



**INVENTORY OF BIOLOGICAL FEATURES
IN FORT SNELLING STATE PARK**

AND _____

**INVENTORY OF NATURAL COMMUNITIES
AND RARE PLANTS
IN MINNEHAHA REGIONAL PARK**

Minnesota County Biological Survey
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Section of Wildlife, Division of Fish and Wildlife,
Minnesota Department of Natural Resources.

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PREFACE

The Minnesota County Biological Survey (MCBS) was initiated in 1987 in recognition of the need to assess the status of the state's biological diversity and its rare natural resources. It is a systematic, county-by-county inventory of Minnesota's rare biological features. MCBS identifies significant natural areas and collects and interprets data on the distribution and ecology of natural communities, rare plants, and rare animals. The information gathered by MCBS serves as a foundation for the conservation of critical components of Minnesota's biological diversity.

Biological surveys were conducted in Dakota County during portions of the 1992 - 1995 field seasons. Through a cooperative agreement between MCBS and the Division of Parks and Recreation, surveys of natural communities and rare species were intensified within Fort Snelling State Park. The vegetation of the park, including natural communities and disturbed areas, was mapped and additional vegetation sampling plots were established. To meet the needs of Park resource managers, the number of surveys for rare plants and rare animals were intensified beyond the scope of work generally pursued as part of county-level inventory. An inventory of plants and natural communities was also completed for the adjoining Minnehaha Regional Park to address potential negative impacts to rare resources from planned park development. Although animal surveys were not conducted in Minnehaha Regional Park, historic rare animal records have been included in this report.

This report is an assessment by the MCBS of the natural features within Fort Snelling State Park and Minnehaha Regional Park. It documents the location of rare features and sensitive habitats and provides baseline information useful for natural history interpretation, management, monitoring, and research related to the natural resources of these two parks.

Additional information about many of the rare features described in this report can be found in the book *Minnesota's St. Croix River Valley and Anoka Sandplain: A Guide to Native Habitats* (Wovcha et. al 1995) and in *Minnesota's Endangered Flora and Fauna* (Coffin and Pfannmuller 1988). Maps showing the results of completed inventories of counties surrounding Fort Snelling State Park and Minnehaha Regional Park will eventually be available. The map of Ramsey County is complete and has been published (Delaney and Epp 1994). The map of Dakota County will be available by summer 1996. The survey of natural communities and rare plants of Hennepin County is in progress; animal surveys will be conducted sometime after 1996, and a map will be made following survey completion.

A note about the use of scientific and common names of plants and animals in this report: where scientific names are listed in tables, figure legends, or printouts, only common names are used in the text. For the remaining species, the scientific name is given the first time the species is mentioned and common names are used thereafter.

INVENTORIES OF NATURAL COMMUNITIES AND RARE PLANTS IN FORT SNELLING STATE PARK AND MINNEHAHA REGIONAL PARK

Hannah Dunevitz, Plant Ecologist/Botanist

The best information we have about vegetation in Minnesota prior to Euro-American settlement is that collected by the original land survey in the middle 1800's . The vegetation in the area of Fort Snelling and Minnehaha parks when the original land survey was conducted consisted of a variety of natural communities, determined by studying and interpreting the surveyors' notes (U.S. General Land Office 1853, Marschner 1974) and by examining topography, soils, and present-day vegetation. The flat to rolling uplands were primarily oak openings and barrens, which translate to oak savanna and oak woodland-brushland in present-day natural community terminology. (Note: natural communities are defined below). On steep moist slopes, maple-basswood and mesic oak forest occurred. The floodplains in the Minnesota River valley south of the present-day Mendota Bridge were occupied by a narrow strip of floodplain forest on alluvial soils immediately next to the river, and a complex of lakes, calcareous seepage fens, and emergent marshes on organic soils between the floodplain forest and the bluffs to the east. Pike Island was originally occupied by floodplain forest, with some emergent marsh or wet meadow in depressions in the interior. Minnehaha Creek was bordered by lowland hardwood forest or floodplain forest in the valley, with black ash swamps and seepage meadows occurring at the base of bluffs with active seepage areas.

The vegetation in these parks today has been drastically changed by urban and park development. The natural communities have been fragmented and most of those that still persist are altered by the spread of invasive non-native species. However, there are some small significant natural communities and rare species that remain; these are detailed in the following sections.

