies to improve and protect our aquatic resources by adhering to applicable watershed district and state rules and permitting requirements when working on restoration and development projects.

The RCPRD works on water quality by providing buffers along wetlands and implementing proper storm water practices for our impervious surfaces. Over the years, various wetlands have been created or restored to meet required wetland mitigation needs of the county under the Wetland Conservation Act. Most RCPRD management activities involve water level manipulation and invasive species control.

Eagle Banding with Audubon

Ramsey County Birdfest Hike

Partnerships

Most natural resource activities and projects require partnerships, volunteers, and collaborations to be successful. The RCPRD works cooperatively with a variety of organizations to help manage, restore, and monitor the natural resources and habitats in the parks. The RCPRD also works with neighbors and other volunteers to help manage and enhance habitats, especially to help control invasive species.

Volunteers help with nest box monitoring and maintenance, prairie seed collection, and buckthorn removal. The RCPRD has developed training programs, to provide our volunteers with the needed skills and knowledge. Additional volunteer and citizen science opportunities within the park system will be explored.

Previous/Ongoing Partners

Upland habitat restorations providing funding and volunteer services

St. Paul Audubon
Great River Greening
National Park Service - Mississippi National River Recreational Area
Minnesota Department of Natural Resources Metro Greenways Program
Metropolitan Council

Wetland restoration work has mainly been done with the watershed districts as lead agency. The RCPRD has worked with the following districts on a variety of wetland and stream projects.

Ramsey Washington Metro Watershed District
Rice Creek Watershed District
Capital City Watershed District
Ramsey Conservation District

Invasive Species biocontrol requires partnerships to obtain insects and other materials. The RCPRD works with:

Minnesota Department of Agriculture
US Department of Agriculture, Animal Plant Health Inspection Services
Minnesota Department of Natural Resources Ecological Services

The monitoring of wildlife and habitats is done in a variety of ways. The RCPRD partners with number of schools and agencies to help with those activities. Some of the organizations and activities they have done are:

St. Paul Audubon
- Bird Monitoring

University of Minnesota
- Buckthorn Survival Research
- Shoreline Vegetation
- Bird Monitoring
- Prairie Insect research
- Native Plant Surveys
- Aquatic Insect sampling
- Invasive Species research

Macalester College
- Amphibian population research

University of St. Thomas
- Reptile and amphibian habitat use research

State of Minnesota
- Invasive Species research

Minnesota Pollution Control Agency
- Wetland Vegetation Sampling

Other partnerships include:

- Boy Scouts, especially Eagle Scout Projects
- Girl Scouts
- Shoreview Green Community
- Park neighbors
- Master Naturalists

The RCPRD is continually working with agencies and schools to increase monitoring and research opportunities in the parks system.

Education/Awareness

Education about and awareness of natural resources in RCPRD is mainly accomplished through programming conducted by naturalist staff at Tamarack Nature Center, located in Bald Eagle-Otter Lakes Regional Park. Two training programs aimed at natural resources management are Buckthorn Brigade, where participants learn the biology, identification, and removal techniques for common and glossy buckthorn and Prairie Seed Collection which teaches prairie seed identification and seed sowing methods.

Guide books for bird watching and prairie viewing in Ramsey County have been developed. These guides highlight the quality habitats found in the park system.

University of Minnesota Bulrush Research at Snail Lake

Snowy Owl Watchers Tamarack Nature Center

Data Management/Analysis

Data collected by park staff and partners during various management and monitoring activities is currently kept in the natural resources files and will be transferred to geodatabases. Data collection is on-going as funding allows. These geodatabases will allow for the integration of natural resource projects and management activities into a GIS system. This system will allow the mapping of natural resources with respect to other park activities. GIS work will be done in partnership with the Ramsey County Department of Public Works.

Park Maintenance/Natural Resources Integration

Regular park maintenance and development activities will incorporate Natural Resource Management principles where feasible to help meet our objectives of establishing and enhancing key habitats. These would include:

- Unmowed buffers around wetlands and lakes
- Proper tree care and establishment
- Use of native species where possible in active use area plantings
- Proper and responsible use of fertilizers and herbicides

Section 5
Park Level Habitat Management

The following section is a unit breakdown by park showing the current and proposed conditions of the parks and the costs and management activities needed to restore and maintain the habitat integrity of the unit. For this plan, a unit is a parcel of land that is of a particular habitat with a distinguishable boundary. The units are variable in size and shape (refer to the attached park maps for additional unit information). This breakdown was completed for all of the regional parks and selected county parks and open spaces that have significant areas of key priority natural habitats. Existing habitat on non-priority park properties may receive natural resources management if there is a need and resources allow.

The timeline for these projects is very long. Most of the management and restoration activities occur in regional parks, especially those with key priority habitats. In addition, several county parks and protection open spaces have high-quality habitats and include complete management plans. Most of the county parks and protection open spaces only contain a base map and narrative because no active habitat management is planned for those properties.

Each park section includes an overview of the habitats, wildlife, and management needs followed by maps of current vegetation, future vegetation and management unit layout. At the end of each section is a table, by management unit, listing the desired habitat, management activity and estimated costs. The estimated costs are for the restoration action and establishment, not the maintenance. Maintenance costs are estimated at approximately $50 to $100 per acre per year.

A more detailed explanation of the table is on the following page.

Management Unit Tables

Definitions of columns

Section	Name of the subsection of a larger regional park.
ID	Management unit number found on the map.
Perimeter	Length (in feet) of outside perimeter of the unit. A useful tool for planning fire breaks or trail work.
Acres	Size of the unit.
Current_Veg	Existing vegetation type on the unit as of 2006.
Future_veg	Vegetation type planned for the unit.
Action	Management Activity and /or Restoration work needed to change or maintain the vegetation type.
Cost	Estimated cost (in thousands, 2008 dollars) to carry out the action planned. This cost is based on the estimated unit costs found in the table below.
Priority	Level of importance to carry out the actions. Levels are explained in the table below.
Maintenance	Regular (range from annual to every 5 years) activities needed to keep the desired vegetation on the unit.

Estimated Unit Costs per management activity

Activity		Cost/acre (2008)
Invasive species		
	Spraying	$200
	Mowing	$75
Buckthorn		
	Phase 1	$2000
	Phase 2	$2000
	Phase 3	$1000
Burning		
	Prairies	$125
	Woodlands	$175
Brush removal		$2000
Tree Planting		$6000

Management Priorities

1 Important native habitat, highly connected to other habitats, large size, contains Species of Conservation Need.

2 Has some connections to other habitats, medium to large in size, contains Species of Conservation Need, may include native habitats.

3 Adjacent to other habitats, medium to small in size, if restored would be used by Species of Conservation Need, and may contain remnants of native habitat.

4 Highly degraded habitat, isolated, small size, no Species of Conservation Need

Bald Eagle Otter Lakes Regional Park

Vegetation/habitats

The native vegetation of the Bald Eagle-Otter Lakes Regional Park was a mixture of mesic woods, oak scrubland, prairie and a variety of wetlands. The unique habitats include the tamarack swamp/bog, red maple woods and extensive shrub swamps. Current vegetation includes native habitats plus old fields and conifer plantations. The Otter Lake Unit includes some of the best examples of mesic woodlands in the County. It also includes the only healthy tamarack swamp/ bog and one of the longest undeveloped shorelines in the County. Invasive species have become widespread in most habitats. The most troublesome species include buckthorn, black locust, spotted knapweed and reed canary grass.

Vegetation Management

Ongoing vegetation management activities include prairie planting and management on old field areas, conifer removal, woodland restoration, and tamarack swamp restoration. Prairie planting requires the elimination of existing vegetation and planting of native grasses and wildlflowers. These areas are maintained with prescribed burns. The woodland restoration involves the removal of buckthorn, reintroduction of fire, where appropriate, and seeding of native species.

Invasive species are controlled on a variety of habitats with herbicides and biocontrol. The biocontrol efforts are done in partnership with the Minnesota Department of Agriculture and Minnesota Department of Natural Resources

The oak woods are being managed to contain and control Oak Wilt.

Wildlife

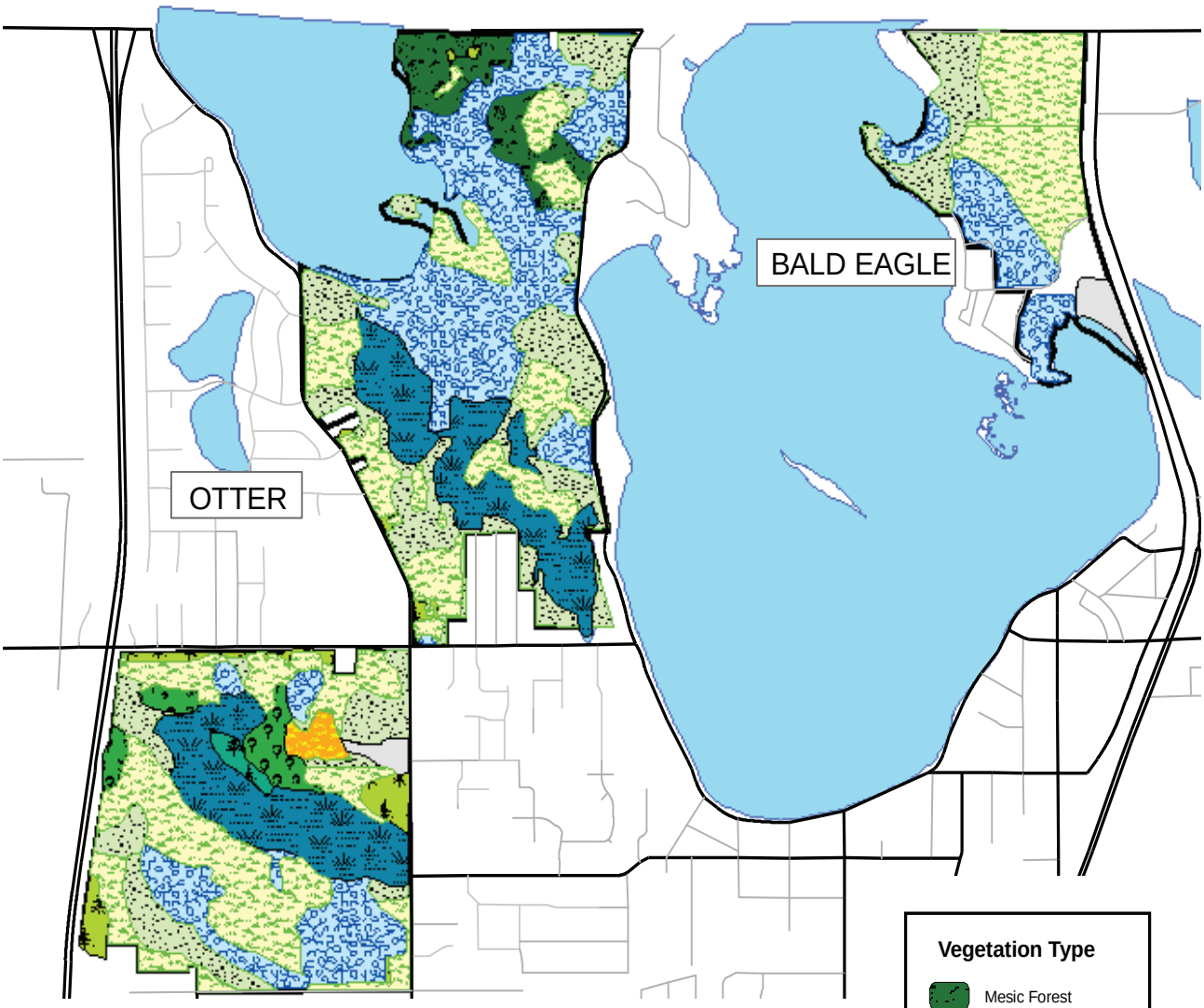
The park hosts a diverse variety of wildlife. Otter Lake and its associated wetlands is an important waterfowl nesting and migration area. The extensive restored prairies are important nesting sites for grassland sparrows, bobolinks and meadowlarks. Bald Eagles nest within the park. Other wildlife includes raptors, wild turkeys and a number of reptiles, amphibians and mammals. Larger mammals include white-tailed deer, coyotes, red fox and raccoons. Blanding's Turtles have been found on the Otter Lake Unit.

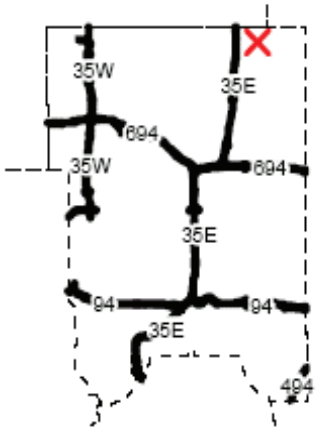
Wildlife Management

Wildlife management in the park involves the control of white-tailed deer populations. Deer are managed using special hunts under the Ramsey County Cooperative Deer Plan in partnership with White Bear Township.

Nest boxes are provided for wood ducks and eastern bluebirds. Osprey poles have been erected on the Otter Lake Unit.

Current Vegetation and Habitats
Bald Eagle-Otter Lakes Regional Park





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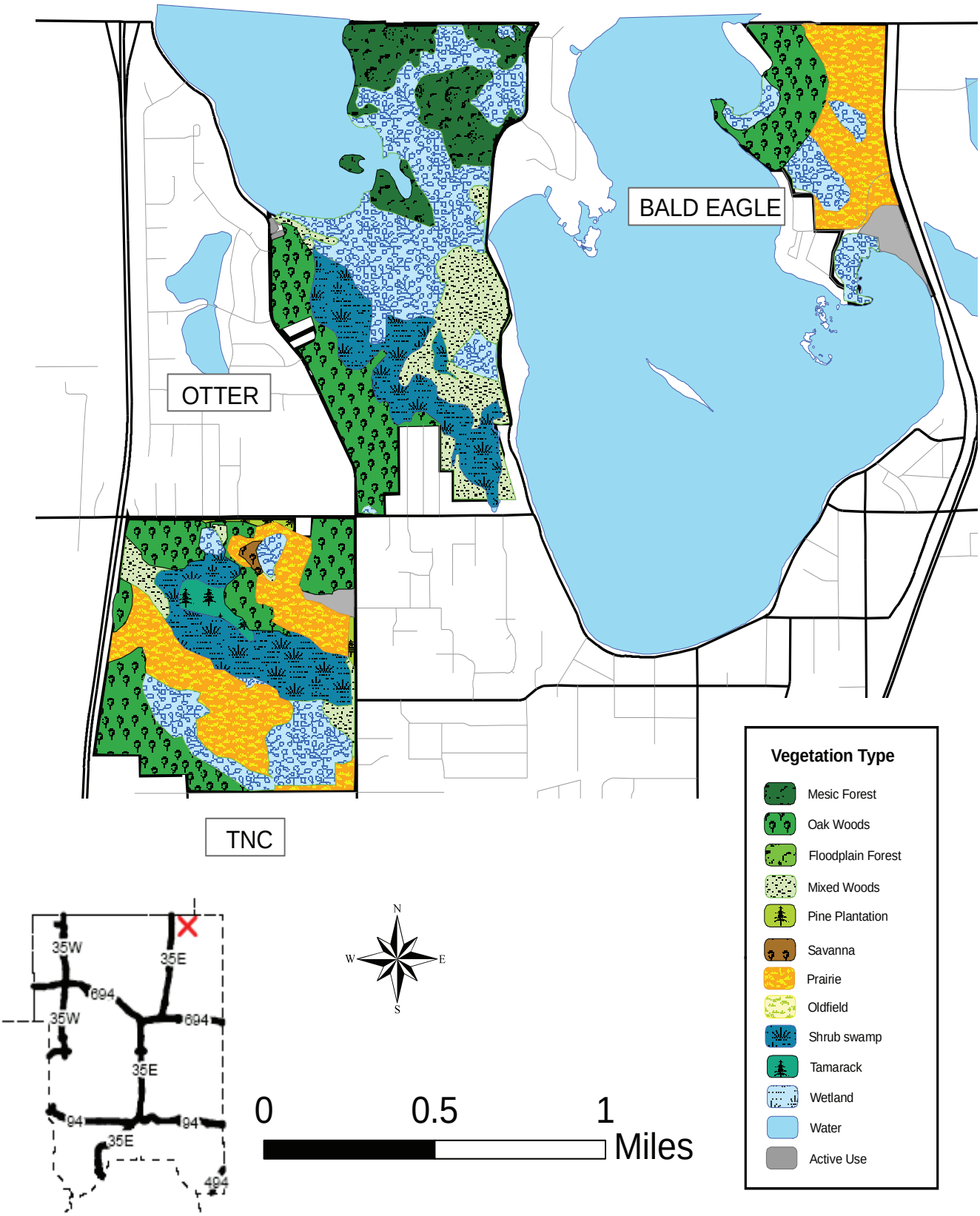
Vegetation Type

- Mesic Forest
- Oak Woods
- Floodplain Forest
- Mixed Woods
- Pine Plantation
- Savanna
- Prairie
- Oldfield
- Shrub swamp
- Tamarack
- Wetland
- Water
- Active Use

Proposed Vegetation and Habitats
Bald Eagle-Otter Lakes Regional Park



Management Units
Bald Eagle-Otter Lakes Regional Park

Bald Eagle Otter Lakes Regional Park – Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
Bald Eagle	1	2567.6	8.4	Mixed woods	Mixed woods	Phase 2 – buckthorn	15	3	Monitor buckthorn
Bald Eagle	2	3322.3	8.5	Mixed woods	Mixed woods	Phase 2 – buckthorn	15	3	Monitor buckthorn
Bald Eagle	3	3087.5	6.4	Wetland	Wetland	Monitor			
Bald Eagle	4	4602.0	12.3	Mixed/Oak	Oak	Phase 2- buckthorn, erosion control	20	3	Monitor buckthorn
Bald Eagle	5	5068.6	23.2	Wetland	Wetland	Monitor			
Bald Eagle	6	7410.7	57.0	Oldfield	Prairie	Recently Planted	15	1	Burn, invasive control
Bald Eagle	7	2518.4	7.3	Active	Active				
Bald Eagle	8	2790.3	9.6	Wetland	Wetland	Monitor			
Bald Eagle	9	2965.5	7.0	Active	Active				
Otter	1	6027.7	24.3	Mesic Woods	Mesic Woods	Phase 2 – buckthorn	50	1	Monitor buckthorn
Otter	2	9165.4	30.4	Wetland	Wetland	Monitor			
Otter	3	2800.2	8.3	Mixed	Mesic	Phase 1&2 - buckthorn	24	1	Monitor buckthorn
Otter	4	7470.8	17.8	Mesic	Mesic	Phase 2 – buckthorn	26	1	Monitor buckthorn
Otter	5	2072.8	5.7	Oldfield	Mesic	Plant trees	35	2	Tree care
Otter	6	3171.3	12.2	Shrub/ Tamarack	Shrub/ Tamarack	Monitor - survey			
Otter	7	9114.0	29.4	Wetland	Wetland	Monitor			
Otter	8	2517.4	5.6	Mixed	Mixed	monitor			
Otter	9	4225.6	10.6	Oldfield/ Mixed	Mesic	Plant Trees/ Phase 2`	40	2	Monitor buckthorn
Otter	10	1486.5	3.5	Mesic	Mesic	Phase 2/ erosion	10	1	Monitor buckthorn & erosion
Otter	11	3533.7	10.9	Mixed	Oak	Currently OLDA			
Otter	12	2677.8	10.2	Oldfield	Mixed	Currently OLDA			
Otter	13	1857.5	4.7	Mixed	Oak	Plant trees	20	3	Tree care
Otter	14	5816.9	25.2	Oldfield/mixed	Oak	Plant trees	60	3	Tree care
Otter	15	8554.4	83.9	Wetland	Wetland	Monitor			
Otter	16	3985.6	18.2	Mixed	Mixed	Phase 1&2	60	3	Monitor buckthorn
Otter	17	3875.0	13.5	Wetland	Wetland	Monitor			
Otter	18	8149.8	26.3	Oldfield/mixed	Mixed	Plant trees/phase 2	60	3	Monitor buckthorn
Otter	19	6884.5	38.7	Shrub swamp	Shrub swamp	Monitor			

Bald Eagle Otter Lakes Regional Park – Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
Otter	20	3711.2	14.1	Oldfield/mixed	Oak	Plant trees/phase 2	58	3	Monitor buckthorn
TNC	1	3335.7	10.8	Pine/oldfield	Pine	buffer			
TNC	2	2651.0	6.6	Oldfield	Oak	Plant trees	35	2	Tree care
TNC	3	3526.7	7.7	Wetland/mixed	Wetland/oak	Plant trees	12	2	Tree care
TNC	4	6217.5	32.4	Oldfield/mixed	Prairie/savanna	Reseed/Plant trees	40	2	burn
TNC	5	3564.4	15.1	Oldfield/mixed	Oak	Tree planting	90	3	Tree care
TNC	6	2118.3	4.6	Active	Active				
TNC	7	2554.2	8.7	Pine	Pine	Buffer			
TNC	8	3045.3	9.3	Mesic	Mesic	Phase 2&3	18	3	Monitor buckthorn
TNC	9	5928.2	23.1	Mixed/shrub	Mixed/shrub	Phase 2	23	3	Monitor buckthorn
TNC	10	5823.9	9.5	Shrub	Shrub	Monitor			
TNC	11	5133.9	23.5	Shrub	Shrub	Phase 2	24	3	Monitor buckthorn
TNC	12	1611.3	3.0	Mixed	Mixed	Phase 2	5	3	Monitor buckthorn
TNC	13	4250.9	25.0	Wetland	Wetland	Monitor			
TNC	14	9210.6	61.7	Oldfield/prairie	Prairie	Overseed/ spray	20	1	burn
TNC	15	4163.6	18.3	Mixed/oldfield	Prairie/oak	Reseed/phase 2	32	3	Burn/monitor buckthorn
TNC	16	6852.7	37.5	Mixed/oldfield	Oak	Tree planting	75	2	Tree care
TNC	17	2883.7	4.6	Oldfield	Prairie	Reseed/remove trees	9	2	burn

Battle Creek Regional Park

Vegetation/habitats

The native vegetation of Battle Creek was a mixture of prairies, oak savanna, oak woods and wetlands. Current vegetation includes the native types plus old field, pine plantations and mixed forest. There are also several smaller unique habitats. These include seep swamps with skunk cabbage and marsh marigolds, and mesic hardwoods with yellow birch, white pine. Much of the native vegetation has been highly degraded. The extensive flood plain forest of the Pig's Eye Peninsula contains a large heron colony and important eagle nesting and roosting sites. The heron rookery is a designated State Scientific and Natural Area. The Pt. Douglas Road bluffs contain remnants of bluff prairies and savannas and include a variety of rare plants, especially the state listed Kittentails (Besseya bulli).

Invasive species have become widespread in most habitats. The most troublesome species include buckthorn, black locust, garlic mustard, and purple loosestrife.

Vegetation Management

Ongoing natural resource projects include prairie planting on old field sites and restoration of the oak woods. Prairie planting requires the elimination of existing vegetation and planting of native grasses and wildlflowers. These areas are maintained with prescribed fire. The oak restoration requires the removal of buckthorn, reintroduction of fire and seeding of native species.

Invasive species are controlled on a variety of habitats with herbicides and biocontrol. The biocontrol efforts are done in partnership with the Minnesota Department of Agriculture and Minnesota Department of Natural Resources.

The oak woods are being managed to contain and control Oak Wilt.

Wildlife

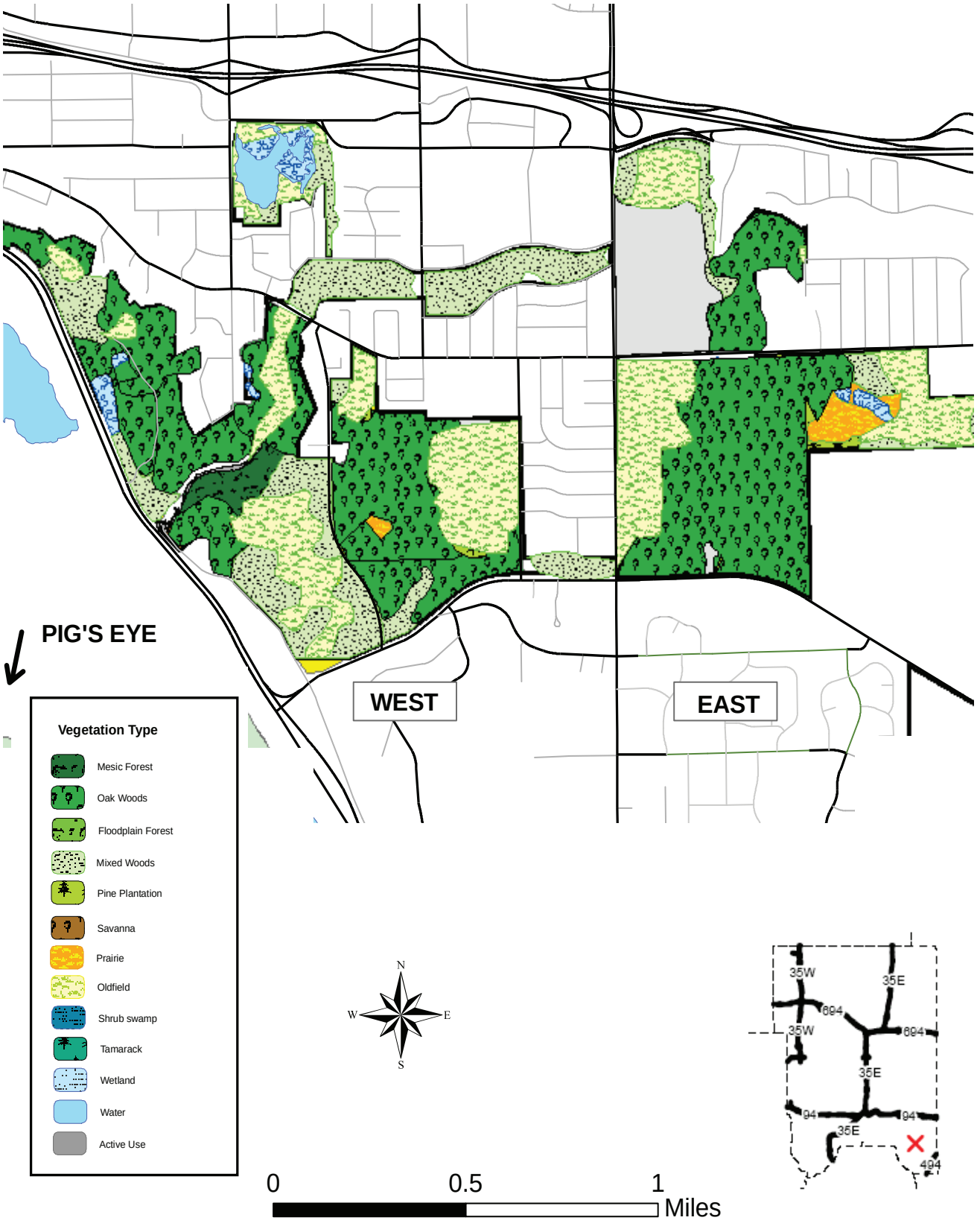
The wildlife diversity of the park is high, especially on the Pig's Eye Lake unit with it Heron Rookery, Bald Eagle nests, migratory waterfowl and shorebirds. The main unit has a variety of nesting songbirds, waterfowl, raptors, and wild turkeys. Larger mammals include white-tailed deer, coyotes, red fox and raccoons.

Wildlife Management

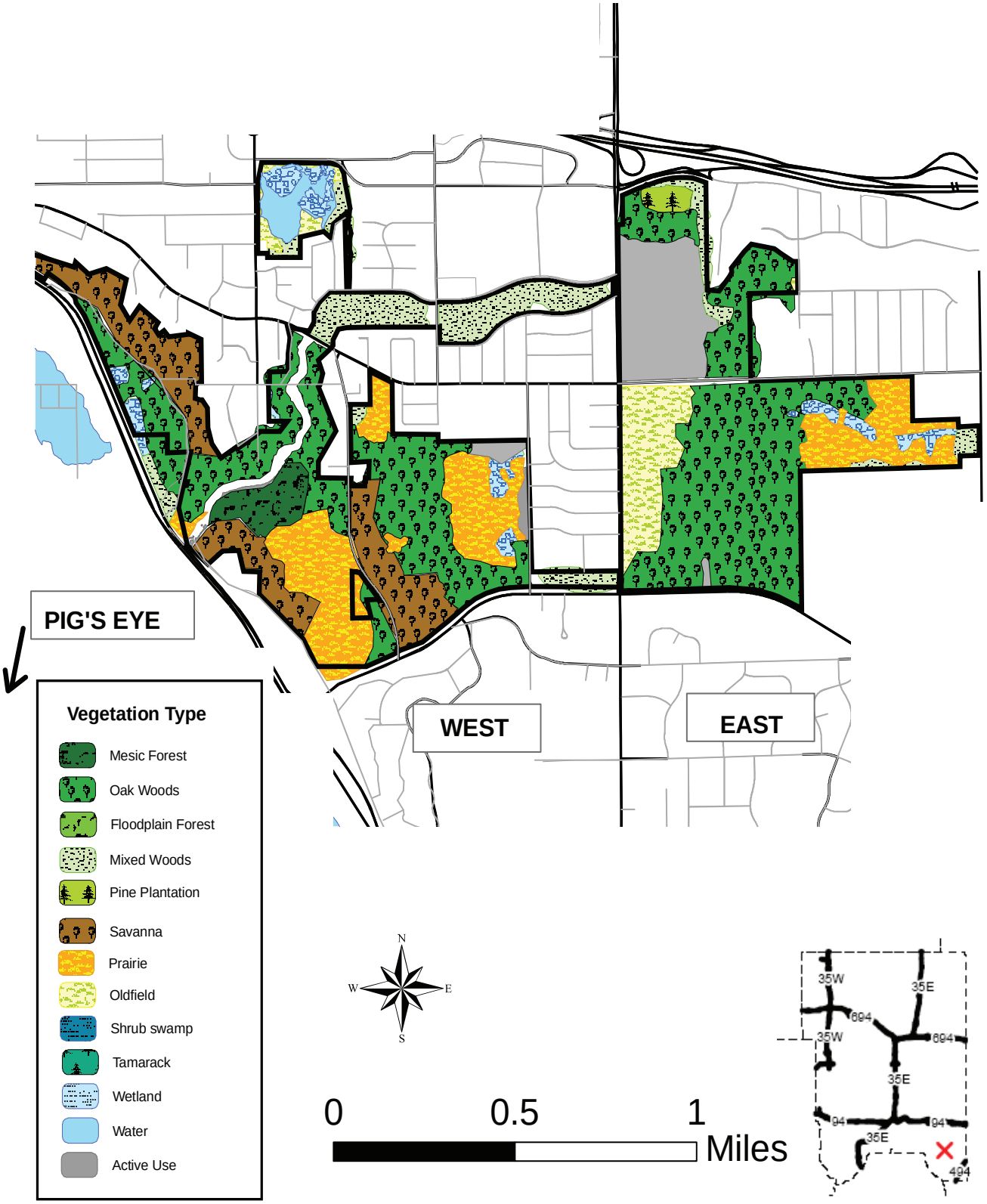
Wildlife management in the park involves the control of white-tailed deer and Canada goose populations. Deer are managed using special hunts under the Ramsey County Cooperative Deer Plan in partnership with Maplewood and St. Paul. Geese are controlled by selective removal of nesting birds in areas where they are nuisances.

Nest boxes are provided for wood ducks and eastern bluebirds.

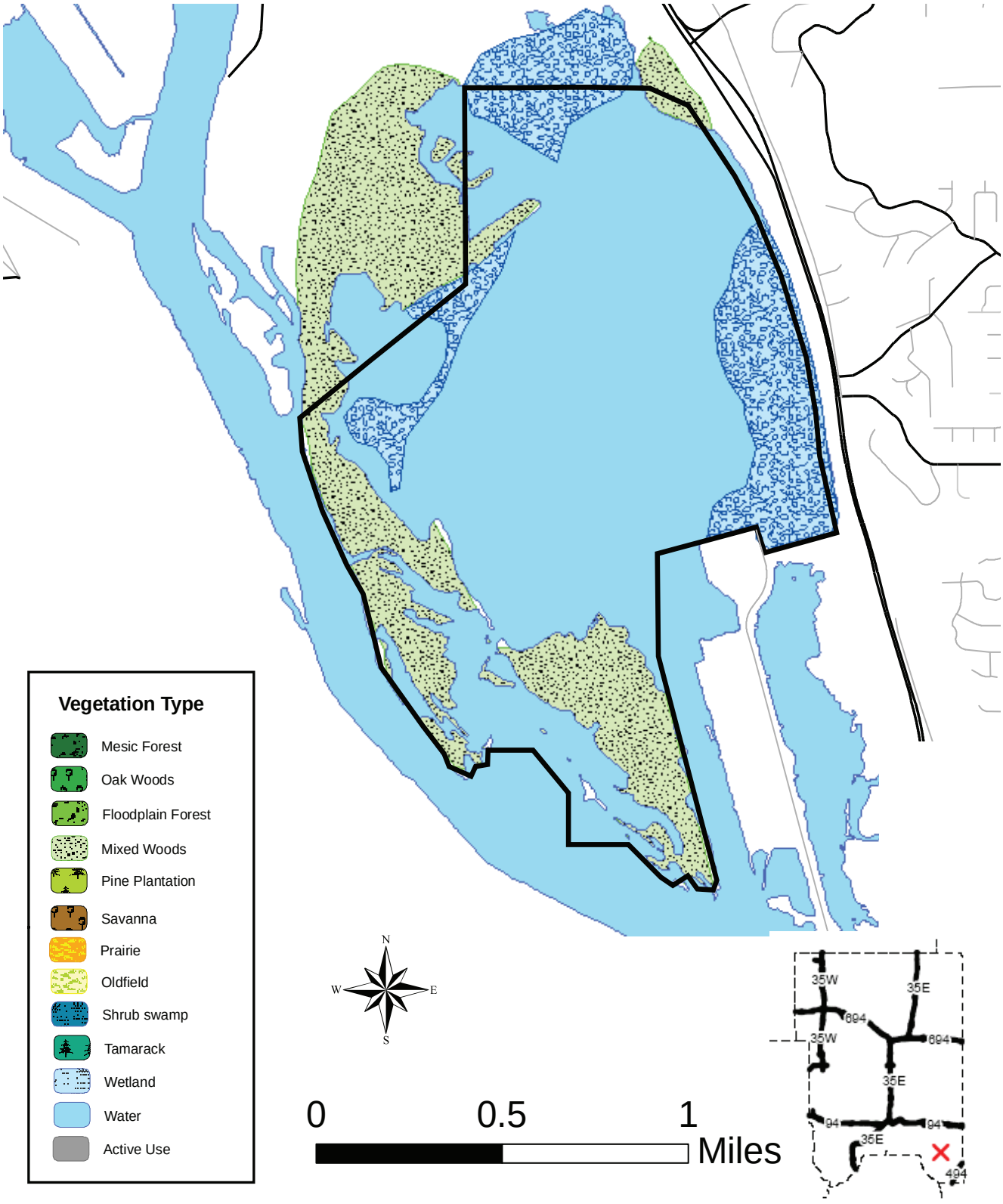
Current Vegetation and Habitats
Battle Creek Regional Park



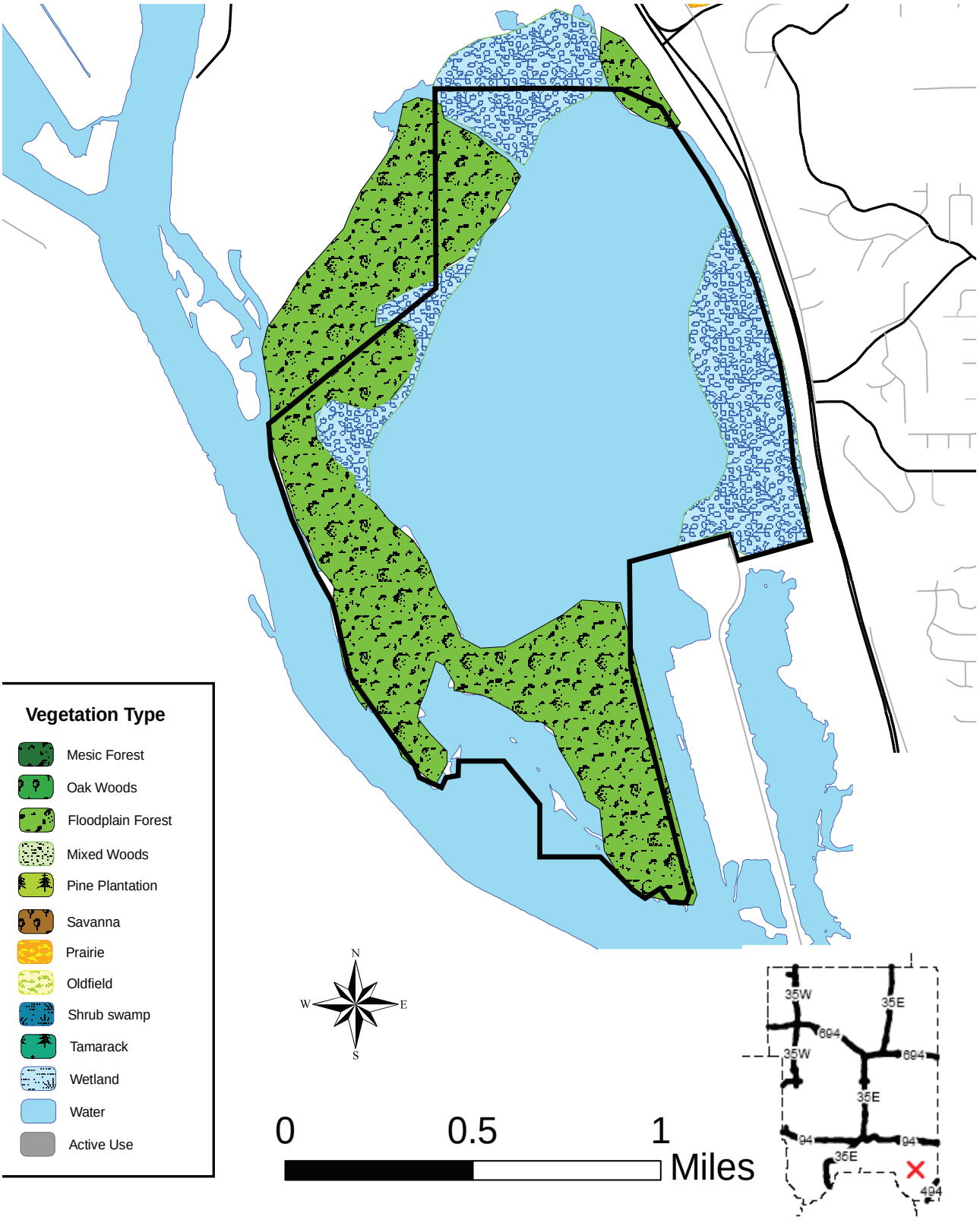
Proposed Vegetation and Habitats
Battle Creek Regional Park



Current Vegetation and Habitats
Battle Creek Regional Park - Pig's Eye

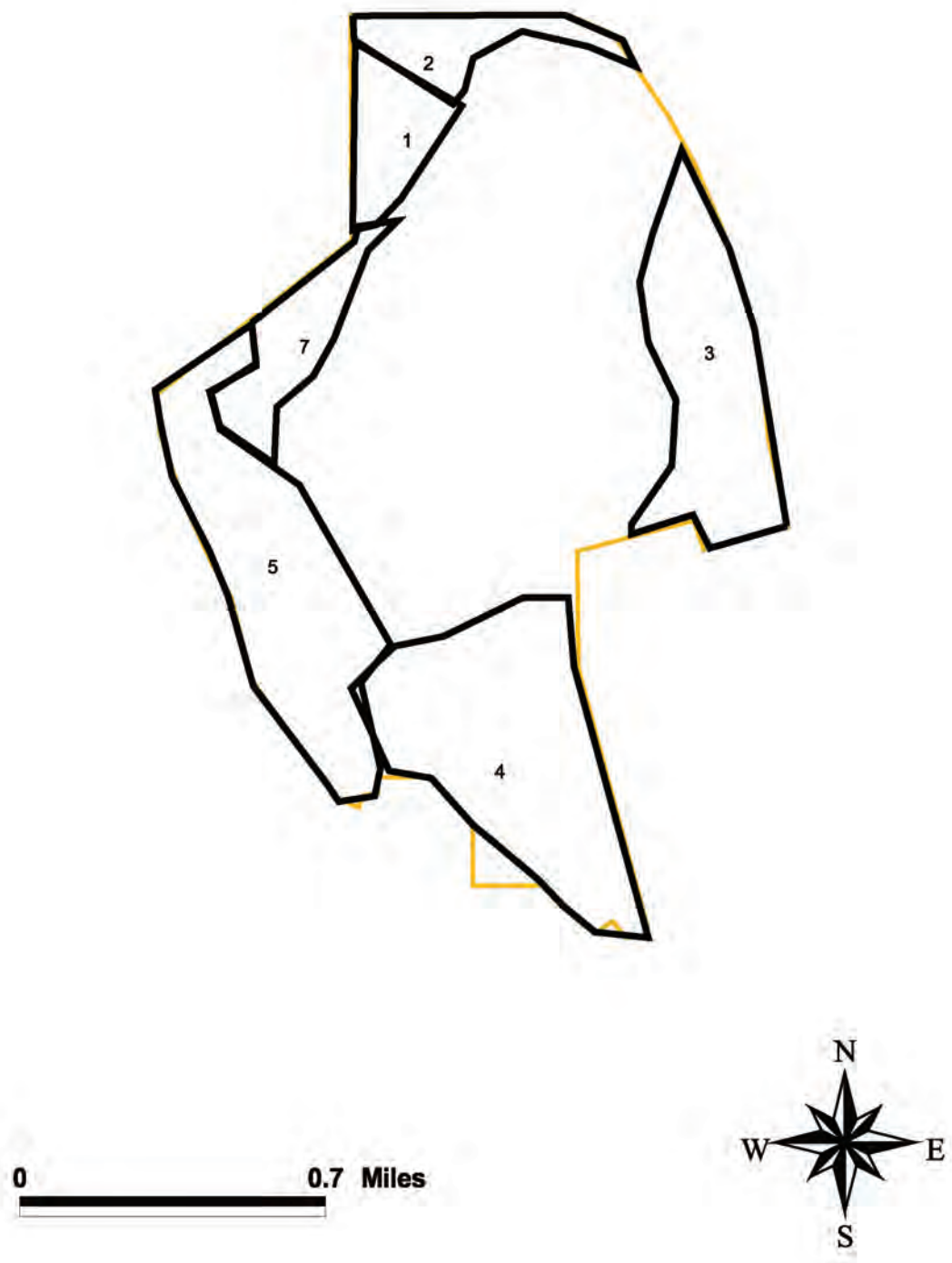


Proposed Vegetation and Habitats
Battle Creek Regional Park - Pig's Eye



Management Units
Battle Creek Regional Park

Management Units
Battle Creek Regional Park - Pig's Eye Unit



Battle Creek Regional Park – Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
East	1	3932.1	22.3	Pine/mixed/ oldfield	Pine/oak	Plant trees	60	4	Tree care
East	2	6671.0	58.3	Active	Active				
East	3	6171.3	27.3	Oak	Oak	Phase 2	50	3	Burn/monitor buckthorn
East	4	2850.8	7.5	Oldfield/active	Oldfield/active				
East	5	5517.1	32.3	Oldfield	Oldfield	Currently OLDA			
East	6	5229.1	21.9	Oak	Oak	Phase 2	40	2	Burn/monitor buckthorn
East	7	6878.2	58.0	Oak	Oak	Phase 3	58	2	Burn/monitor buckthorn
East	8	4858.0	28.7	Oak	Oak	Phase 2	56	2	Burn/monitor buckthorn
East	9	6415.5	21.7	Oak/pine	oak	Phase 2	40	3	Burn/monitor buckthorn
East	10	4310.8	16.9	Oak/mixed	Oak	Phase 2	34	3	Burn/monitor buckthorn
East	12	3623.4	16.3	Prairie	Prairie	Invasive control	2	1	Burn
East	13	3189.6	4.6	Pine/mixed	Pine/mixed	buffer			
East	15	4258.5	16.4	Oldfield/pine	Prairie	Reseed/remove trees	25	1	Burn
East	16	2373.6	6.0	Mixed	Mixed	buffer			
Pig's Eye	1	5834.4	38.9	Mixed	Mixed	Monitor			
Pig's Eye	2	8137.7	36.4	Wetland	Wetland	Monitor			
Pig's Eye	3	11908.5	114.9	Wetland	Wetland	Monitor			
Pig's Eye	4	12170.6	171.2	Mixed	Mixed	Monitor			
Pig's Eye	5	14388.2	151.5	Mixed	Mixed	Monitor			
Pig's Eye	7	8049.5	45.1	Mixed	Mixed	Monitor			
West	1	4561.6	19.0	Mixed	Mixed	Phase 1	60	4	Burn/monitor buckthorn
West	2	6137.3	26.5	Mixed	Mixed	Phase 2	60	4	Burn/monitor buckthorn
West	3	4155.0	13.1	Oak/mixed	Oak/savanna	Phase 1&2, overseed	60	2	Burn/monitor buckthorn

Battle Creek Regional Park – Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
West	4	4160.7	17.5	Oak/mixed	Oak/savanna	Phase 1&2, overseed	78	2	Burn/monitor buckthorn
West	5	6024.8	23.1	Oak/mixed/wet	Oak/wet	Phase 1&2, overseed	85	2	Burn/monitor buckthorn
West	6	6513.1	28.4	Oak	Oak	Phase 2	54	2	Burn/monitor buckthorn
West	7	9079.9	43.5	Oak/oldfield	Oak	Phase 3/ plant trees	50	1	Burn/monitor buckthorn
West	8	6251.2	29.0	Oldfield/mixed	Prairie/oak	Reseed/remove trees	65	3	burn
West	9	3379.3	14.7	Oldfield/wet	Prairie/wet	Reseed/remove trees	65	3	burn
West	10	5709.0	17.1	Oak/mixed	Oak/savanna	Phase 2/overseed	25	1	burn
West	11	3142.1	12.2	Oldfield/mixed	Prairie/oak	Phase 3, weed control	8	1	burn
West	12	2932.0	9.1	Oak	Oak	Phase 1 buck & bl loc	20	2	Burn/ monitor buckhtorn
West	13	1385.4	2.6	Oldfield/mowed	Prairie	Reseed	5	4	burn
West	14	2630.7	9.3	Pine/oldfield	Prairie	Remove pine/Reseed	18	3	burn
West	15	6379.2	41.0	Oak	Oak	Phase 3	30	2	Burn/ monitor buckhtorn
West	16	5163.2	19.3	Oak	Oak/savanna	Phase 3	15	2	Burn/ monitor buckhtorn
West	17	3245.9	12.0	Oak/savannah	Oak/savanna	Phase 3	10	2	Burn/ monitor buckhtorn
West	18	3405.2	12.6	Mixed/oak/pine	Oak	Phase 2, pine removal	12	3	
West	19	5670.9	37.3	Prairie	Prairie	Invasive control	4	1	Burn
West	20	2101.2	3.8	Oldfield/oaks	Oak savanna	Ressed/plant trees	12	3	Burn
West	21	2783.3	5.1	Active	Active				
West	22	3051.1	6.8	Mixed	Mixed	Phase 1	10	4	monitor buckthorn

Keller Regional Park

Vegetation/habitats

The native vegetation of Keller Lake Regional Park was a mixture of oak woods and wetlands. The little remaining native habitat has been degraded by invasive species. Current vegetation is a mixture of the natural habitats with extensive oldfield and turf areas. The most troublesome species are buckthorn, Siberian elm, and red canary grass

Vegetation Management

Ongoing management in this park is limited. Invasive species removal has been conducted in coordination with other park use activities.