Natural Communities

Natural communities are distinct assemblages of native plants and animals living together under similar environmental conditions. Natural communities are classified and described by considering vegetation, successional status, topography, hydrology, landforms, substrates, soils, and natural disturbance regimes (including wildfires, windstorms, normal flood cycles, and the effects of native pathogens, insects, and microorganisms). The Natural Heritage and Nongame Research Program (NHNRP) has developed a classification of natural communities (Minnesota Natural Heritage Program 1993) that is used by MCBS in the evaluation of potential natural areas.

Natural communities (with the exception of calcareous seepage fens) have no legal protection in Minnesota. However, the NHNRP considers the identification, protection and management of natural communities and ecosystems a high priority. NHNRP has

evaluated community types for their relative rarity and endangerment throughout their range. Community types have been assigned a state endangerment rank on a scale of 1 to 5. Those ranked "1" are considered critically endangered in Minnesota while communities ranked "5" are considered secure under present conditions.

Methods

Natural communities within the statutory boundaries of Fort Snelling State Park and Minnehaha Park were initially determined using color infra-red aerial photography (US Army Corps of Engineers, 24 October 1985, scale 1:24,000). Other sources of information consulted to map and describe natural communities included the park management plan (MNDNR 1978a), DNR maps of the fens (Minnesota DNR 1978b), the Dakota County soil survey (USDA-SCS 1983), the Minnesota soil atlas (University of Minnesota 1973), and geologic maps of Dakota County (Balaban and Hobbs 1990). Using all these sources, initial boundaries of natural communities and disturbed areas in the parks were transcribed onto 7.5 minute topographic maps.

Site visits were made by plant ecologists and botanists primarily during spring through fall of 1993 and 1994. The MNDNR Regional Parks Resource Specialist and the Fort Snelling State Park Resource Specialist accompanied MCBS staff on several visits. Natural communities were evaluated (Minnesota Natural Heritage Program 1993) and given ecological quality ranks using a scale from A to D, with A being highest quality, or nearly pristine, and D the lowest, or highly disturbed.

Releve plots were used to obtain more quantitative information about natural communities in Fort Snelling State Park. Releve sampling is a method of describing vegetation in a semi-quantitative manner. The methodology (described in Almendinger 1987) is used statewide by MCBS, and all releve data are entered into a computerized database maintained by the NHNRP. Thus individual plot data can be compared to data from other areas and the results used to gain further understanding of the vegetation of Minnesota.

The goals of releve sampling in Fort Snelling State Park were to better understand and delineate the natural communities in the park, and to establish some baseline descriptive information that can be used to track long-term changes in portions of the park's vegetation. The plots are not meant to be used for monitoring specific short-term change; a different sampling method using a larger number of plots designed to measure the effects of planned management activities should be used for this purpose.

Releve plots were 400 square meters for forested communities and 100 square meters for oak savanna, emergent marsh, and fen communities. Plot locations were selected according to their potential to represent each community type. Multiple plots were established in some natural community types in an attempt to document some of the variability within a type observed in the park. Permanent plots were marked with sign

posts driven into the center of the releve plot. Each post was identified with a tag. Plots in emergent marsh and calcareous fen were not permanently marked. Within each plot, the vegetation was described by estimating the percent cover of each species in each of the different height strata. Releve data were entered into the Natural Heritage Information System (NHIS) Releve Database.

Following site visits by ecologists, natural community boundaries were corrected on the topographic maps. Recent color infra-red aerial photographs (MNDNR 1992, 1:16,000) were consulted to refine natural community boundaries and cover-type disturbed areas within the park. The final boundaries were stored digitally using the ARC/INFO Geographic Information System. Locations and descriptions of each natural community, known as "element occurrences", were entered into the NHIS.

Results

The vegetation cover map (Figure 1) illustrates the eight natural community types and the disturbed area cover types within the statutory boundaries of the parks. Where natural communities continue outside the park boundaries, the complete polygon is shown. Nicol's Meadow, an area adjacent to the southern end of the state park, was included on the map because of its important natural communities and rare plants. Natural communities still recognizable but with quality ranks of CD or D are also included on this map and labeled as "disturbed" or "dominated by reed canary grass". It may be possible, with effective management, to significantly improve the quality of these disturbed communities.

Natural communities with quality ranks of C and higher are illustrated in Figure 2 together with locations of rare plant and animal species. These are the areas considered highest priority for protection. Each natural community, its state status, its total acreage, and the number of occurrences in each park are listed in Table 1. Printouts of element occurrence records for each natural community are included in Appendices 1C and 1D. These include quality ranks and descriptive information about each occurrence.