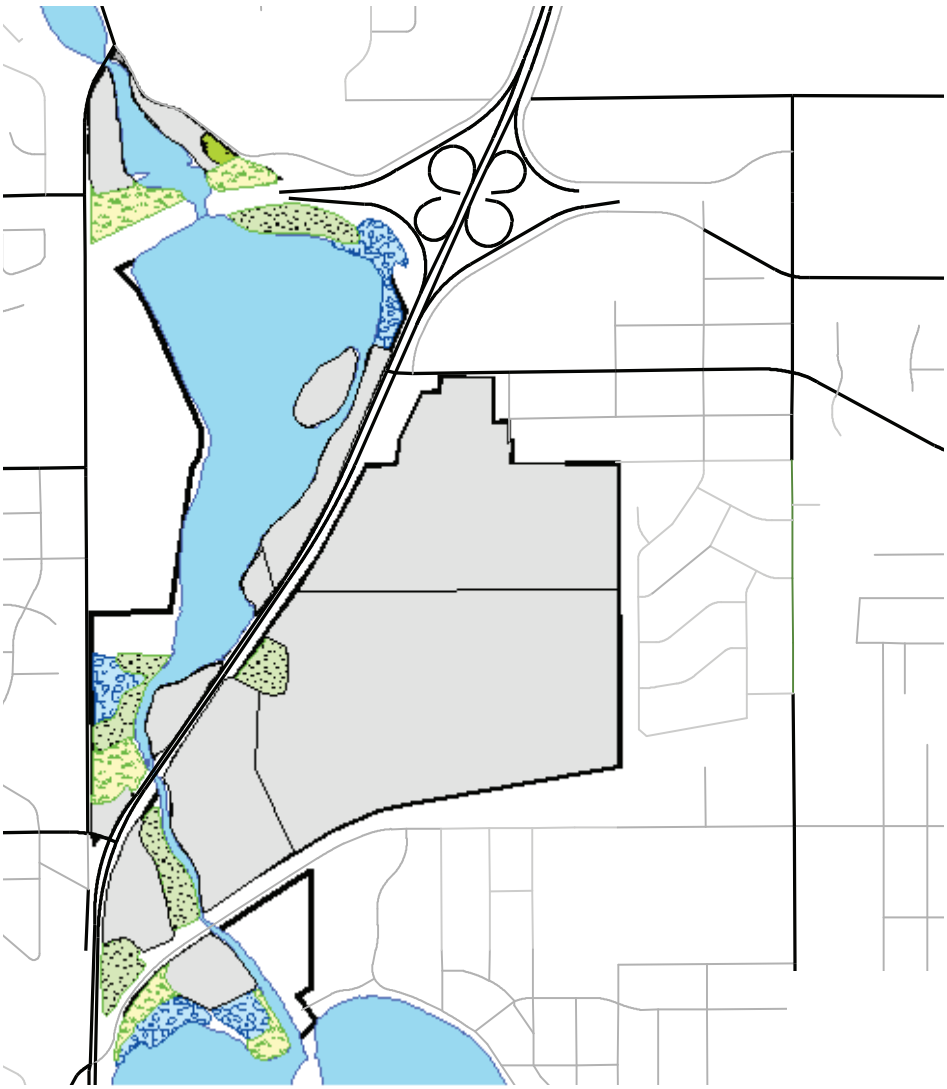
Wildlife

The park is used by migratory waterfowl and other common wildlife. Limited habitats limit the overall wildlife diversity. The one unique species is Bald Eagles nesting at the north end of Keller Lake.

Wildlife Management

Wildlife management in the park involves the control of Canada goose populations. Geese are controlled by selective removal of nesting birds in areas where they are nuisances.

Current Vegetation and Habitats
Keller Regional Park



Vegetation Type

- Mesic Forest
- Oak Woods
- Floodplain Forest
- Mixed Woods
- Pine Plantation
- Savanna
- Prairie
- Oldfield
- Shrub swamp
- Tamarack
- Wetland
- Water
- Active Use

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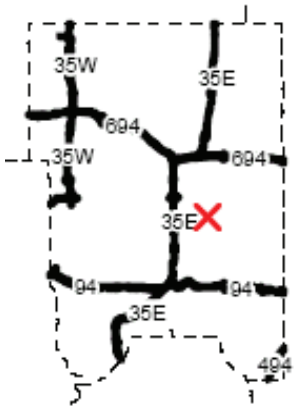
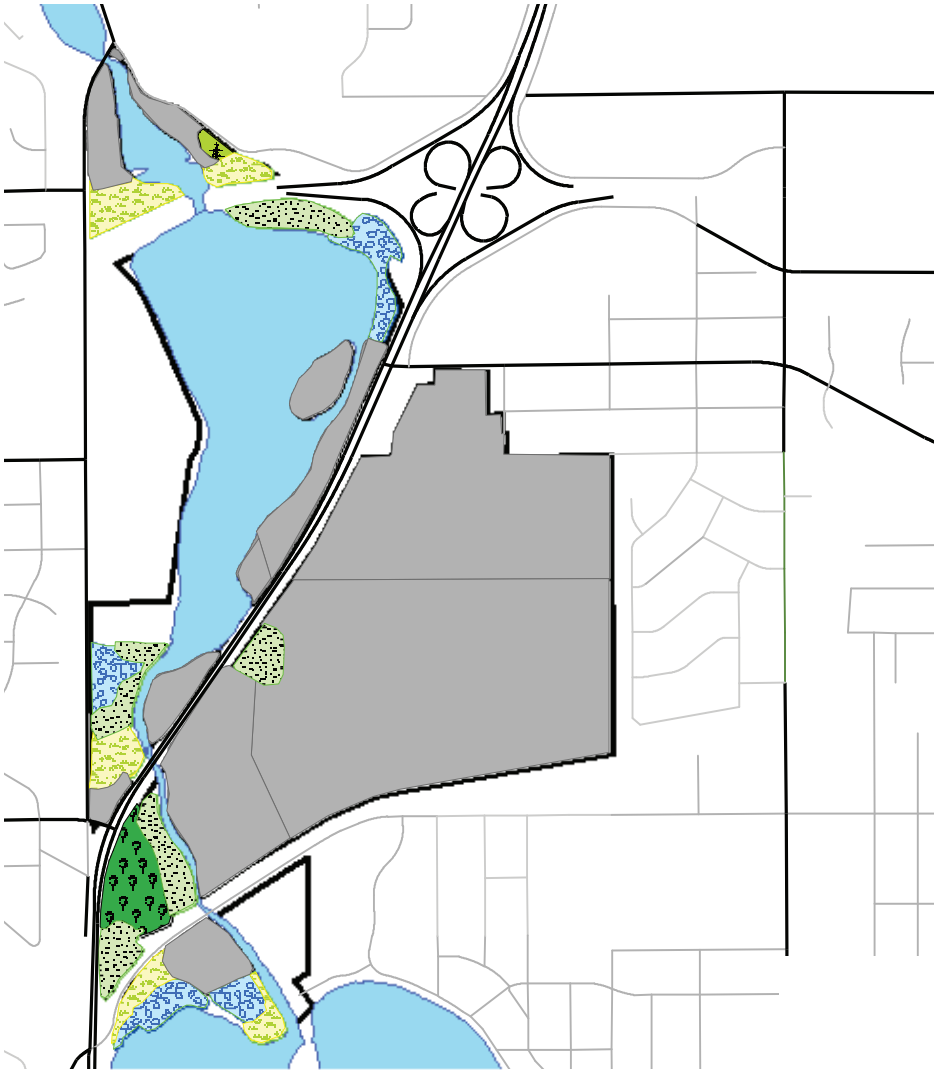


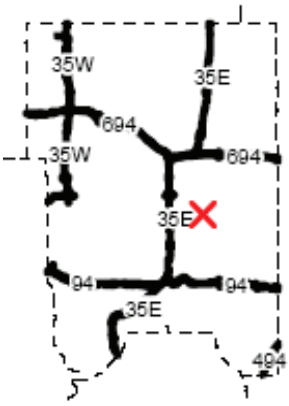
Proposed Vegetation and Habitats
Keller Regional Park



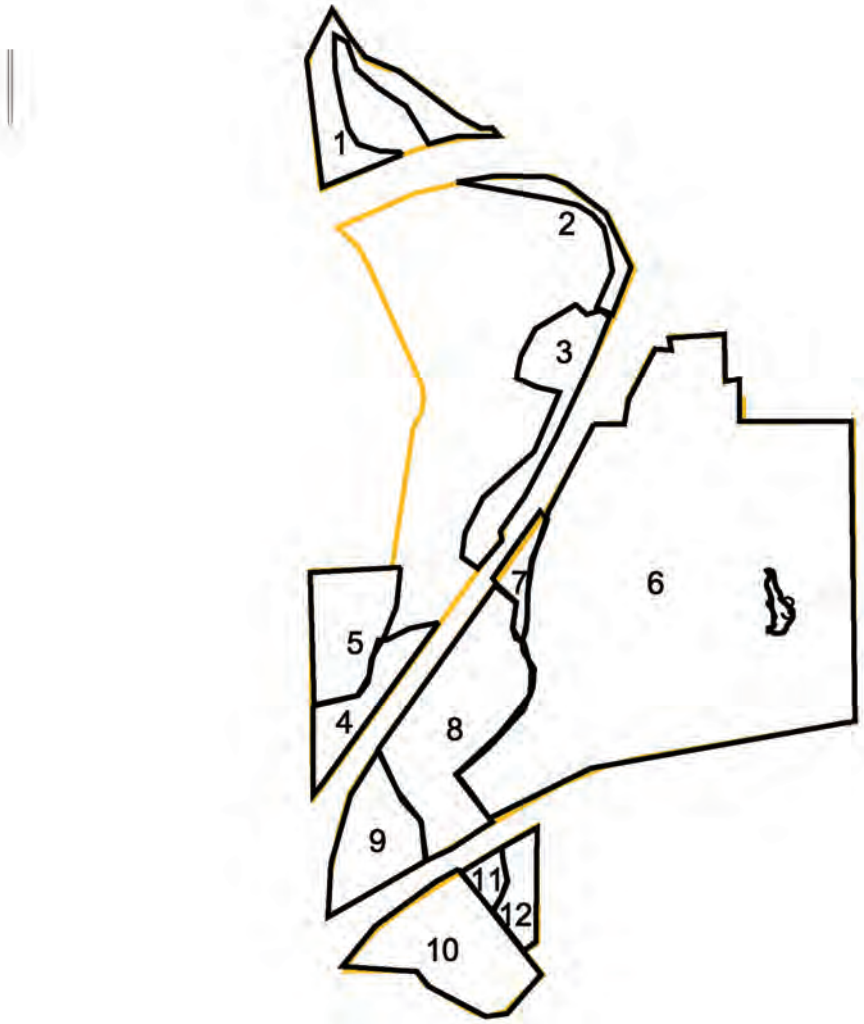
Vegetation Type

- Mesic Forest
- Oak Woods
- Floodplain Forest
- Mixed Woods
- Pine Plantation
- Savanna
- Prairie
- Oldfield
- Shrub swamp
- Tamarack
- Wetland
- Water
- Active Use

0 0.5 Miles



Management Units
Keller Regional Park



Keller Regional Park – Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
	1	6269.1	11.2	Active/wetland	Active/wetland				
	2	3845.3	4.1	Wetland/mixed	Wetland/mixed	Monitor			
	3	5004.3	11.6	Active	Active				
	4	3420.7	7.1	Active	Active				
	5	2946.9	11.2	Mixed/wetland	Mixed/wetland	Phase 1&2/overseed	35	3	Monitor Buckthorn
	6	11199.9	138.4	Active	Active				
	7	2137.2	3.0	Prairie	Prairie				Burn (Keller GC staff)
	8	5052.9	24.1	Active	Active				
	9	2987.5	10.6	Active	Oak	Plant trees	40	3	Tree care
	10	3763.1	17.5	Active/wetland	Active/wetland				
	11	1205.9	1.9	Mixed	Mixed	Monitor			
	12	2090.1	4.3	Wetland	Wetland	Monitor			

Long Lake Regional Park

Vegetation/habitats

The native vegetation of Long Lake Regional Park was a mixture of oak woods, mixed woods, and wetlands. Much of the native vegetation has been highly degraded from past agricultural use. Current vegetation is mainly oldfield and wetlands with remnants of the natural habitats. There is also a restored prairie in the park. Invasive species have become widespread. The most troublesome species are black locust and buckthorn.

Vegetation Management

The prairie is maintained with prescribed fire.

Invasive species, especially black locust, are controlled on a variety of habitats with herbicides and biocontrol. The biocontrol efforts are done in partnership with the Minnesota Department of Agriculture and Minnesota Department of Natural Resources.

The oak woods are being managed to contain and control Oak Wilt.

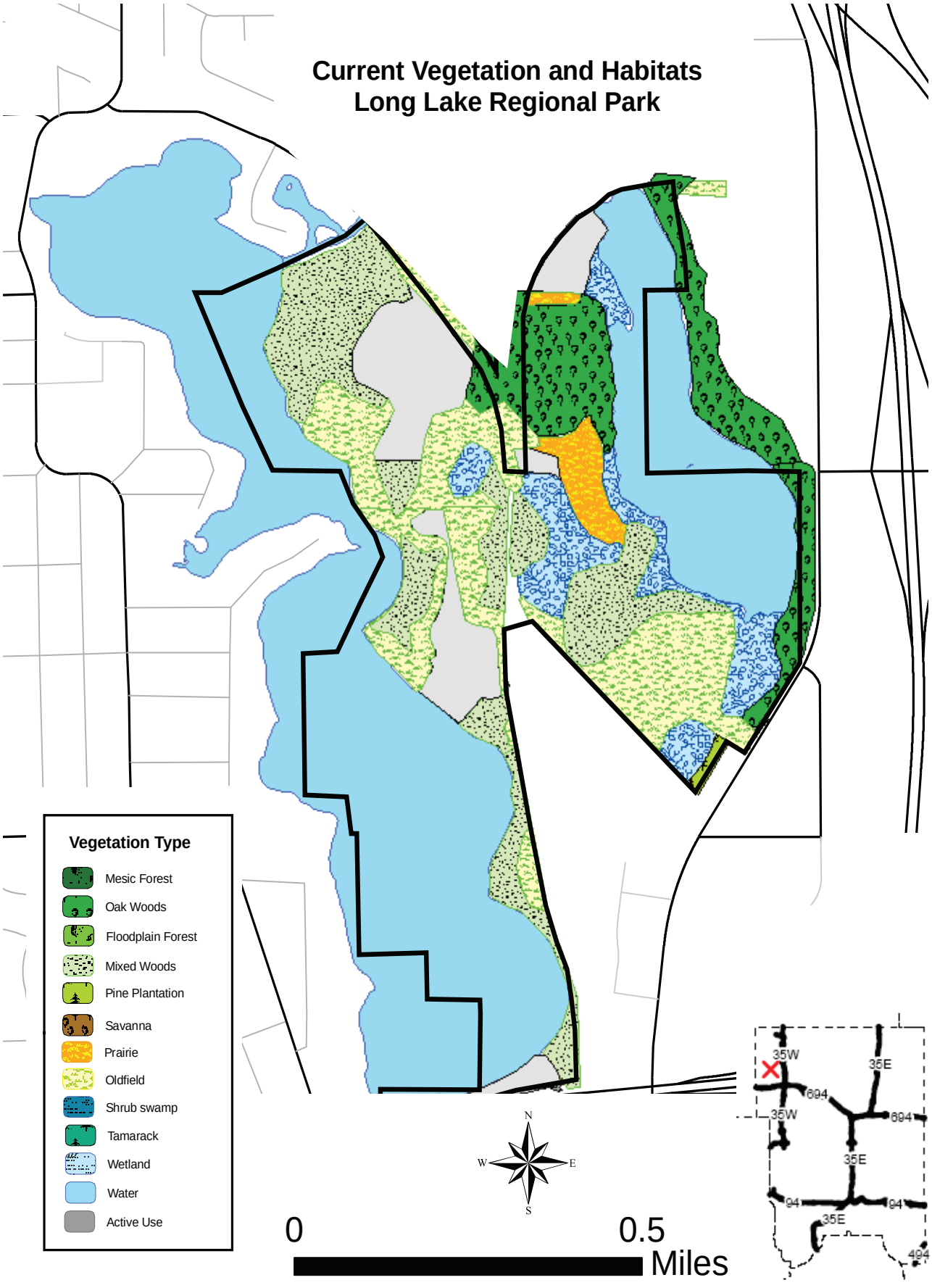
Wildlife

The park hosts a diverse variety of wildlife. The park has a variety of nesting songbirds, waterfowl, raptors, and wild turkeys. Larger mammals include white-tailed deer, coyotes, red fox and raccoons.

Wildlife Management

Deer populations are annually surveyed. If needed the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with City of New Brighton.

Nest boxes are provided for wood ducks and eastern bluebirds.


Current Vegetation and Habitats
Long Lake Regional Park
Vegetation Type
Mesic Forest
Oak Woods
Floodplain Forest
Mixed Woods
Pine Plantation
Savanna
Prairie
Oldfield
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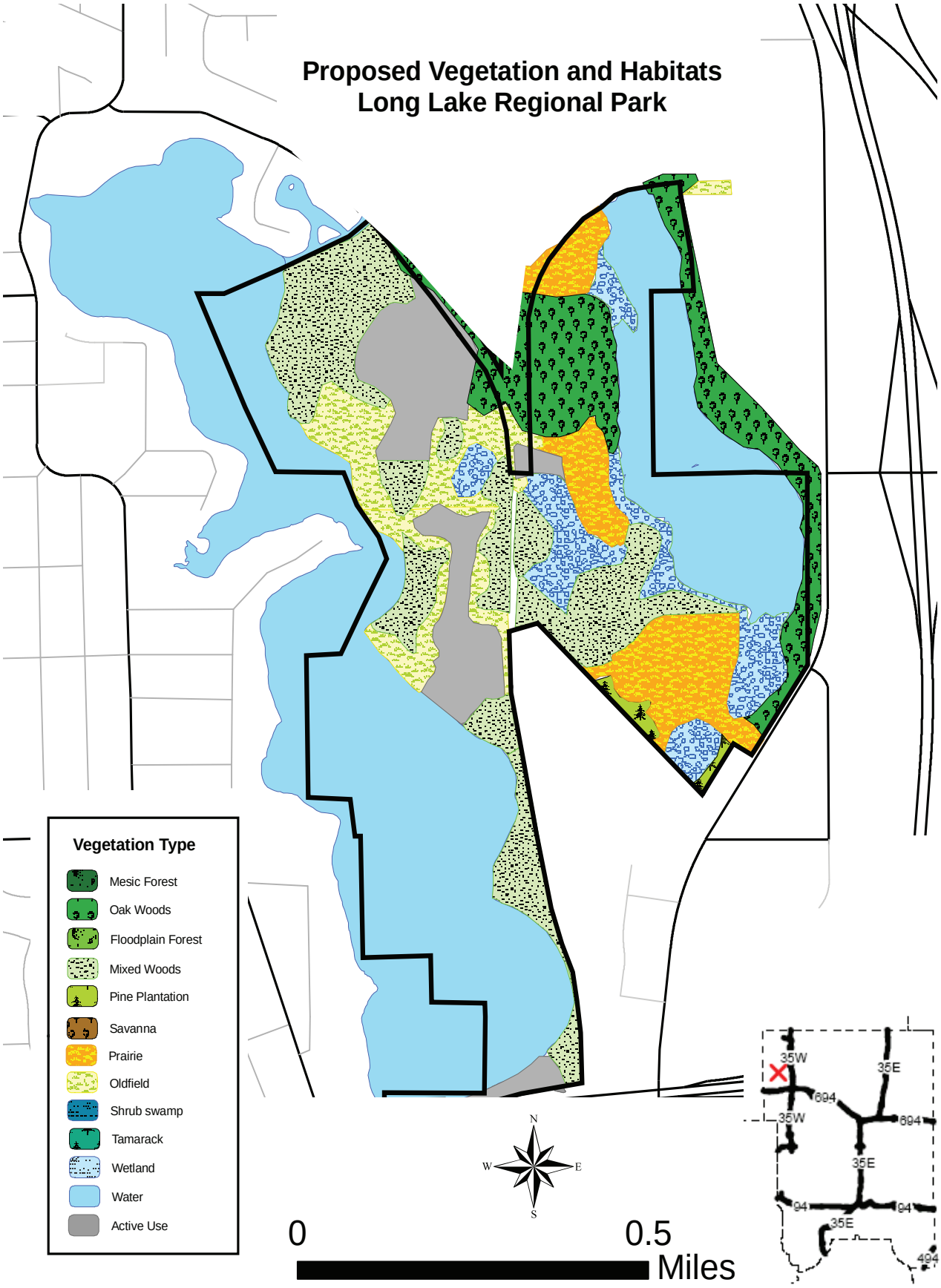
Proposed Vegetation and Habitats
Long Lake Regional Park
Vegetation Type
Mesic Forest
Oak Woods
Floodplain Forest
Mixed Woods
Pine Plantation
Savanna
Prairie
Oldfield
Shrub swamp
Tamarack
Wetland
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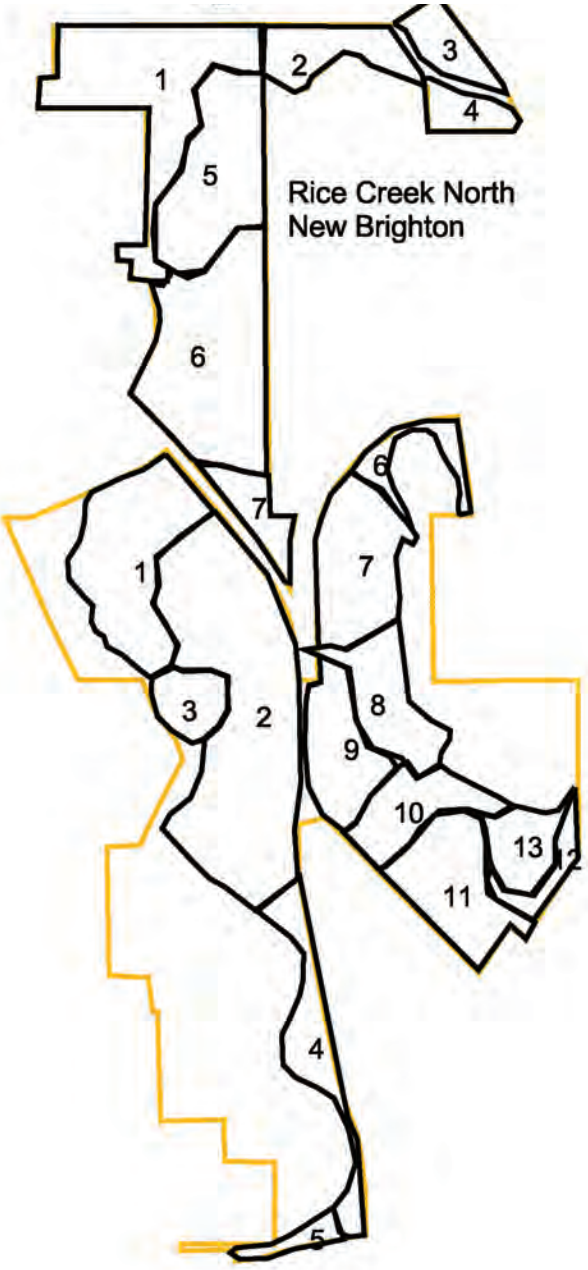
Management Units
Long Lake Regional Park



Long Lake Regional Park – Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
	1	4822.2	25.1	Mixed/wetland	Mixed/wetland	Monitor			
	2	7984.4	55.1	Active	Active				
	3	1992.6	6.5	Mixed	Mixed	Phase 1 – buckthorn	12	4	Monitor buckthorn
	4	6665.7	12.7	Mixed/oldfield	Mixed	Phase 1 – buckthorn	16	4	Monitor buckthorn
	5	2138.9	2.9	Active	Active				
	6	4316.4	5.1	Oldfield/mixed	Prairie/oak	Reseed/phase 1	12	3	Burn/monitor buckthorn
	7	3759.9	18.2	Oak	Oak	Phase 2	40	3	Burn/monitor buckthorn
	8	3915.2	12.8	Prairie	Prairie				burn
	9	3460.5	13.1	Wetland/mixed	Wetland/mixed	Monitor			
	10	3508.7	11.2	Mixed	Mixed	Phase 2	20	4	Monitor buckthorn
	11	3954.4	16.6	Oldfield	Prairie/?active	Reseed	25	3/?	burn
	12	3205.1	4.1	Oak	Oak	Phase 1	8	3	
	13	2708.4	7.7	Wetland	Wetland	Monitor			

Tony Schmidt Regional Park

Vegetation/habitats

The native vegetation of Tony Schmidt was oak woods, scattered savannas and extensive wetlands. Much of the native habitat is highly degraded. Current vegetation includes the natural habitats and planted prairies, oldfield and turf. Invasive species have become widespread. The most troublesome species are buckthorn and garlic mustard. Powerlines, which cut across the south half of the park and the north west portion of the park, are a continual problem because of the severe vegetation management used by the power company along their right of way. The east west railroad severely altered the historical wetland flowage

Vegetation Management

Ongoing vegetation management activities include buckthorn removal and prescribed burns of the planted prairie and oak woods.

Invasive species, especially black locust, are controlled on a variety of habitats with herbicides and biocontrol. The biocontrol efforts are done in partnership with the Minnesota Department of Agriculture and Minnesota Department of Natural Resources.

The oak woods and savannas are being managed to contain and control Oak Wilt.

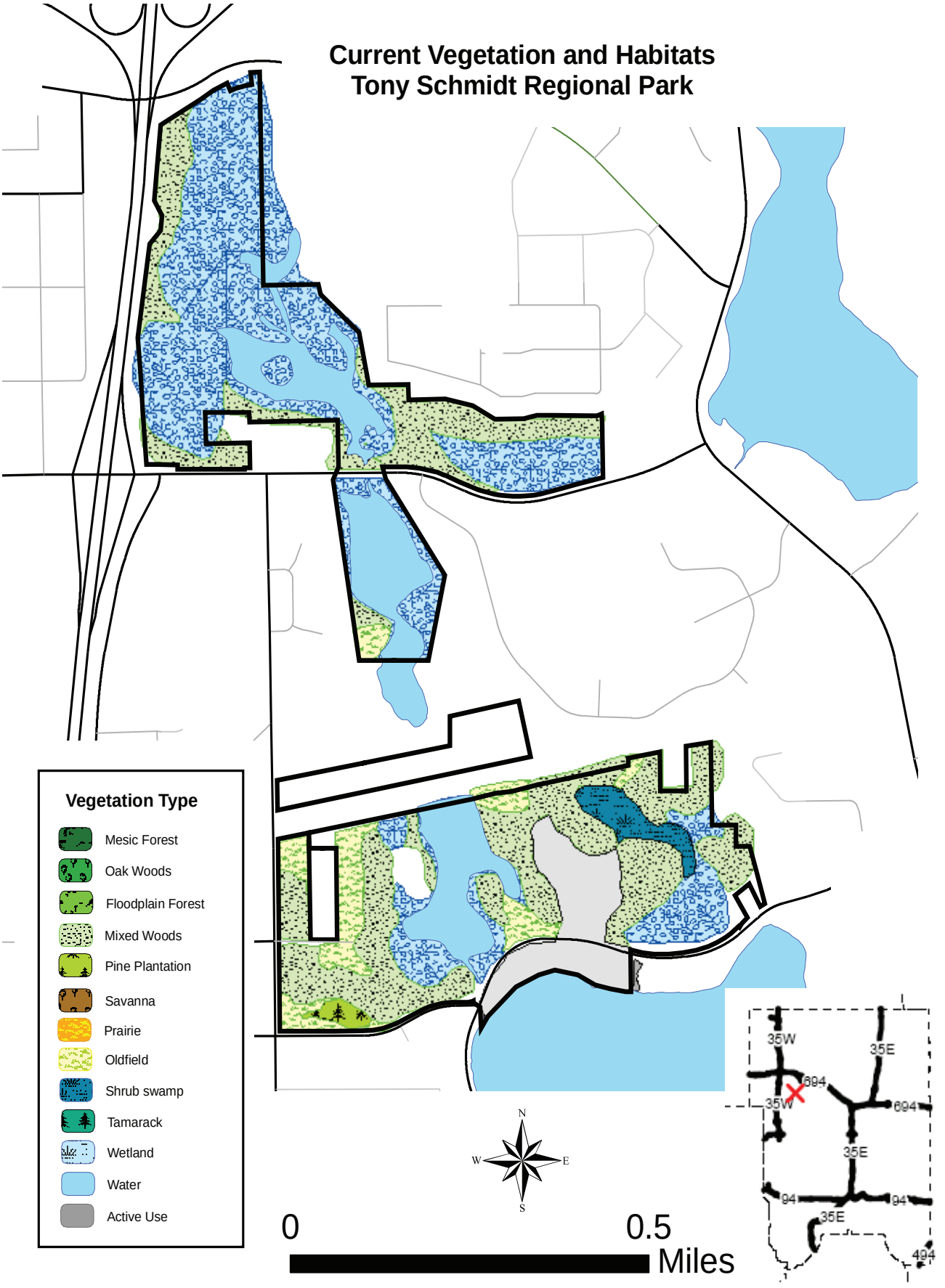
Wildlife

The park hosts a diverse variety of wildlife. The park has a variety of nesting songbirds, waterfowl, and raptors. Larger mammals include white-tailed deer, coyotes, red fox and raccoons.

Wildlife Management

Deer populations are annually surveyed. If needed the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with Arden Hills.

Nest boxes are provided for wood ducks and eastern bluebirds.


Current Vegetation and Habitats
Tony Schmidt Regional Park
Vegetation Type
Mesic Forest
Oak Woods
Floodplain Forest
Mixed Woods
Pine Plantation
Savanna
Prairie
Oldfield
Shrub swamp
Tamarack
Wetland
Water
Active Use
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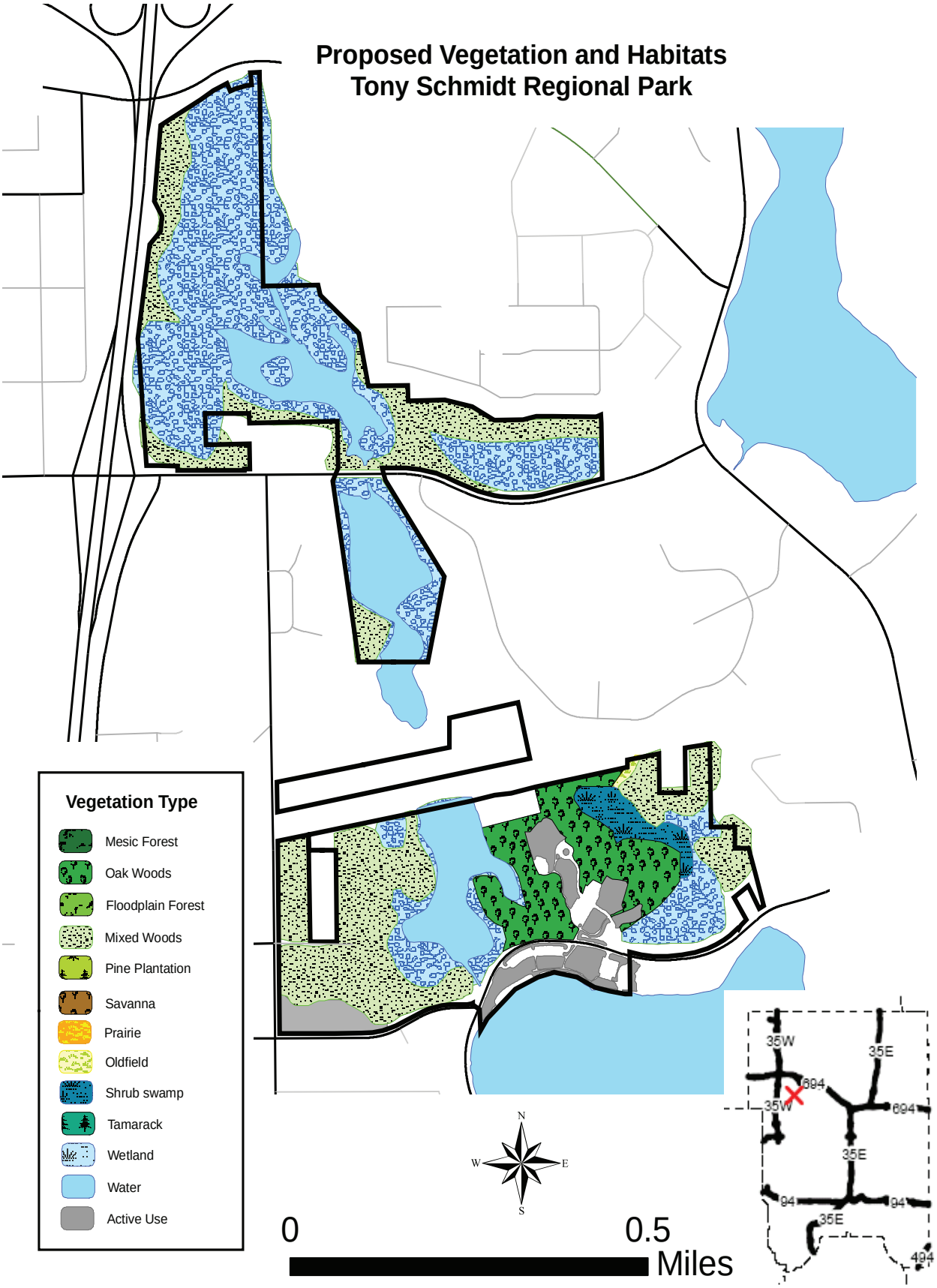
Proposed Vegetation and Habitats
Tony Schmidt Regional Park
Vegetation Type
Mesic Forest
Oak Woods
Floodplain Forest
Mixed Woods
Pine Plantation
Savanna
Prairie
Oldfield
Shrub swamp
Tamarack
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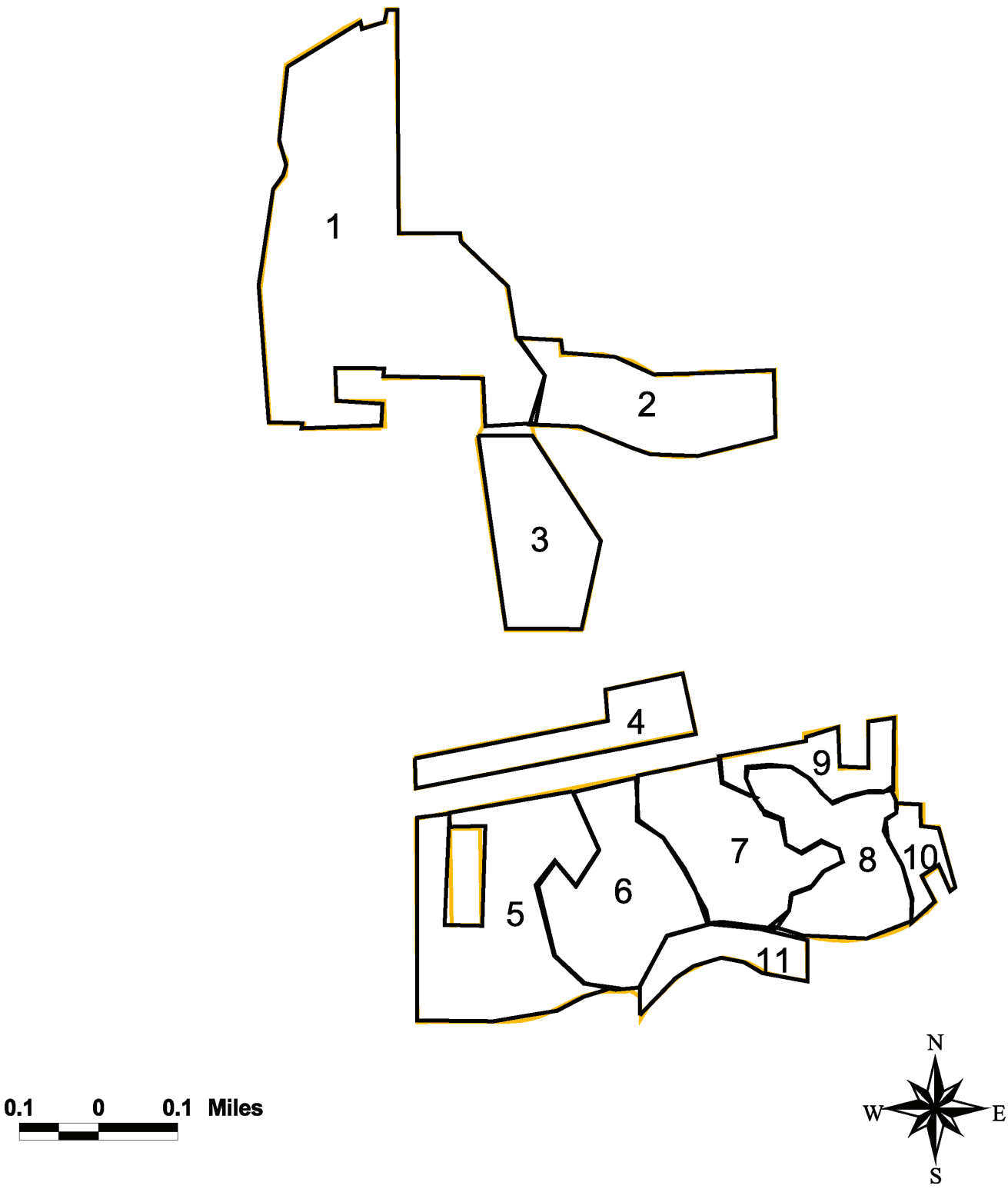
Management Units
Tony Schmidt Regional Park



Tony Schmidt Regional Park – Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
	1	9843.0	65.9	Wetland/mixed	Wetland/mixed	Phase 1	8	4	Monitor buckthorn
	2	4580.3	19.2	Wetland/mixed	Wetland/mixed	Phase 1	20	4	Monitor buckthorn
	3	3597.3	16.8	Wetland/mixed	Wetland/mixed	Phase 1	6	4	Monitor buckthorn
	4	4553.3	11.1	Wetland/oak	Wetland/oak	Phase 1	12	3	Monitor buckthorn
	5	7810.5	29.0	Oldfield/pine/ active	Mixed/active	Phase 1	30	4	Monitor buckthorn
	6	4472.5	20.5	Wetland	Wetland	Monitor			
	7	4157.0	18.6	Oak savannah/ active	Oak savannah/ active	Phase 3	15	2	Burn/ Monitor buckthorn
	8	4797.0	16.7	Wetland	Wetland	Monitor			
	9	3936.7	6.9	Mixed	Oak	Phase 1&2	10	3	Monitor buckthorn
	10	2476.2	4.0	Mixed	Mixed	Buffer			

Vadnais-Snail Lakes Regional Park

Vegetation/habitats

The native vegetation of Vadnais-Snail Lakes Regional Park was a mixture of oak woods, oak savannas and extensive wetlands. Current vegetation includes the native habitats plus old fields, mixed woods and extensive conifer plantations. The unique habitats are the Sucker Lake fen and Grass Lake wetlands. The Grass Lake Unit is a Minnesota Department of Natural Resources high quality wetland surrounded by Oak Savanna remnants. The Sucker Lake Unit also has high quality fens which provide habitat for several species of orchids.

Invasive species have become widespread. The most troublesome species are buckthorn and garlic mustard. Powerlines, running east-west along the County Road F alighment, are a continual problem because of the severe vegetation management used by the power company along thier right of way.

Vegetation Management

Ongoing vegetation management is limited to the Grass and Snail Lake units. St. Paul Regional Water manages the natural resources of the Sucker and Vadnais Lakes units. This includes limited logging and buckthorn removal in the sucker and Vadnais Lakes Units.

Management activities on the Grass and Snail Lake units include buckthorn removal in the woodlands and prescribed burns of the old field to stimulate native grass.

Wildlife

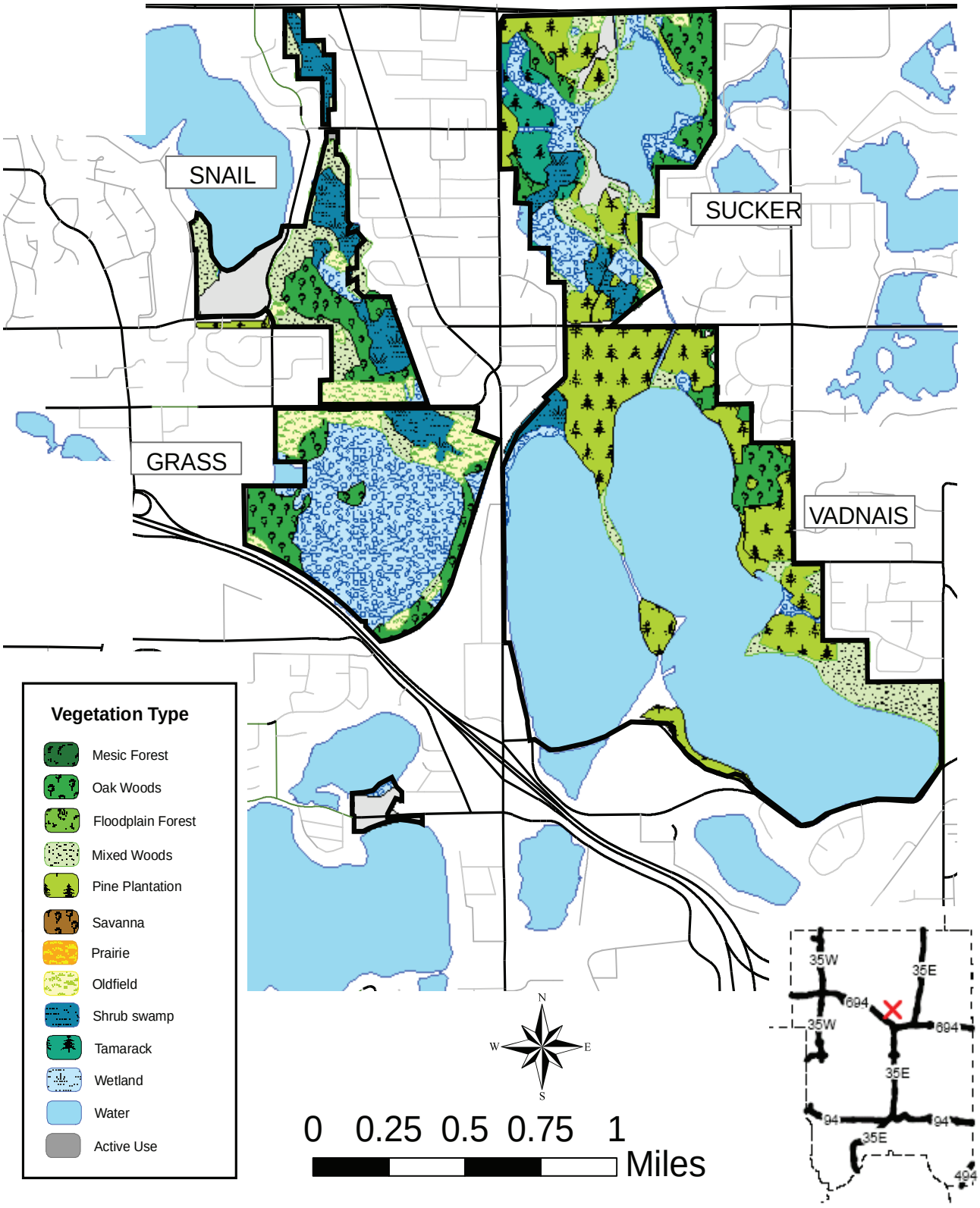
The park hosts a diverse variety of wildlife. Grass Lake wetlands are an important waterfowl nesting and migration area. The Vadnais Lake unit is an important migration stop for waterfowl. Other wildlife includes nesting songbirds, waterfowl, raptors, and wild turkeys. Larger mammals include white-tailed deer, coyotes, red fox and raccoons. Blanding's Turtles have been found on the Grass Lake Unit.

Wildlife Management

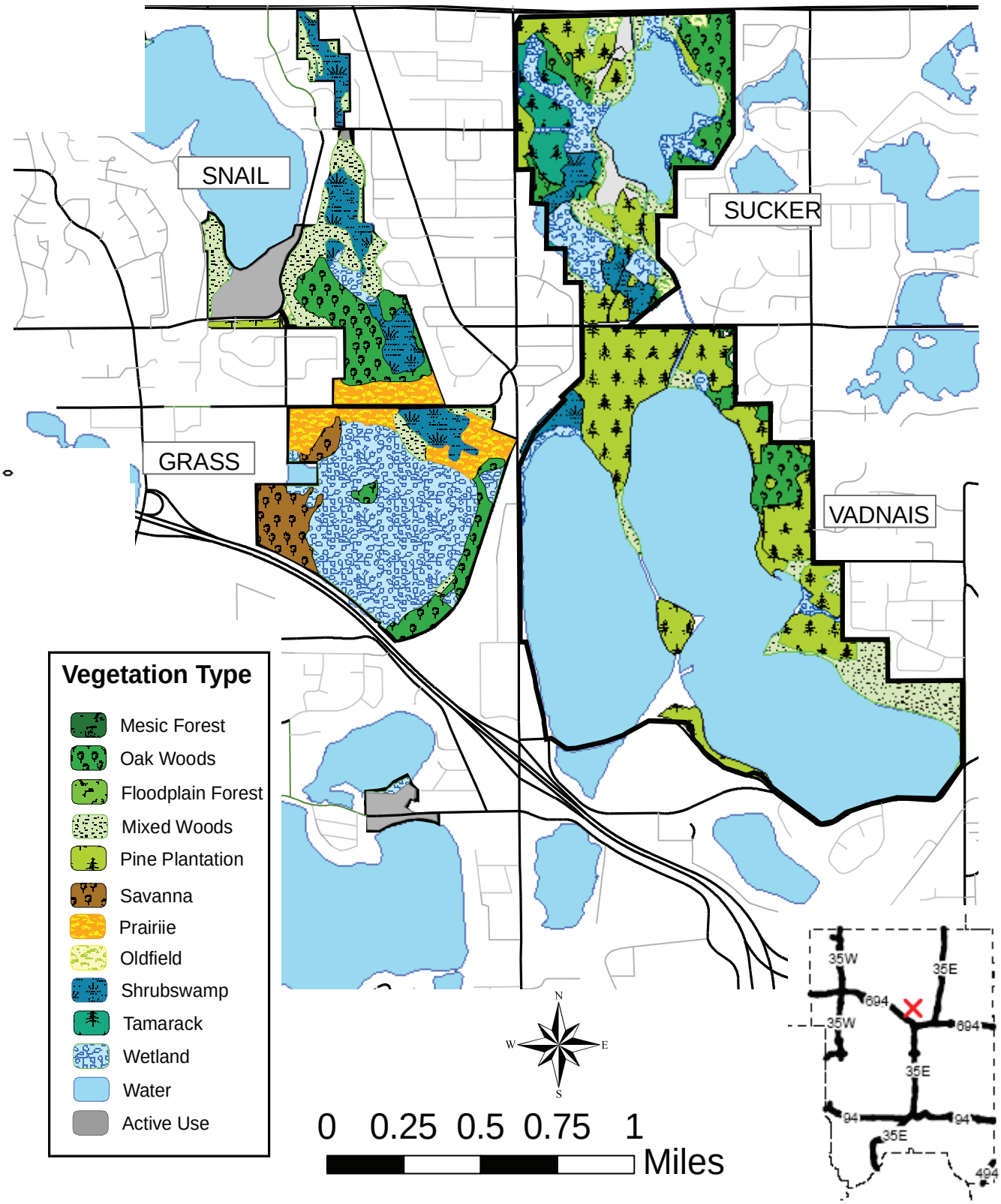
Wildlife management in the park involves the control of white-tailed deer populations. Deer are managed using special hunts under the Ramsey County Cooperative Deer Plan in partnership with Cities of Shoreview and Vadnais Heights.

Nest boxes are provided for wood ducks and eastern bluebirds. Ospreys nest on a pole in the Grass Lake Unit.

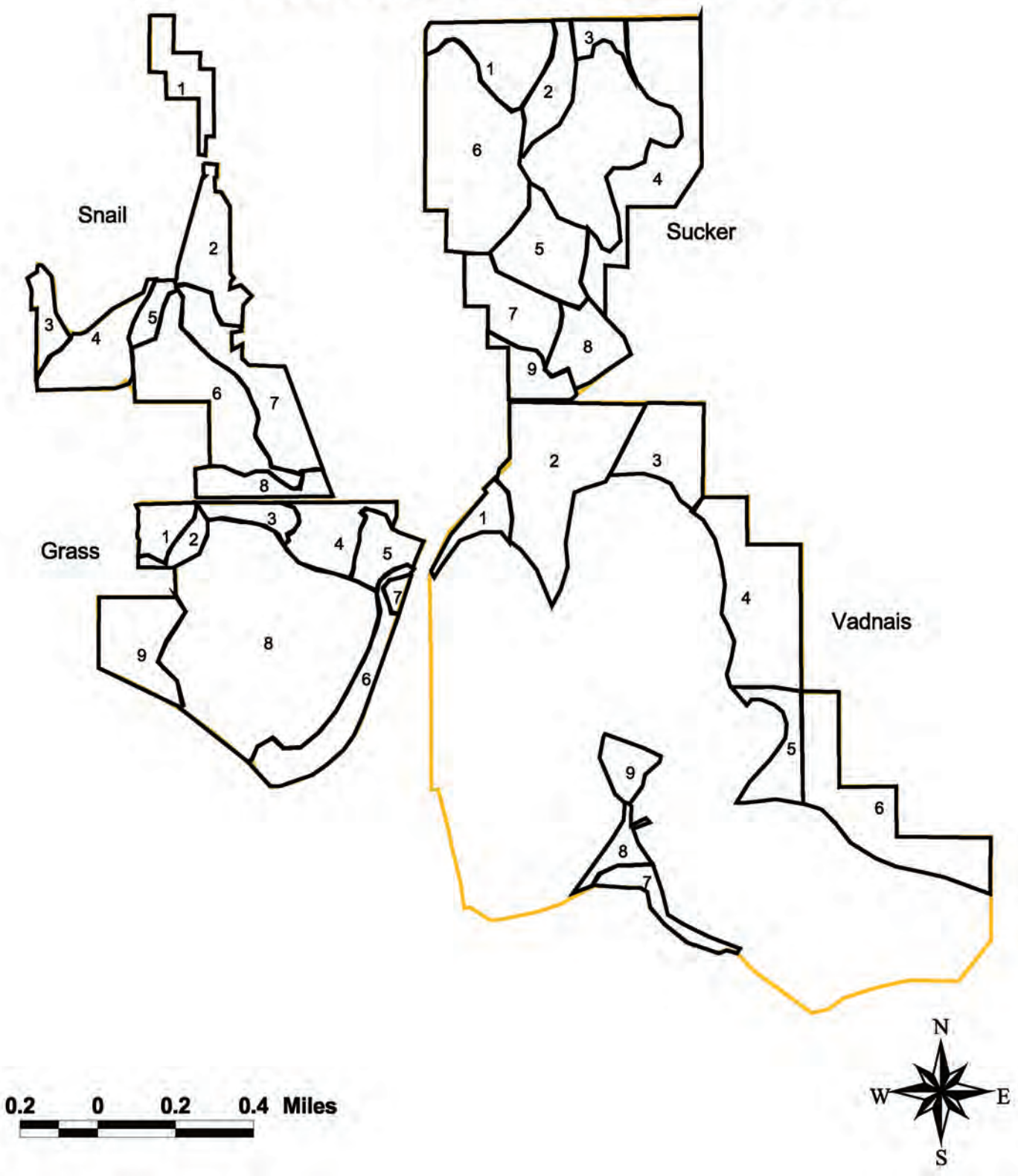
Current Vegetation and Habitats
Vadnais-Snail Lakes Regional Park



Proposed Vegetation and Habitats
Vadnais-Snail Lakes Regional Park



Management Units
Vadnais-Snail Lakes Regional Park



Vadnais Snail Lakes Regional Park – Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
Grass	1	2874.9	10.4	Oldfield/prairie	Prairie	Remove trees/ overseed	10	1	burn
Grass	2	3106.9	6.5	Mixed/oak	Oak	Phase 1&2	15	2	Monitor buckthorn
Grass	3	3438.7	9.0	Oldfield	Prairie	Remove trees/ reseed	12	2	burn
Grass	4	5233.9	20.8	Shrub swamps	Shrub swamp	Phase 1	30	3	Monitor buckthorn
Grass	5	3443.4	13.6	Oldfield/prairie	Prairie	Overseed	10	2	burn
Grass	6	8666.2	27.4	Oak	Oak	Phase 1&2, erosion control	30	3	Monitor buckthorn/ burn
Grass	7	1466.2	2.6	Wetland	Wetland	Monitor			
Grass	8	10191.9	147.9	Wetland	Wetland	Monitor			
Grass	9	5035.4	28.2	Oak	Oak	Phase 1&2, burn			Monitor buckthorn/ burn
Snail	1	5518.1	16.7	Mixed/wetland	Mixed/wetland	Phase 1	20	4	
Snail	2	5906.8	24.4	Mixed/wetland	Mixed/wetland	Phase 1	10	3	
Snail	3	3565.0	9.5	Mixed	Mixed	Buffer			
Snail	4	5180.0	24.2	Active	Active				
Snail	5	2514.2	6.3	Mixed	Mixed	Phase 1	12	3	Monitor buckthorn
Snail	6	8557.7	45.1	Oak	Oak	Phase 1&2/burn	75	2	Monitor buckthorn/ burn
Snail	7	7814.3	34.2	Mixed/wetland	Mixed/wetland	Phase 1&2	45	3	Monitor buckthorn
Snail	8	4690.7	13.5	Oldfield	Prairie	Reseed	16	3	burn
Sucker	1	5288.9	27.8	Pine/oak	Pine/oak	Managed by St. Paul Regional Water			
Sucker	2	4395.3	15.8	Active	Active				
Sucker	3	3332.5	7.4	Wetland	Wetland				
Sucker	4	12393.7	56.0	Mixed/oak	Oak				
Sucker	5	4868.5	28.9	Mixed/pine/active	Oak/pine				
Sucker	6	7680.6	69.1	Wetland/shrub sw	Wetland/shrub				
Sucker	7	4833.7	24.4	Pine/mixed	Pine/oak				
Sucker	8	3988.3	18.9	Pine/oak	Pine/oak				

Vadnais Snail Lakes Regional Park – Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
Sucker	9	3927.8	12.0	Pine/oak	Pine/oak	Managed by St. Paul Regional Water			
Vadnais	1	4004.2	9.9	Shrub swamp	Shrub swamp				
Vadnais	2	8191.5	63.4	Pine/mixed	Pine/oak				
Vadnais	3	4717.3	26.6	Pine/oak	Pine/oak				
Vadnais	4	7744.8	54.0	Pine/oak	Pine/oak				
Vadnais	5	5761.3	17.5	Pine	Pine				
Vadnais	6	9720.7	50.9	Pine/oak	Pine/oak				
Vadnais	7	5182.4	11.0	Pine	Pine				
Vadnais	8	4150.6	8.2	Active	Active				
Vadnais	9	2729.1	10.2	Pine/active	Pine/active				

Rice Creek North Regional Trail Corridor

Vegetation/habitats

The nativevegetation of Rice Creek North Regional Trail is extensive floodplain wetlands with scattered oak woods, mixed woods and prairies. Much of the native vegetation has been highly degraded from past agricultural use and channelization of Rice Creek. Invasive species have become widespread. The most troublesome species are reed canary grass. Current vegetation is mainly oldfield and wetlands with remnants of the natural habitats. The trees and willows have greatly increased in density in the floodplain wetlands. There is also a restored prairie in the park. Rice Creek meanders have been restored in the Shoreview Segment of the trail corridor.

Vegetation Management

The prairie is maintained with prescribed fire. Invasive species are controlled on a variety of habitats with herbicides and bio-control. The bio-control efforts are done in partnership with the Minnesota Department of Agriculture and the Minnesota Department of Natural Resources.

Forty-nine acres of the Rice Creek North Regional Trail within the City of Arden Hills will be transferred to Ramsey County as part of the TCAAP redevelopment. To guide any restoration of the site by the City and its developer prior to transfer, the County has prepared a site restoration plan (Appendix 7) that has been approved by the Arden Hills City Council and incorporated into this plan.

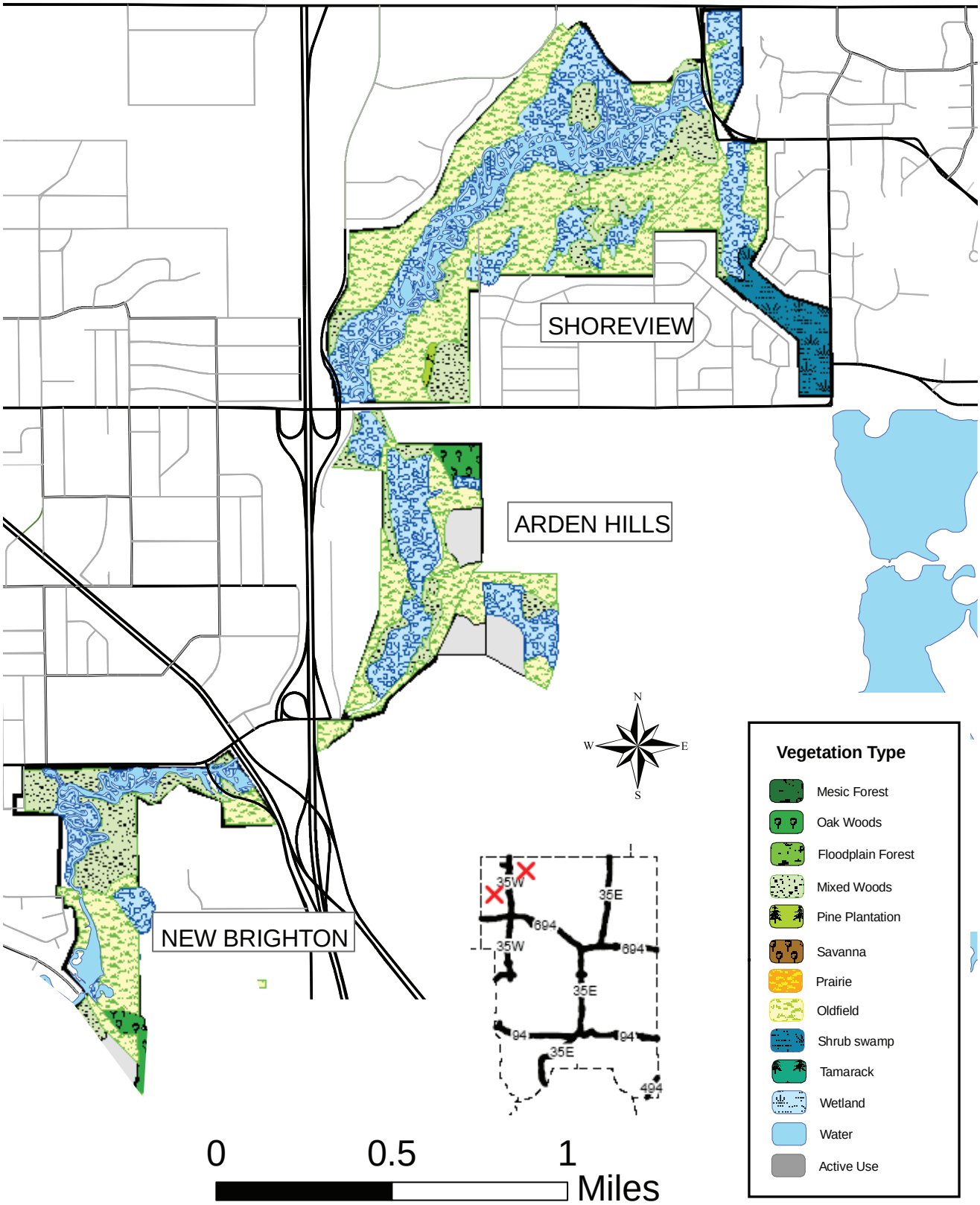
Wildlife

The park hosts a diverse variety of wildlife. The park has a variety of nesting songbirds, waterfowl and raptors. Larger mammals include white-tailed deer, otter, coyotes, red fox and raccoons.

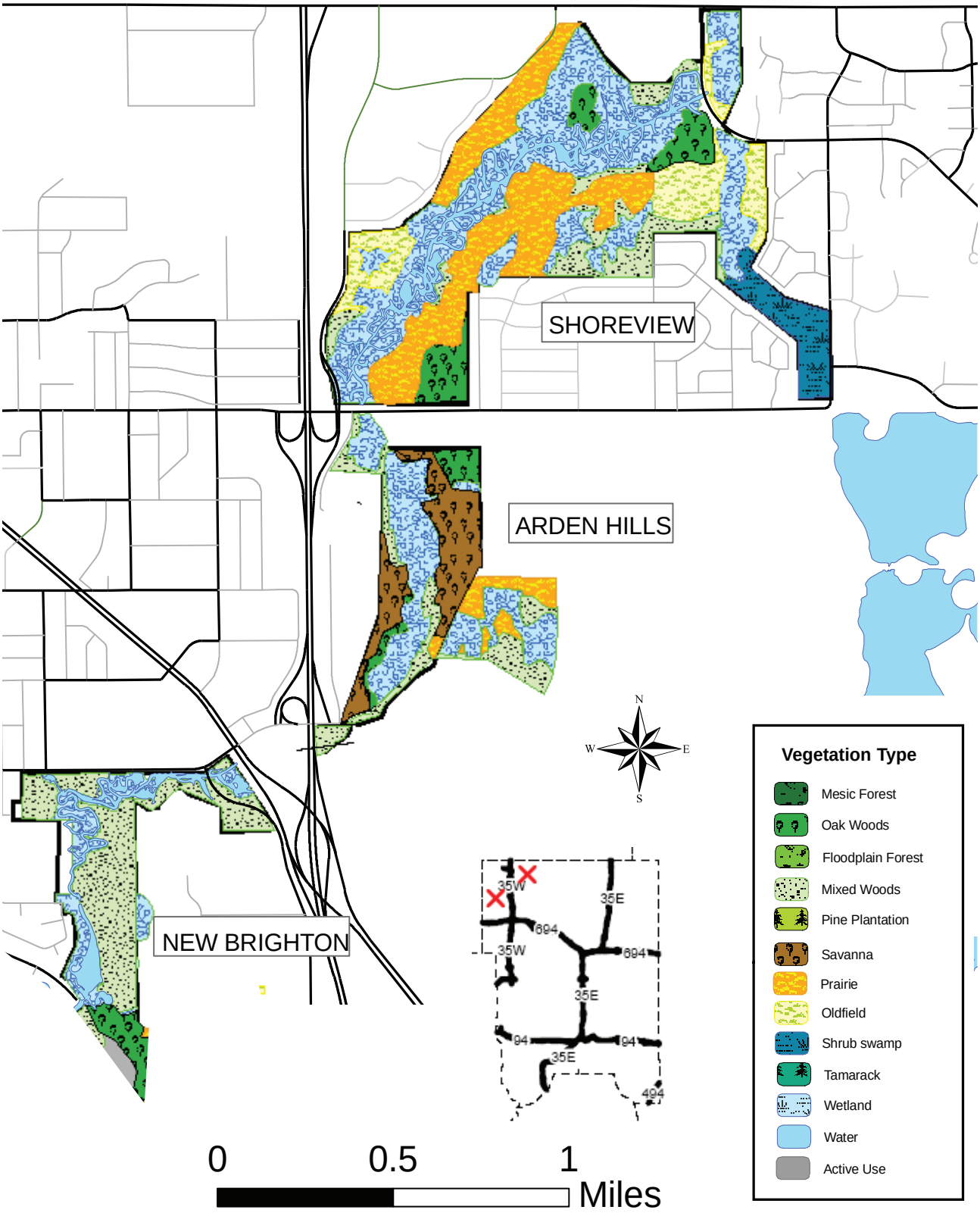
Wildlife Management

Deer populations are annually surveyed. If needed, the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with New Brighton, Mounds View, Arden Hills and Shoreview. Nest boxes are provided for wood ducks and eastern bluebirds.

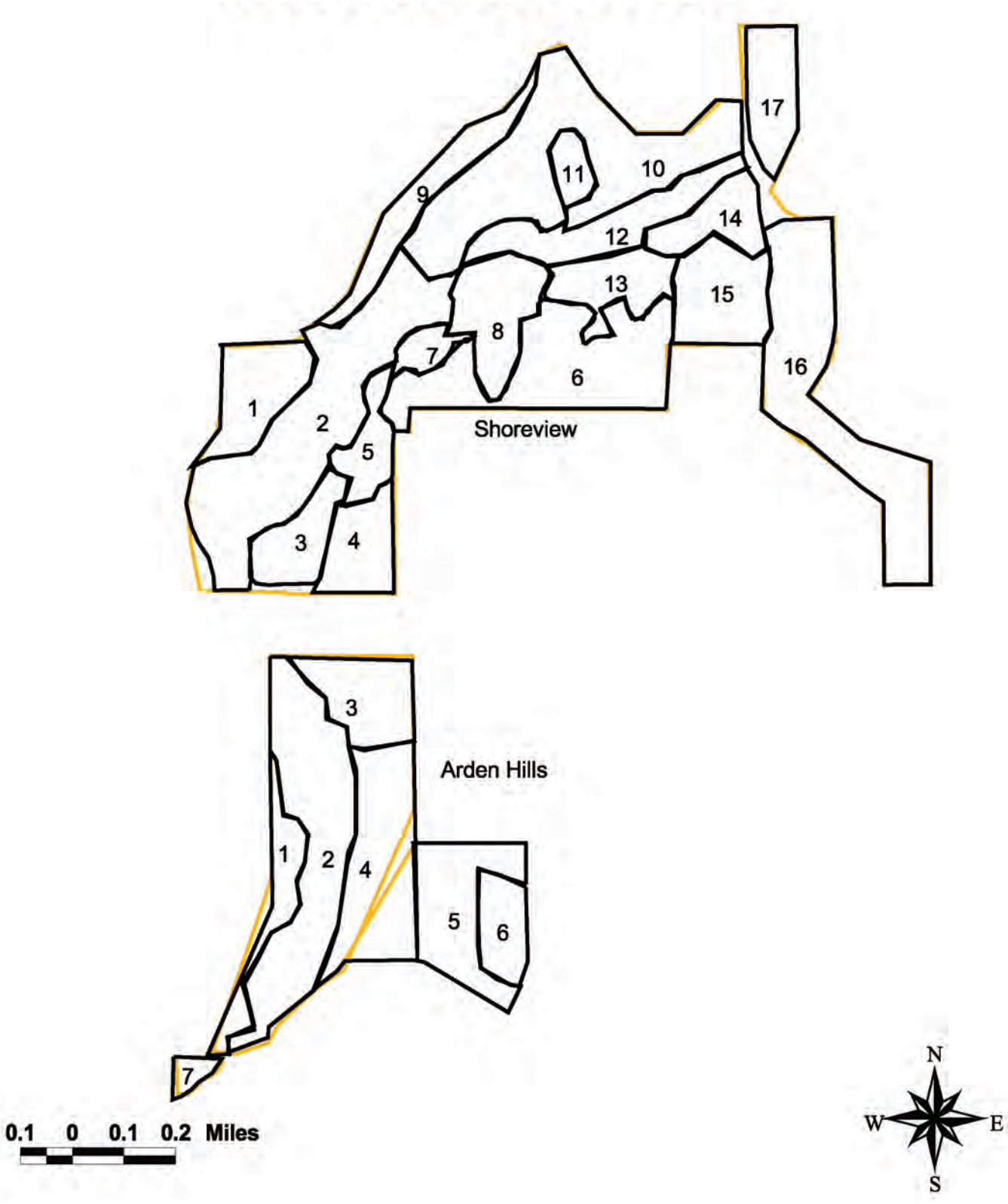
Current Vegetation and Habitats
Rice Creek North Regional Trail



Proposed Vegetation and Habitats
Rice Creek North Regional Trail



Management Units
Rice Creek North Regional Trail



Rice Creek North Regional Trail - Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
Arden Hills	1	7201.2	13.5	Oldfield	Prairie/Savanna	Reseed/plant trees	18	3	Burn/tree care
Arden Hills	2	9677.4	51.3	Wetland	Wetland	Monitor			
Arden Hills	3	3924.0	18.6	Oldfield/oak	Oak/Savanna	Phase 2/plant trees	50	3	Burn/monitor buckthorn
Arden hills	4	6642.0	35.9	Active/oldfield	Prairie/Savanna	Reseed/plant trees	70	3	
Arden hills	5	6113.2	26.0	Active/oldfield	Prairie/Wetland	Reseed/soil work	50	3	
Arden Hills	6	2965.5	11.5	Wetland/mixed	Wetland.mixed	Phase 1/monitor	8	4	Monitor buckthorn
Arden Hills	7	1593.6	2.9	Mixed/wetland	Mixed/wetland	Buffer			
New Brighton	1	8066.1	29.6	Mixed/wetland	Mixed/wetland	Monitor			
New Brighton	2	3455.7	9.6	Mixed/wetland	Mixed/wetland	Monitor			
New Brighton	3	2497.2	6.6	Mixed/wetland	Mixed/wetland	Monitor			
New Brighton	4	2089.7	5.0	Mixed/wetland	Mixed/wetland	Monitor			
New Brighton	5	4425.2	22.9	Mixed/oak	Mixed/oak	Phase 1&2	60	3	Monitor buckthorn/burn
New Brighton	6	5480.1	34.2	Mixed/wetland	Mixed/wetland	Monitor			
New Brighton	7	2913.7	6.2	Oak	Oak	Phase 1&2	12	3	Monitor buckthorn
Shoreview	1	4264.8	19.1	Oldfield/wetland/ mixed	Oldfield/ .wetland/mixed	Monitor			
Shoreview	2	10485.2	64.4	Wetland	Wetland	Monitor			
Shoreview	3	3567.9	14.2	Prairie/oldfield	Prairie	Remove trees/overseed	15	1	Burn
Shoreview	4	3616.1	15.0	Oak	Oak	Phase 1&2, mustard cont.	35	4	Monitor bucktorn
Shoreview	5	3857.8	10.7	Oldfield	Prairie	Burn/overseed	10	1	Burn
Shoreview	6	10288.2	48.0	Mixed/wetland	Mixed/wetland	Phase 1	20	3	Monitor buckthorn
Shoreview	7	2480.4	5.4	Wetland	Wetland	Monitor			
Shoreview	8	4373.5	20.9	Prairie	Prairie	Invasive control	5	1	Burn
Shoreview	9	7345.8	18.2	Oldfield/prairie	Prairie	Overseed/invasive control	20	3	Burn
Shoreview	10	12302.2	65.7	Wetland	Wetland	Monitor			
Shoreview	11	2018.3	5.7	Mixed/oak	Oak	Phase 1/tree planting	22	3	Monitor buckthorn
Shoreview	12	6988.0	23.1	Mixed/wetland	Mixed/wetland	Phase 1	15	4	Monitor buckthorn
Shoreview	13	4810.3	16.0	Prairie	Prairie				Burn
Shoreview	14	3817.5	13.6	Mixed	Oak	Phase 1&2/tree planting	50	4	Monitor buckthorn/tree care

Rice Creek North Regional Trail - Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
Shoreview	15	3914.6	21.7	Oldfield	Oldfield	Currently OLDA			
Shoreview	16	10018.2	53.1	Wetland/oldfield	Wetland/ oldfield	Monitor			
Shoreview	17	3769.0	15.8	Wetland	Wetland	Monitor			

Highway 96 Regional Trail

Vegetation/habitats

The native habitat of the Snail Lake Marsh portion of the trail was a large wetland with cattails and shrub swamp bordered oak woods. Current vegetation includes degraded oak woods on the east side and oldfield to the north. The wetland is connected to Snail Lake and historically contained a large area of open water. There are some significant oak trees in the degraded woods.

Vegetation Management

The oak woods would require extensive buckthorn removal. Biocontrol beetles have been used on the leafy spurge plants found in the oldfield.

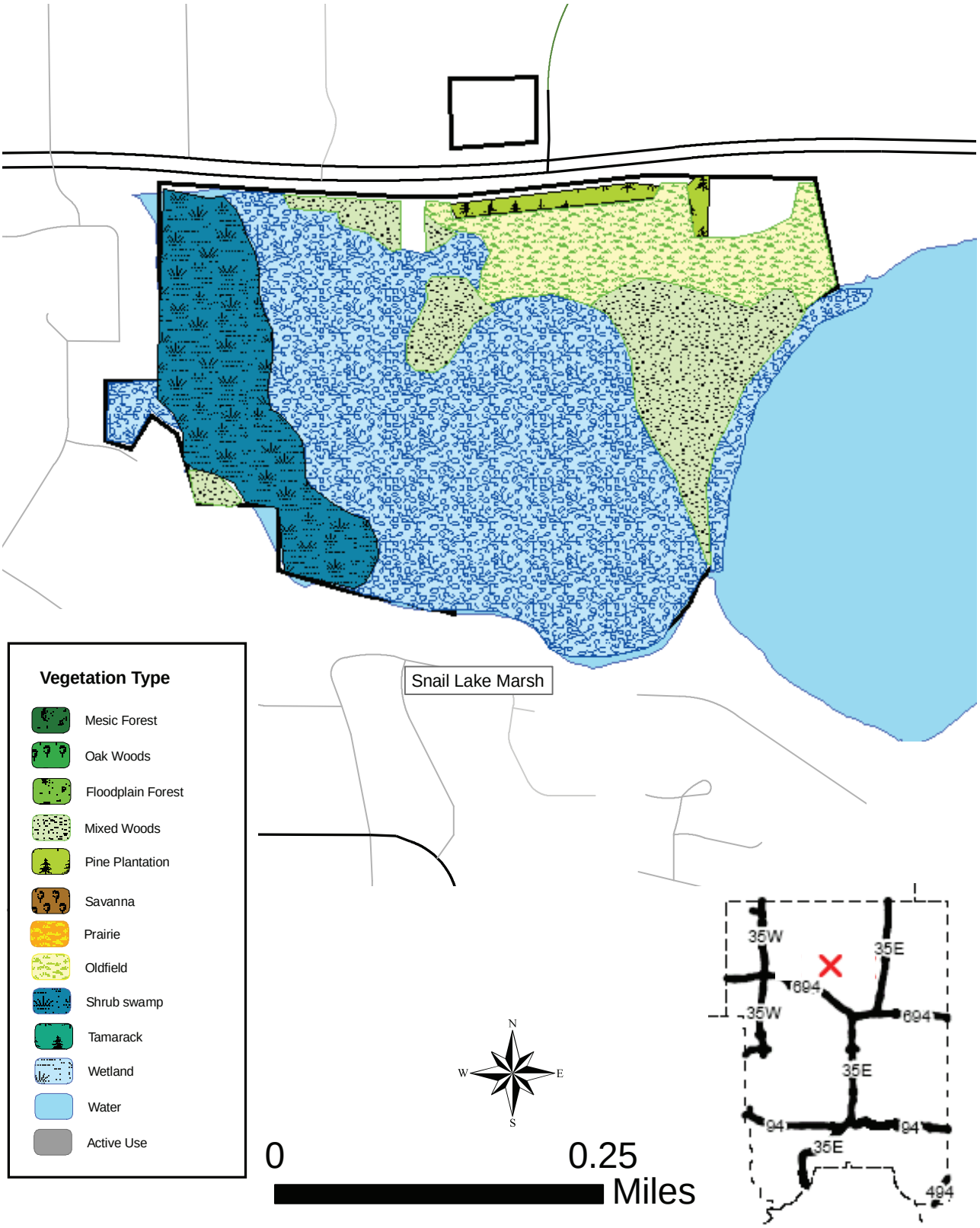
Wildlife

The park hosts a diverse variety of wildlife. The park has a variety of nesting songbirds, waterfowl and raptors. Larger mammals include white-tailed deer, red fox, beaver, and raccoons.

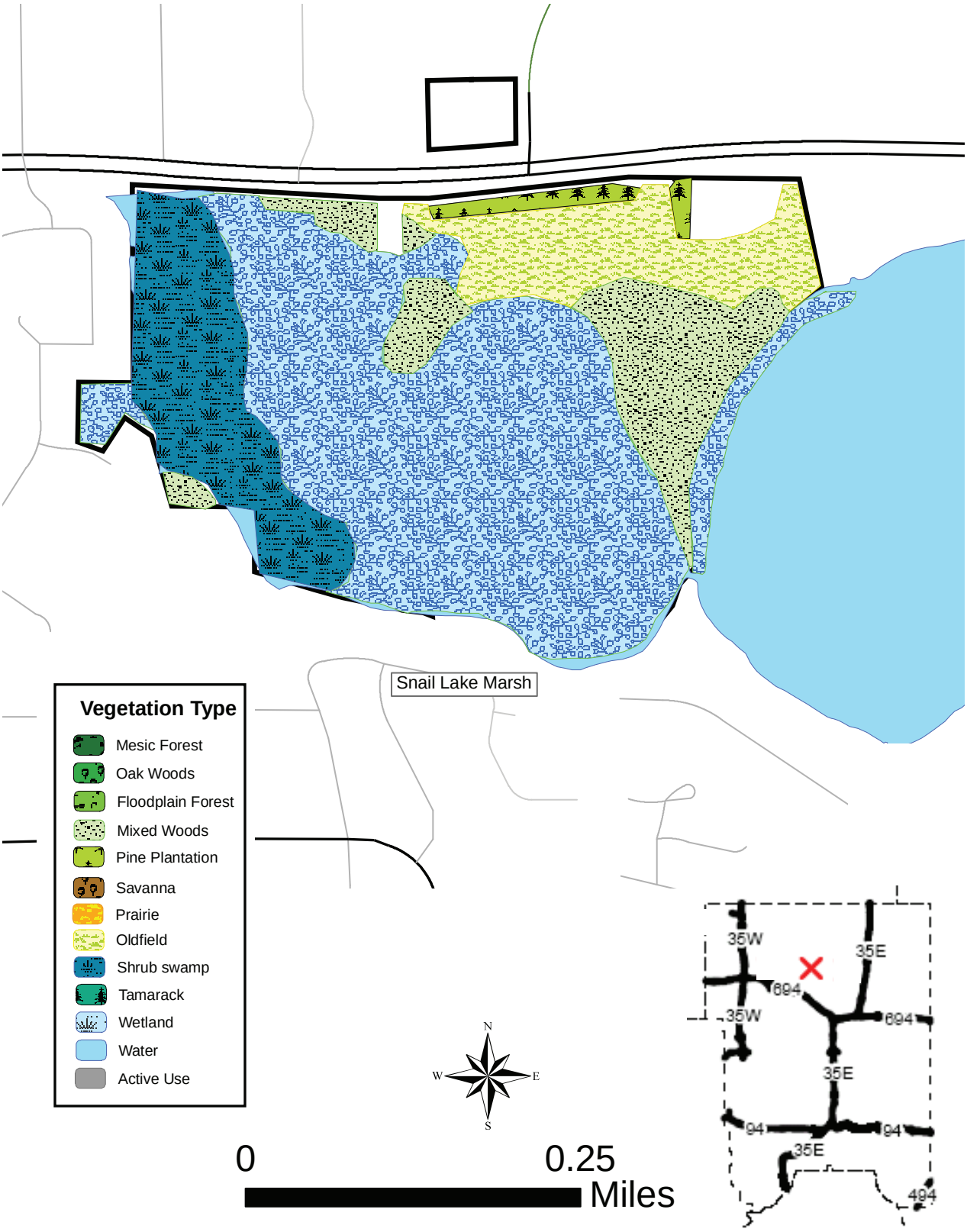
Wildlife Management

Deer populations are annually surveyed. If needed, the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with Shoreview. No management activities are planned for this property because of the small area suitable for deer removal.