Nine releve plots were established in the park (Figure 3, Table 2, Appendix 1G). The plots covered 5 natural community types: mesic oak savanna (1 plot); mesic oak forest (1 plot); floodplain forest (silver maple subtype) (1 plot); emergent marsh (3 plots); and calcareous seepage fen (3 plots). Species lists were compiled for two natural community types not included in releve sampling because of their very small acreage in the parks: black ash swamp (seepage subtype) and maple-basswood forest. Additional species lists for floodplain forest and calcareous seepage fen in several areas of the park have been compiled (Appendix 1G). A species list and transect data for calcareous seepage fen in Nicol's Meadow were recorded by an environmental consultant company in a separate study (RUST Environment & Infrastructure 1993).

More detailed descriptive information about each natural community is given below.

Recommendations for protection and management are found later in this report in the section entitled General Management Recommendations.

Oak Savanna (southeast section) mesic subtype

This community type has been nearly extirpated from the state of Minnesota. Nearly all former savanna has either been converted to agricultural or urban areas, or has become overgrown to form oak forest in the absence of fire and grazing by native large mammals. The two small remnants in Fort Snelling and the adjacent land to the north, while much disturbed by thick growths of trees and brush, including the exotic species common buckthorn, have been improved by recent clearing and prescribed burning. The best area, ranked BC in quality and described in a releve plot, includes about 5% cover by bur oak and northern pin oak (*Quercus ellipsoidalis*). The herbaceous flora is dominated by big bluestem and the exotic species Kentucky bluegrass, and contains an impressive number of native forbs (wildflowers). With continued cool-season burning, the native savanna plants should increase in quantity and number of species at the expense of the non-natives.

Mesic Oak Forest

The bluffs lining the valleys of the Minnesota and Mississippi rivers and Minnehaha Creek all support mesic oak forest, with the exception of a few small areas of maple-basswood forest (Figures 1 and 2). In the absence of fire or other disturbance, much of the oak forest will probably succeed to maple-basswood forest. The oak forest is generally highly disturbed by erosion and by the invasion of non-native invasive shrubs, particularly common buckthorn. Most of it was ranked CD or D rank, with only occasional pockets of better quality, C-rank forest. The ground layer is generally sparse and low in species diversity due to water erosion originating from the upper slopes and rocks and gravel that were apparently dumped onto the slopes. There are also unofficial foot trails in many areas that have caused additional erosion.

Maple-Basswood Forest

Never common in this area, this community type has probably become rarer over the years due to the opening up of steep slopes by early logging and more recent heavy erosion of bluffs along the river valleys. There are two small remnants totaling about 15 acres on north to northeast-facing slopes above the Mississippi River and its floodplain south of Minnehaha Park (Figure 2). They are C rank in quality, with occasional stumps, some narrow foot trails, a fair amount of common buckthorn in the shrub layer, and trash and fire rings left by human visitors.

Floodplain Forest (silver maple subtype)

With the exception of Pike Island, nearly all the floodplain forest in these parks is young and disturbed. In some cases, there has been extensive past logging and possibly grazing, and non-native invasive plants are common. In other cases, the forest appears to consist of young tree growth in what was once marsh or fen vegetation that is converting to forest

due to hydrologic changes or the absence of fire. In general, these forests were ranked CD to D in quality. They are characterized by a canopy of silver maple, sometimes dominant, with cottonwood, black willow (*Salix nigra*), peach-tree willow, green ash, and hackberry. There is often a lower tree layer dominated by box elder with saplings of American elm, red elm (*Ulmus rubra*), and the previously mentioned canopy species. Ground layers are generally low in species richness, with exotic species predominating, including ground ivy (also known as creeping charley), moneywort (*Lysimachia nummularia*), and possibly garlic mustard (*Alliaria petiolata*) (see below).

In some areas, there are small fragments of better-quality forest. For example, in the narrow strip of forest on the east side of the Minnesota River south of the Mendota bridge, there are several areas of good-quality forest with intact ground layers and good tree canopies. These areas are surrounded by a mix of disturbed forest and open marsh and mud flat vegetation.

During a visit to the floodplain forest at the north edge of Fort Snelling State Park in the spring of 1994, a large population of the invasive non-native species garlic mustard, was observed dominating the ground layer. It is not known whether these plants survived the entire year. A biennial plant, it has proved to be invasive in forests east of Minnesota, and may now be getting a foothold in this state.

The forest at Pike Island, especially that in the eastern portion, is larger in extent and generally better in quality than the remaining floodplain forest in the parks. Portions have been cleared, grazed, and cultivated, and the island was heavily impacted by the deaths of American elms from Dutch elm disease in the 1960s and 1970s. However, the forest does include trees that are over 100 years old (see Wovcha et al. 1995, page 39). The releve plot describes the forest in the southwest part of the island and the species list describes that in the eastern portion.

Black Ash Swamp (seepage subtype)

This community type occurs in two areas at the base of east- to northeast-facing bluffs (Figure 2). This community type is very rare in southern Minnesota. It is characterized by the presence of groundwater seepage, dominance of the tree layer by black ash, and the presence of herbaceous species associated with seepage, notably skunk cabbage and marsh marigold. The black ash swamps here are C quality; they are disturbed by foot and mountain bike traffic and contain some non-native invasive species.

Calcareous Seepage Fen (prairie subtype)

Along the Minnesota River valley in Fort Snelling State Park, there is an expanse of wetlands about four miles long on broad low slopes beneath steep west-facing bluffs. These areas, occurring between the elevations of 706 and 728 feet, were described as "perched bogs" by park planners (Nelson and Cox 1978). They are more accurately described as calcareous seepage fens (Minnesota Natural Heritage Program 1993),

characterized by the presence of mineral-rich groundwater discharge areas, deep peat and muck soils, and several calcareous seepage fen indicator plant species.

This whole expanse was almost certainly calcareous seepage fen prior to Euro-American settlement. However, agricultural and development activities in the fens have severely impacted large portions, particularly those areas that were ditched and planted to crops (Section 8 and the northeast quarter of Section 18; Figure 1). These highly disturbed areas do have some native wetland species in them, but they also have large patches of the invasive species reed canary grass and common reed grass.

However, there are also intact calcareous seepage fens in Sections 33 and 5 (Figures 1 and 2). All of the fens in the park and in the adjacent Nicol's Meadow were given the quality rank of C. The relatively low rank was due to the presence of large patches of reed canary grass, common reed grass, and shrubs and small trees scattered throughout most of the area. Despite this, there is still an overall high diversity of native fen species and there are several populations of rare plants and fen indicator species. There are active seepage zones throughout the existing fens.

Emergent Marsh

This community type is highly variable in the park. It is characterized by the presence of standing water year-round. Marshes have deeper water than fens and do not have sources of groundwater discharge. Portions around the perimeter of Gun Club Lake include large areas dominated by wild rice and other areas dominated by common reed grass (also known as phragmites). Better quality areas, ranked B, are relatively high in species diversity and are not dominated by invasive non-native species. Because the size of Gun Club Lake has been increased using control structures, some areas that were formerly fen now have a mix of fen and marsh species because they are inundated longer each year than they used to be.

The areas dominated by common reed grass are hard to rank. There has been a dramatic increase in the amount of this species in the park in recent years (Steve Eggers pers. comm.). While common reed grass is a species native to this area, it is possible that there are non-native strains in the park that are especially well adapted to disturbance such as siltation. It is also possible that water tables are becoming lower and phragmites is increasing due to its ability to withstand relatively dry conditions (Shay and Shay 1986). Whatever the reason for its increase, many of the common reed grass stands in the park are nearly monocultures, with few other species in them. It should thus probably be treated as an undesirable species and considered invasive.

Aspen Forest

Some of the upland areas of Fort Snelling State Park are occupied by disturbed forest dominated by aspen (*Populus tremuloides*) (Figure 1). These were probably formerly prairie or oak savanna, and have either converted to aspen forest in the absence of fire or

have succeeded to forest following large-scale disturbances such as plowing and planting to crops followed by abandonment.

Mesic Prairie

The mesic prairie in these parks (Figure 1) has all been planted.

Rare Plants

Rare plant surveys focused on species officially listed under the Federal Endangered Species Act of 1973, Public Law 93-205, or Minnesota Statute 84.0895. Listed species include federally and state endangered and threatened species, as well as state special concern species (Coffin and Pfannmuller 1988). Endangered and threatened species are provided the highest level of legal protection under federal and state laws. In addition, the NHNRP keeps track of selected species that are not legally listed or protected. Some of these are federal candidate species (proposed endangered, proposed threatened, and proposed special concern). Others require further field survey to determine their status and are designated as non-listed rare species.