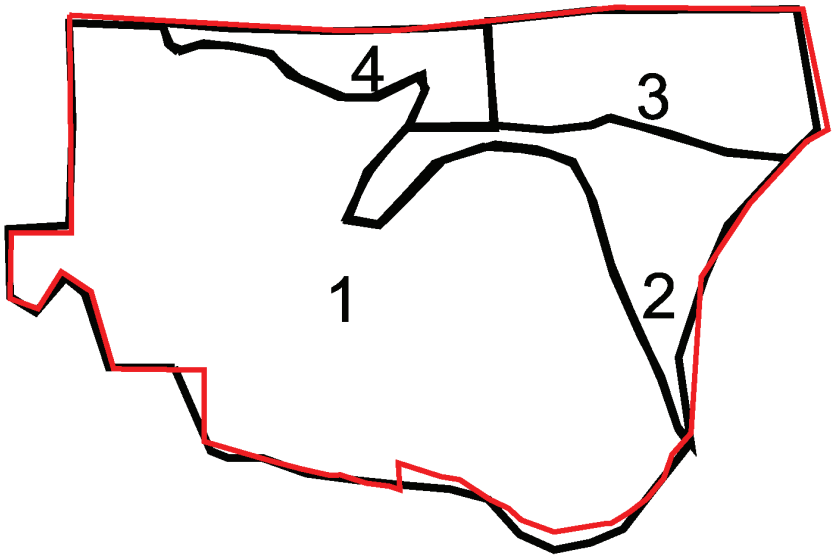
Current Vegetation and Habitats
Highway 96 Regional Trail

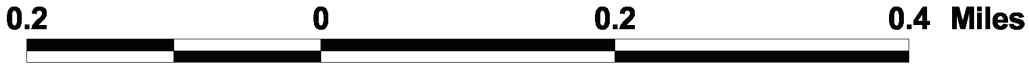


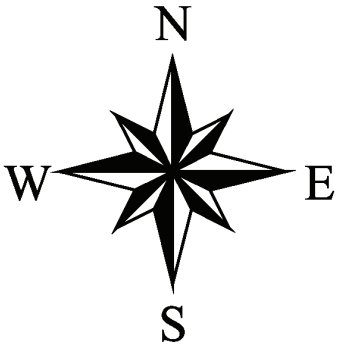
Proposed Vegetation and Habitats
Highway 96 Regional Trail



Management Units
Highway 96 Regional Trail







Highway 96 Regional Trail - Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
	1	8301.5	61.5	Wetland	Wetland	Monitor			
	2	4981.4	10.5	Mixed woods	Oak	Phase 1&2/overseeding	50	4	Monitor buckthorn
	3	3153.8	11.6	oldfield	oldfield	Monitor			
	4	3159.8	5.3	Oldfield/wetand	Oldfield/wetand	Montior			

Island Lake County Park

Vegetation/habitats

The native habitats are found in the southwest portion of the park. There are several areas of oak woods and open fields. The open fields are being invaded by Amur maple. There are several temporary wetlands in this portion.

Vegetation Management

There is no active management in this park. Maintaining the old field would require extensive tree removal and burning.

Wildlife

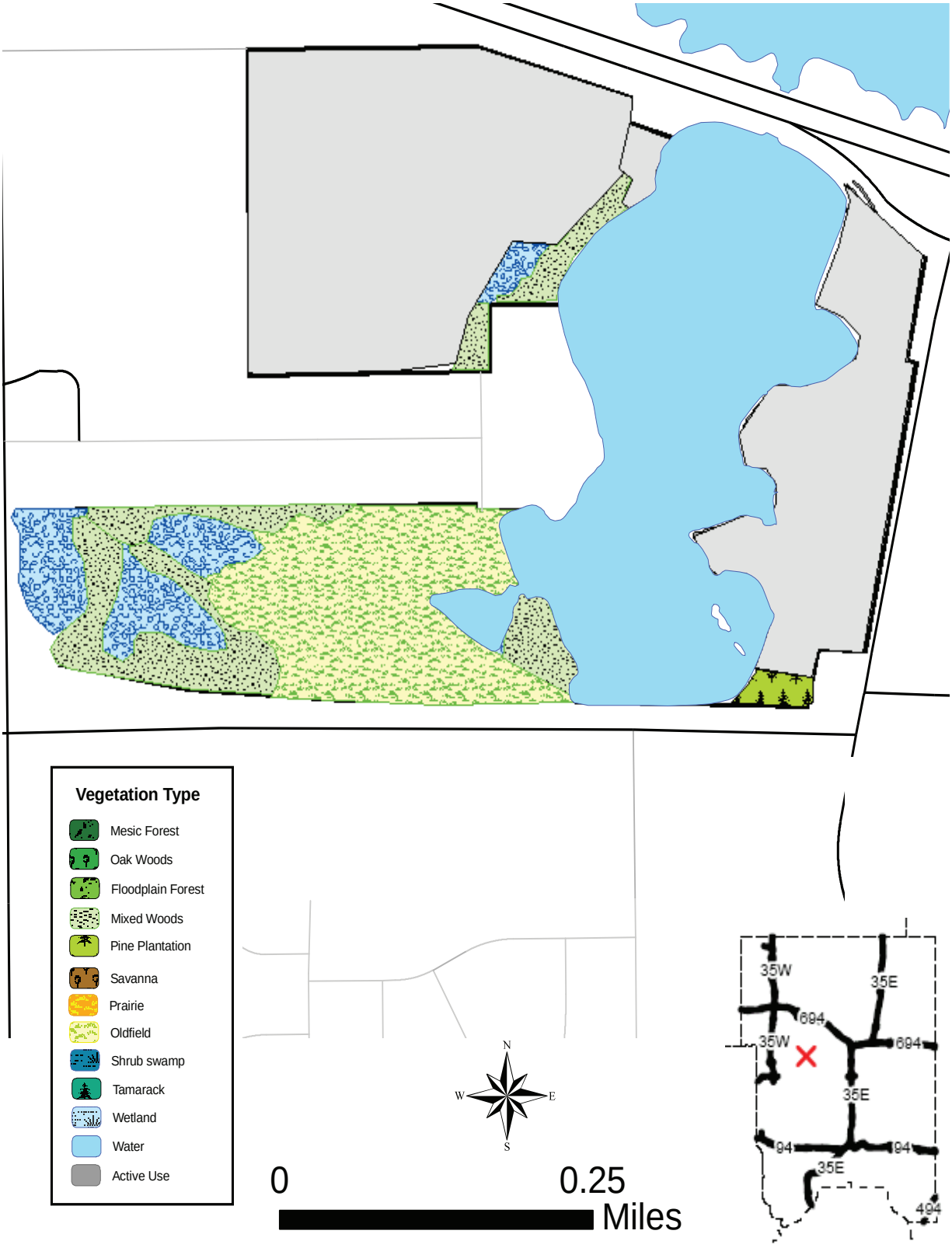
The park hosts a diverse variety of wildlife. The park has a variety of nesting songbirds, waterfowl and raptors. Larger mammals include white-tailed deer, red fox and raccoons. It is transitory habitat for deer

Wildlife Management

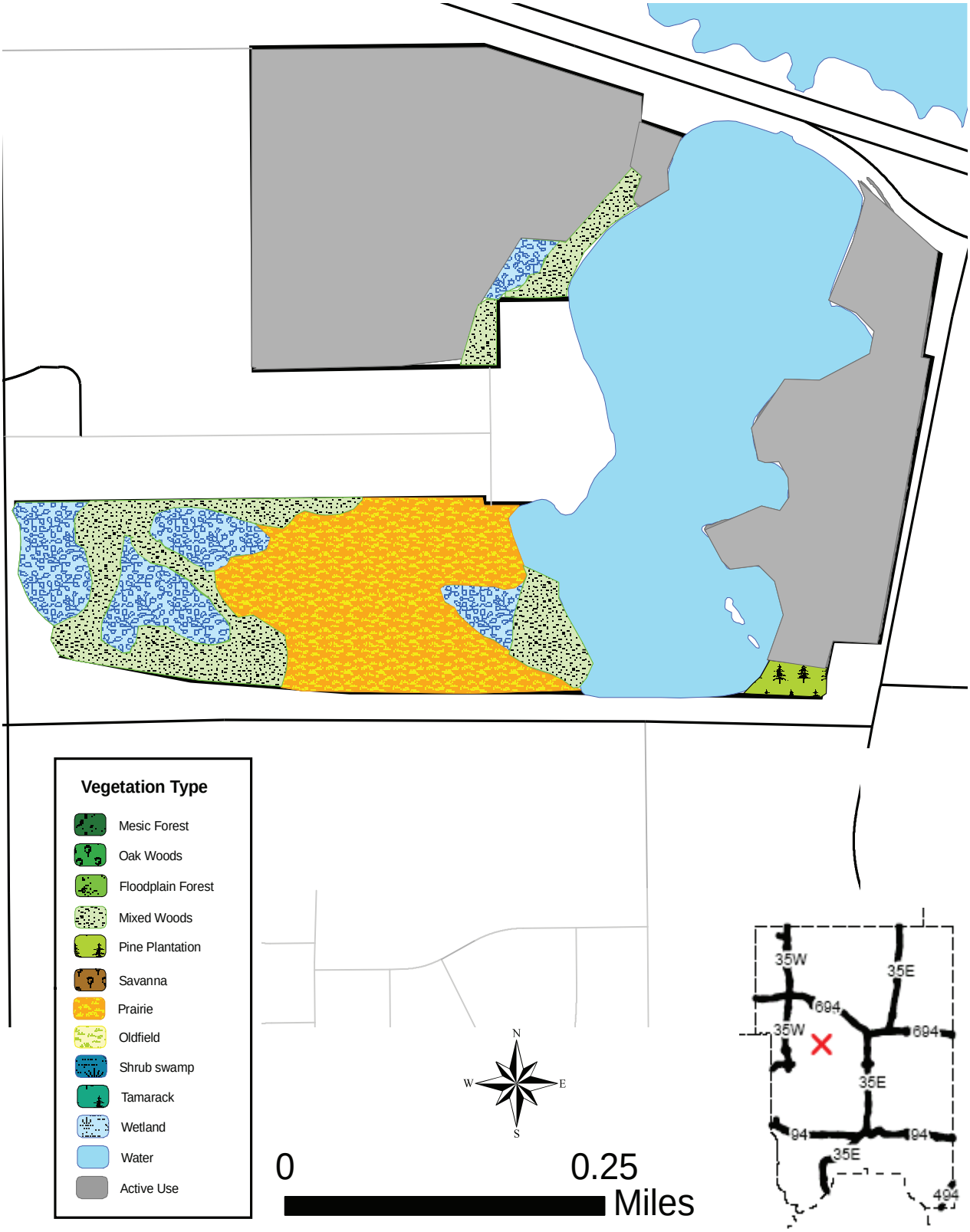
Deer populations are annually surveyed. If needed, the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with Shoreview. No management of deer is planned for this park because of the size.

The Canada goose population is monitored and roundups are conducted when numbers warrant it.

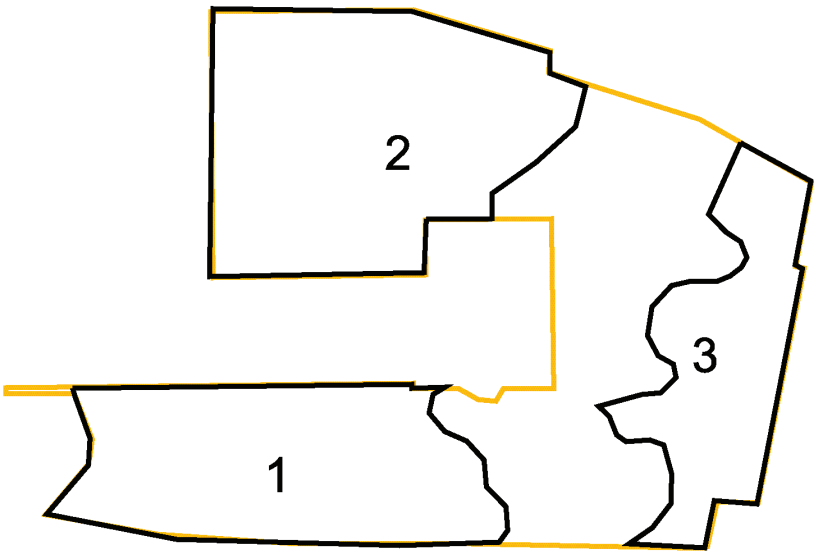
Current Vegetation and Habitats
Island Lake County Park



Proposed Vegetation and Habitats
Island Lake County Park



Management Units
Island Lake County Park



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Island Lake County Park - Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
	1	5563.3	31.2	Mixed/oldfield	Oak/prairie	Remove trees/reseed	65+	4	burning
	2	5573.7	40.5	Active	Active				
	3	5705.0	20.3	Active	Active				

Lake Josephine County Park

Vegetation/habitats

The native habitat of this park is a large wetland with open water, cattails, and shrub swamp bordered by a degraded oak woods on the east side. The wetland has had a long-term infestation of purple loosestrife which is currently in check through biocontrol beetles. A small prairie is found at the south end.

Vegetation Management

The prairie is maintained with burning and selective tree removal.

A large raingarden was installed at the south end of the main park. The garden was planted with native vegetation and will need to be maintained with weeding and occasional burns.

Wildlife

The park hosts a diverse variety of wildlife. The park has a variety of nesting songbirds, waterfowl and raptors. Larger mammals include white-tailed deer, red fox, beaver and raccoons. An active Osprey nest is located on the south end of Little Josephine Lake.

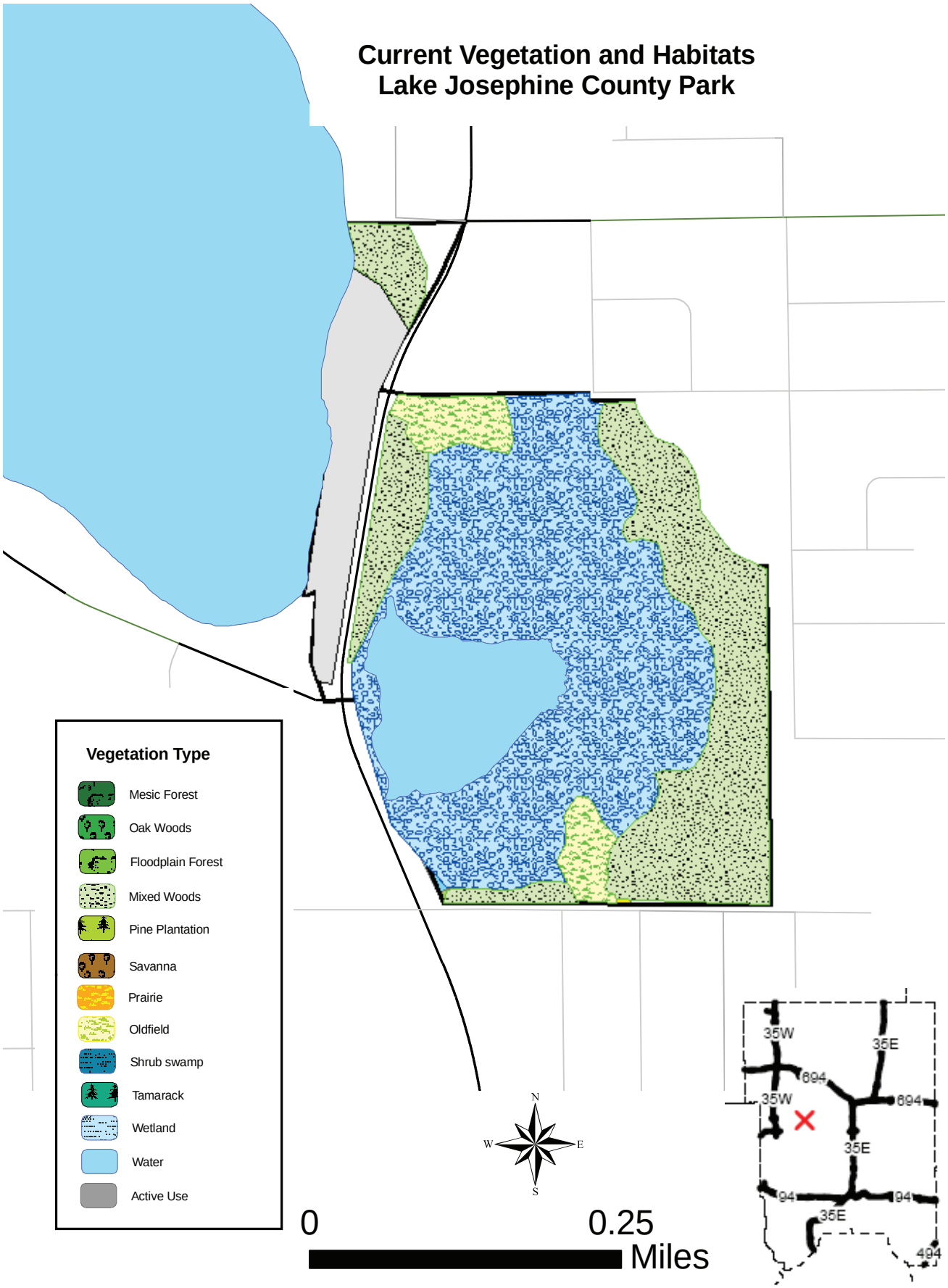
Wildlife Management

Deer populations are annually surveyed. If needed, the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with Roseville. No management activities are planned for this property.

The Canada goose population is monitored and roundups are conducted when numbers warrant it

Selective beaver control is occasionally needed when the outflow channel is blocked by their dams.

Nest boxes are provided for wood ducks and eastern bluebirds.


Current Vegetation and Habitats
Lake Josephine County Park
Vegetation Type
Mesic Forest
Oak Woods
Floodplain Forest
Mixed Woods
Pine Plantation
Savanna
Prairie
Oldfield
Shrub swamp
Tamarack
Wetland
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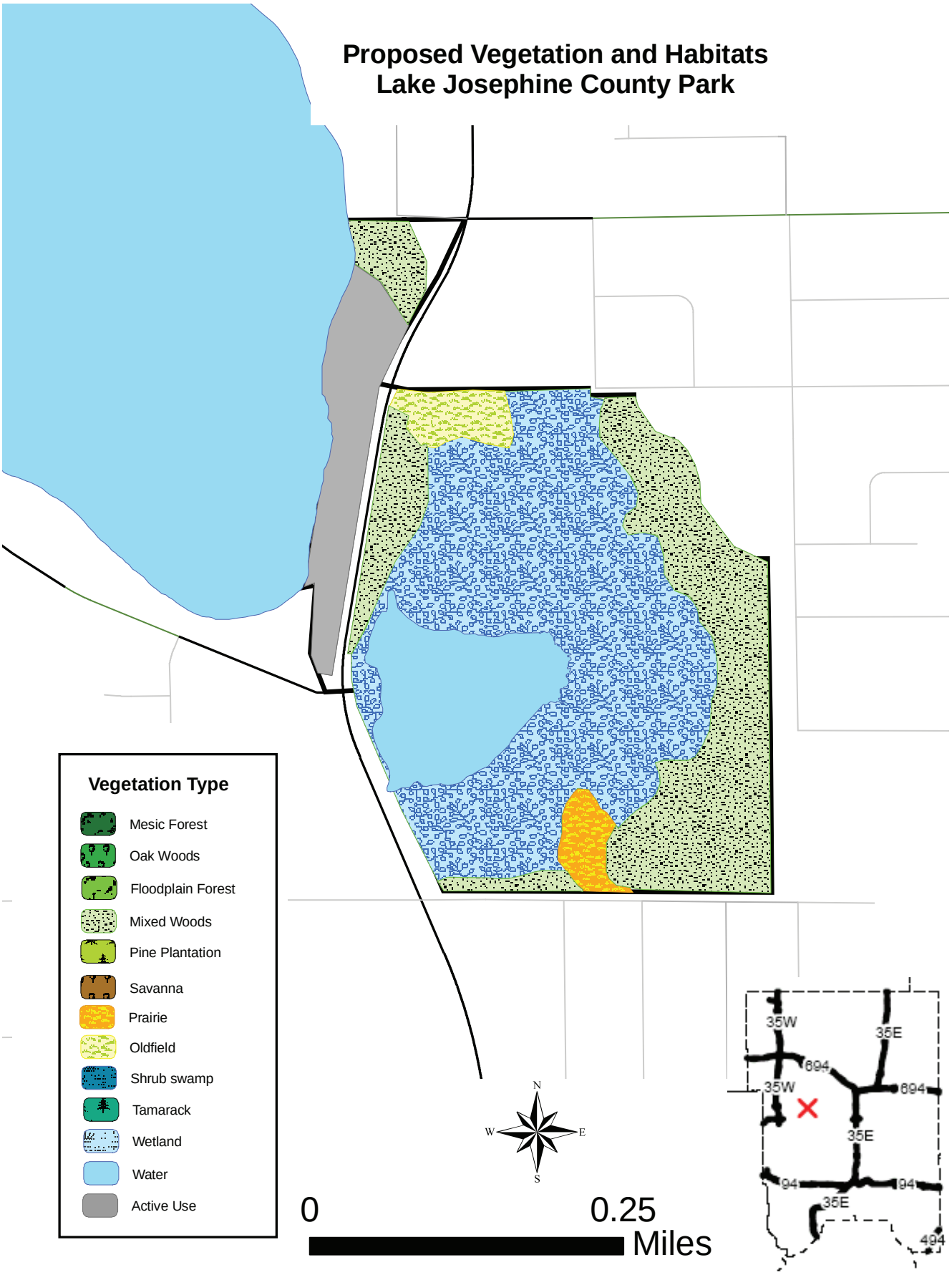
Proposed Vegetation and Habitats
Lake Josephine County Park
Vegetation Type
Mesic Forest
Oak Woods
Floodplain Forest
Mixed Woods
Pine Plantation
Savanna
Prairie
Oldfield
Shrub swamp
Tamarack
Wetland
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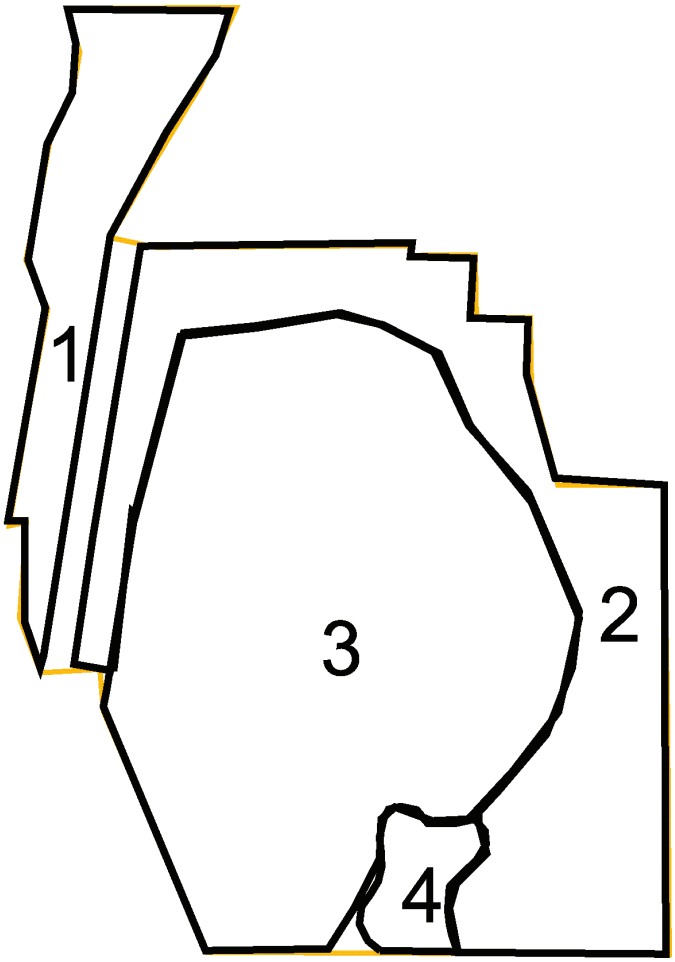
Management Units
Lake Josephine County Park



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Lake Josephine County Park - Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
	1	4624.9	9.6	Active	Active				
	2	9497.7	24.7	Mixed woods	Oak	Phase 1&2/overseeding	85	3	Monitor buckthorn
	3	5407.4	43.5	Wetland	Wetland	Monitor			
	4	1430.0	2.5	Prairie/oldfield	Prairie	Overseed	1	3	burn

Poplar Lake County Park

Vegetation/habitats

The native habitats of Poplar Lake are mixture of high quality mixed oak-aspen woods, high quality wetlands surrounding a shallow high-quality lake. The western portion of the park has the highest quality habitats. The are also oldfields and conifer plantations. There is also an active Compost site in the park.

Vegetation Management

The western woods should be managed to maintain the high diversity by controlling invasive species. The eastern end of the park should be managed toward oak woods.

Wildlife

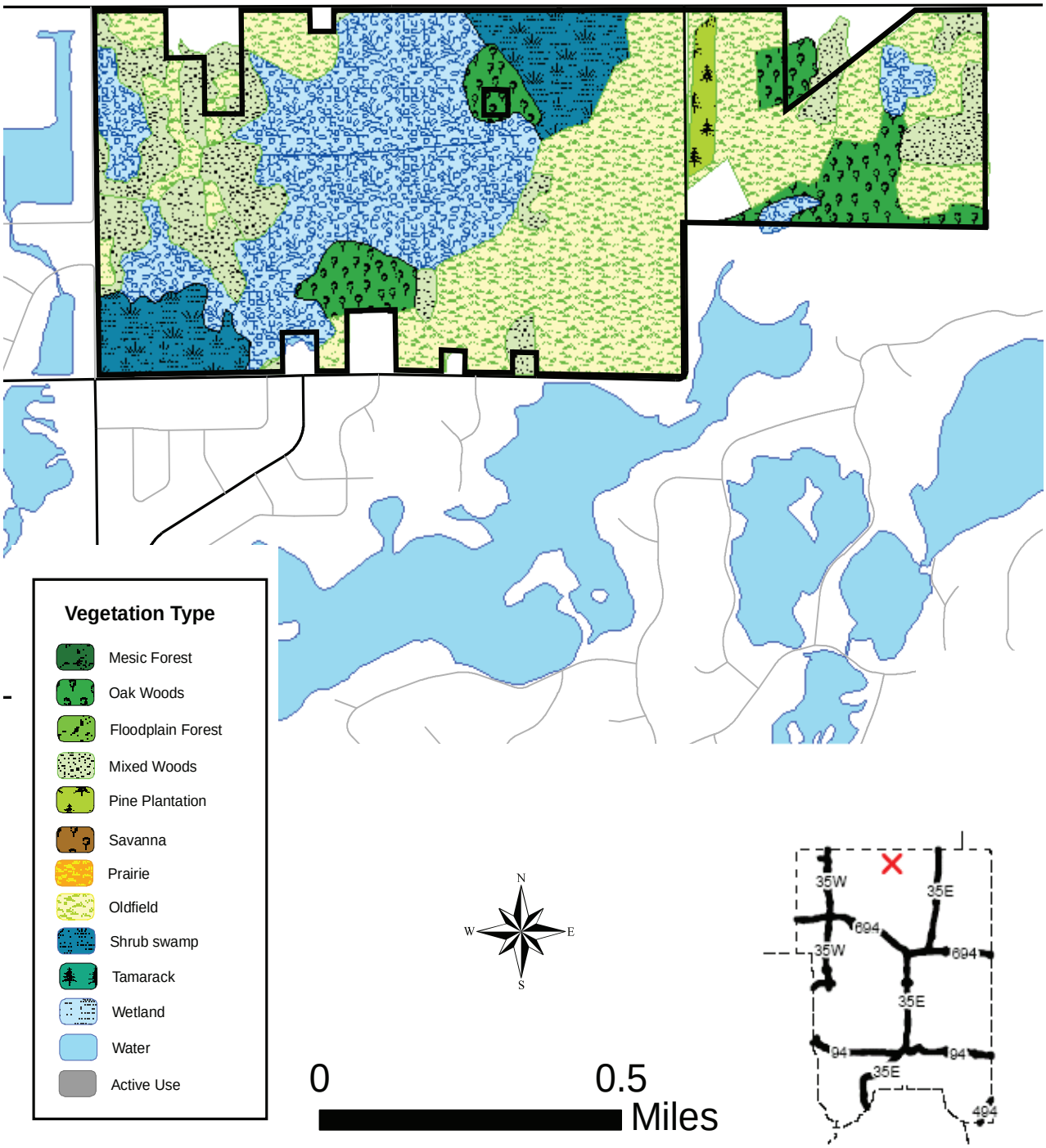
The park hosts a diverse variety of wildlife. The park has a variety of nesting songbirds, waterfowl and raptors. Nesting Sandhill Cranes use the park. There is an active Osprey nest on the south side of the lake. Larger mammals include white-tailed deer, otter, coyotes, red fox and raccoons.

Wildlife Management

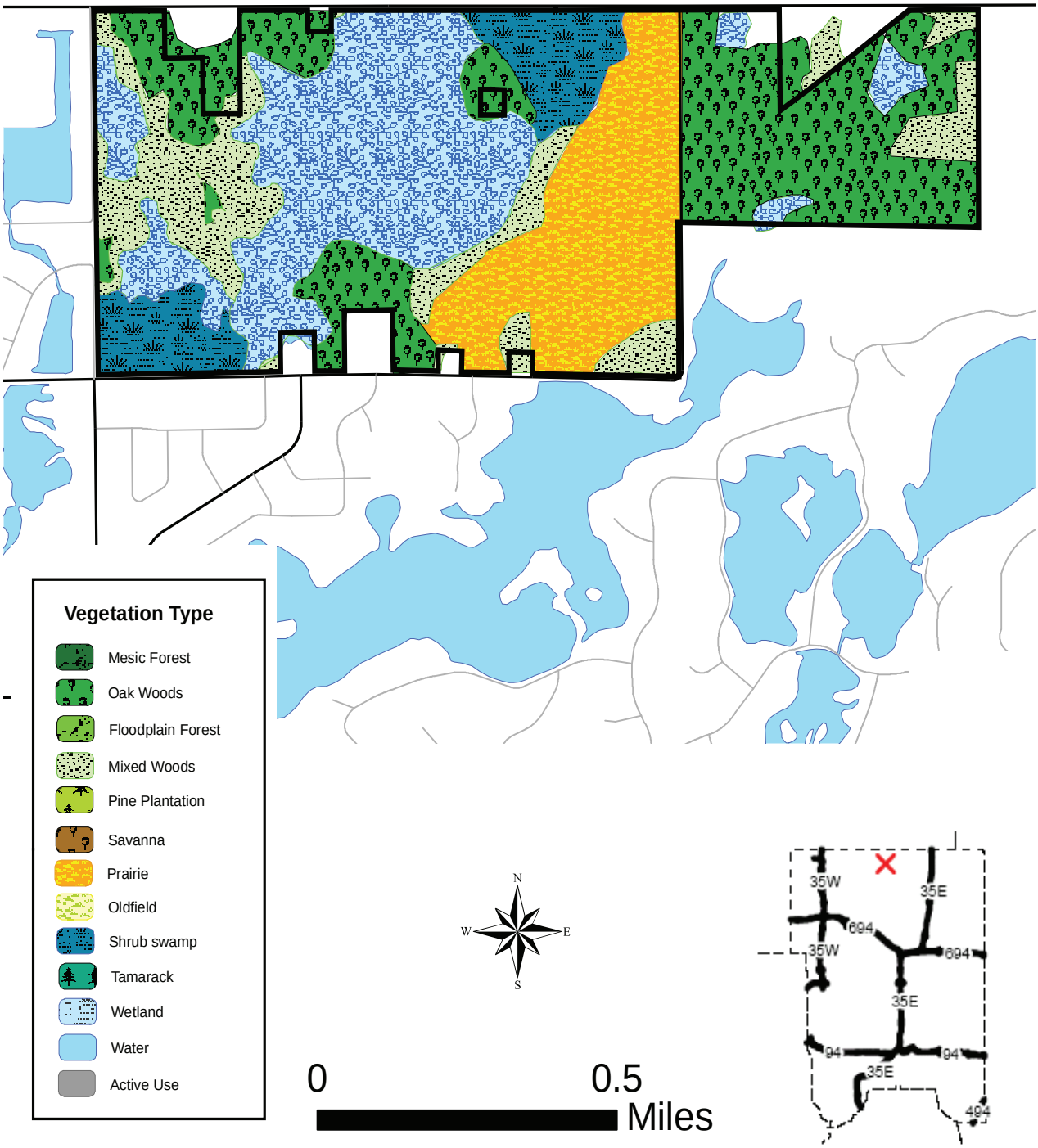
Deer populations are annually surveyed. If needed, the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with White Bear Township and Shoreview. Poplar Lake has held archery hunts since 2000 as part of the annual deer plan.

Nest boxes are provided for wood ducks.

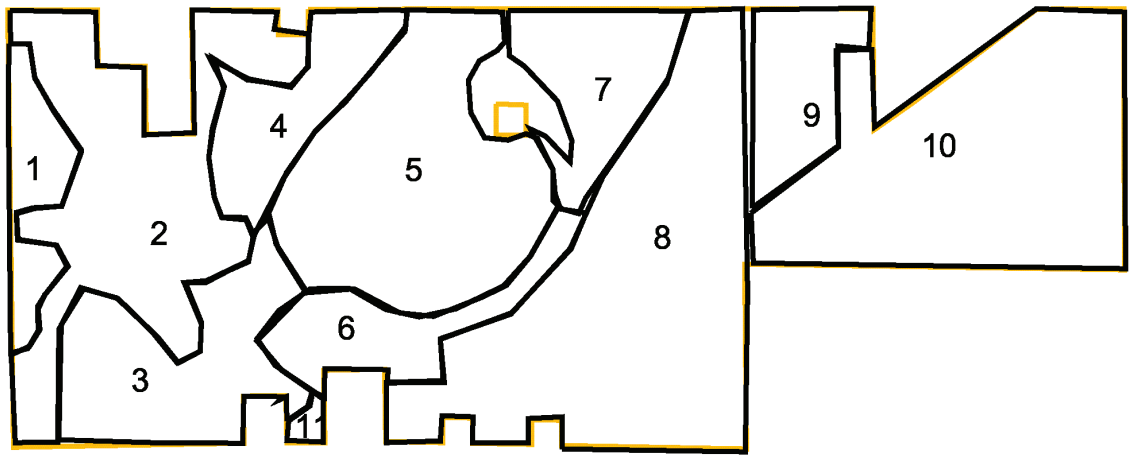
Current Vegetation and Habitats
Poplar Lake County Park



Proposed Vegetation and Habitats
Poplar Lake County Park



Management Units
Poplar Lake County Park



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Poplar Lake County Park - Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
	1	5301.6	13.7	Wetland	Wetland	Monitor			
	2	14012.5	61.6	Mixed	Mixed	Phase 1&2	120	1	Monitor buckthorn
	3	7511.5	35.4	Shrub swamp	Shrub swamp	Monitor			
	4	5250.7	21.0	Wetland	Wetland	Monitor			
	5	7115.3	63.1	Lake/deep wetland	Lake/deep wet	Monitor			
	6	6318.9	20.1	Oak/oldfield	Oak	Phase 1&2/tree planting	25	2	Monitor buckthorn/ tree care
	7	5232.4	22.6	Shrub swamp	Shrub swamp	Monitor			
	8	10853.6	91.5	Oldfield	Prairie	Reseed/ remove trees	135	3	Burning
	9	4156.4	17.5	Active – compost	Oak	Plant trees	100	4	Tree care
	10	8998.4	78.4	Mixed	Oak	Phase 1&2/ tree planting	180	3	Monitor buckthorn/ tree care
	11	1065.5	1.4	Oldfield/prairie	Oldfield/prairie	Monitor			

Beaver Lake County Park

Vegetation/habitats

The native habitats are found in the northern portion of the park. The shoreline of Beaver Lake is a cattail marsh. There is a perched wetland created for stormwater control. An area of degrade mixed forest borders the wetlands.

Vegetation Management

There is no active management in this park.

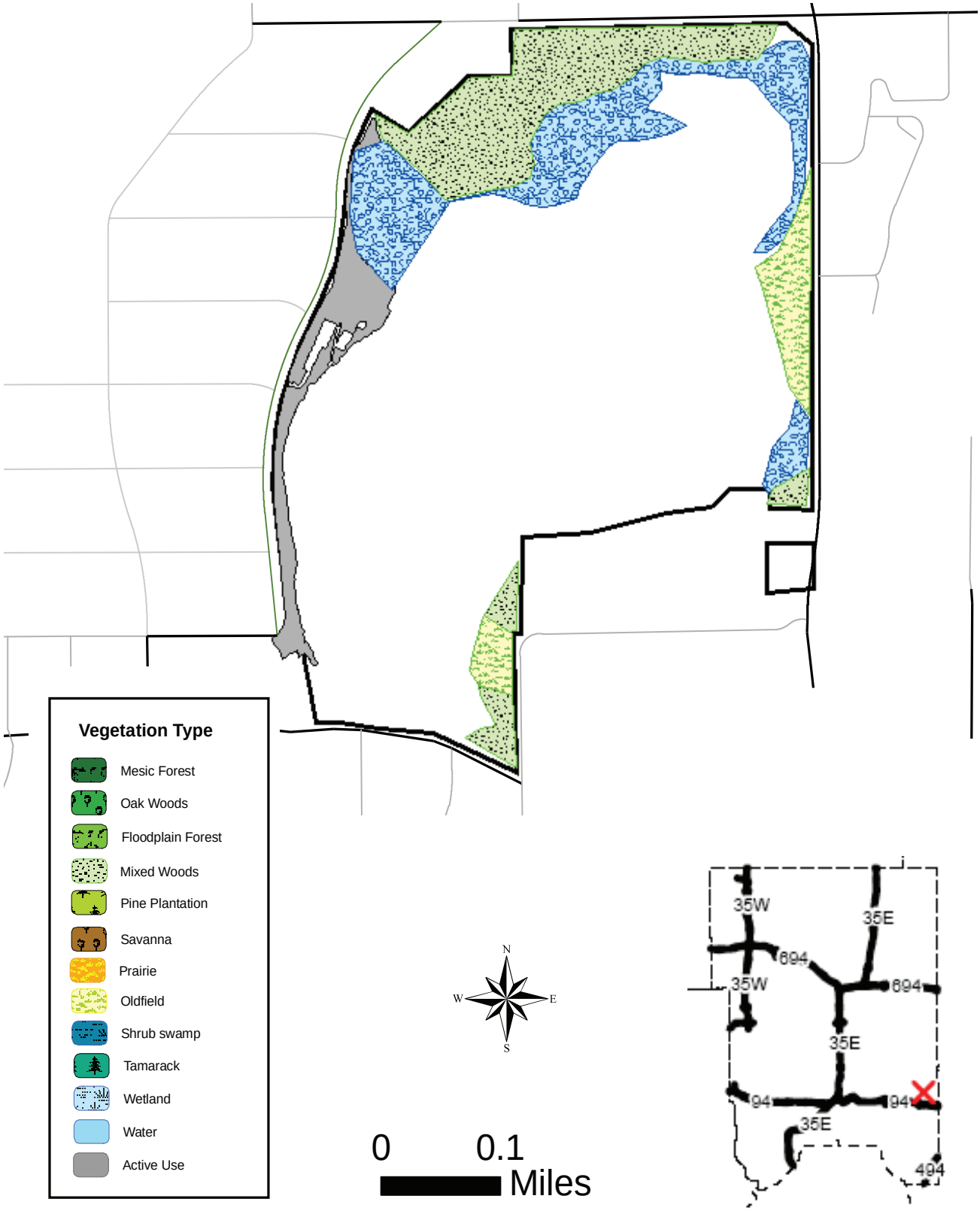
Wildlife

The park hosts a variety of common wildlife. The park has a variety of nesting songbirds and waterfowl.

Wildlife Management

The Canada goose population is monitored and roundups will be conducted when numbers warrant it.

Current Vegetation and Habitats
Beaver Lake County Park



Lake Gervais County Park

Vegetation/habitats

The park is mainly developed. There is a small wetland on the south end of the park that is maintained by the Ramsey Washington Metro Watershed District. The hill north of the beach has mature oaks, but the understory is turf grass.

Vegetation Management

There is no active management in this park.

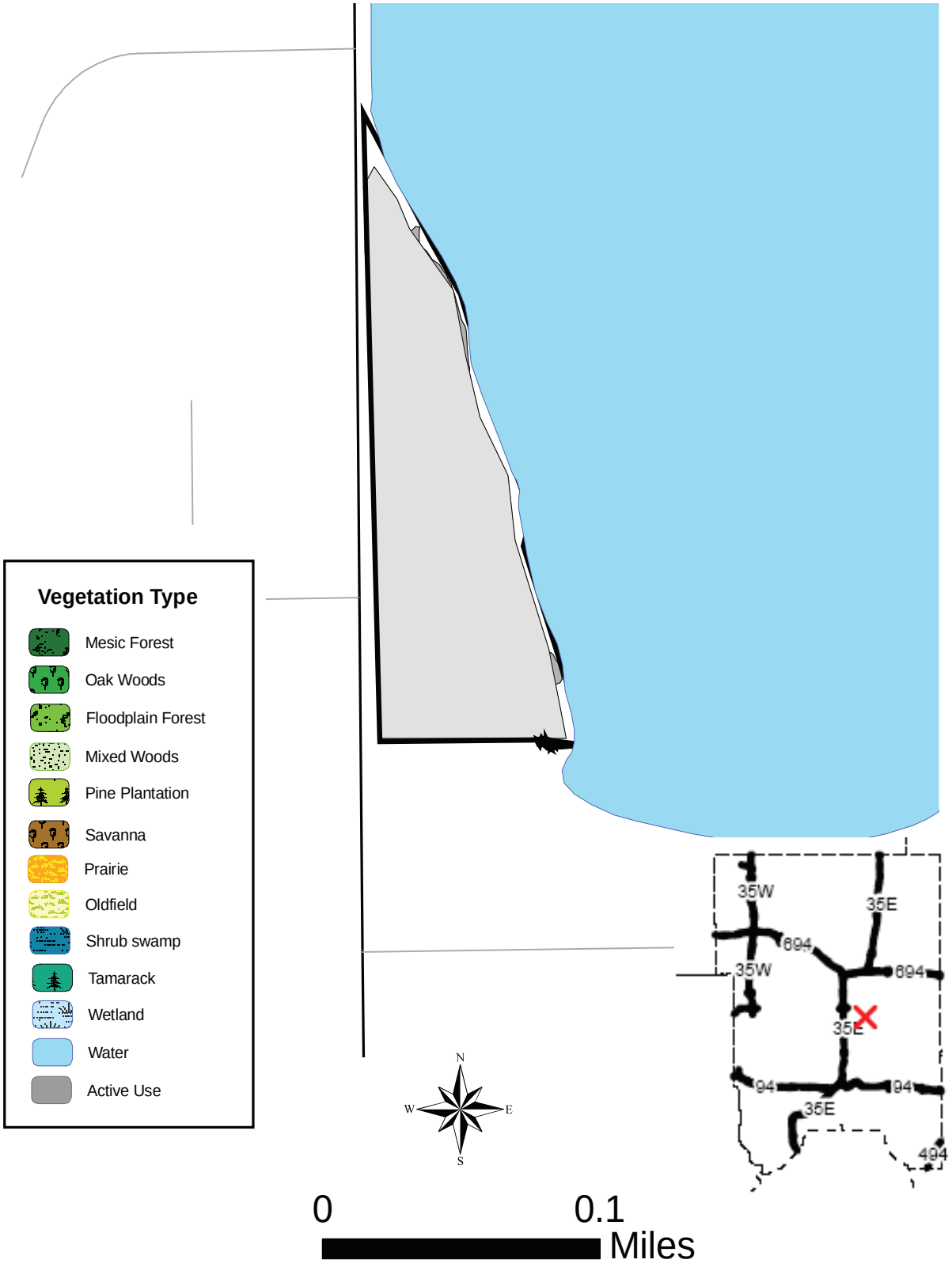
Wildlife

The park hosts a variety of common wildlife.

Wildlife Management

The Canada goose population is monitored , roundups have been conducted inconjunction with Keller Lake roundups. The roundups may be continued if necessary.

Current Vegetation and Habitats
Lake Gervais County Park



Lake McCarrons County Park

Vegetation/habitats

The native habitats are found in the southern portion of the park. There is a series of wetlands at the outflow of the lake. The vegetation around the wetlands is a mixture of native and nonnative vegetation

Vegetation Management

There is no active management in this park.

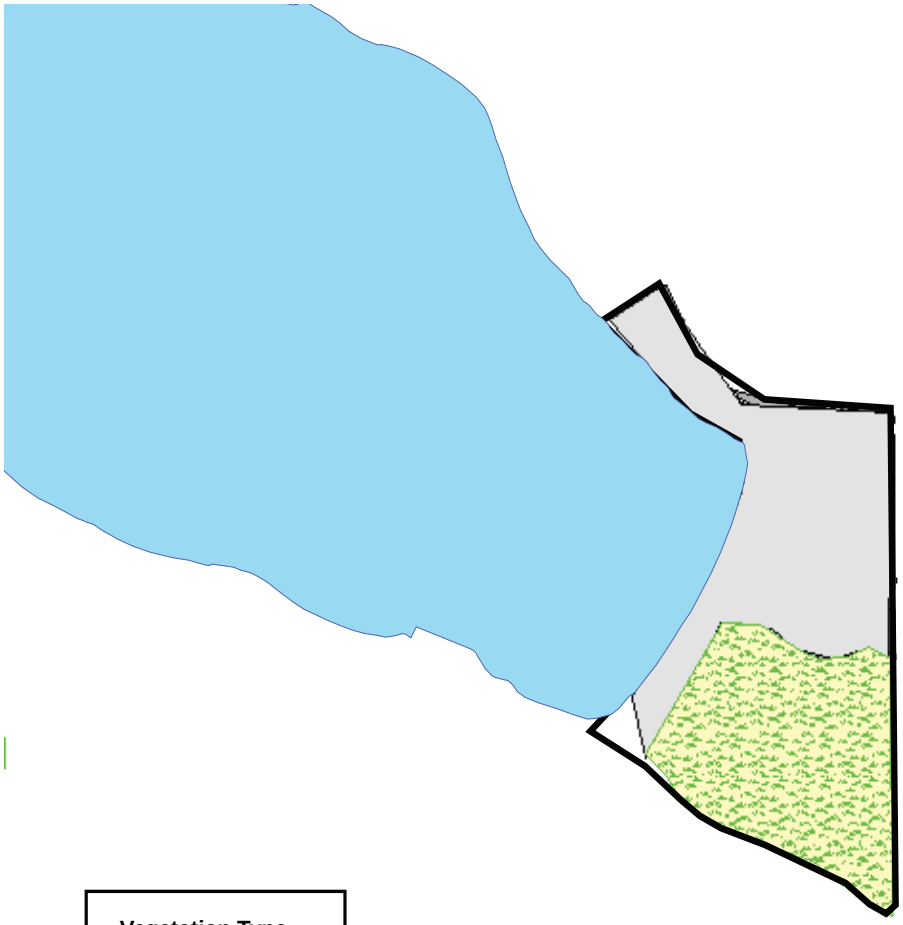
Wildlife

The park hosts a variety of common wildlife. The park has a variety of nesting songbirds and waterfowl .

Wildlife Management

The Canada goose population is monitored, roundups are conducted as needed.

Current Vegetation and Habitats
Lake McCarrons County Park



Vegetation Type

- Mesic Forest
- Oak Woods
- Floodplain Forest
- Mixed Woods
- Pine Plantation
- Savanna
- Prairie
- Oldfield
- Shrub swamp
- Tamarack
- Wetland
- Water
- Active Use

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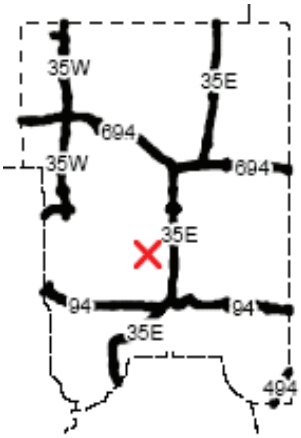


Lake Owasso County Park

Vegetation/habitats

The native habitats are found in the northern portion of the park. The shoreline of Lake Wabasso is a cattail marsh.

Vegetation Management

There is no active management in this park.

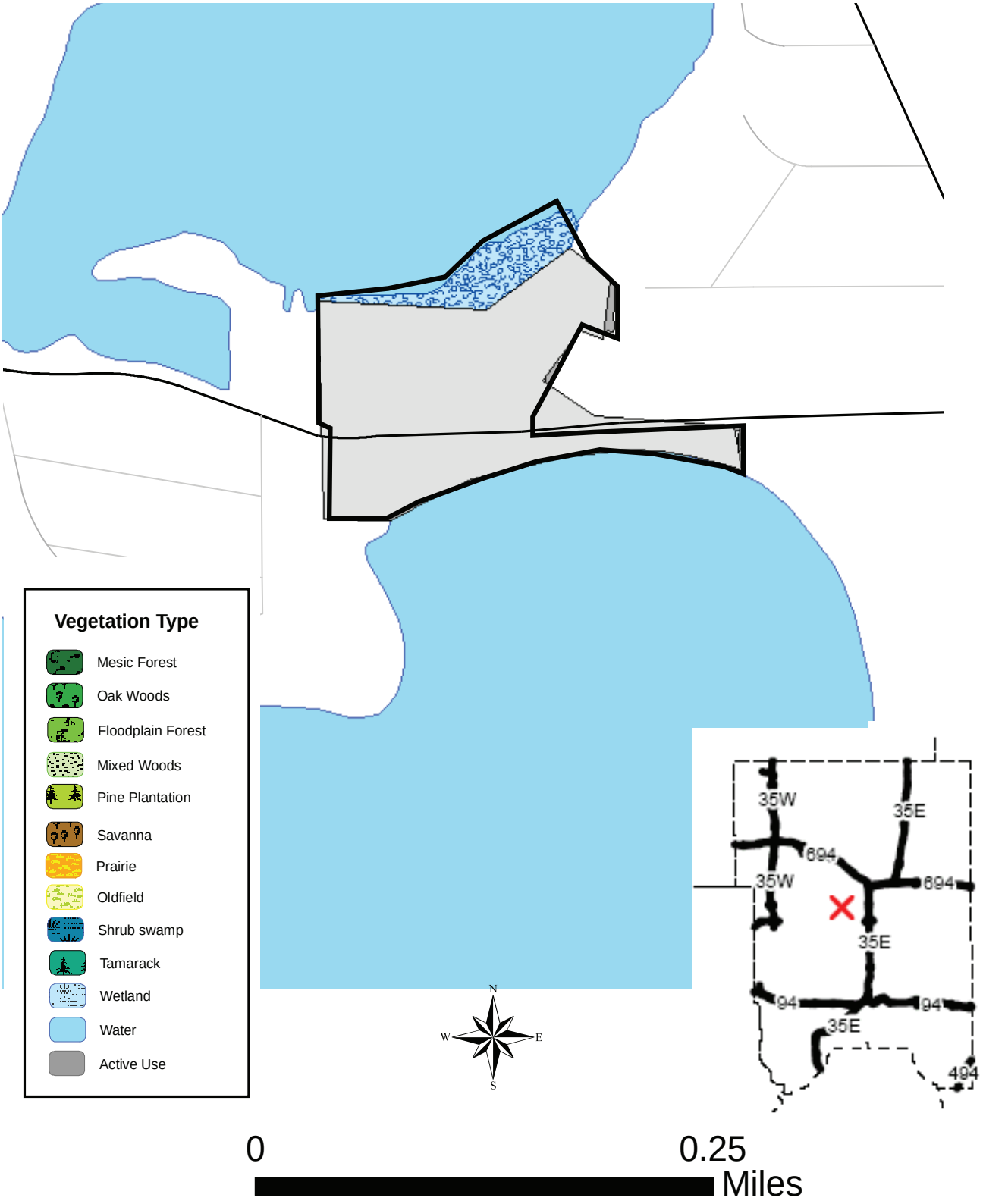
Wildlife

The park hosts a variety of common wildlife. The park has a variety of nesting songbirds and waterfowl.

Wildlife Management

The Canada goose population is monitored Roundups are conducted by the City of Shoreview as needed.

Current Vegetation and Habitats
Lake Owasso County Park



Turtle Lake County Park

Vegetation/habitats

There are no native habitats in the park, but there are a number of large oak trees providing good canopy cover.

Vegetation Management

There is no active management in this park.

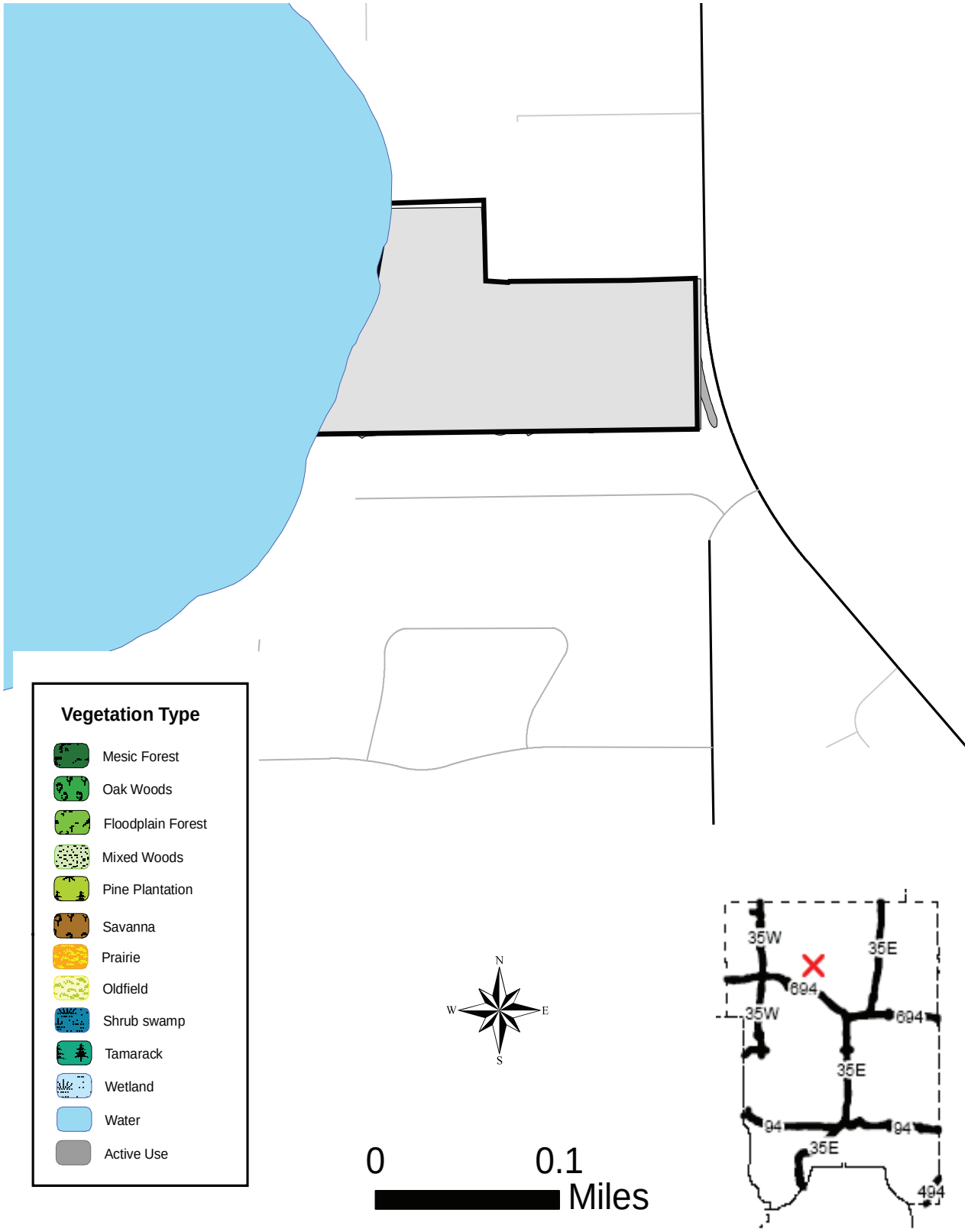
Wildlife

The park hosts a variety of common wildlife. The park has a variety of nesting songbirds and waterfowl.

Wildlife Management

The Canada goose population is monitored Roundups are conducted by the City of Shoreview as needed.

Current Vegetation and Habitats
Turtle Lake County Park



White Bear Lake County Park

Vegetation/habitats

The native habitats are limited to a few small wetlands along the northwest boundary.

Vegetation Management

There is no active management in this park.

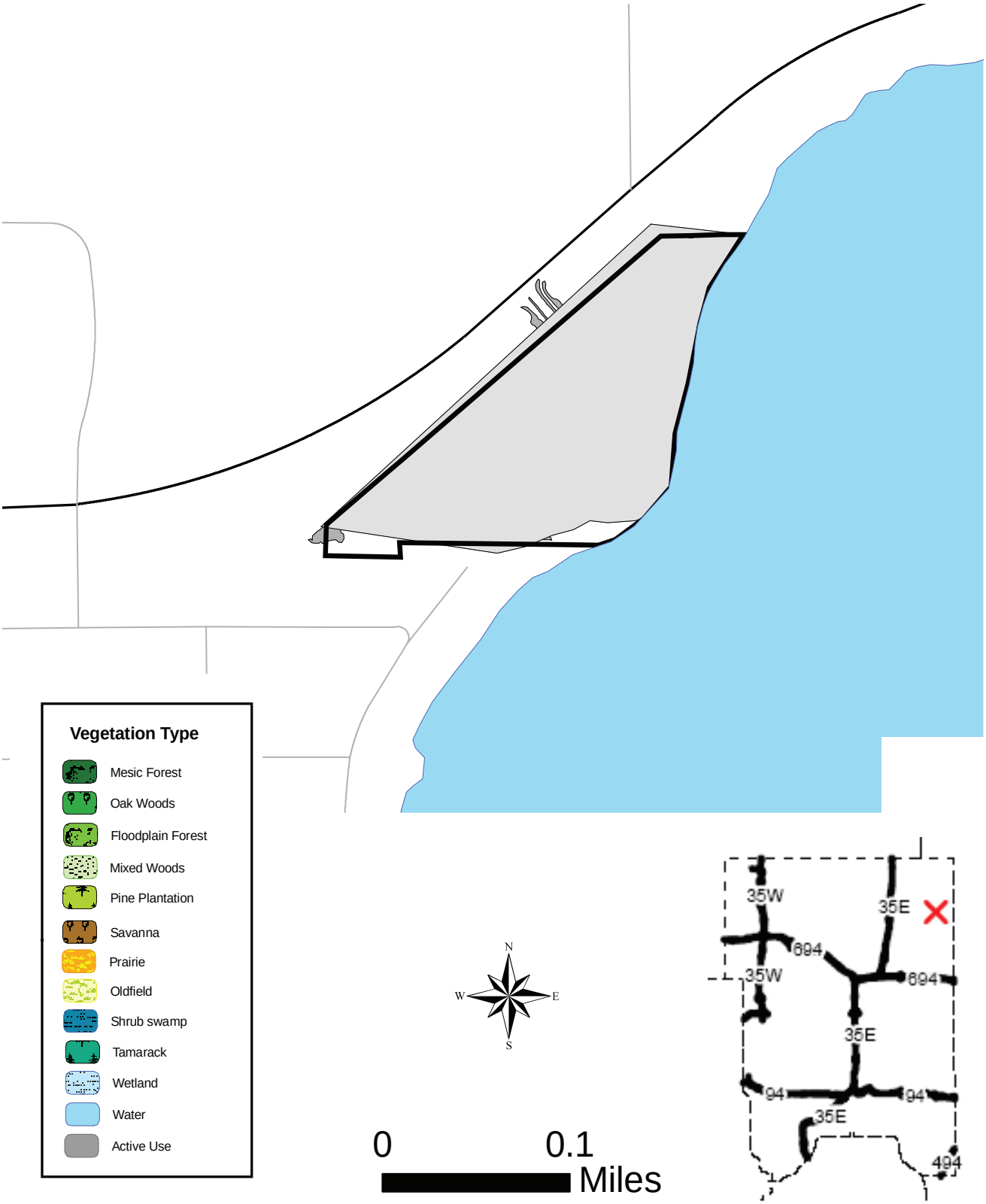
Wildlife

The park hosts a variety of common wildlife.

Wildlife Management

The Canada goose population is monitored and roundups are conducted, inconjunction with the White Bear Lake Homeowners Association when numbers warrant it.

Current Vegetation and Habitats
White Bear Lake County Park



Fish Creek Open Space

Vegetation/habitats

Fish Creek Open Space native habitat is predominantly oak woods on steep slopes with scattered oak savannas. The woodlands are degraded by buckthorn. Several areas of old fields are found on the east end of the property. There are pockets of high quality understory on the northfacing slopes along the creek.

Vegetation Management

The woodlands should have the buckthorn removed and a burning plan developed. The steep slopes and limited access points will make burn management difficult.

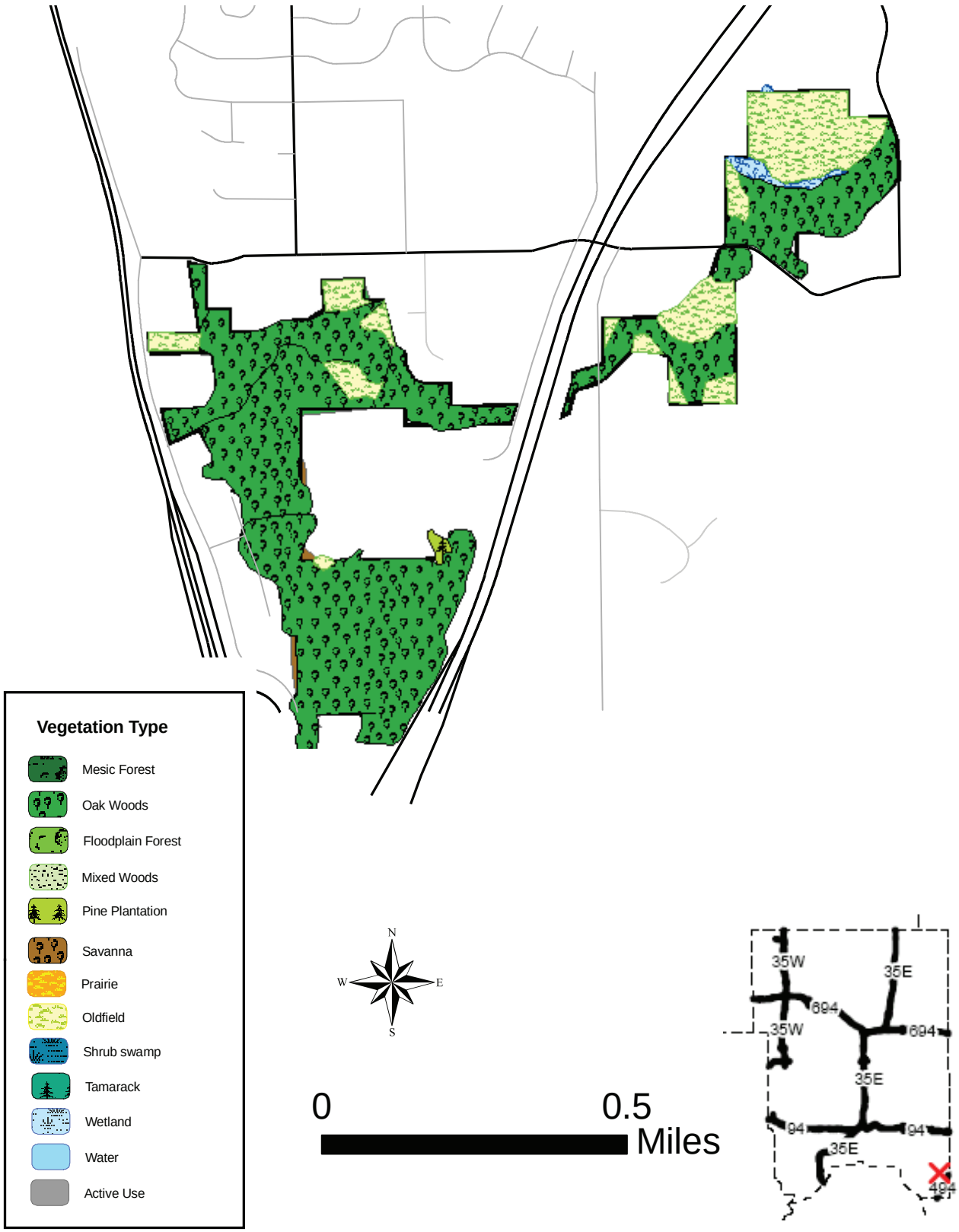
Wildlife

The open space hosts a diverse variety of wildlife. The park has a variety of nesting songbirds. Larger mammals include white-tailed deer, coyotes, red fox and raccoons.

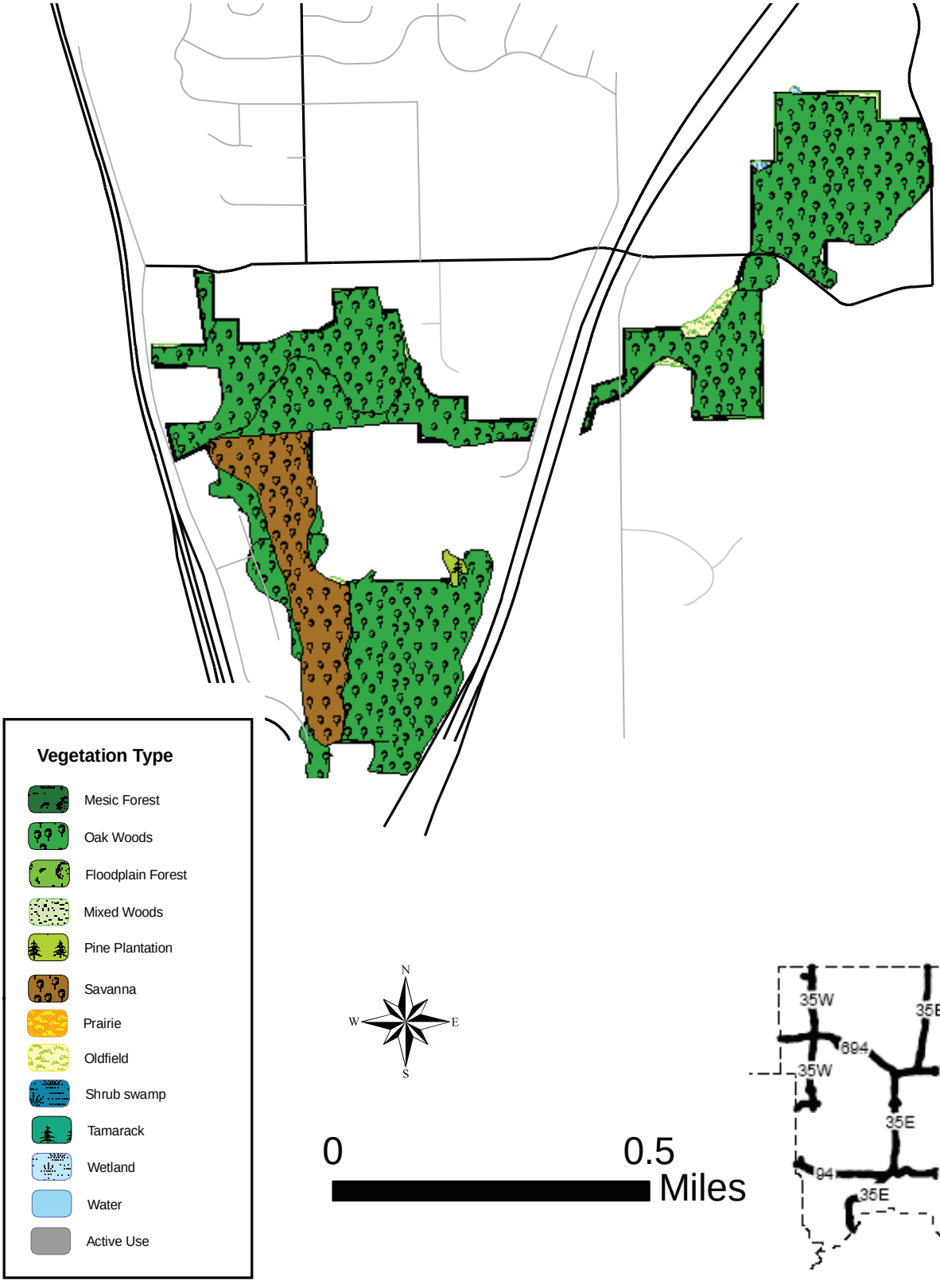
Wildlife Management

Deer populations are annually surveyed. If needed, the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with Maplewood and St. Paul. Fish Creek has been the location for several archery hunts since 2000 and used for several bait sites in the 2005 sharpshooting.

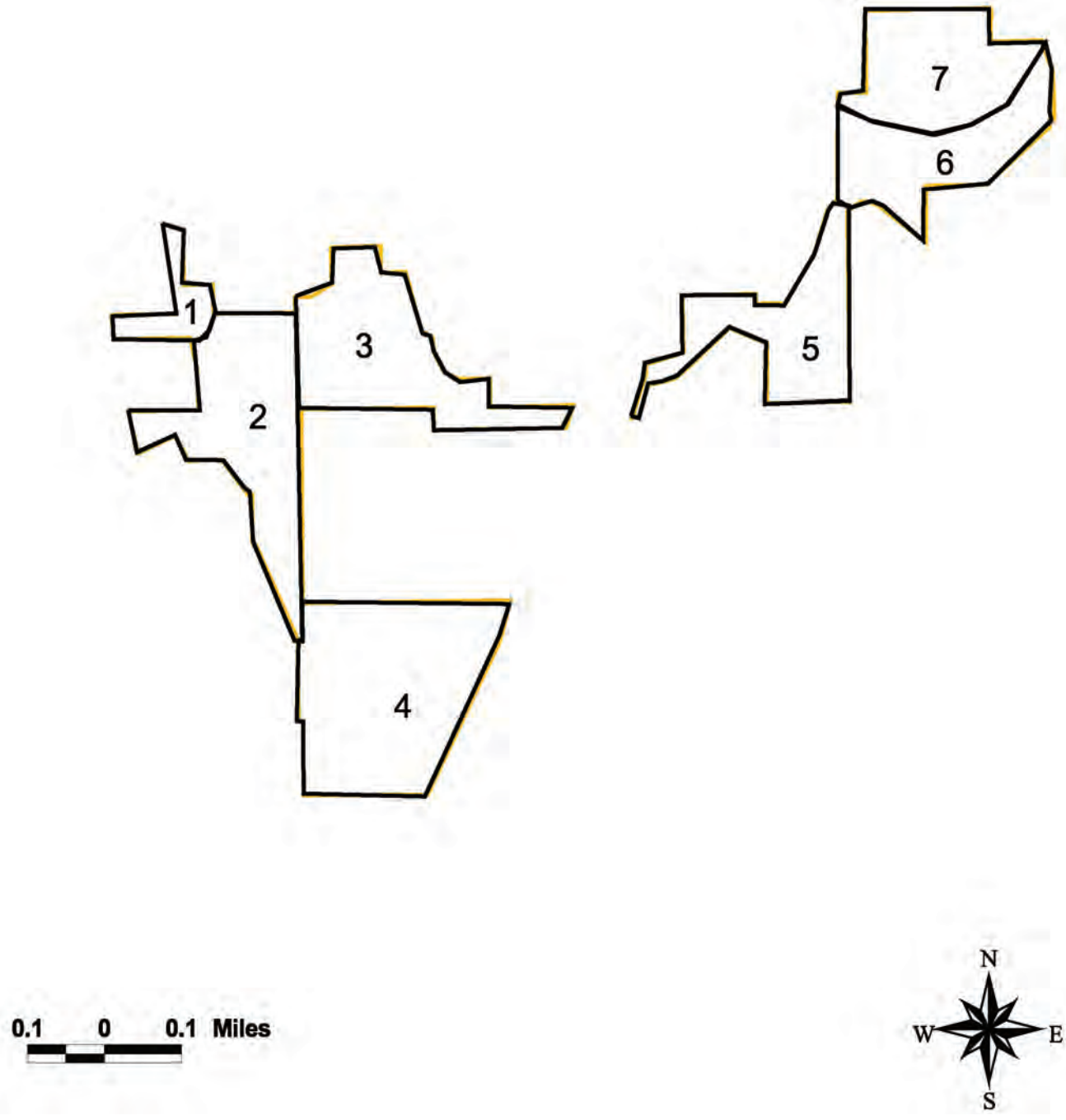
Current Vegetation and Habitats
Fish Creek Open Space



Proposed Vegetation and Habitats
Fish Creek Open Space



Management Units
Fish Creek Open Space



Fish Creek Open Space - Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
	1	2912.8	4.8	Oak/oldfield	Oak	Phase 1&2	20	3	Monitor buckthorn/ burn
	2	6410.2	25.5	Oak	Oak/Savanna	Phase 1&2	100	3	Monitor buckthorn/ burn
	3	5772.3	23.8	Oak	Oak	Phase 1&2	95	3	Monitor buckthorn/ burn
	4	5035.5	34.5	Oak	Oak/Savanna	Phase 1&2	140	3	Monitor buckthorn/ burn
	5	6247.8	18.0	Oak/oldfield	Oak	Phase 1&2	50	3	Monitor buckthorn/ burn
	6	5003.3	16.9	Oak	Oak	Phase 1&2	64	3	Monitor buckthorn/ burn
	7	3981.0	18.7	Oldfield/wetland	Oak/wetland	Tree planting	72	4	Tree care

Turtle Creek Open Space

Vegetation/habitats

The Turtle Creek Open Space native habitat is a large wetland complex of cattail, shrub swamp and tamarack. There are scattered uplands with mixed woods along the northeast boundary. A peninsula enters from the south. It has degraded oak woods, a degraded prairie, and extensive pine plantings. The oak woods has an interesting understory of sedges and blueberry, but is infested with buckthorn. The prairie has a large component of leafy spurge.

Vegetation Management

The management of this site would be restricted to the uplands, especially on the peninsula. Biocontrol beetles have been released on the spurge. The access to this site requires going through private property.

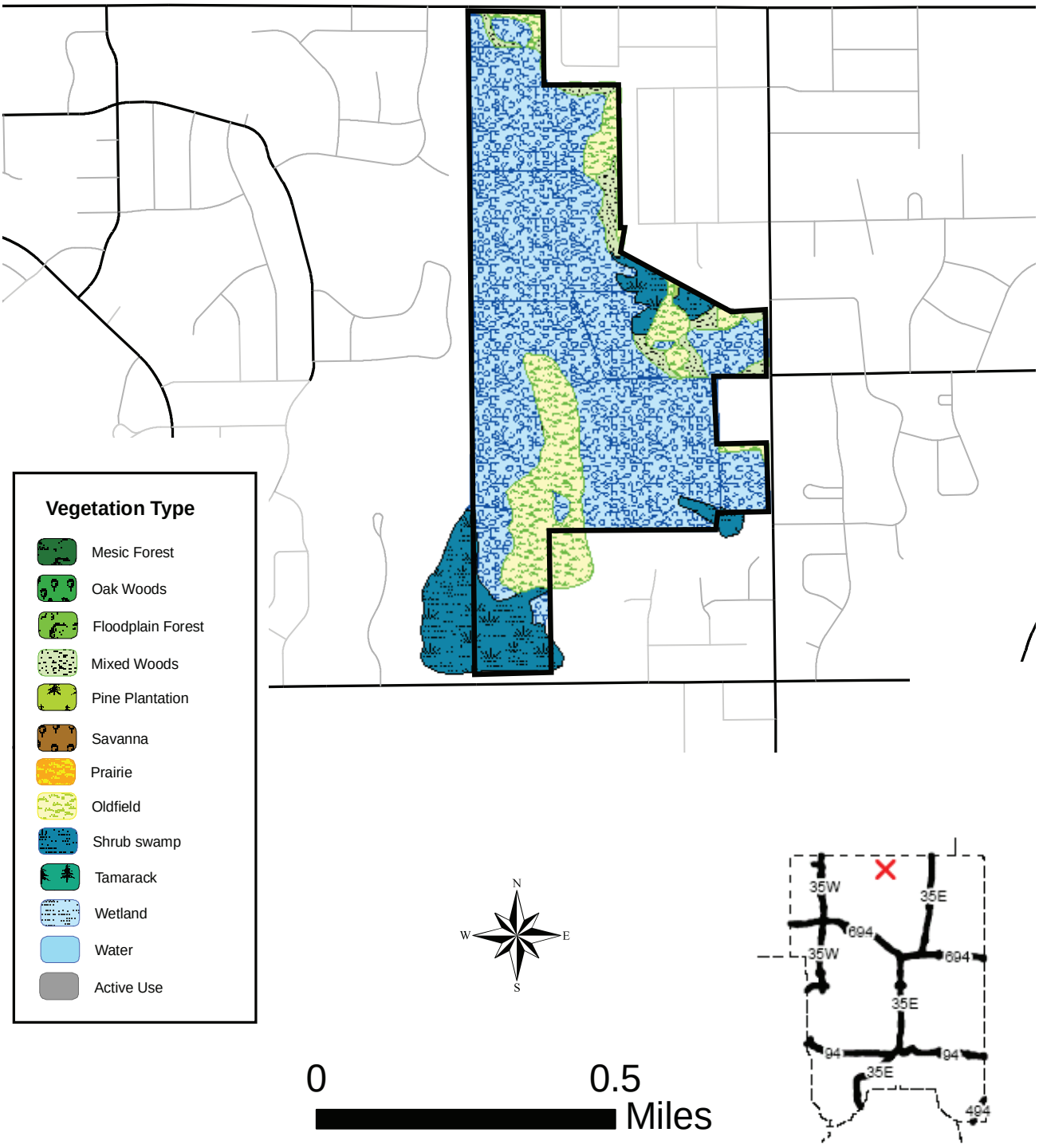
Wildlife

The open space hosts a diverse variety of wildlife. The open space has a variety of nesting songbirds and waterfowl. Sandhill Cranes are found in the vicinity of the open space. Larger mammals include white-tailed deer, otter, coyotes, red fox and beaver.

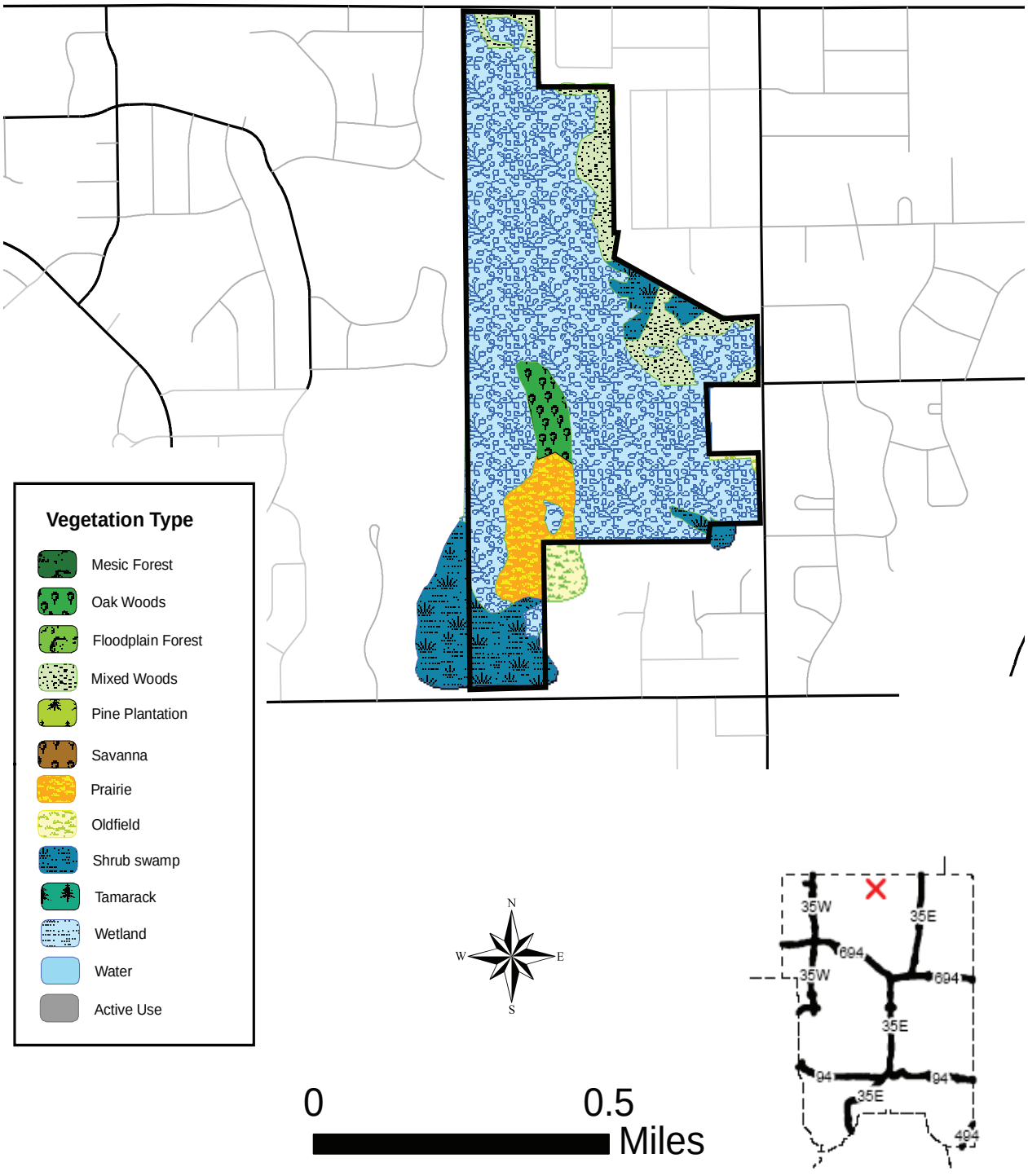
Wildlife Management

Deer populations are annually surveyed. If needed, the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with Shoreview. Turtle Creek has held archery hunts since 2000 as part of the annual deer plan.

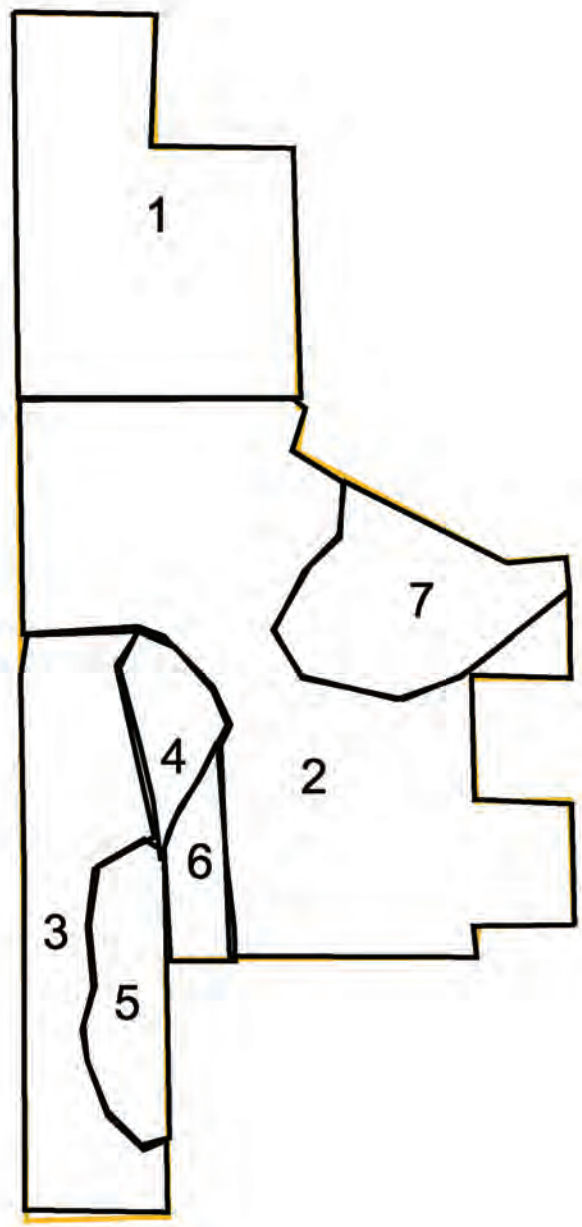
Current Vegetation and Habitats
Turtle Creek Open Space



Proposed Vegetation and Habitats
Turtle Creek Open Space



Management Units
Turtle Creek Open Space



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Turtle Creek Open Space - Management Unit Description and Activity

Section	ID	Perimeter	Acres	Current_Veg	furture_veg	Action	cost	Priority	Maintenance
	1	6321.5	45.7	Wetland	Wetland	Monitor			
	2	12098.1	81.1	Wetland	Wetland	Monitor			
	3	7165.0	28.1	Wetland	Wetland	Monitor			
	4	2492.2	6.2	Oak	Oak	Phase 1&2/burn	24	3	Monitor buckthorn/ burn
	5	3274.8	10.7	Pine/oldfield	Prairie	Remove pine/reseed	25	4	burn
	6	2448.9	5.4	Oldfield/prairie	Prairie	Overseed/burn	5	3	burn
	7	3816.1	18.6	Mixed/oldfield	Mixed	Monitor			

Holloway Marsh Open Space

Vegetation/habitats

The native habitats are found mainly in the northern portion of the open space which is a large cattail marsh with pockets of mixed woods, mainly aspens. The wooded hill on the south parcel is mature oak with a degraded understory. The property between the two parcels is a highly disturbed MNDOT storage yard.