Methods

All rare plants encountered during the natural community inventory work in 1993 and 1994 were documented by plant ecologists. In addition, several rare plants had been documented by botanists in previous years, some as long ago as the turn of the century, others more recently. All occurrences have been recorded in the NHIS and digitally recorded using the ARC/INFO Geographic Information System. When populations were of adequate size, plant specimens were collected, labeled, and deposited into the herbarium of the University of Minnesota, St. Paul.

Results

Five rare plant species have been documented in Fort Snelling State Park (Figure 4, Appendix 1E); four are state-listed plants, and one is non-listed. Populations of these five species were confirmed during MCBS surveys. Four species were found in calcareous seepage fens: sterile sedge, valerian, small white lady's slipper, and cowbane. The fifth, Walter's barnyard grass, was found in emergent marsh on the east edge of the south portion of Gun Club Lake. Each of these rare species depends on the same factors that maintain healthy fen and marsh natural communities: intact hydrologic cycles, prescribed burning, and control of non-native invasive species (all addressed in the General Management Recommendations section).

Three state-listed species have been documented in Minnehaha Regional Park in the past (Figure 4, Appendix 1F). However, following targeted searches for these species in 1994 and 1995, they are thought to be extirpated from the park. Two have not been seen since the turn of the century: rock clubmoss (*Lycopodium porophyllum*) was found on a sandstone ledge in 1902, and *Carex plantaginea* was documented on forested slopes in

1903. The third, biennial gaura (*Gaura biennis*), was found on flat uplands near the railroad tracks in 1971, but appears to have been destroyed by recent development activities.

Element occurrence records for all rare species, recent and historic, are included in Appendices 1E and 1F.

INVENTORIES OF RARE ANIMALS IN FORT SNELLING STATE PARK

Gerda Nordquist, Animal Survey Coordinator/Mammalogist
Carol Dorff Hall, Herpetologist
Steve Stucker, Ornithologist

Prior to Euro-American settlement, a diversity of habitats existed in the vicinity of present-day Fort Snelling State Park. This region, at the confluence of the Mississippi and Minnesota rivers, supported tallgrass prairie, oak savanna, floodplain forests, wooded blufflands, and riverine wetlands. These, in turn, hosted a wealth of wildlife. In the mid-1800s, bison were regularly observed grazing on the prairie terraces south of the fort. In 1901, Common moorhens were so numerous in Long Meadow Lake that "their hen-like cackling, interspersed with loud, often shrill, cries usually kept up all through the night" (Roberts 1932). Today, metropolitan development has eliminated or greatly altered the presettlement vegetation, with subsequent impacts on animals in the region. Surrounded by airport runways and housing developments, Fort Snelling State Park, in association with the nearby Minnesota River National Wildlife Refuge, Minnesota River State Waysides, and regional parks, provides important refuge to this region's native fauna.

Targeted species for searches in Fort Snelling State Park were based on historical records from the area and the presence of appropriate habitat within the park. These species included those federally- or state-listed as endangered, threatened, or of special concern, as well as candidates for federal listing or species proposed for addition to the state list (Table 3). Field surveys for rare amphibians, reptiles, and birds were conducted in 1993, under the unusual flooding conditions of that year. It was decided that due to the lack of suitable habitat within the park, surveys for rare mammals would not be done. Prior to the MCBS animal surveys, the NHIS Rare Features database contained 14 locations for 11 rare animal species within the park, including rare mussels and fish. With completion of MCBS animal surveys, five new or updated locations were added to the database (Appendix 1I, Figure 5).

In addition to conducting field surveys, training sessions were held to instruct park personnel in field survey methods employed by MCBS that may be used by park staff in future monitoring work. Training sessions included breeding anuran (frog and toad) call surveys, turtle trapping, and identification of foraging bats using bat detectors.

Amphibians and Reptiles

Based on previous records and the presence of potential habitat within Fort Snelling State Park, nine rare amphibians and reptiles were targeted for survey efforts. These included one frog, three turtles, and five snakes (Table 3). Because the park was interested in more

complete information on herpetofauna present at Fort Snelling, additional survey efforts not specifically targeting rare species also were conducted.

Methods

Survey techniques for amphibians and reptiles at Fort Snelling State Park included anuran surveys, drift fences, turtle traps, and herp searches. Figure 6 and Appendix 2 show locations of survey activities.

Recent concern over the decline of amphibians due to environmental degradation has prompted monitoring programs to track anuran (frogs and toads) population changes. Because the park was interested in establishing such a monitoring effort, breeding anurans were censused to provide baseline information. A total of 14 locations were sampled within the park to document frogs and toads calling during their breeding season. Locations were selected adjacent to wetlands or water where anurans were likely to breed. Ease of access to the locations at night was an important consideration. Thus, ephemeral ponds located some distance from roads were not included in the survey route. At each location, all species heard calling during a five-minute interval were recorded and their corresponding call intensity (an index of the number of calling individuals) was estimated. Surveys were conducted at night under suitable weather conditions (i.e. little to no wind or rain). Surveys began after dark, at approximately 2130 hours, and continued until 2400 or 0100 hours. Following standard anuran survey protocol, breeding anurans are documented at each location during three specific intervals between April and July. Most locations were visited in this manner, however, some that were later eliminated or added did not receive three visits. Anuran surveys were conducted in 1993. Potential locations for a monitoring route were discussed with park staff during a training session conducted in April 1994.

One drift fence was installed to capture more secretive herpetofauna, such as salamanders. It consisted of a 50-foot length of aluminum flashing is set in the ground, with eight 5-gallon buckets buried on either side of the flashing. The drift fence was installed in an old field adjacent to floodplain forest, known as Paul's Field. MNDNR archaeologists reviewed the location of the drift fence to ensure no cultural features were disturbed. The drift fence was installed in late April and remained open through late June 1993. Buckets were checked two or three times per week and all herpetofauna and small mammals were removed and identified.

Turtles were sampled using baited hoop nets set in shallow wetlands. Captured turtles were identified, measured, sexed, and released. Five nets were set in three wetland locations during May 1994. Park staff participated in the turtle trapping as part of a training session.

Terrestrial herp searches involved actively searching a particular habitat or area and hand-capturing all herpetofauna observed. Logs and ground debris were turned over to check

for concealed herpetofauna. Basking surfaces or rock crevices were also examined. This technique is useful for documenting snakes and lizards that might not be found using other methods. Herp searches were conducted at nine locations within the park, between June and October 1993, for a total of 11 person-hours. Habitats included old field, forest edge, emergent marsh, and fen.

Incidental observations of herpetofauna, such as road-kills or basking turtles, were recorded when encountered. Voucher specimens were collected and preserved for permanent storage at the Bell Museum of Natural History at the University of Minnesota in St. Paul.

Results

A total of ten species were found in the park during MCBS surveys, including the Fox snake and Snapping turtle which are listed as state special concern. The state-threatened Blanding's turtle was not found during our surveys, but has been documented in the park by others. Table 4 lists amphibian and reptile species known to occur within the park. It is possible that additional herpetofauna may be documented in the park, such as the treefrogs and salamanders. Park staff reported that Mudpuppies have been found there, however, MCBS survey activities were not conducted in suitable habitat for this species.

Chorus frogs and American toads were the only species documented during anuran surveys. One or both of the species was recorded at nine of the fourteen anuran survey sites. Call indices were typically low for both species. Conspicuously absent were Spring peepers (*Pseudacris crucifer*) and treefrogs, Eastern gray treefrog (*Hyla versicolor*) and Cope's gray treefrog (*H. chrysoscelis*). For unknown reasons, Spring peepers appear to be absent from the core metropolitan area. Treefrogs, however, have been found elsewhere and should have been present in the park. The excessive flooding of 1993 may have biased our findings. Some of the survey sites were severely impacted and many were inaccessible during the third run of the survey. In addition, detection of calling anurans was hampered by the loud noises from planes passing overhead and freeway traffic surrounding the park.

Four species of herpetofauna were captured in the drift fence: American toad, Green frog, Northern leopard frog, and Snapping turtle. The ability of species with toepads, such as Chorus frogs and treefrogs, to adhere to the bucket wall and escape may have biased drift fence results. In addition, the effectiveness of this sampling technique also was affected by the flooding, which filled the buckets with water or dislodged them from the ground.

Seven painted turtles, including six adult males, were captured in the turtle traps. Bluegills were also captured in the hoop nets.

Herp searches and incidental observations documented two amphibians and five reptiles in or near the park. Eastern garter snakes were frequently found during the searches and a

Plains garter snake was found dead on Highway 13. Green frogs, Snapping turtles, and Painted turtles were observed at Gun Club Lake. American toads were observed near the Sibley House and are probably distributed throughout the park. A snake hibernaculum was located in an old stone railroad trestle near the Sibley House. In early October 1993, Fox snakes and Eastern garter snakes were found among the crevices of the trestle underpass. Several Redbelly snakes were found among large boulders and rocks along Nicols Road under the Cedar Avenue bridge.