Vegetation Management

There is no active management in this open space.

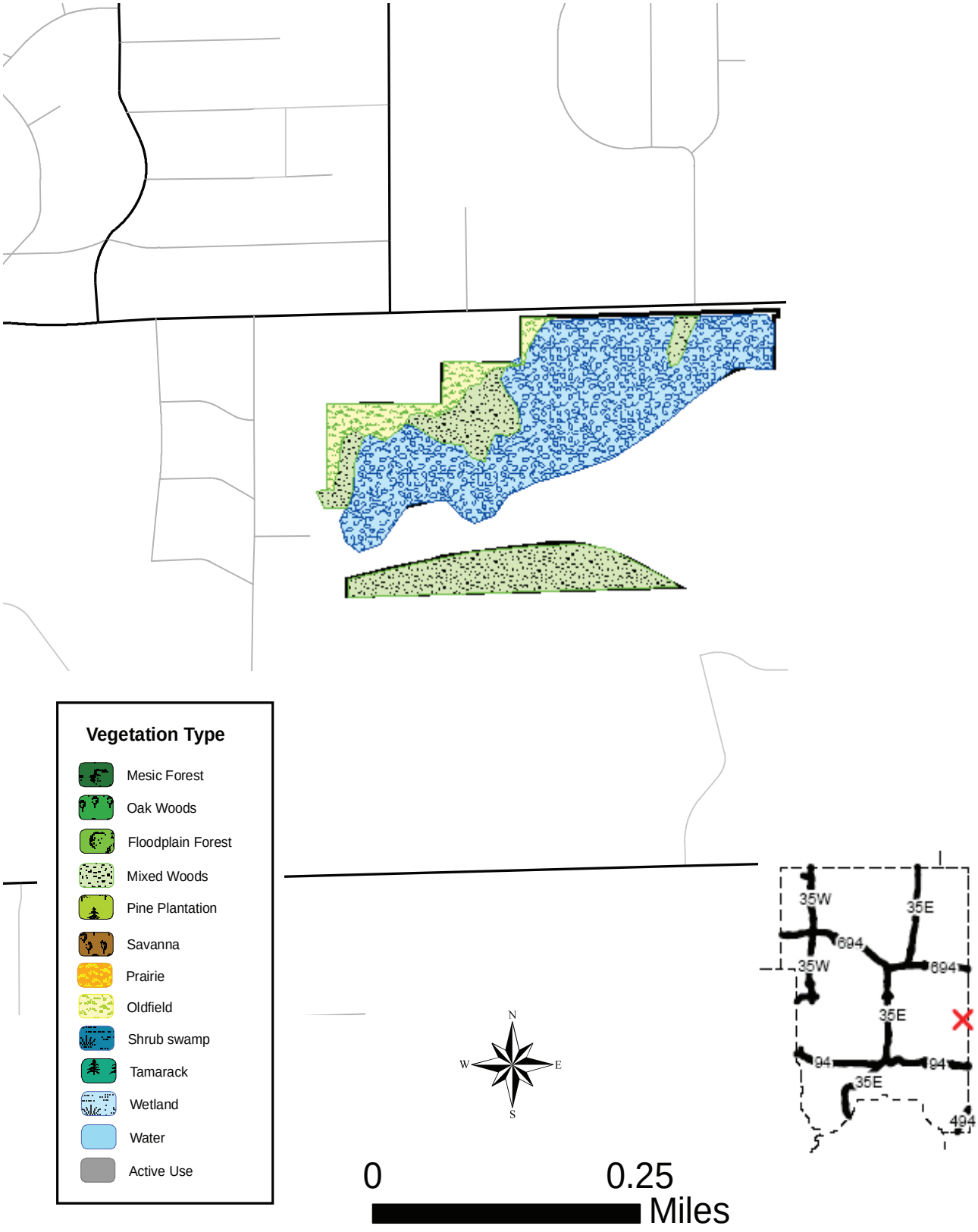
Wildlife

The park hosts a variety of common wildlife. The park has a variety of nesting songbirds and waterfowl. Deer move between this site and the Maplewood Open Space to the south.

Wildlife Management

Deer populations are annually surveyed. If needed, the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with Maplewood

Current Vegetation and Habitats
Holloway Marsh Open Space



Kohlman Creek Open Space

Vegetation/habitats

The vegetation in this open space is a variety of degraded wetlands and mixed woods.

Vegetation Management

There is no active management in this open space.

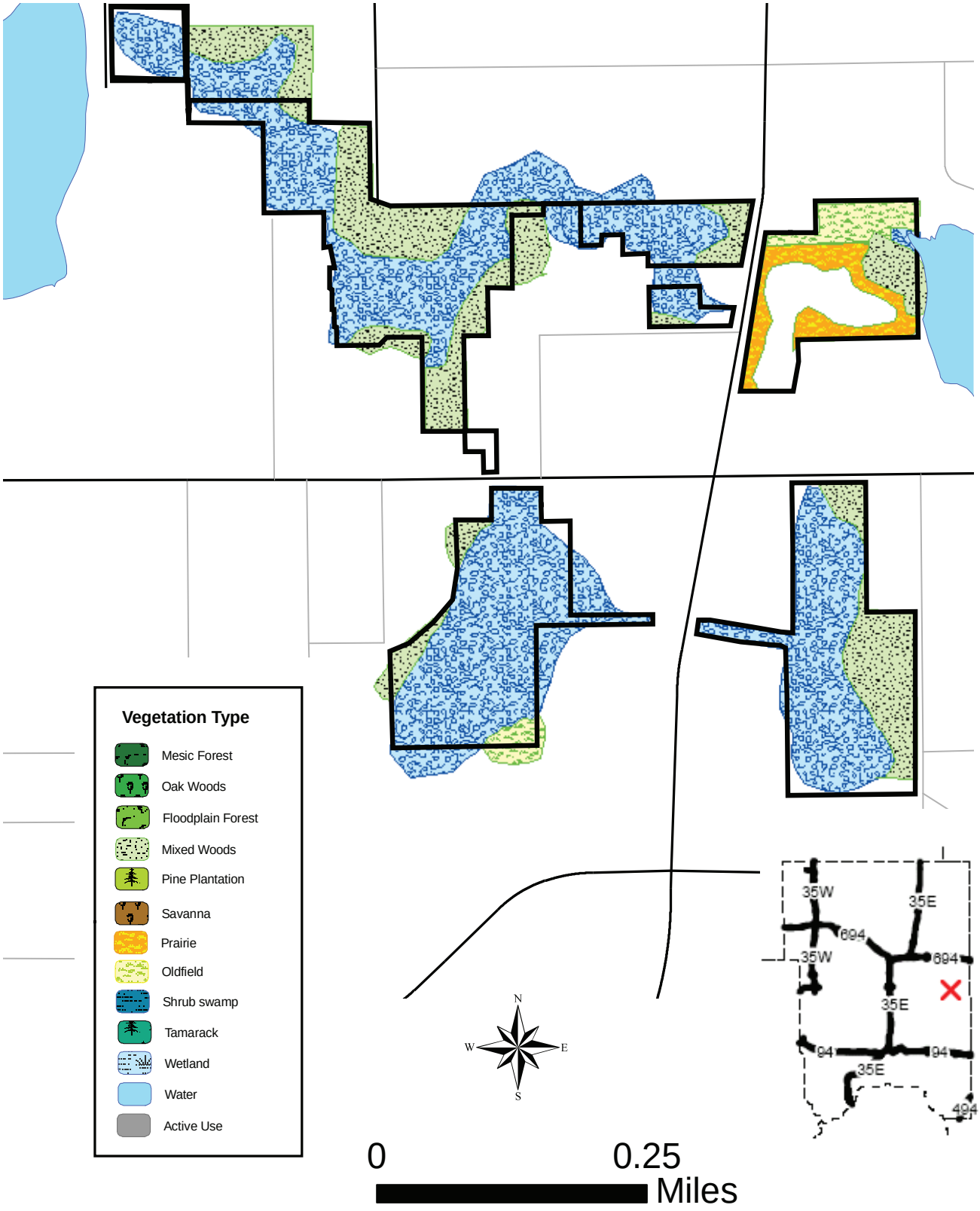
Wildlife

The park hosts a variety of common wildlife. The park has a variety of nesting songbirds and waterfowl .

Wildlife Management

There is no active management in this open space

Current Vegetation and Habitats
Kohlman Creek Open Space



North Kohlman Marsh Open Space

Vegetation/habitats

North Kohlman Marsh is a mixture of box elder and ash woods with areas of open wetlands.

Vegetation Management

There is no active management in this park.

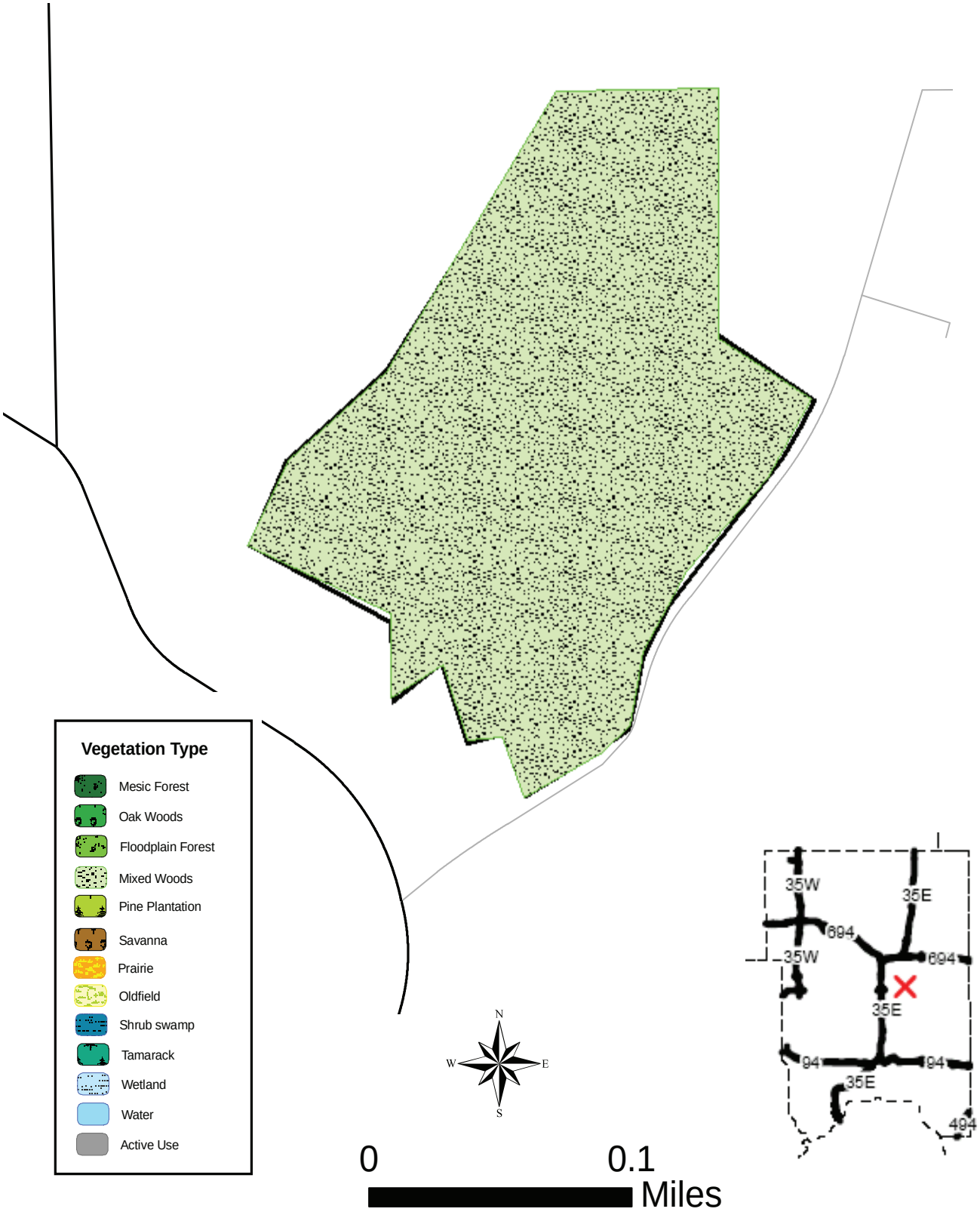
Wildlife

The park hosts a variety of common wildlife. The park has a variety of nesting songbirds and waterfowl .

Wildlife Management

The deer population is monitored. If needed, the deer herd will be managed with special hunts under the Ramsey County Cooperative Deer Management Plan in partnership with the City of Maplewood.

Current Vegetation and Habitats
North Kohlman Marsh Open Space



Suburban Pond Open Space

Vegetation/habitats

The current habitats are wetlands created for stormwater control.

Vegetation Management

There is no active management in this park.

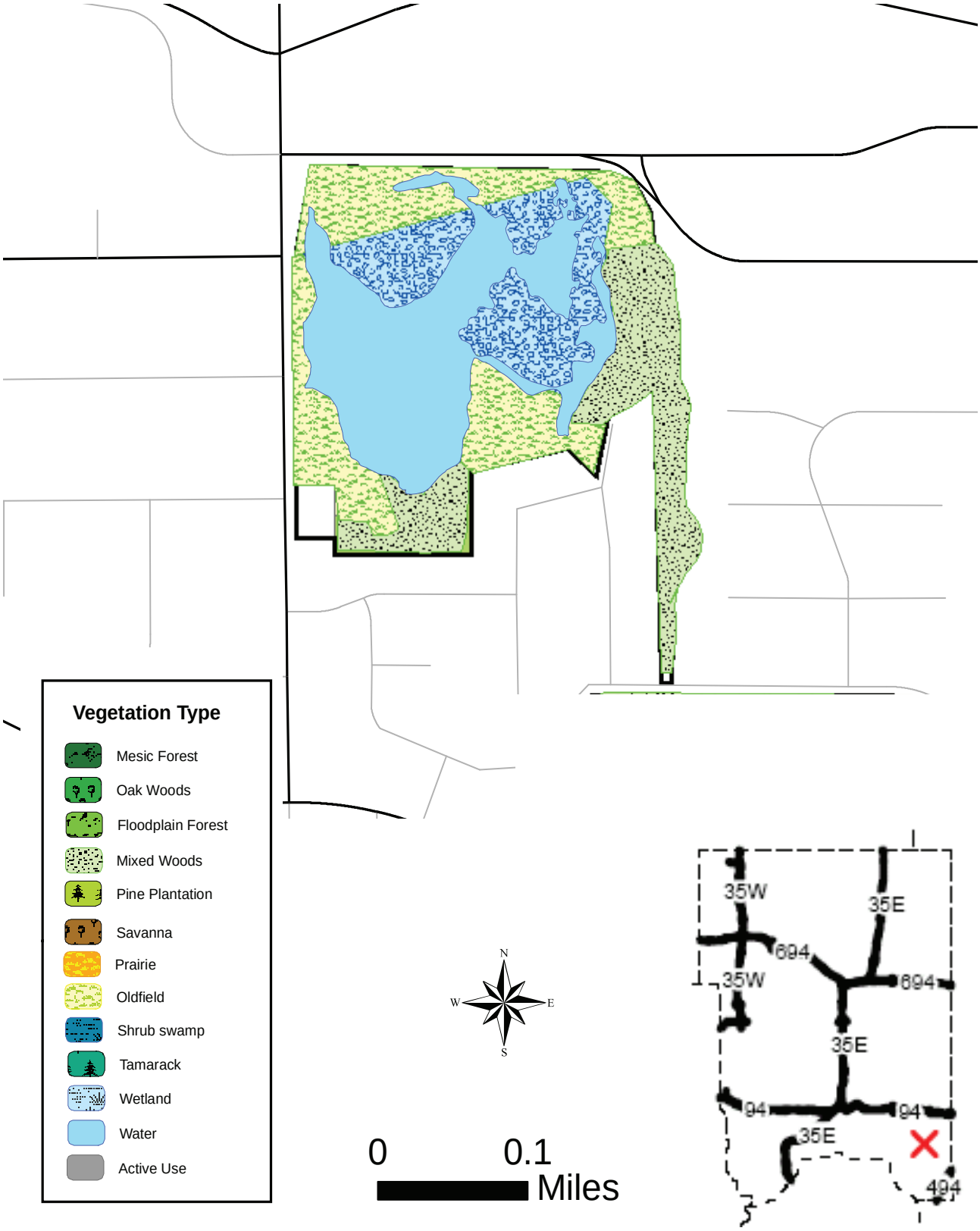
Wildlife

The park hosts a variety of common wildlife. The park has a variety of nesting songbirds and waterfowl.

Wildlife Management

There is no active management in this park.

Current Vegetation and Habitats
Suburban Pond Open Space



Woodview Open Space

Vegetation/habitats

The native habitats are the wetlands in the center of the property. The site was excavated in 2004 as part of the wetland mitigation project.

Vegetation Management

There is no active management in this park.

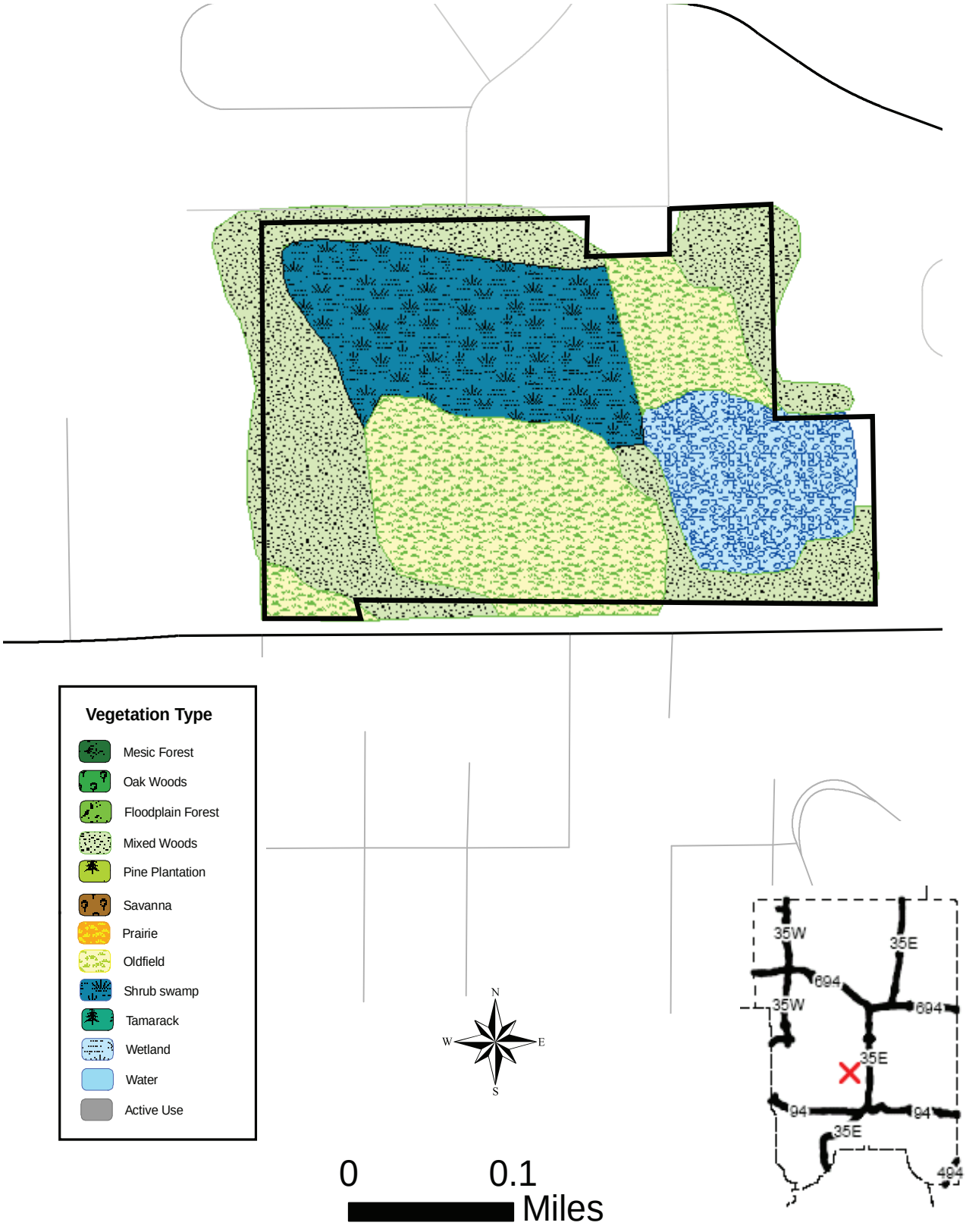
Wildlife

The park hosts a variety of common wildlife. The park has a variety of nesting songbirds and waterfowl.

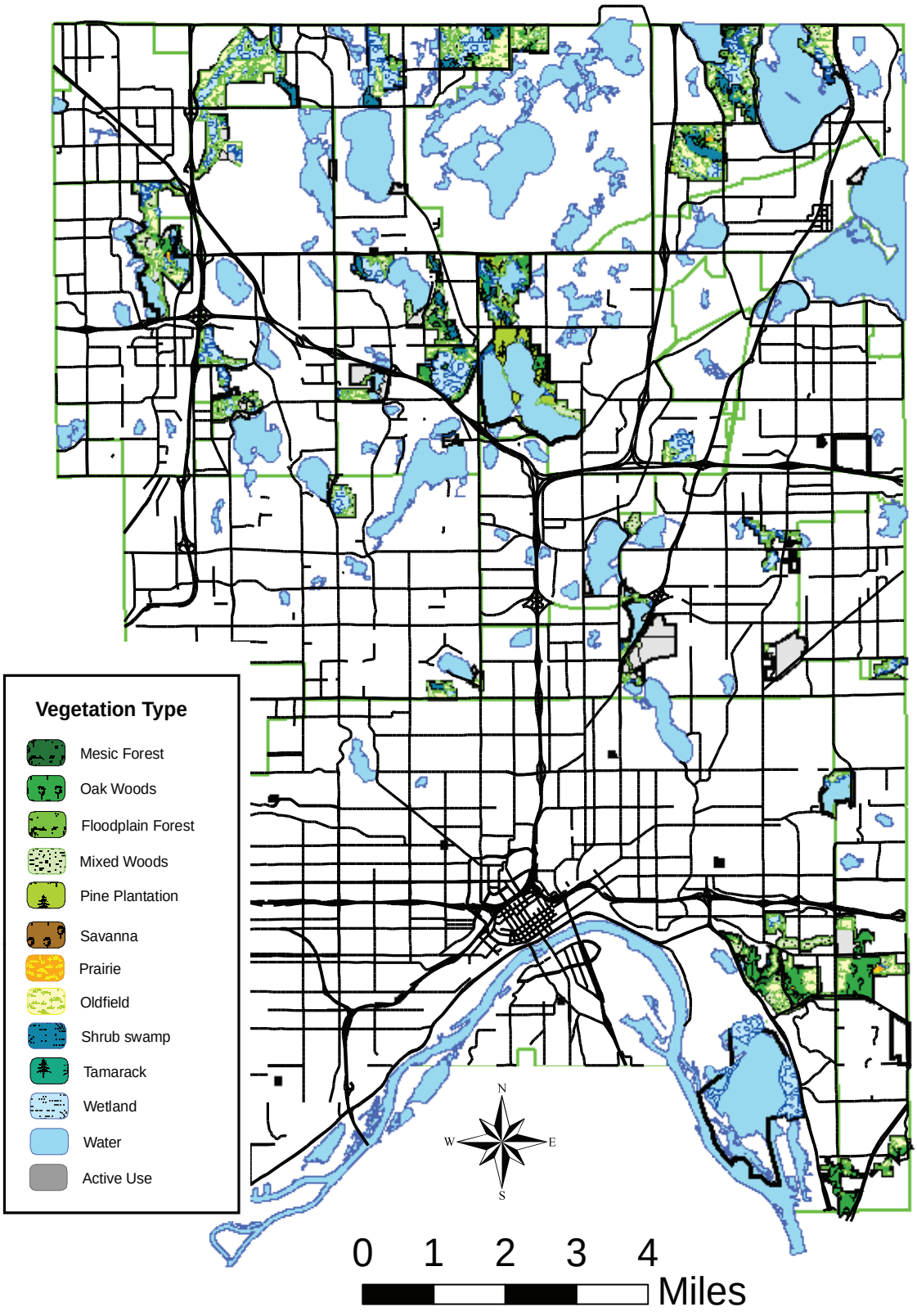
Wildlife Management

The Canada goose population is monitored, but no roundups have been conducted. If needed, the Canada goose population will be managed by roundups

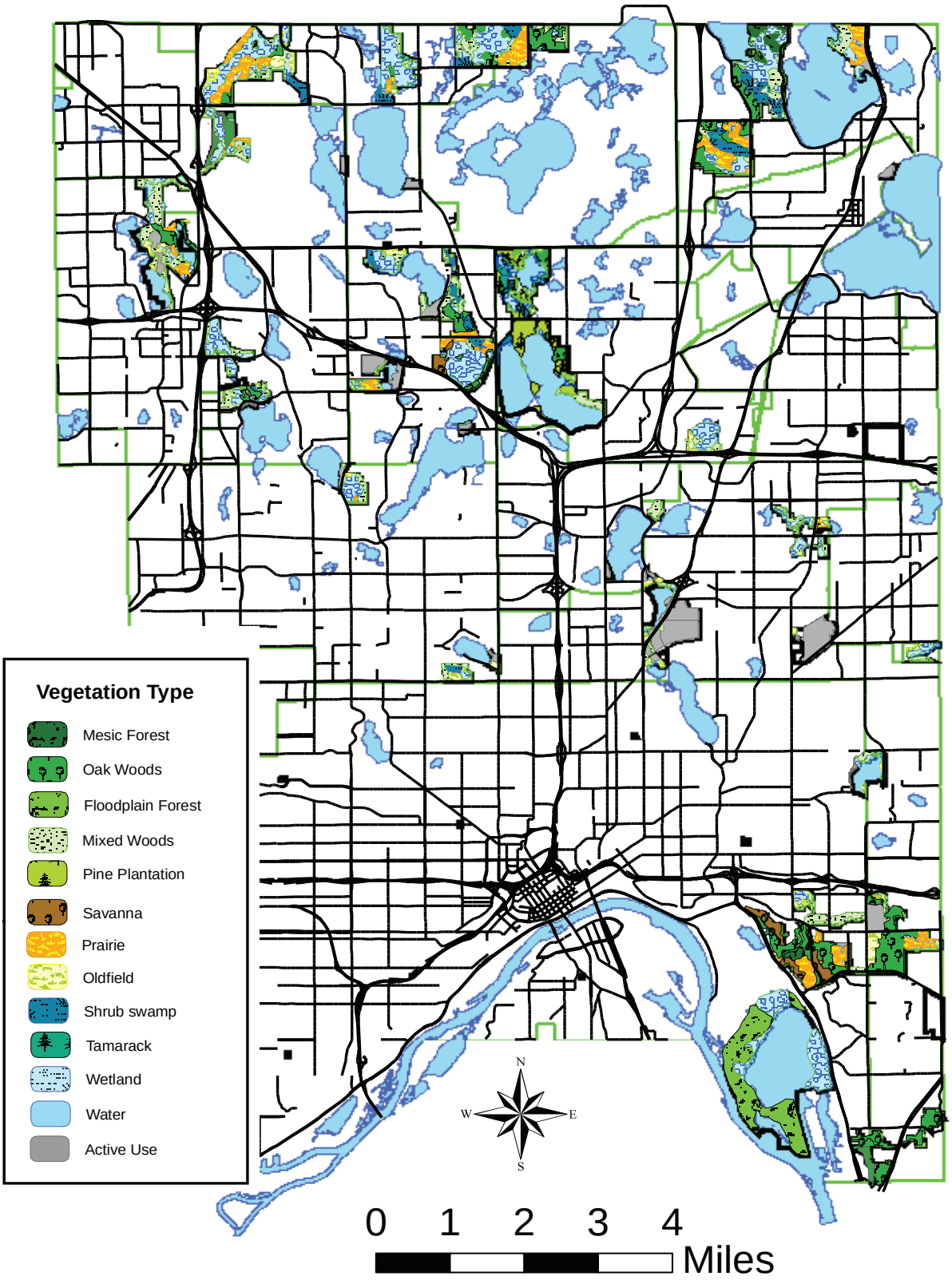
Current Vegetation and Habitats
Woodview Open Space



Current Vegetation and Habitats
Ramsey County Parks and Recreation



Proposed Vegetation and Habitats
Ramsey County Parks and Recreation



Restoration/Management Costs (in thousands) for Regional Properties

Priority	Bald Eagle	Battle Cr.	Keller	Long Lake	Schmidt	Vadnais Snail	Rice Cr	Total
1	145	88				10	30	273
2	246	530			15	112		903
3	410	296	35	82	22	143	322	1310
4		195		48	64	20	58	385
5								
total	**801**	**1109**	**35**	**130**	**101**	**285**	**410**	**2871**

Restoration/Management Costs (in thousands) for County Properties

Priority	Island	Josephine	Poplar	Turtle Cr.	Fish Cr.	Total
1			120			120
2			25			25
3		86	315	29	462	892
4	65		100	25	72	262
5						
total	**65**	**86**	**560**	**54**	**534**	**1299**

Grand Total - $4,170,000

REFERENCES

Adams, L. W. 1994. Urban Wildlife Habitats: A Landscape Perspective. University of Minnesota Press

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Appendix 1. Ramsey County Board Resolution

Resolution

Board of

Ramsey County Commissioners

Presented By: Commissioner Bennett Date: September 23, 2008 No. 2008-297

Attention: Budgeting and Accounting
Greg Mack, Parks and Recreation

==========

WHEREAS, The Ramsey County Parks and Recreation Department is responsible for the management of over 6,500 acres of parks and open space representing the largest natural resource land base in the County; and

WHEREAS, The County Board, in its Strategic Plan, identified a critical success indicator as "natural resources are managed to sustain and enhance the environment"; and

WHEREAS, The Natural Resources Management Plan establishes goals and objectives, ranks natural resources in terms of quality, provides priorities guidance for establishing new and maintaining existing natural resources; and

WHEREAS, The primary focus of managing the plant, animal and water resources within the parks system is to provide quality habitat in sufficient amounts to sustain populations of native wildlife species; and

WHEREAS, The Natural Resources Management Plan has been reviewed and recommended for approval by the Ramsey County Parks and Recreation Commission; Now, Therefore, Be It

RESOLVED, The Ramsey County Board of Commissioners approves the Ramsey County Parks and Recreation Department's Natural Resources Management Plan.

Ramsey County Board of Commissioners

	YEA	NAY	OTHER
Tony Bennett	X		
Toni Carter	X		
Jim McDonough	X		
Rafael Ortega	X		
Victoria Reinhardt	X		
Janice Rettman	X		
Jan Parker	X		

Jan Parker, Chair

By: Bonnie C. Jackelen
Chief Clerk – County Board

Appendix 2. Vertebrate Species of Greatest Conservation Need for the Anoka Sand Plain and St. Paul-Baldwin Plain

Scientific Name	Common Name	Anoka Sand Plain	St. Paul-Baldwin Plains
Mammals			
Microtus ochrogaster	Prairie Vole	X	X
Mustela nivalis	Least Weasel	X	X
Myotis septentrionalis	Northern Myotis	X	X
Perognathus flavescens	Plains Pocket Mouse	X	
Pipistrellus subflavus	Eastern Pipistrelle		X
Reithrodontomys megalotis	Western Harvest Mouse	X	X
Spermophilus franklinii	Franklin's Ground Squirrel	X	X
Spilogale putorius	Eastern Spotted Skunk	X	X
Taxidea taxus	American Badger	X	X
Birds			
Ammodramus henslowii	Henslow's Sparrow		X
Ammodramus leconteii	Le Conte's Sparrow	X	
Ammodramus savannarum	Grasshopper Sparrow	X	X
Anas acuta	Northern Pintail	X	X
Arenaria interpres	Ruddy Turnstone	X	X
Bartramia longicauda	Upland Sandpiper	X	X
Botaurus lentiginosus	American Bittern	X	X
Buteo lineatus	Red-shouldered Hawk	X	X
Calidris alpina	Dunlin	X	X
Calidris fuscicollis	White-rumped Sandpiper	X	X
Calidris pusilla	Semipalmated Sandpiper	X	X
Caprimulgus vociferus	Whip-poor-will	X	X
Catharus fuscescens	Veery	X	X
Chlidonias niger	Black Tern	X	X
Chordeiles minor	Common Nighthawk	X	X
Circus cyaneus	Northern Harrier	X	X
Cistothorus palustris	Marsh Wren	X	X
Cistothorus platensis	Sedge Wren	X	X
Coccyzus erythropthalmus	Black-billed Cuckoo	X	X
Contopus virens	Eastern Wood-pewee	X	X
Cygnus buccinator	Trumpeter Swan	X	X
Dendroica cerulea	Cerulean Warbler	X	X
Dolichonyx oryzivorus	Bobolink	X	X
Empidonax minimus	Least Flycatcher	X	X
Empidonax traillii	Willow Flycatcher	X	X
Empidonax virescens	Acadian Flycatcher		X
Falco peregrinus	Peregrine Falcon	X	X
Gallinula chloropus	Common Moorhen	X	X
Gavia immer	Common Loon	X	X
Haliaeetus leucocephalus	Bald Eagle	X	X

Scientific Name	Common Name	Anoka Sand Plain	St. Paul-Baldwin Plains
Hylocichla mustelina	Wood Thrush	X	X
Ixobrychus exilis	Least Bittern	X	X
Lanius ludovicianus	Loggerhead Shrike	X	X
Limnodromus griseus	Short-billed Dowitcher	X	X
Limosa haemastica	Hudsonian Godwit	X	X
Melanerpes erythrocephalus	Red-headed Woodpecker	X	X
Melospiza georgiana	Swamp Sparrow	X	X
Numenius phaeopus	Whimbrel	X	
Nycticorax nycticorax	Black-crowned Night-heron	X	X
Phalaropus tricolor	Wilson's Phalarope	X	
Pheucticus ludovicianus	Rose-breasted Grosbeak	X	X
Pluvialis dominica	American Golden-plover	X	X
Podiceps grisegena	Red-necked Grebe	X	X
Podiceps nigricollis	Eared Grebe	X	
Protonotaria citrea	Prothonotary Warbler		X
Rallus limicola	Virginia Rail	X	X
Recurvirostra americana	American Avocet	X	X
Scolopax minor	American Woodcock	X	X
Seiurus aurocapillus	Ovenbird	X	X
Seiurus motacilla	Louisiana Waterthrush	X	X
Sphyrapicus varius	Yellow-bellied Sapsucker	X	X
Spiza americana	Dickcissel	X	X
Spizella pusilla	Field Sparrow	X	X
Stelgidopteryx serripennis	N. Rough-winged Swallow	X	X
Sterna forsteri	Forster's Tern		X
Sturnella magna	Eastern Meadowlark	X	X
Toxostoma rufum	Brown Thrasher	X	X
Tringa melanoleuca	Greater Yellowlegs	X	X
Troglodytes troglodytes	Winter Wren		X
Tryngites subruficollis	Buff-breasted Sandpiper	X	X
Vermivora pinus	Blue-winged Warbler	X	X
Vireo bellii	Bell's Vireo		X
Wilsonia citrina	Hooded Warbler		X
Reptiles			
Apalone mutica	Smooth Softshell		X
Chelydra serpentina	Common Snapping Turtle	X	X
Clemmys insculpta	Wood Turtle	X	X
Cnemidophorus sexlineatus	Six-lined Racerunner		X
Coluber constrictor	Eastern Racer		X
Elaphe vulpina	Eastern Fox Snake	X	X
Emydoidea blandingii	Blanding's Turtle	X	X
Heterodon nasicus	Western Hognose Snake	X	X
Heterodon platirhinos	Eastern Hognose Snake	X	X
Lampropeltis triangulum	Milk Snake		X

Scientific Name	Common Name	Anoka Sand Plain	St. Paul-Baldwin Plains
Liochlorophis vernalis	Smooth Green Snake	X	X
Pituophis catenifer	Gopher Snake	X	X
Amphibians			
Necturus maculosus	Common Mudpuppy	X	X
Fish			
Acipenser fulvescens	Lake Sturgeon	X	X
Alosa chrysochloris	Skipjack Herring		X
Ammocrypta asprella	Crystal Darter		X
Ammocrypta clara	Western Sand Darter		X
Anguilla Rostrata	American Eel		X
Aphredoderus sayanus	Pirate Perch		X
Campostoma oligolepis	Largescale Stoneroller		X
Cycleptus elongatus	Blue Sucker		X
Etheostoma asprigene	Mud Darter		X
Etheostoma chlorosoma	Bluntnose Darter		X
Hybognathus nuchalis	Mississippi Silvery Minnow		X
Ichthyomyzon gagei	Southern Brook Lamprey		X
Ictiobus niger	Black Buffalo		X
Lampetra appendix	American Brook Lamprey		X
Lepomis gulosus	Warmouth		X
Lepomis megalotis	Longear Sunfish		X
Macrhybopsis aestivalis	speckled chub		X
Moxostoma carinatum	River Redhorse		X
Moxostoma valenciennesi	Greater Redhorse	X	X
Notropis amnis	Pallid Shiner		X
Notropis anogenus	Pugnose Shiner	X	X
Opsopoeodus emiliae	Pugnose Minnow		X
Percina evides	Gilt Darter		X
Polyodon spathula	Paddlefish		X
Scaphirhynchus platorynchus	Shovelnose Sturgeon		X

BIRDS OF RAMSEY COUNTY

This list was compiled for the 242 regular species found within Ramsey County. Accidental or causal species, those seen less than once a year, are not included. Code definitions are found at the end of the list.