Rare amphibians and reptiles

Three rare reptile species have been documented recently in Fort Snelling State Park, Blanding's turtle, Snapping turtle, and Fox snake. Historic records exist for two additional species of special concern in or near the park, Milk snake and Eastern hognose snake. The Milk snake was collected in 1949 in Mendota Township and the Eastern hognose is an older specimen taken from Fort Snelling. These species inhabit woodlands, forest edges, and grasslands which are represented in the park. Although it is possible that they still occur in the area, viable populations in the park are doubtful. MCBS surveys elsewhere in Dakota County documented Blue racers and Gopher snakes, two species of special concern. Both were found in southern Dakota County in habitats not found to any extent within the park.

Blanding's turtle

The state-threatened Blanding's turtle has been observed within the park in recent years, but nesting success and recruitment of juveniles into the population is likely to be quite low. Although suitable wetland habitat is present at Fort Snelling State Park, nesting habitat is a limiting factor. Grasslands within the park are small and many are overgrown with shrubs, reducing their suitability for nesting. Blanding's turtles which attempt to nest on grasslands outside the park are vulnerable to being hit by vehicles on the busy roadways. Railroad tracks on the eastern border of the park may also create a barrier limiting movements of this species.

Snapping turtle

This special concern species was observed basking along Gun Club Lake and was captured in the drift fence at Paul's Field. Snapping turtles likely occur elsewhere in the park wherever permanent, open water is present.

Fox snake

Four locations of Fox snakes in the park suggest that a healthy population of this species exists here. This species inhabits woodlands and forest openings and is often associated with stream or river corridors. The railroad trestle near the Sibley House is an important hibernaculum for this state special concern snake, as well as common species. It is possible that other historic structures with similar rock foundations also may provide such protection.

Breeding Birds

Seven rare bird species were identified as potentially present in floodplain forest and emergent marsh habitats within Fort Snelling State Park (Table 3). Larger and more intact examples of these habitats were selected for bird surveys. Grassland habitats, while present in the park, were not of sufficient size or quality to justify surveys for rare grassland bird species, such as Upland sandpiper (*Bartramia longicauda*), Loggerhead shrike (*Lanius ludovicianus*), and Henslow's sparrow (*Ammodramus henslowii*). Old fields present in the park were generally small, with encroachment of vegetation from surrounding habitats.

Methods

Bird surveys were conducted during the breeding season. The primary survey method used was the point count. At each point within a site, all birds heard or seen during a five-minute interval were identified and evidence of breeding behavior or nesting was recorded. All points in a site were located within a single habitat and the number of points within a particular site was determined by the size of the habitat. Due to the fragmented nature of much of the park, usually five or fewer points were conducted in each site. Points were spaced 300 to 350 meters apart and at least 150 meters from the edge of the habitat, where possible. Point counts were conducted from sunrise to 0930 hours, during suitable weather conditions (i.e. wind less than 10 mph, precipitation no greater than a light rain). A total of 20 points were conducted at 6 sites within the park, 12 located in shrubby emergent marsh vegetation and eight in fragmented floodplain forest (refer to Figure 6 for a map and Appendix 2 for a list of survey locations). Most of the point counts were conducted during June 1993. Pike Island was surveyed twice, in 1993 and in June 1990 as part of the MCBS survey of Ramsey County.

Playback of taped conspecific calls was used to locate territorial Red-shouldered hawks. Survey routes were established along the Mississippi River and adjacent roads in areas of suitable floodplain forest habitat. At each stop, calls were played for approximately 30-40 seconds, followed by 1-2 minutes of silence, then another set of calls. Response to the playback by nearby hawks was recorded over a 5-minute interval following completion of the playbacks. Surveys were conducted during the early morning. No playbacks were conducted during the 1993 park surveys, however as part of the MCBS survey of Ramsey County in 1990 playbacks were conducted in floodplain forests along the Mississippi River from Crosby Farm Park to Shadow Falls.

Incidental records of birds observed at Fort Snelling State Park but not on specific survey sites were also recorded.

Results

MCBS bird surveys documented the presence of 72 species at Fort Snelling State Park during the breeding season, including two state-listed species and one unlisted but rare species (Table 5). The park's avifauna is relatively diverse, owing to the high degree of fragmentation that results in the predominance of edge habitats.

Rare birds

Among the targeted rare bird species, only the Bald Eagle and Forster's Tern were seen in the park during the 1993 surveys.