√	SPECIES	SP	S	F	W	HABITAT
	Common Loon	U	U	U		W
	Pied-billed Grebe	C	C	C		W
	Horned Grebe	R		R		W
	Red-necked Grebe	U		U		W
	Eared Grebe	R		R		W
	Western Grebe	R		R		W
	American White Pelican	R	R	R		A,W
	Double-crested Cormorant	C	C	C		W
	American Bittern	R	R	R		W
	Least Bittern	R	R	R		W
	Great Blue Heron	C	C	C	R	W
	Great Egret	C	C	C		W
	Snowy Egret	R				W
	Cattle Egret	R	R			W
	Green Heron	C	C	C		W
	Black-crowned Night-Heron	U	U	U		W
	Yellow-crowned Night-Heron	R				W
	Turkey Vulture	U	U	U		A,F
	Snow Goose	R		R		W
	Canada Goose	A	A	A	C	W
	Mute Swan		R			W
	Trumpeter Swan	U	U	U	R	W
	Tundra Swan	U		U		A,W
	Wood Duck	C	C	C	R	W
	Gadwall	U		U		W
	American Wigeon	U		U		W
	American Black Duck	R	R	R		W
	Mallard	A	A	A		W
	Blue-winged Teal	U	U	U		W
	Northern Shoveler	U		U		W
	Northern Pintail	R		R		W
	Green-winged Teal	U		U		W
	Canvasback	U		U		W
	Redhead	U		U		W
	Ring-necked Duck	C		C	R	W
	Greater Scaup	R		R		W
	Lesser Scaup	C		C		W
	Bufflehead	C		C	R	W
	Common Goldeneye				U	W
	Hooded Merganser	C	U	C		W
	Common Merganser	U		U	U	W
	Red-breasted Merganser	R		R		W
	Ruddy Duck	R		R		W
	Osprey	U	U	U		A,O,W
	Bald Eagle	U	U	U		A,W
	Northern Harrier	U		U		O
	Sharp-shinned Hawk	C	U	C		F,D
	Cooper's Hawk	C	C	C		F
	Northern Goshawk	R		R	R	F
	Red-shouldered Hawk	U	U	U	R	F
	Broad-winged Hawk	U	U	U		F
	Red-tailed Hawk	C	C	C	U	O,S,F,D
	Rough-legged Hawk			R	R	O
	American Kestrel	C	C	C	U	O,D
	Merlin	R	R	R		O,F
	Peregrine Falcon	U	U	U		A,D
	Ring-necked Pheasant	U	C	C	U	O,S
	Ruffed Grouse	R	R	R	R	F
	Wild Turkey	U	U	U	U	O,S,F
	Virginia Rail	R	R	R		W
	Sora	U	U	R		W
	Common Moorhen	R		R		W
	American Coot	C	C	C	R	W
	Sandhill Crane	U		U		A,O,W
	Black-bellied Plover	R		R		W
	American Golden-Plover	R		R		W
	Semipalmated Plover	R				W
	Killdeer	C	C	C		O,D
	American Avocet	R				W
	Greater Yellowlegs	U	U	U		W
	Lesser Yellowlegs	U	U	U		W
	Solitary Sandpiper	U	U	U		W
	Willet	R				W
	Spotted Sandpiper	U	U	U		W
	Upland Sandpiper	R				O
	Sanderling	R		R		W
	Semipalmated Sandpiper	U				W
	Least Sandpiper	U				W
	Baird's Sandpiper	R		R		W
	Pectoral Sandpiper	U		U		W
	Dunlin	R				W
	Stilt Sandpiper	R		R		W
	Buff-breasted Sandpiper	R		R		W
	Short-billed Dowitcher	R				W
	Long-billed Dowitcher	R		R		W
	Common Snipe	U	R	U		W
	American Woodcock	U	U	U		O,S,F
	Wilson's Phalarope	R				W
	Franklin's Gull	U		C		A,O,W
	Bonaparte's Gull	R		R		A,W
	Ring-billed Gull	A	C	A	U	A,W,D
	Herring Gull				R	A,W
	Thayer's Gull				R	W
	Caspian Tern	U		R		W
	Common Tern	R		R		W
	Forster's Tern	U		U		W
	Black Tern	U	U	U		W
	Rock Dove	C	C	C	C	A,D
	Mourning Dove	C	C	C	R	O,S,D
	Black-billed Cuckoo	U	U	U		S
	Yellow-billed Cuckoo	U	U	U		S,F
	Eastern Screech-Owl	R	R	R	R	F
	Great Horned Owl	C	C	C	C	O,S,F
	Snowy Owl				R	O
	Barred Owl	U	U	U	U	F
	Great Gray Owl				R	F
	Long-eared Owl	R		R	R	F
	Short-eared Owl	R			R	O
	Northern Saw-whet Owl			R	R	S,F
	Common Nighthawk	U	U	U		A,D
	Whip-poor-will	R				A,F
	Chimney Swift	U	U	U		A,D
	Ruby-throated Hummingbird	U	U	U		A,F,D
	Belted Kingfisher	U	U	U		W
	Red-headed Woodpecker	R	R	R		O
	Red-bellied Woodpecker	C	C	C	C	F
	Yellow-bellied Sapsucker	R	R	R		F
	Downy Woodpecker	C	C	C	C	O,F,D
	Hairy Woodpecker	C	C	C	C	F
	Northern Flicker	U	U	U		O,F,D

√	SPECIES	SP	S	F	W	HABITAT
	Pileated Woodpecker	U	U	U	U	F
	Olive-sided Flycatcher	R		R		S,F
	Eastern Wood-Pewee	C	C	C		F
	Yellow-bellied Flycatcher	R		R		S
	Alder Flycatcher	U	U	U		S,W
	Willow Flycatcher	U	U	U		S,W
	Least Flycatcher	C	C	C		S,F
	Eastern Phoebe	C	U	C		F,D
	Great Crested Flycatcher	C	C	C		F
	Eastern Kingbird	C	C	U		O,S
	Loggerhead Shrike	R		R	R	O,S
	Northern Shrike	R		R	R	O,S
	Yellow-throated Vireo	U	U	U		F
	Warbling Vireo	U	U	U		F
	Philadelphia Vireo	R		R		F
	Red-eyed Vireo	C	C	C		F
	Gray Jay				R	S,D
	Blue Jay	A	A	A	A	S,F,D
	American Crow	A	A	A	A	A,O,S,F,D
	Horned Lark	R		R	R	O
	Purple Martin	U	R	U		A,W
	Tree Swallow	C	C	C		A,O,W
	N. Rough-winged Swallow	U	U	U		A,W
	Bank Swallow	U	U	U		A,W
	Cliff Swallow	U	U	U		A,W
	Barn Swallow	U	U	U		A.W.D
	Black-capped Chickadee	A	A	A	A	O,F,D
	Red-breasted Nuthatch	U	R	U	R	F,D
	White-breasted Nuthatch	C	C	C	C	F,D
	Brown Creeper	U	R	U	U	F
	House Wren	C	A	C		S,D
	Winter Wren	R		R		S,W
	Sedge Wren	U	U	U		O,W
	Marsh Wren	U	U	U		W
	Golden-crowned Kinglet	U		U		F
	Ruby-crowned Kinglet	C		C		S,F,D
	Blue-gray Gnatcatcher	C	U	C		F
	Eastern Bluebird	C	C	C	R	O,S,D
	Veery	C		C		F
	Gray-cheeked Thrush	U		U		S,F
	Swainson's Thrush	C		C		S,F
	Hermit Thrush	C		C		F
	Wood Thrush	U	U	R		F
	American Robin	A	A	A	R	S,F,D
	Gray Catbird	C	C	C		S,F,D
	Brown Thrasher	U	U	U		S
	European Starling	C	C	C	C	F,D
	Bohemian Waxwing	R			R	S,D
	Cedar Waxwing	C	C	C	R	S,F,D

√	SPECIES	SP	S	F	W	HABITAT
	Blue-winged Warbler	U		R		S,F
	Golden-winged Warbler	U		U		S
	Tennessee Warbler	C		C		S,F
	Orange-crowned Warbler	U		U		S
	Nashville Warbler	C		C		S,F
	Northern Parula	R		R		S,F
	Yellow Warbler	A	A	C		S,W
	Chestnut-sided Warbler	C	R	C		S
	Magnolia Warbler	R		U		S,F
	Cape May Warbler	R		R		F
	Black-throated Blue Warbler	R		R		S
	Yellow-rumped Warbler	A		A		S,F,D
	Black-throated Green Warbler	U		U		F
	Blackburnian Warbler	U		U		F
	Pine Warbler	U	R	U		F,D
	Palm Warbler	C		C		S,D
	Bay-breasted Warbler	R		U		F
	Blackpoll Warbler	U	R	U		F
	Cerulean Warbler	U				F
	Black-and-white Warbler	C		C		F
	American Redstart	C	C	C		S,F
	Prothonotary Warbler	R				F,W
	Ovenbird	U	U	C		F
	Northern Waterthrush	U		U		F,W
	Connecticut Warbler	R		R		S,F
	Mourning Warbler	U		U		S,W
	Common Yellowthroat	A	A	C		S,W
	Hooded Warbler	R				F
	Wilson's Warbler	U		U		S,W
	Canada Warbler	U		U		S,F
	Scarlet Tanager	U	U	U		F
	Eastern Towhee	U	U	U		S,D
	American Tree Sparrow	C		C	C	O,S,D
	Chipping Sparrow	C	C	C		S,D
	Clay-colored Sparrow	U	U	U		O,S
	Field Sparrow	U	U	U		S
	Vesper Sparrow	R	R	R		O
	Savannah Sparrow	R	R	R		O
	Grasshopper Sparrow	R	R	R		O
	Le Conte's Sparrow	R		R		O,W
	Fox Sparrow	C		C		F,D
	Song Sparrow	A	A	A	R	S
	Lincoln's Sparrow	R		R		S,D
	Swamp Sparrow	C	C	C		W
	White-throated Sparrow	C		C		S,D
	Harris's Sparrow	R		R		O,S,D
	White-crowned Sparrow	R		R		S,D
	Dark-eyed Junco	A		A	U	O,S,D
	Lapland Longspur	R		R		O
	Northern Cardinal	A	A	A	A	S,F,D
	Rose-breasted Grosbeak	U	U	U		S,F,D
	Indigo Bunting	U	U	U		S
	Bobolink	R	R			O
	Red-winged Blackbird	A	A	A	R	S,W,D

√	SPECIES	SP	S	F	W	HABITAT
	Eastern Meadowlark	U	R	U		O
	Western Meadowlark	R		R		O
	Yellow-headed Blackbird	R	R	R		W
	Rusty Blackbird	R		R		W
	Brewer's Blackbird	R		R		O
	Common Grackle	A	A	A	R	S,F,D
	Brown-headed Cowbird	A	A	A		S,F,D
	Orchard Oriole	R	R	R		S
	Baltimore Oriole	U	U	U		S,D
	Pine Grosbeak				R	F,D
	Purple Finch	U		U		F,D
	House Finch	C	C	C	C	D
	Red Crossbill				R	F,D
	White-winged Crossbill				R	F,D
	Common Redpoll	U			U	O,D
	Hoary Redpoll				R	O,D
	Pine Siskin	U		U	U	D
	American Goldfinch	C	A	A	C	O,S,D
	Evening Grosbeak	R		R	R	F,D
	House Sparrow	A	A	A	A	D
	Additional Species					

Seasons

Sp Spring: early March to late May
S Summer: late May to mid August
F Fall: mid August to late November
W Winter: late November to early March

Abundance Codes

A Abundant, easily seen in all parts of the county
C Common, regularly seen in most parts of the county
U Uncommon, but predictably occurring in specific areas or habitats
R Rare, seen infrequently, unpredictable

Habitat Codes

A Aerial – birds most often seen in flight or soaring
O Open County – grasslands, prairies, meadows
S Shrubs/Small trees – fencerows, forest edges, overgrown fields
F Forests – woodlots, mature trees with closed canopy
W Water/Wetlands – ponds, lakes, rivers, marshes, swamps
D Developed – buildings, feeders, trails, roads, bridges

Persons with additional species to report should contact: Ramsey County Parks, 2015 N. Van Dyke St, Maplewood, MN 55109. www.co.ramsey.mn.us/parks

August 2001 complied by jjm

AMPHIBIANS, REPTILES AND MAMMALS OF RAMSEY COUNTY

Amphibians, Reptiles and Mammals are normally secretive species that may present a challenge to the viewer even when they are common. We recommend that you refer to a field guide to find additional information to increase your viewing opportunities.

√	SPECIES	SCIENTIFIC NAME	ABUNDANCE	HABITAT
	Amphibians			
	Salamanders			
	Tiger Salamander	*Ambystoma tigrinum*	U	O,W,D
	Frogs and Toads			
	American Toad	*Bufo americanus*	A	O,S,F,W,D
	Cope's Gray Treefrog	*Hyla chrysoscelis*	C	O,S,W
	Gray Treefrog	*Hyla versicolor*	C	F,W
	Spring Peeper	*Pseudacris crucifer*	R	F,W
	Western Chorus Frog	*Pseudacris triseriata*	A	O,S,W
	Green Frog	*Rana clamitans*	U	W
	Northern Leopard Frog	*Rana pipiens*	C	O,S,W
	Wood Frog	*Rana sylvatica*	U	S,F,W
	Reptiles			
	Turtles			
	Spiny Softshell	*Apalone spinifera*	U	W
	Snapping Turtle	*Chelydra serpentina*	C	W
	Painted Turtle	*Chrysemys picta*	C	W
	Blanding's Turtle	*Emydoidea blandingii*	R	W
	Lizards			
	Prairie Skink	*Eumeces septentrionalis*	U	O,S
	Snakes			
	Western Fox Snake	*Elaphe vulpina*	R	O,S,F
	Eastern Hognose Snake	*Heterodon platirhinos*	R	O,S
	Northern Water Snake	*Nerodia sipedon*	U	W
	Brown Snake	*Storeria dekayi*	U	O,S,F
	Redbelly Snake	*Storeria occipitomaculata*	C	O,S,D
	Plains Garter Snake	*Thamnophis radix*	C	O,S,F
	Common Garter Snake	*Thamnophis sirtalis*	C	O,S,F,W

√	SPECIES	SCIENTIFIC NAME	ABUNDANCE	HABITAT
	Mammals			
	Opossums			
	Virginia opossum	*Didelphis virginiana*	C	O,S,F,D
	Moles and Shrews			
	northern short-tailed shrew	*Blarina brevicauda*	A	O,S,F,D
	star-nosed mole	*Condylura cristata*	C	O,S,D
	eastern mole	*Scalopus aquaticus*	U	O,S,D
	arctic shrew	*Sorex arcticus*	U	W,S,F
	masked shrew	*Sorex cinereus*	C	O,S,F
	Bats			
	big brown bat	*Eptesicus fuscus*	C	A,D
	silver-haired bat	*Lasioneycteris noctivagans*	R	A,F
	red bat	*Lasiurus borealis*	R	A,F
	hoary bat	*Lasiurus cinereus*	R	A,F
	little brown bat	*Myotis lucifugus*	C	A,D
	Rodents			
	beaver	*Castor canadensis*	C	W
	redback vole	*Clethrionomys gapperi*	R	F
	plains pocket gopher	*Geomys bursarius*	A	O,S
	southern flying squirrel	*Glaucomys volans*	U	F
	woodchuck	*Marmota monax*	C	O,S,D
	meadow vole	*Microtus pennyslvanicus*	A	O,S,F
	house mouse	*Mus musculus*	C	D
	muskrat	*Ondatra zibethicus*	C	W
	white-footed mouse	*Peromyscus leucopus*	A	S,F,D
	deer mouse	*Peromyscus maniculatus*	C	O,S,F
	Norway rat	*Rattus norvegicus*	C	D
	gray squirrel	*Sciurus carolinensis*	A	O,S,F,D
	fox squirrel	*Sciurus niger*	C	S,F,D
	thirteen-lined ground squirrel	*Spermophilus tridecemlineatus*	C	O,S,D
	eastern chipmunk	*Tamias striatus*	C	S,F,D
	red squirrel	*Tamiasciurus hudsonicus*	C	S,F,D
	meadow jumping mouse	*Zapus hudsonius*	C	O,S
	Rabbits			
	white-tailed jack rabbit	*Lepus townsendii*	U	O,S
	eastern cottontail	*Sylvilagus floridanus*	A	O,S,D
	Hoofed Mammals			
	white-tailed deer	*Odocoileus virginianus*	A	O,S,F

√	SPECIES	SCIENTIFIC NAME	ABUNDANCE	HABITAT
	Carnivores			
	coyote	*Canis latrans*	U	O,S,F
	river otter	*Lutra canadensis*	U	W
	striped skunk	*Mephitis mephitis*	C	O,S,F,D
	ermine	*Mustela erminea*	C	O,S,F,D
	long-tailed weasel	*Mustela frenata*	R	O,S,F
	mink	*Mustela vison*	C	O,S,W
	raccoon	*Procyon lotor*	C	F,W,D
	gray fox	*Urocyon cinereoargenteus*	U	S,F
	black bear	*Ursus americanus*	R	O,S
	red fox	*Vulpes vulpes*	C	O,S,F

Abundance Codes

A Abundant, easily seen in all parts of the county
C Common, regularly seen in most parts of the county
U Uncommon, but predictably occurring in specific areas or habitats
R Rare, seen infrequently, unpredictable

Habitat Codes

A Aerial – birds most often seen in flight or soaring
O Open County – grasslands, prairies, meadows
S Shrubs/Small trees – fencerows, forest edges, overgrown fields
F Forests – woodlots, mature trees with closed canopy
W Water/Wetlands – ponds, lakes, rivers, marshes, swamps
D Developed – buildings, feeders, trails, roads, bridges

Persons with additional species to report should contact: Ramsey County Parks, 2015 N. Van Dyke St, Maplewood, MN 55109. www.co.ramsey.mn.us/parks

August 2001 complied by jjm

Appendix 4.

St. Paul Baldwin Plains and Moraines

SUBSECTION OVERVIEW

The St. Paul Baldwin Plains and Moraines encompass much of the eastern half of the Twin Cities metropolitan area, including St. Paul and its suburbs. The Mississippi River flows through the center of this subsection, and the St. Croix River forms the eastern boundary. Both of these rivers have a profoundly vital role for wildlife. Oak and aspen savanna were the primary vegetative communities before settlement by people of European descent, but tallgrass prairie and maple-basswood forest were also common.

Urban land uses dominate this subsection, although small, forested areas remain, especially in parts of northern Washington County. While there is significant interest in preserving open space, the area continues to expand rapidly, diminishing the opportunities to conserve important places. Protection of existing wetlands is important for flood control and filtering of stormwater runoff, and water quality remains a significant concern throughout. There are many recreational opportunities, especially along the large rivers and in state parks, scientific and natural areas, regional parks, and nature centers.

Quick facts

Acres: 463,563 (0.9% of state)

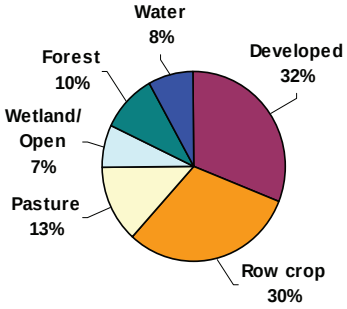
Ownership

Public	Private	Tribal
6.5%	93.5%	0.0%

Population density (people/sq. mi.)

Current	Change (2000-2010)
1,382	+216

Current Land Use/Land Cover



SPECIES IN GREATEST CONSERVATION NEED

149 Species in Greatest Conservation Need (SGCN) are known or predicted to occur within the St. Paul Baldwin Plains and Moraines, the second most of all subsections in Minnesota. These SGCN include 76 species that are federal or state endangered, threatened, or of special concern. The table, SGCN by Taxonomic Group, displays by taxonomic group the number of SGCN that occur in the subsection, as well as the percentage of the total SGCN set represented by each taxon. For example, 8 mammal SGCN are known or predicted to occur in the St. Paul Baldwin Plains and Moraines, approximately 36% of all mammal SGCN in the state.

SGCN BY TAXONOMIC GROUP

Taxa	# of SGCN	Percentage of SGCN Set by Taxon	Examples of SGCN
Amphibians	3	50.0	Northern cricket frog
Birds	59	60.8	Eastern wood pewee
Fishes	25	53.2	Paddlefish
Insects	12	21.4	St. Croix snaketail
Mammals	8	36.4	American badger
Mollusks	25	64.1	Wartyback
Reptiles	14	82.4	Smooth softshell
Spiders	3	37.5	*M. grata*

HIGHLIGHTS

- This subsection is highlighted not only as a significant migratory corridor for birds but also for the great diversity of mussels and small stream fishes that depend on clear, unpolluted waters of the St. Croix River, including the spike, elephant-ear, snuffbox, ebonyshell, and federally endangered Higgins' eye pearly mussel.
- Featured species also include bald eagles, peregrine falcons, red-shouldered hawks, Blanding's turtles, trumpeter swans, hooded warblers, and bobolinks.
- Areas important for SGCN include Battle Creek Park, Warner Nature Center, Lost Valley Prairie, Pig's Eye Island Heron Rookery, Gray Cloud Dunes, and Pine Bend Bluffs SNAs; Square Lake Park; and William O'Brien SP.

SPECIES SPOTLIGHT

Spike mussel *(Elliptio dilatata)*

Distribution Found only in the St. Croix River and its tributaries, Rose Creek, and the outlet of Lake Pepin on the Mississippi River.

Abundance Rare. Now found only in a small number of drainages.

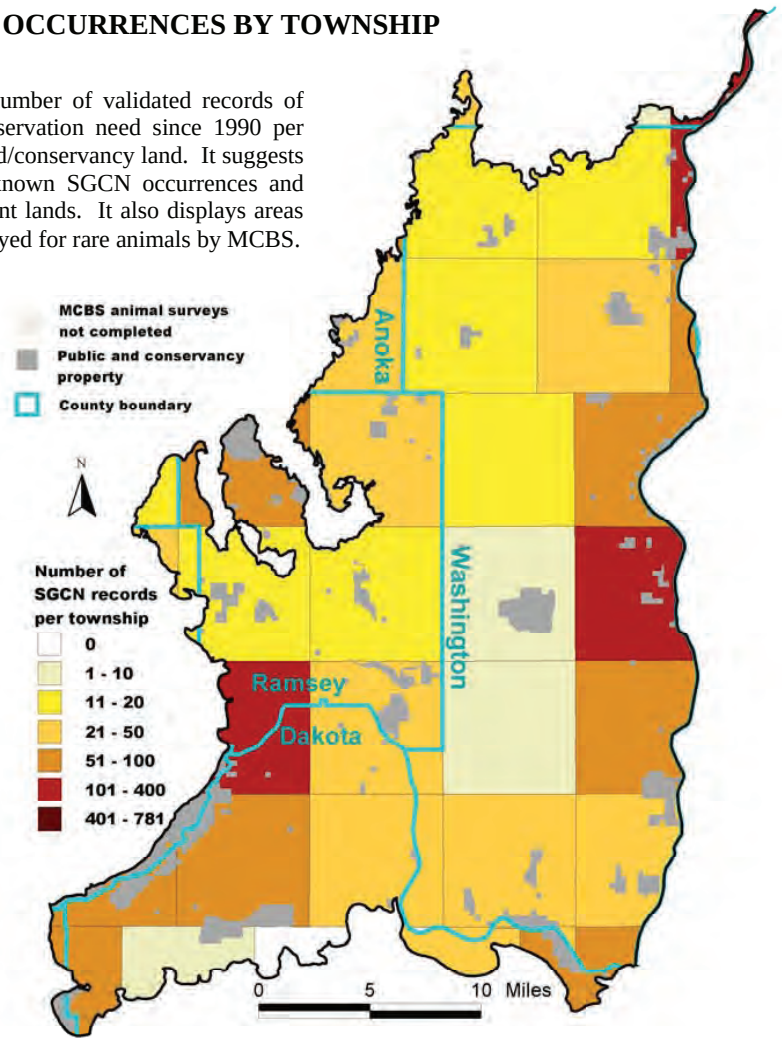
Legal Status State list-Special Concern.

Comments Significant decline has occurred after being historically widespread and abundant in MN. This mussel has declined due to degradation of water quality, sedimentation, and alteration of streams and rivers for navigation and impoundment purposes.

Photo by Deb Rose

SGCN ELEMENT OCCURRENCES BY TOWNSHIP

This map depicts the number of validated records of species in greatest conservation need since 1990 per township and public land/conservancy land. It suggests relationships between known SGCN occurrences and conservation management lands. It also displays areas that have not been surveyed for rare animals by MCBS.



Sources: MN DNR Natural Heritage database, MN DNR County Biological Survey (MCBS), MN DNR Statewide Mussel Survey, MN DNR Fisheries Fish database. Areas with no MCBS animal surveys have had mussel and fish surveys, as well as reports of other species occurrences recorded in the MN DNR Natural Heritage database.

SPECIES PROBLEM ANALYSIS

The species problem analysis provides information on the factors influencing the vulnerability or decline of SGCN that are known or predicted to occur in the subsection. The table lists the nine problems, or factors, used in the analysis, and the percentage of SGCN in the subsection for which each factor influences species vulnerability or decline. The results of the species problem analysis indicate that habitat loss and degradation in the subsection are the most significant challenges facing SGCN populations.

NOTE: The inverse of the percentages for each problem does not necessarily represent the percentage of SGCN for which the factor is not a problem, but instead may indicate that there is not sufficient information available to determine the level of influence the factor has on SGCN in the subsection.

Problem	Percentage of SGCN in the Subsection for Which This Is a Problem
Habitat Loss in MN	81
Habitat Degradation in MN	87
Habitat Loss/Degradation Outside of MN	28
Invasive Species and Competition	32
Pollution	38
Social Tolerance/Persecution/Exploitation	21
Disease	2
Food Source Limitations	3
Other	17

St. Paul Baldwin Plains and Moraines

KEY HABITATS - For Species in Greatest Conservation Need

The CWCS identified key habitats for SGCN within the subsection using a combination of five analyses, labeled A-E below. The table depicts the five analyses, and under which analyses the key habitats qualified. To qualify as a key habitat for the subsection, the habitat had to meet the criteria used in at least one of the five analyses, as specified in the descriptions to the right of the table. The graphs below depict results from four (A-D) of the five analyses used in determining key habitats. Those habitats that meet the criteria are highlighted in **RED** in the graph for that analysis. Those habitats that do not meet the criteria are shaded in **GOLD**. Analysis E is not represented by a graph; the results of this analysis are presented as a list of key rivers/streams in Appendix I. For a more detailed explanation of the five analyses used, see Chapter 7, Methods and Analyses.

	ANALYSIS				
KEY HABITATS	**A**	**B**	**C**	**D**	**E**
Forest-Upland Deciduous (Aspen-oak)			X		
Forest-Upland Deciduous (Hardwood)			X		
Oak Savanna	X		X		
Prairie	X	X	X		
Wetland-Nonforest			*		
Grassland	X				
Shoreline-dunes-cliff/talus		X			
Lake-Shallow				X	
River-Headwater to Large				X	X
River-Very Large (Mississippi River)				X	X

*Wetlands do not represent more than 5% of the 1890s or 1990s landcover, but the 1984 Anderson & Craig study indicates wetlands have declined by greater than 50% in this subsection.

Description of Analyses

A: Terrestrial habitat use analysis - terrestrial habitats that represent more than 5% of 1890s or 1990s landcover and are modeled to have the most SGCN using them based on a z-test with $p<0.01$.

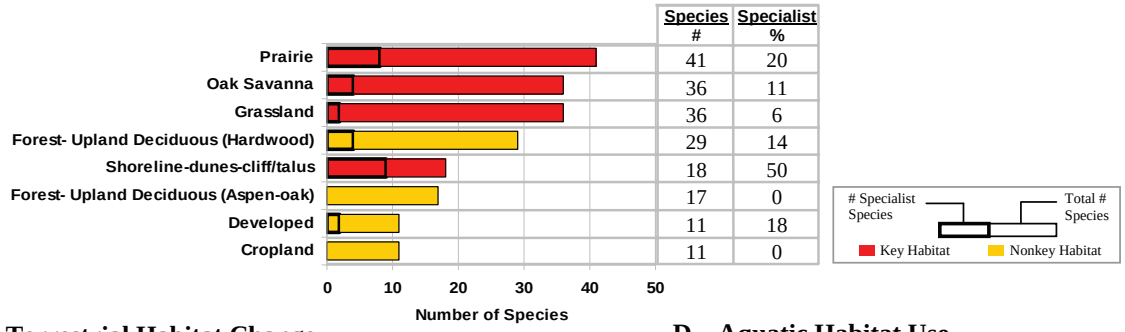
B: Specialist terrestrial habitat use analysis - terrestrial habitats that represent more than 5% of 1890s or 1990s landcover and have more than 15 species, 20% of which use 2 or fewer habitats (specialist species).

C: Terrestrial habitat change analysis - terrestrial habitats that represent more than 5% of the 1890s landcover and have declined by more than 50% in the 1990s landcover. For wetlands this change was based on an analysis done by Anderson & Craig in *Growing Energy Crops on Minnesota's Wetlands: The Land Use Perspective* (1984).

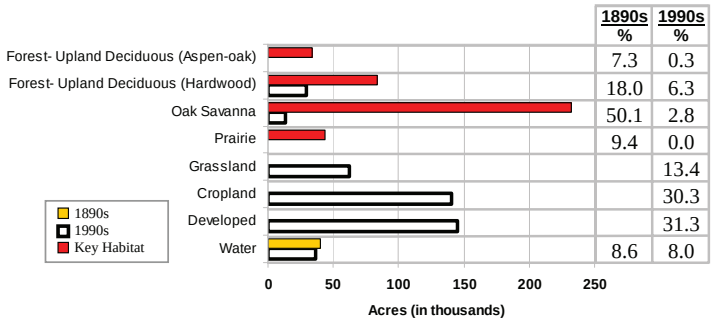
D: Aquatic habitat use analysis - lake or stream habitats that have the most SGCN use based on a z-test with $p<0.01$ of all subsections.

E: The Nature Conservancy/SGCN occurrence analysis - stream reaches identified in the Areas of Aquatic Biodiversity Significance in the four TNC Ecoregional Assessments and reaches with high SGCN occurrences (see Appendix I for list of stream reaches).

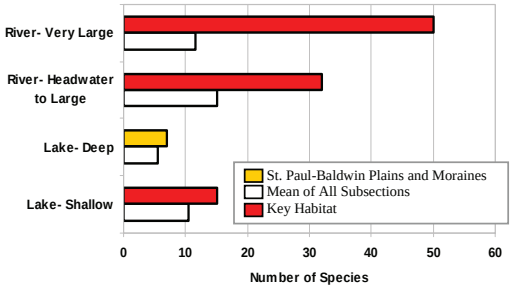
A/B – Terrestrial Habitat Use/Specialist Terrestrial Habitat Use



C – Terrestrial Habitat Change



D – Aquatic Habitat Use

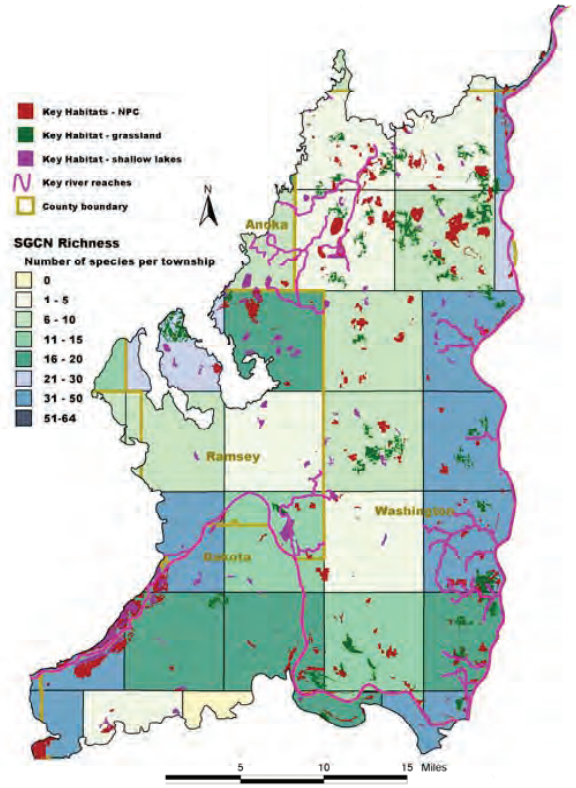


E – The Nature Conservancy/SGCN Occurrence

To reference the key rivers and streams for the subsection, see Appendix I.

St. Paul Baldwin Plains and Moraines

DISTRIBUTION OF KEY HABITATS AND SPECIES RICHNESS BY TOWNSHIP



This map depicts key habitats and the number of species of SGCN per township based on the sources listed below. It suggests there is often a relationship between key habitats and species richness (i.e., the variety of species of SGCN in a township).

Sources: Information used for key habitats was first based on native plant community classifications (NPC), and where NPC were not available, the MN GAP landcover. Shallow lakes are from the MN DNR shallow lake program; deep lakes are those with at least one SGCN occurrence. Grasslands are identified from the HAPET GBCA model where available, and otherwise, from the regionally significant environmental areas, or HAPET landcover map.

SUBSECTION HABITAT PERCENTAGES AND HABITAT USE BY SGCN TAXA

This table presents information on the percentages for each habitat in the subsection (showing changes in coverage between the mid- to late 1800s and the 1990s), as well as habitat use by SGCN taxonomic group. Habitats are listed in ranked order for percent coverage within the subsection in the 1990s. Key habitats for the subsection (as identified on previous page) are listed in **BOLD**. SGCN habitat use is broken down by taxonomic group, with a total number of species for all taxonomic groups listed at the far right of the table.

			SGCN BY TAXONOMIC GROUP								
HABITAT	Percentage of Subsection (1890s)	Percentage of Subsection (1990s)	Amphibians	Birds	Fishes	Insects	Mammals	Mollusks	Reptiles	Spiders	Total Number of Species
Developed	N/A	31.3		5		1	4		1		11
Cropland	N/A	30.3		6			4		1		11
Grassland	N/A	13.4		17			8		10	1	36
Forest-Upland Deciduous (Hardwood)	18.0	6.3	1	16		2	5		5		29
Lake-Deep	N/A	6.3	1	2	3				1		7
Wetland-Nonforest	2.7	3.5	1	28		1	3		2	2	37
Oak Savanna	50.1	2.8	1	16		3	7		9		36
Forest-Upland Coniferous	0.0	2.0	1	13		2	4		6		26
Lake-Shallow	N/A	1.7		11	1				2		14
Forest-Lowland Deciduous	2.2	1.4		16		1	3		2		22
Forest-Lowland Coniferous	1.8	0.7		8		1	1			1	11
Forest-Upland Deciduous (Aspen-oak)	7.3	0.3	1	13			3				17
Prairie	9.4	0.0		15		5	7		11	3	41
Shoreline-dunes-cliff/talus	N/A	N/A	1	10			1		6		18
Shrub-Lowland	N/A	N/A	1	14		1	3		1		20
River-Headwater to Large	N/A	N/A	1	3	14	3		8	3		32
River-Very Large (Mississippi River)	N/A	N/A	2	2	19			24	3		50

N/A: Insufficient data available to determine percent coverage within subsection. We have no data to indicate the existence of cropland, grassland, or developed land prior to settlement by people of European descent, although these land uses likely did occur at very low levels.
NOTE: 0.0 indicates less than 0.05 percent coverage.

St. Paul Baldwin Plains and Moraines

Ten-Year Goals, Management Challenges, Strategies, and Priority Conservation Actions

Goal I: Stabilize and increase SGCN populations

Management Challenge 1 – There has been significant loss and degradation of SGCN habitat
Strategy I A – Identify key SGCN habitats and focus management efforts on them

Priority Conservation Actions to Maintain and Enhance the Key Habitats

1. **Upland deciduous aspen-oak forest habitats**, actions include:
   a. Incorporate SGCN habitat concerns in forest management planning
   b. Provide technical assistance to interested individuals and organizations
2. **Upland deciduous hardwood forest habitats**, actions include:
   a. Incorporate SGCN habitat concerns in forest management planning
   b. Provide technical assistance to interested individuals and organizations
3. **Oak savanna habitats**, actions include:
   a. Manage invasive species
   b. Use prescribed fire and other practices to maintain savanna
   c. Encourage oak savanna restoration efforts
   d. Provide technical assistance to interested individuals and organizations
4. **Native prairie habitats**, actions include:
   a. Manage invasive species
   b. Use prescribed fire and other practices to maintain prairie
   c. Manage grasslands adjacent to native prairie to enhance SGCN habitat
   d. Encourage prairie restoration efforts
   e. Provide technical assistance to interested individuals and organizations
5. **Nonforested wetlands**, actions include:
   a. Enforce the Wetlands Conservation Act
   b. Manage habitats adjacent to wetlands to enhance SGCN values
   c. Provide technical assistance to interested individuals and organizations
6. **High-quality grassland habitats**, actions include:
   a. Maintain high-quality grasslands
   b. Support the maintenance of pasture and grassland habitats valuable to SGCN
   c. Encourage when appropriate transformation of plowed fields into pasture/grasslands
   d. Provide technical assistance to interested individuals and organizations
7. **Shallow lake habitats**, actions include:
   a. Maintain good water quality in shallow lakes
   b. Enhance near-shore terrestrial and aquatic habitats
   c. Provide technical assistance to interested individuals and organizations
8. **Stream habitats**, actions include:
   a. Maintain good water quality, hydrology, geomorphology, and connectivity in priority stream reaches
   b. Maintain and enhance riparian areas along priority stream reaches
   c. Provide technical assistance to interested individuals and organizations
9. **Shoreline, dune, cliff/talus habitats**, actions include:
   a. Support the protection of these habitats from damaging development
   b. Enhance SGCN habitat along the shoreline
   c. Enhance SGCN habitat within dune communities
   d. Provide technical assistance to interested individuals and organizations

Management Challenge 2 – Some SGCN populations require specific management actions
Strategy I B – Manage federal and state listed species effectively

Priority Conservation Actions for Specific SGCN

1. Implement existing federal recovery plans
2. Develop and implement additional recovery plans
3. Provide technical assistance to managers, officials, and interested individuals related to listed species
4. Enforce federal and state endangered species laws, as well as other wildlife laws and regulation

Strategy I C – Manage emerging issues affecting specific SGCN populations

Priority Conservation Actions for Specific SGCN

1. Work with partners to effectively address emerging issues affecting SGCN populations
2. Enforce federal and state wildlife laws and regulations

Goal II: Improve knowledge about SGCN

Management Challenge 1 – More information about SGCN and SGCN management is needed

Strategy II A – Survey SGCN populations and habitats

Priority Conservation Actions for Surveys

1. Survey SGCN populations within the subsection, actions include:
   a. Continue MCBS rare animal surveys
   b. Survey SGCN populations related to key habitats
   c. Survey wildlife taxa underrepresented by MCBS animal surveys
2. Survey SGCN habitats within the subsection, actions include:
   a. Assess the amount and quality of key habitats and map their locations

Strategy II B – Research populations, habitats, and human attitudes/activities

Priority Conservation Actions for Research

1. Research important aspects of species populations within the subsection, actions include:
   a. Better understand the life history and habitat requirements of important SGCN
2. Research important aspects of SGCN habitats within the subsection, actions include:
   a. Identify best management practices for maintaining and enhancing key habitats
   b. Identify important patterns and distributions of key habitats to better support SGCN populations
   c. Identify important functional components within key habitats to support specific SGCN
   d. Explore important, emerging SGCN habitat management issues
3. Research important aspects of people's understanding of SGCN within the subsection, actions include:
   a. Identify people's attitudes and values regarding SGCN
   b. Identify places and ways people can enjoy and appreciate SGCN

Strategy II C – Monitor long-term changes in SGCN populations and habitats

Priority Conservation Actions for Monitoring

1. Monitor long-term trends in SGCN populations, actions include:
   a. Continue existing population monitoring activities
   b. Develop additional monitoring activities for specific SGCN populations
2. Monitor long-term trends in SGCN habitats, actions include:
   a. Develop long-term monitoring activities for important SGCN habitats

Strategy II D – Create performance measures and maintain information systems

Priority Conservation Actions for Performance Measures and Information Systems

1. Create and use performance measures, actions include:
   a. Develop partner-specific performance measures within the subsection
   b. Develop project-specific performance measures for SWG-funded projects
   c. Actively incorporate monitoring and performance measure information to enhance adaptive management
2. Maintain and update information management systems

Goal III: Enhance people's appreciation and enjoyment of SGCN

Management Challenge 1 – Need for greater appreciation of SGCN by people

Strategy III A – Develop outreach and recreation actions

Priority Conservation Actions for Outreach and Recreation

1. Create new information and communicate with people to enhance their appreciation of SGCN
2. Create opportunities for people to appropriately enjoy SGCN-based recreation

Anoka Sand Plain

SUBSECTION OVERVIEW

The Mississippi River forms the western boundary of the Anoka Sand Plain Subsection. A broad, flat, sandy lake plain dominates the majority of this area and forms the eastern and northern boundaries. Historically, the predominant vegetation was oak savanna and upland prairies surrounded by varied wetland complexes.

This subsection stretches across the northern Twin Cities metropolitan area, including St. Cloud to the west and North Branch to the east, and has the second-fastest-growing population in the state. Urban development and agriculture (primarily sod and vegetable crops), which occurs in about one-third of the subsection, has led to the conversion of prairie and savanna and drained peat areas.

Quick facts

Acres: 1,199,711 (2.2% of state)

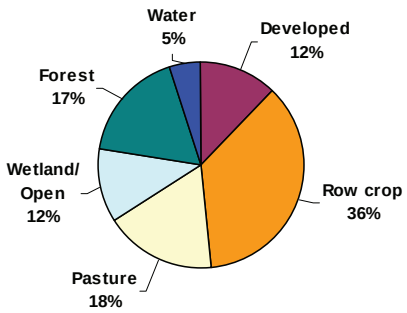
Ownership

Public	Private	Tribal
9.7%	90.3%	0.0%

Population density (people/sq. mi.)

Current	Change (2000-2010)
627	+103

Current Land Use/Land Cover



SPECIES IN GREATEST CONSERVATION NEED

97 Species in Greatest Conservation Need (SGCN) are known or predicted to occur within the Anoka Sand Plain. These SGCN include 39 species that are federal or state endangered, threatened, or of special concern. The table, SGCN by Taxonomic Group, displays by taxonomic group the number of SGCN that occur in the subsection, as well as the percentage of the total SGCN set represented by each taxon. For example, 8 mammal SGCN are known or predicted to occur in the Anoka Sand Plain, approximately 36% of all mammal SGCN in the state.

SGCN BY TAXONOMIC GROUP

Taxa	# of SGCN	Percentage of SGCN Set by Taxon	Examples of SGCN
Amphibians	1	16.7	NA
Birds	56	57.7	Eastern meadowlark
Fishes	3	6.4	Greater redhorse
Insects	9	16.1	Uncas skipper
Mammals	8	36.4	American badger
Mollusks	9	23.1	Fawnsfoot
Reptiles	8	47.1	Gopher snake
Spiders	3	37.5	*T. formicaria*

HIGHLIGHTS

- This subsection is well-known for sandhill cranes, trumpeter swans, bald eagles, bobolinks, and lark sparrows. Other important species are badgers, Blanding's turtles, and gopher snakes.
- Important habitat features include dry prairie associated with scattered wetlands, rivers, and streams. This is excellent habitat for Blanding's turtles, both species of hognose snakes, and bullsnakes.
- Some of the best examples of dry oak savanna in the state occur in this subsection.
- Carlos Avery WMA and Sherburne NWR are important stopover sites for migratory birds.

SPECIES SPOTLIGHT

Blanding's turtle *(Emydoidea blandingii)*

Distribution Found in marshes, ponds, and river bottoms of Central, East-Central, Southeastern, and Southwestern MN, especially where adjacent uplands have sandy soil suitable for nesting.

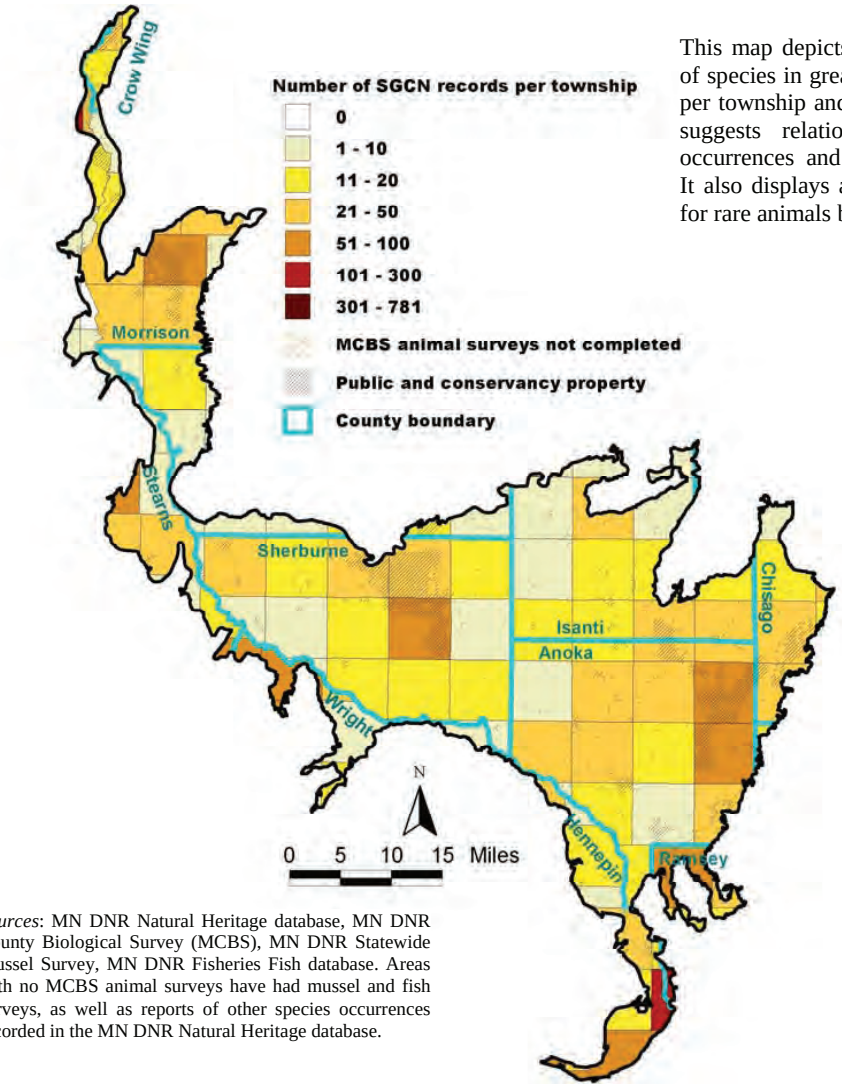
Abundance Abundant in some localized areas of SE MN, but also regularly encountered in the Anoka Sand Plain and recently found to be more common than previously known along small streams adjacent to prairies and grasslands of SW MN. Reasons for decline include changes due to land use, urban sprawl into former nesting areas, and fragmentation of remaining habitats.

Legal Status State list-Threatened.

Comments Travels up to a mile from wetlands to uplands for nesting, and moves between wetlands throughout the summer, making it vulnerable to road traffic.

Anoka Sand Plain

SGCN ELEMENT OCCURRENCES BY TOWNSHIP



This map depicts the number of validated records of species in greatest conservation need since 1990 per township and public land/conservancy land. It suggests relationships between known SGCN occurrences and conservation management lands. It also displays areas that have not been surveyed for rare animals by MCBS.

Sources: MN DNR Natural Heritage database, MN DNR County Biological Survey (MCBS), MN DNR Statewide Mussel Survey, MN DNR Fisheries Fish database. Areas with no MCBS animal surveys have had mussel and fish surveys, as well as reports of other species occurrences recorded in the MN DNR Natural Heritage database.

SPECIES PROBLEM ANALYSIS

The species problem analysis provides information on the factors influencing the vulnerability or decline of SGCN that are known or predicted to occur in the subsection. The table lists the nine problems, or factors, used in the analysis, and the percentage of SGCN in the subsection for which each factor influences species vulnerability or decline. The results of the species problem analysis indicate that habitat loss and degradation in the subsection are the most significant challenges facing SGCN populations.

NOTE: The inverse of the percentages for each problem does not necessarily represent the percentage of SGCN for which the factor is not a problem, but instead may indicate that there is not sufficient information available to determine the level of influence the factor has on SGCN in the subsection.

Problem	Percentage of SGCN in the Subsection for Which This Is a Problem
Habitat Loss in MN	82
Habitat Degradation in MN	87
Habitat Loss/Degradation Outside of MN	31
Invasive Species and Competition	26
Pollution	36
Social Tolerance/Persecution/Exploitation	24
Disease	3
Food Source Limitations	2
Other	12

Anoka Sand Plain

KEY HABITATS - For Species in Greatest Conservation Need

The CWCS identified key habitats for SGCN within the subsection using a combination of five analyses, labeled A-E below. The table depicts the five analyses, and under which analyses the key habitats qualified. To qualify as a key habitat for the subsection, the habitat had to meet the criteria used in at least one of the five analyses, as specified in the descriptions to the right of the table. The graphs below depict results from four (A-D) of the five analyses used in determining key habitats. Those habitats that meet the criteria are highlighted in **RED** in the graph for that analysis. Those habitats that do not meet the criteria are shaded in **GOLD**. Analysis E is not represented by a graph; the results of this analysis are presented as a list of key rivers/streams in Appendix I. For a more detailed explanation of the five analyses used, see Chapter 7, Methods and Analyses.

	ANALYSIS				
KEY HABITATS	**A**	**B**	**C**	**D**	**E**
Oak Savanna	X		X		
Prairie	X	X	X		
Wetland-Nonforest	X	X	*		
Grassland	X				
Shoreline-dunes-cliff/talus (Dune habitat)		X			
Lake-Shallow				X	
River-Headwater to Large					X

***Wetlands had not changed by more than 50% at the time of the 1984 Anderson & Craig study, but recent changes in this subsection indicate further wetland loss has occurred.

Description of Analyses

A: Terrestrial habitat use analysis - terrestrial habitats that represent more than 5% of 1890s or 1990s landcover and are modeled to have the most SGCN using them based on a z-test with $p<0.01$.

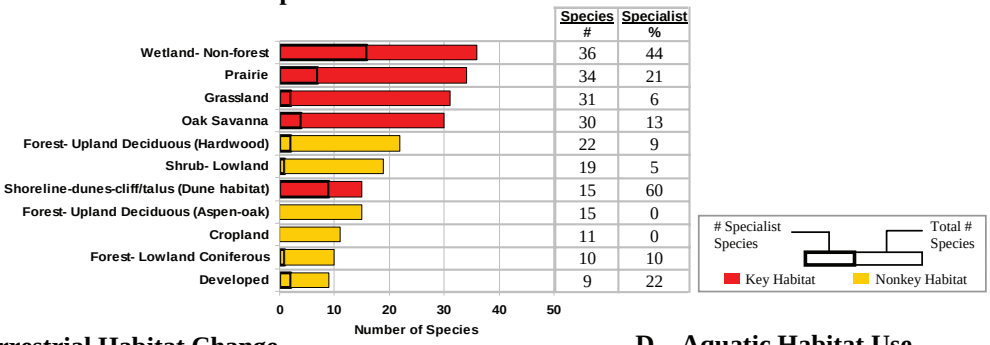
B: Specialist terrestrial habitat use analysis - terrestrial habitats that represent more than 5% of 1890s or 1990s landcover and have more than 15 species, 20% of which use 2 or fewer habitats (specialist species).

C: Terrestrial habitat change analysis - terrestrial habitats that represent more than 5% of the 1890s landcover and have declined by more than 50% in the 1990s landcover. For wetlands this change was based on an analysis done by Anderson & Craig in *Growing Energy Crops on Minnesota's Wetlands: The Land Use Perspective* (1984).

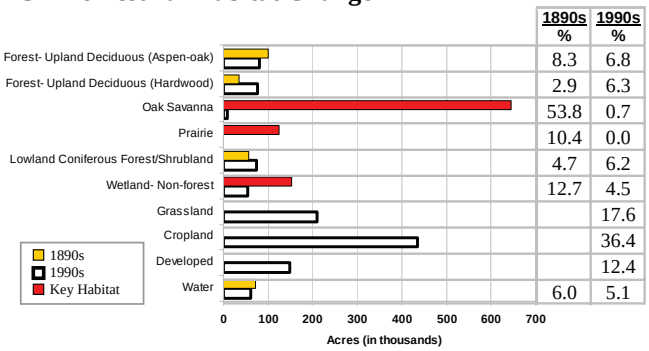
D: Aquatic habitat use analysis - lake or stream habitats that have the most SGCN use based on a z-test with $p<0.01$ of all subsections.

E: The Nature Conservancy/SGCN occurrence analysis - stream reaches identified in the Areas of Aquatic Biodiversity Significance in the four TNC Ecoregional Assessments and reaches with high SGCN occurrences (see Appendix I for list of stream reaches).

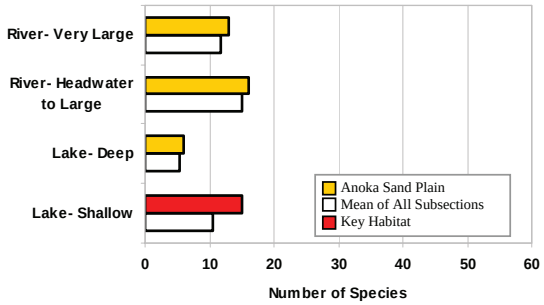
A/B – Terrestrial Habitat Use/Specialist Terrestrial Habitat Use



C – Terrestrial Habitat Change



D – Aquatic Habitat Use

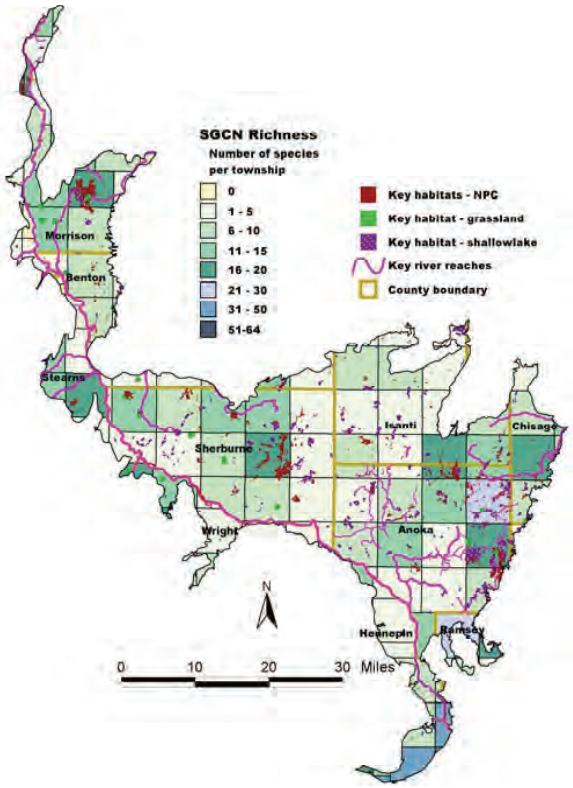


E – The Nature Conservancy/SGCN Occurrence

To reference the key rivers and streams for the subsection, see Appendix I.

Anoka Sand Plain

DISTRIBUTION OF KEY HABITATS AND SPECIES RICHNESS BY TOWNSHIP



This map depicts key habitats and the number of species of SGCN per township based on the sources listed below. It suggests there is often a relationship between key habitats and species richness (i.e., the variety of species of SGCN in a township).

Sources: Information used for key habitats was first based on native plant community classifications (NPC), and where NPC were not available, the MN GAP landcover. Shallow lakes are from the MN DNR shallow lake program; deep lakes are those with at least one SGCN occurrence. Grasslands are identified from the HAPET GBCA model where available, and otherwise, from the regionally significant environmental areas, or HAPET landcover map.

SUBSECTION HABITAT PERCENTAGES AND HABITAT USE BY SGCN TAXA

This table presents information on the percentages for each habitat in the subsection (showing changes in coverage between the mid- to late 1800s and the 1990s), as well as habitat use by SGCN taxonomic group. Habitats are listed in ranked order for percent coverage within the subsection in the 1990s. Key habitats for the subsection (as identified on previous page) are listed in **BOLD**. SGCN habitat use is broken down by taxonomic group, with a total number of species for all taxonomic groups listed at the far right of the table.

			SGCN BY TAXONOMIC GROUP								
HABITAT	**Percentage of Subsection (1890s)**	**Percentage of Subsection (1990s)**	**Amphibians**	**Birds**	**Fishes**	**Insects**	**Mammals**	**Mollusks**	**Reptiles**	**Spiders**	**Total Number of Species**
Cropland	N/A	36.4		6			4		1		11
Grassland	N/A	17.6		17			8		6		31
Developed	N/A	12.4		5		1	3				9
Forest-Upland Deciduous (Hardwood)	2.9	11.0		14		2	4		2		22
Forest-Lowland Coniferous	4.7	6.2		7		1	1			1	10
Wetland-Nonforest	12.7	4.5		29		1	3		2	1	36
Lake-Shallow	N/A	2.8		12					2		14
Forest-Lowland Deciduous	1.2	2.4		13			2		2		17
Lake-Deep	N/A	2.3	1	2	2				1		6
Forest-Upland Deciduous (Aspen-oak)	8.3	2.1		13			2				15
Forest-Upland Coniferous	0.0	1.6		12		2	4		4		22
Oak Savanna	53.8	0.7		15		5	6		4		30
Prairie	10.4	0.0		15		3	7		6	3	34
Shoreline-dunes-cliff/talus (Dune habitat)	N/A	N/A		11			2		2		15
Shrub-Lowland	N/A	N/A		14		1	3		1		19
River-Headwater to Large	N/A	N/A	1	3	2	1		6	3		16
River-Very Large	N/A	N/A	1	1	1			8	2		13

N/A: Insufficient data available to determine percent coverage within subsection. We have no data to indicate the existence of cropland, grassland, or developed land prior to settlement by people of European descent, although these land uses likely did occur at very low levels.
NOTE: 0.0 indicates less than 0.05 percent coverage.

Anoka Sand Plain

Ten-Year Goals, Management Challenges, Strategies, and Priority Conservation Actions

Goal I: Stabilize and increase SGCN populations

Management Challenge 1 – There has been significant loss and degradation of SGCN habitat
Strategy I A – Identify key SGCN habitats and focus management efforts on them

Priority Conservation Actions to Maintain and Enhance the Key Habitats

1. **Oak savanna habitats**, actions include:
   a. Manage invasive species
   b. Use prescribed fire and other practices to maintain savanna
   c. Encourage oak savanna restoration efforts
   d. Provide technical assistance to interested individuals and organizations
2. **Native prairie habitats**, actions include:
   a. Manage invasive species
   b. Use prescribed fire and other practices to maintain prairie
   c. Manage grasslands adjacent to native prairie to enhance SGCN habitat
   d. Encourage prairie restoration efforts
   e. Provide technical assistance to interested individuals and organizations
3. **Nonforested wetlands**, actions include:
   a. Enforce the Wetlands Conservation Act
   b. Manage habitats adjacent to wetlands to enhance SGCN values
   c. Provide technical assistance to interested individuals and organizations
4. **High-quality grassland habitats**, actions include:
   a. Maintain high-quality grasslands
   b. Support the maintenance of pasture and grassland habitats valuable to SGCN
   c. Encourage when appropriate transformation of plowed fields into pasture/grasslands
   d. Provide technical assistance to interested individuals and organizations
5. **Dune habitats**, actions include:
   a. Support the protection of dune habitats from damaging development
   b. Enhance dune habitats to support SGCN
   c. Provide technical assistance to interested individuals and organizations
6. **Shallow lake habitats**, actions include:
   a. Maintain good water quality in shallow lakes
   b. Enhance near-shore terrestrial and aquatic habitats
   c. Provide technical assistance to interested individuals and organizations
7. **Stream habitats**, actions include:
   a. Maintain good water quality, hydrology, geomorphology, and connectivity in priority stream reaches
   b. Maintain and enhance riparian areas along priority stream reaches
   c. Provide technical assistance to interested individuals and organizations

Management Challenge 2 – Some SGCN populations require specific management actions
Strategy I B – Manage federal and state listed species effectively

Priority Conservation Actions for Specific SGCN

1. Implement existing federal recovery plans
2. Develop and implement additional recovery plans
3. Provide technical assistance to managers, officials, and interested individuals related to listed species
4. Enforce federal and state endangered species laws, as well as other wildlife laws and regulations

Strategy I C – Manage emerging issues affecting specific SGCN populations

Priority Conservation Actions for Specific SGCN

1. Work with partners to effectively address emerging issues affecting SGCN populations
2. Enforce federal and state wildlife laws and regulations

Goal II: Improve knowledge about SGCN

Management Challenge 1 – More information about SGCN and SGCN management is needed
Strategy II A – Survey SGCN populations and habitats

Priority Conservation Actions for Surveys

1. Survey SGCN populations within the subsection, actions include:
   a. Continue MCBS rare animal surveys
   b. Survey SGCN populations related to key habitats
   c. Survey wildlife taxa underrepresented by MCBS animal surveys
2. Survey SGCN habitats within the subsection, actions include:
   a. Assess the amount and quality of key habitats and map their locations

Strategy II B – Research populations, habitats, and human attitudes/activities

Priority Conservation Actions for Research

1. Research important aspects of species populations within the subsection, actions include:
   a. Better understand the life history and habitat requirements of important SGCN
2. Research important aspects of SGCN habitats within the subsection, actions include:
   a. Identify best management practices for maintaining and enhancing key habitats
   b. Identify important patterns and distributions of key habitats to better support SGCN populations
   c. Identify important functional components within key habitats to support specific SGCN
   d. Explore important, emerging SGCN habitat management issues
3. Research important aspects of people's understanding of SGCN within the subsection, actions include:
   a. Identify people's attitudes and values regarding SGCN
   b. Identify places and ways people can enjoy and appreciate SGCN

Strategy II C – Monitor long-term changes in SGCN populations and habitats

Priority Conservation Actions for Monitoring

1. Monitor long-term trends in SGCN populations, actions include:
   a. Continue existing population monitoring activities
   b. Develop additional monitoring activities for specific SGCN populations
2. Monitor long-term trends in SGCN habitats, actions include:
   a. Develop long-term monitoring activities for important SGCN habitats

Strategy II D – Create performance measures and maintain information systems

Priority Conservation Actions for Performance Measures and Information Systems

1. Create and use performance measures, actions include:
   a. Develop partner-specific performance measures within the subsection
   b. Develop project-specific performance measures for SWG-funded projects
   c. Actively incorporate monitoring and performance measure information to enhance adaptive management
2. Maintain and update information management systems

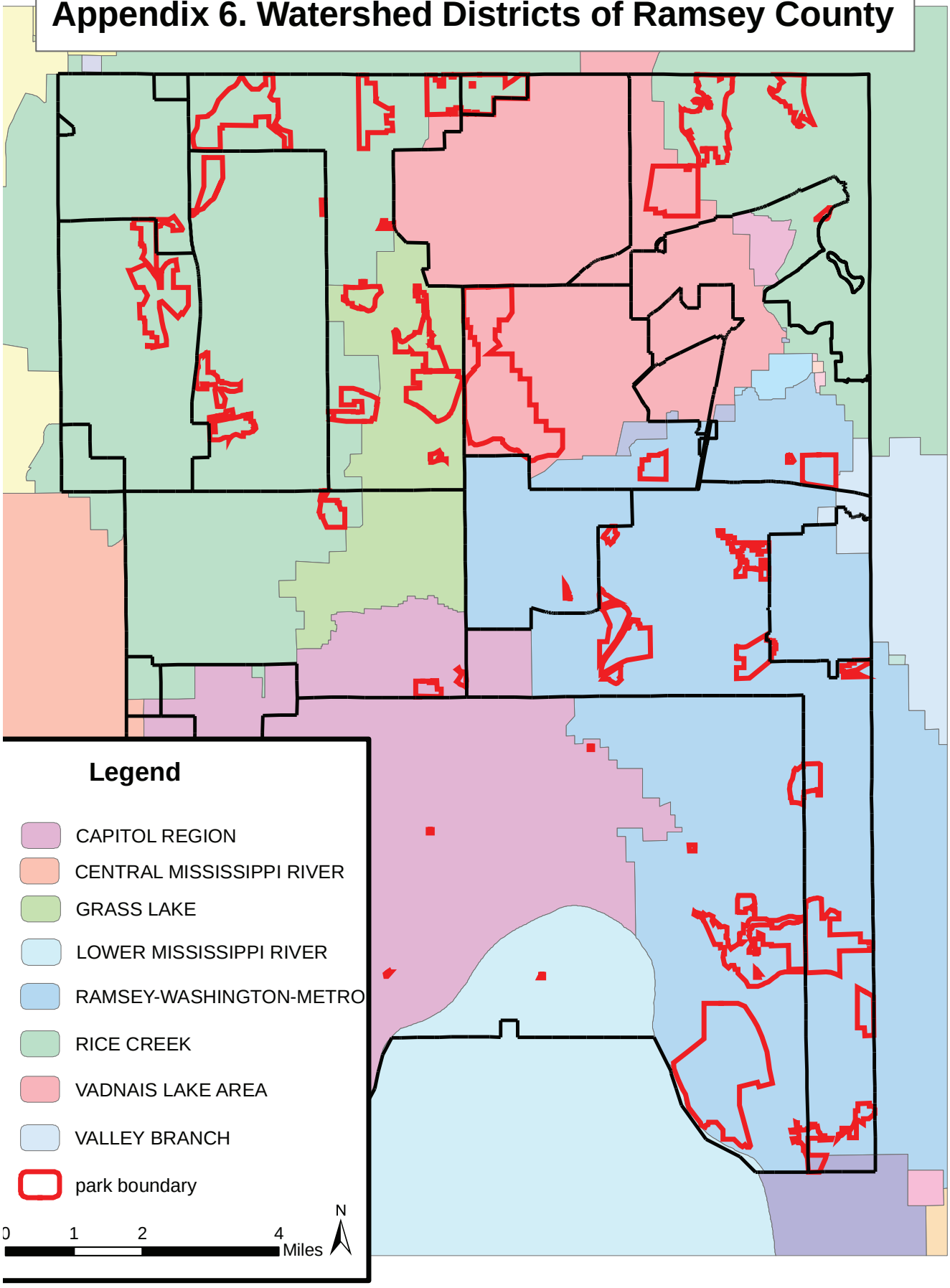
Goal III: Enhance people's appreciation and enjoyment of SGCN

Management Challenge 1 – Need for greater appreciation of SGCN by people
Strategy III A – Develop outreach and recreation actions

Priority Conservation Actions for Outreach and Recreation

1. Create new information and communicate with people to enhance their appreciation of SGCN
2. Create opportunities for people to appropriately enjoy SGCN-based recreation

Appendix 6. Watershed Districts of Ramsey County



Appendix 7 – Rice Creek North Regional Trail – Wildlife Corridor Habitat Plan

Rice Creek North Regional Trail
Wildlife Corridor Habitat Restoration Plan

Appendix 7 – Rice Creek North Regional Trail – Wildlife Corridor Habitat Plan

The Wildlife Corridor described in the Rice Creek North Regional Trail Master Plan Amendment (Appendix A) is intended to allow a wildlife travel connection between Rice Creek and the Arden Hills Army Training Site (AHATS.) This corridor was selected because of the existing wetland and stream connections from Rice Creek to AHATS wetlands (Figure 1.) The site will also allow a trail alignment along the north edge of the parcel for recreational access from Rice Creek to AHATS.

The corridor will be used by a wide variety of wildlife. Common species, including white-tailed deer, raccoons, red fox and resident songbirds, can use the corridor in its current state. Most small mammals, reptiles and amphibians, including state listed species (Blanding's Turtle, Plains Pocket Mice) are currently limited in their movements through the corridor because of the restricted creek corridor and existing roads. The increased wetlands and prairie areas will increase the resident populations of the listed species, as well as, amphibians and grassland birds. This corridor will also be the location of an osprey nesting pole, which is currently on the TCAAP property south of the corridor.

Improvements, remediations, and restorations conducted on the corridor should enhance those connections and wildlife uses. Existing infrastructure (Figure 2.) removal should be conducted prior to any future habitat restoration. The US Army, in the summer 2007, created a six acre wetland and rerouted the drainage to enhance habitat and mitigate a contamination site. This work increased the total wetland size to twelve acres and is part of the current vegetation cover (Figure 3.) The surrounding upland was seeded to native vegetation. Additional wetland restoration opportunities exist in the southwest corner of the corridor (Figure 4 + 5.) This would provide ten more acres of wetland and establish a wide corridor adjacent to the drainage way connecting to Rice Creek. The current conditions include three sections of culverts totaling 200 feet (Appendix B.) If a road is necessary, it must incorporate an elevated section (bridge) of sufficient height and width to accommodate unrestricted wildlife movement and drainage under the road.

The existing bituminous trail west of the wildlife corridor passes over a narrow drainage culvert that restricts east-west movement of wildlife. When other site obstructions are removed, it is recommended that this culvert be replaced with one of sufficient height and width to accommodate unrestricted wildlife movement and site drainage. (Figure 4 and Appendix B, photos 4&5.) A dry section of creek shore adjacent to any water flow is required.

The upland habitat should be seeded to native prairie and or mixed woods. This would account for another 24 acres (Table 1) of restored habitat. Restoration projects should extend onto either the Rice Creek Regional Trail or AHATS to improve the corridor connections. The south edge of the corridor will be wooded to create a visual buffer with the proposed development to the south.

Appendix 7 – Rice Creek North Regional Trail – Wildlife Corridor Habitat Plan

Table 1. Habitats of the Vento Wildlife Corridor.

Habitat	Current	Proposed
Wetland	12	22
Prairie	0	15
Mixed Woods	3	12
Industrial	19	0
Oldfield	15	0

Specific restoration projects and priorities would include:

1. The excavation and revegetation of the southwest marsh (figure 5.) This would require excavation of approximately 16000 yards of material and the seeding of the 3 acres of shallow water in a wetland native seed mix(MNDOT 325 or similar mix) at 10 pounds per acres, plus the installation of 1500 bulrush plants and basking logs along the north edge (Figure 5.) This wetland should be extended to the existing bike trail. This would require the replacement of the existing culvert under the bike trail with an elevated crossing. This could be a short bridge or oversized V-bow culvert.
2. The restoration of a degraded and isolated, three acre wetland on the south end of the Industrial site, east of the existing road (Figure 4) would require control of invasive species and planting of 1500 native sedges and bulrush.
3. The planting of native grasses on the 15 acres of the oldfields and part of the industrial area would involve the killing of existing non-native grasses and planting a dry upland prairie mix (MNDOT 340 or similar mix) at 14 lbs per acre.
4. The woodland restoration will involve planting nine acres in the southeast corner and south boundary (Figure 4) of the corridor using a mixture of oaks and basswood bareroot seedlings. They would be planted at 2000 trees per acre.

The restored corridor will be managed to minimize invasive species populations. The prairie areas will be managed with periodic controlled fires. The corridor management plan will be integrated into the natural resource plans for the Rice Creek Regional Trail and AHATS.

Appendix 7 – Rice Creek North Regional Trail – Wildlife Corridor Habitat Plan

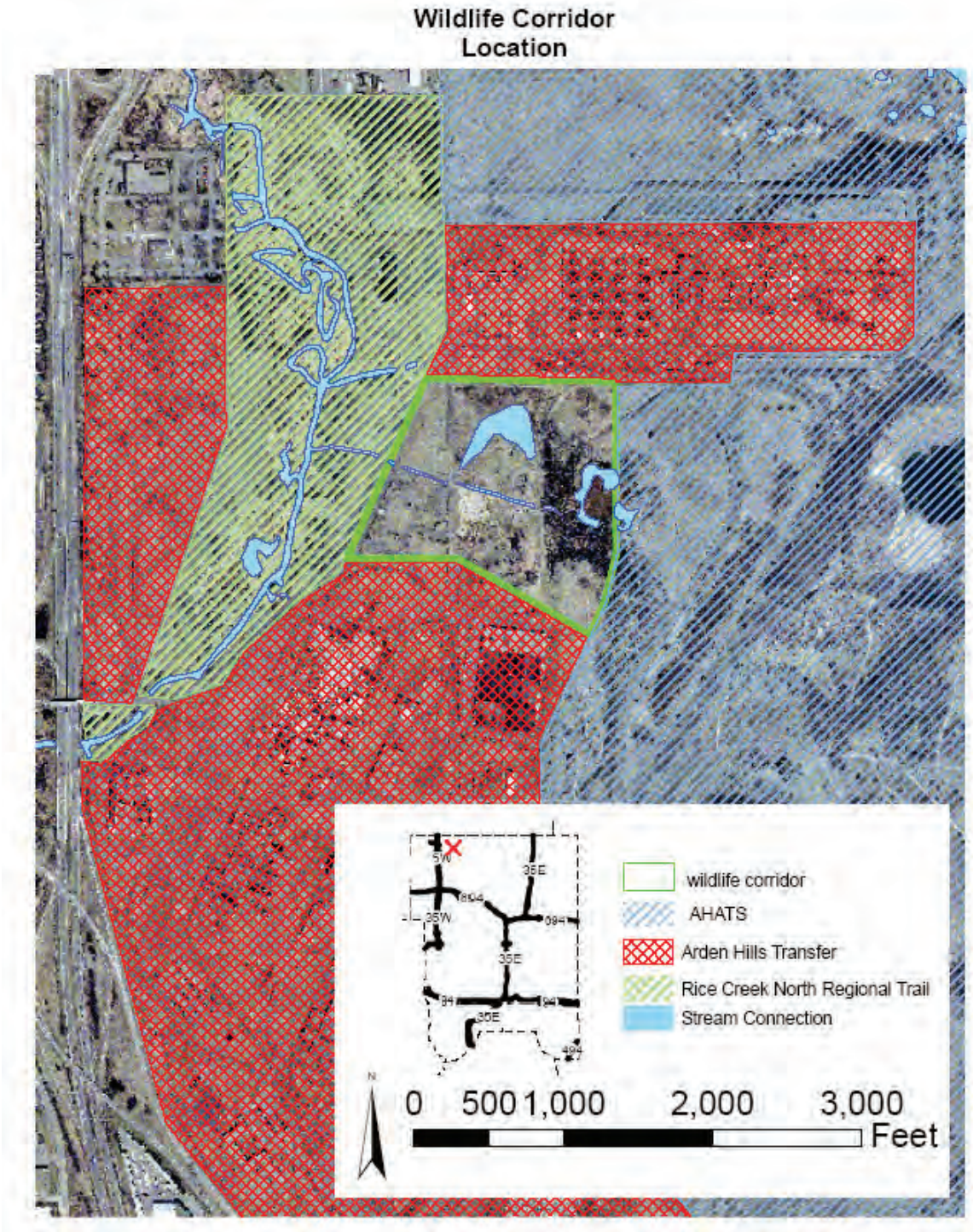


Figure 1.

Appendix 7 – Rice Creek North Regional Trail – Wildlife Corridor Habitat Plan

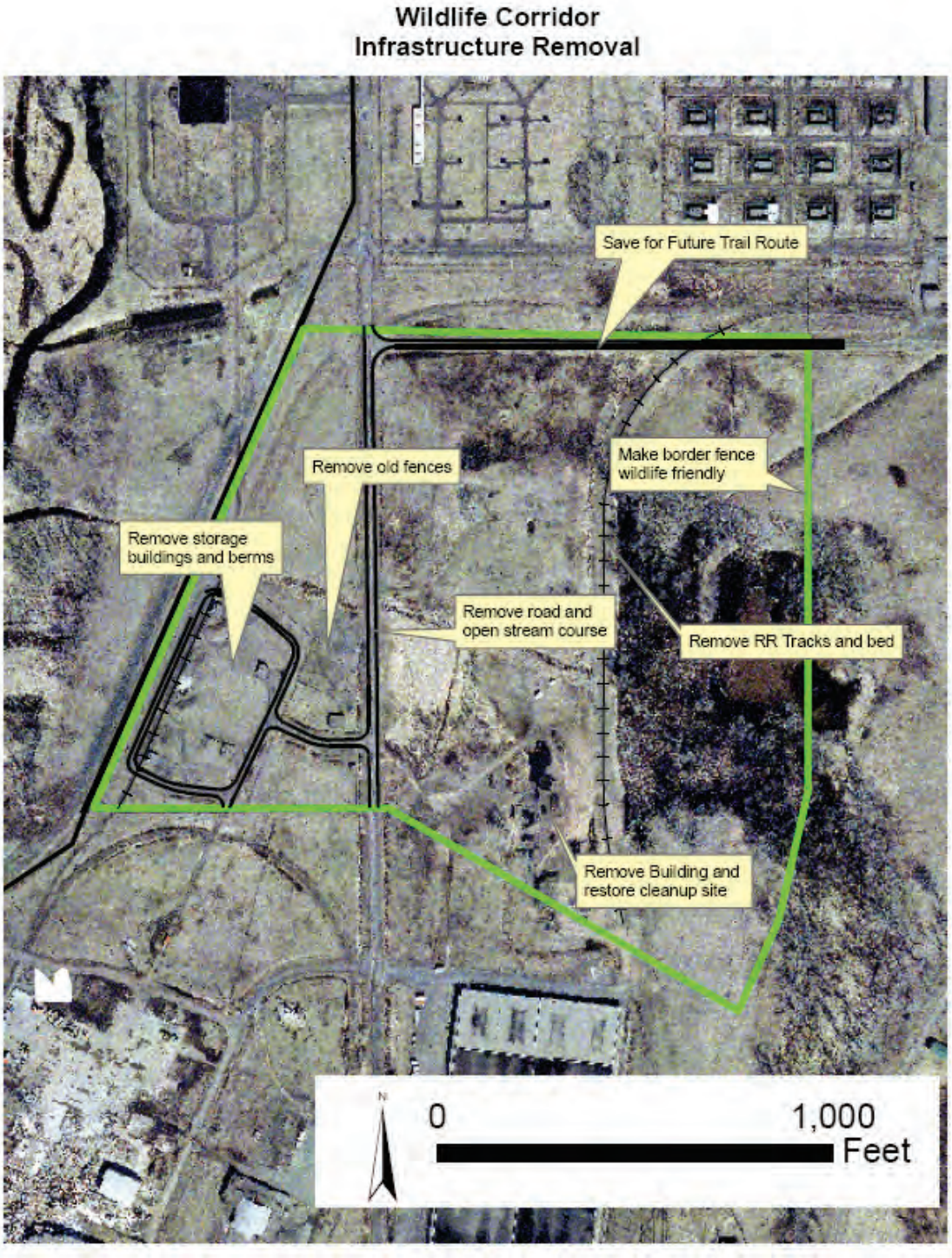


Figure 2.

Appendix 7 – Rice Creek North Regional Trail – Wildlife Corridor Habitat Plan

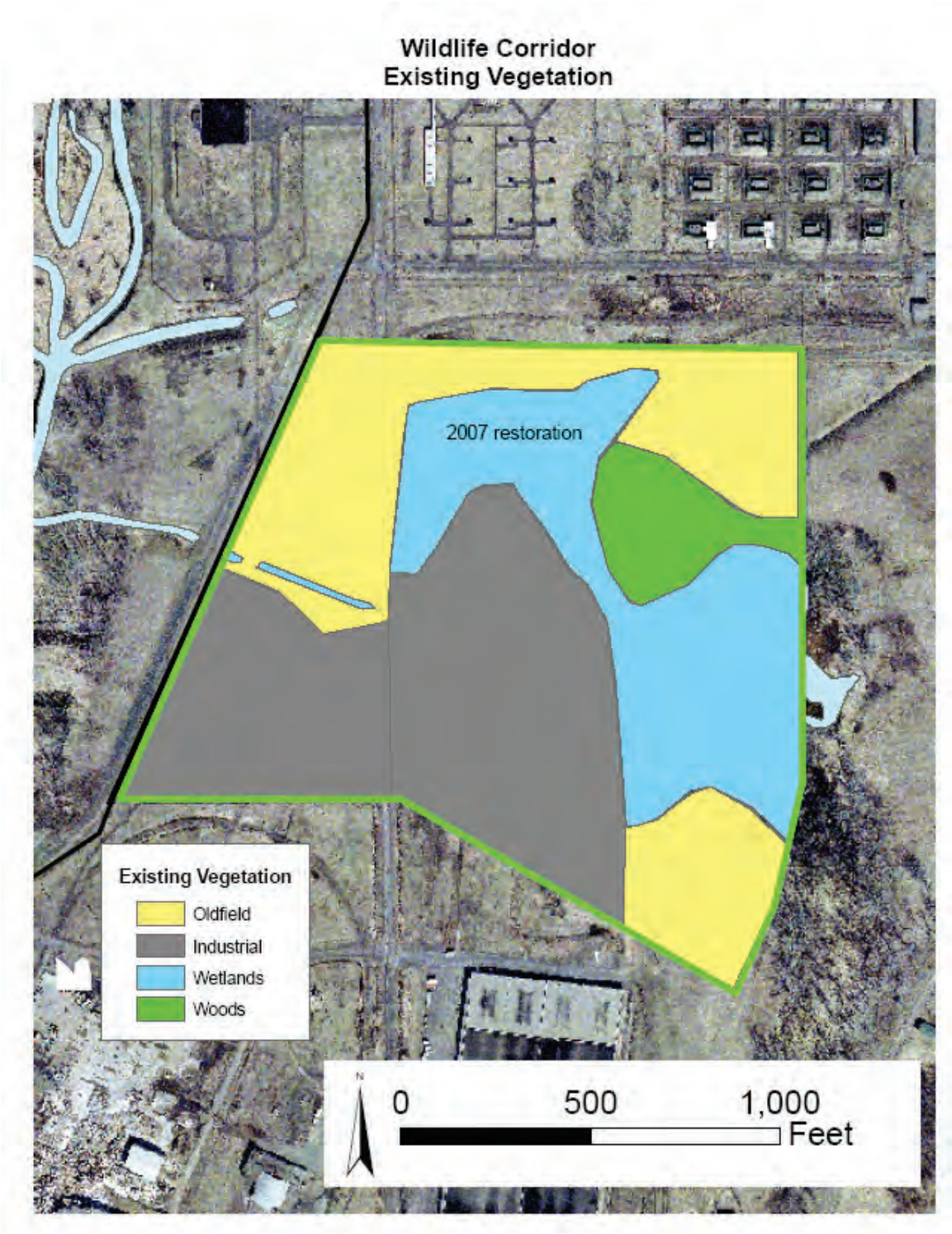


Figure 3.

Appendix 7 – Rice Creek North Regional Trail – Wildlife Corridor Habitat Plan

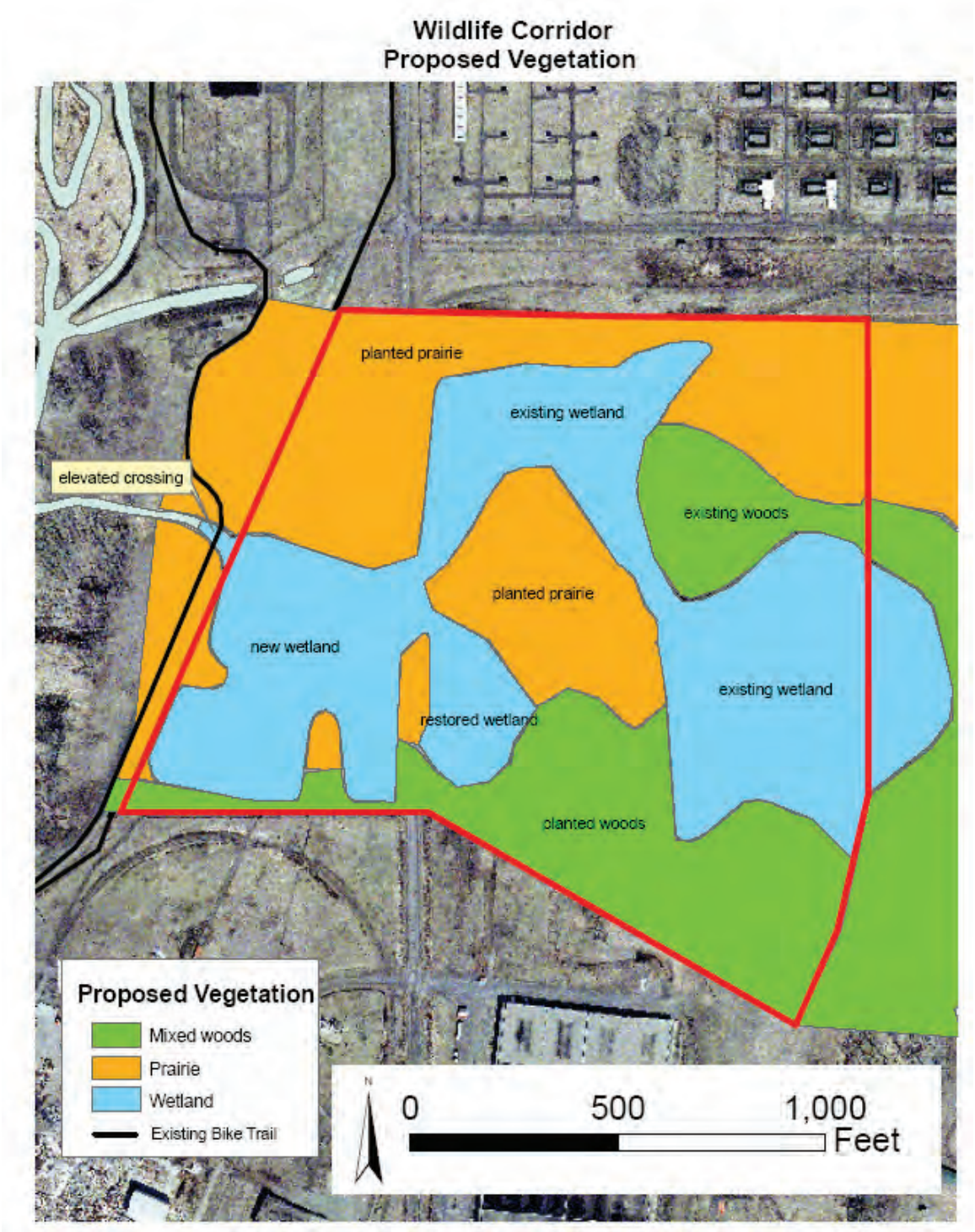


Figure 4.

Appendix 7 – Rice Creek North Regional Trail – Wildlife Corridor Habitat Plan

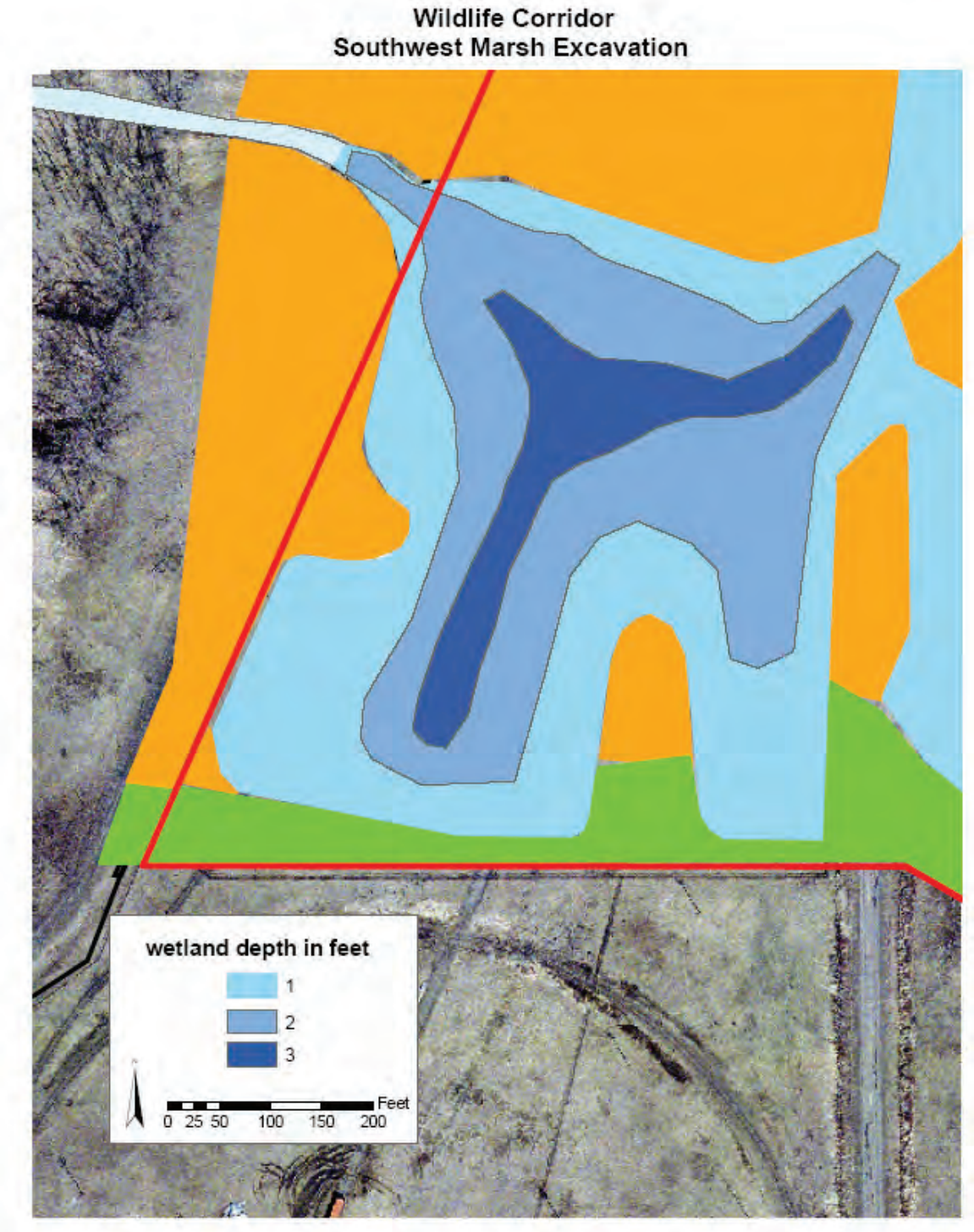


Figure 5.