Surveys of emergent marsh habitats within Fort Snelling State Park failed to document the presence of rare wetland birds, such as American bittern, Common moorhen, and Black tern. American bitterns are quite rare in this region and there was only a slight possibility of finding this species here. Common moorhens prefer an interspersed area of open water, emergent vegetation for concealment, and submergent vegetation that provides feeding areas. Much of the emergent marshes and fens present in the park appeared to be densely-vegetated, and dominated by phragmites and reed canary grass that do not provide the ideal habitat structure for moorhens. Black terns were not detected during the 1993 surveys. They are known to breed in scattered locations in the metropolitan area, where their preferred nesting habitat is exposed muck and floating cattail root masses. They may feed over the wetlands at Fort Snelling State Park, although none were documented by MCBS.

Two rare species, Cerulean warbler and Red-shouldered hawk, are associated with mature floodplain forest habitats. Surveys focused on this habitat within the park, however, these species were not documented. Floodplain forest in Fort Snelling State Park appears too fragmented to provide suitable habitat for these species. Also, the extreme flooded conditions in 1993 may have affected use of this habitat by Cerulean warblers and Red-shouldered hawks. Additional surveys in larger tracts of this habitat (e.g. along the Mississippi River on Pike Island and near Minnehaha Trail) during more normal years may reveal their presence.

Bald eagle

Bald eagles were seen flying in the vicinity of Gun Club Lake during the 1993 surveys, however no nests were found at Fort Snelling State Park. Two nests occur in the vicinity of the park and it is possible that these birds use the park for feeding. Management plans have been prepared for both nests and they currently are being monitored by Regional Nongame Wildlife personnel.

Forster's tern

Forster's terns were observed flying over the wetlands of Fort Snelling State Park, however, no breeding evidence was noted. There are no known nesting colonies in the vicinity of the park, and non-breeding individuals frequently wander widely.

Bell's vireo

Although this species is not state-listed, the Bell's vireo is sparsely distributed in southeastern Minnesota, reaching the northern edge of its range in the Twin Cities area. During the 1993 surveys, this species was found nesting at Fort Snelling State Park. Bell's vireos prefer brushy edges, including wet areas such as shrub swamps. The

shrubby wetlands and fens in the park provide ideal habitat for this species. Although the rare animal print-outs in Appendix 1I include the sighting of a Bell's vireo in 1980, this species is no longer tracked in the database and the most recent records are not included. However, all known sightings of Bell's vireo in the park are included in Figures 2 and 5.

Mammals

Rare mammal species that occur in the metropolitan area include two small rodents associated with dry sand prairies, the Prairie vole (*Microtus ochrogaster*) and Plains pocket mouse (*Perognathus flavescens*). While the nearest locality for the Plains pocket mouse is in Anoka County, a 1917 record exists for a Prairie vole that was found in Minnehaha Falls. Field evaluation of potentially suitable prairie habitat within Fort Snelling State Park this habitat largely absent from the park. Those grassland habitats that exist are small, with encroaching shrubby vegetation, and generally are too mesic for these mammal species. Because the probability of finding Prairie voles or Plains pocket mice was quite low, it was decided that small mammal surveys would not be done at Fort Snelling State Park. However, incidental collections of small mammals were made from the drift fence set at Paul's Field for herpetofauna.

Two state special concern bat species, the Northern myotis (*Myotis septentrionalis*) and Eastern pipistrelle (*Pipistrellus subflavus*), hibernate during winter in the sandstone mines and caves along the bluffs of the Mississippi and Minnesota rivers. Although, no caves or mines are present at Fort Snelling State Park, these species may forage in the park during spring and summer. It is likely that all seven bat species known to occur in Minnesota, may be present in the vicinity of Fort Snelling State Park at some time during the year. These species include two other bats that hibernate locally, the Little brown myotis (*Myotis lucifugus*) and Big brown bat (*Eptesicus fuscus*), and three species that migrate south for the winter, the Hoary bat (*Lasiurus cinereus*), Red bat (*Lasiurus borealis*), and Silver-haired bat (*Lasionycteris noctivagans*). Although no intensive surveys were conducted at the park for bats, a training session with park staff from Fort Snelling State Park and William O'Brien State Park demonstrated the use of bat detectors.

Methods

Refer to the method section for amphibians and reptiles for a description of the drift fence technique.

Documentation of foraging bats was done using ultrasonic bat detectors. Insectivorous bats locate flying prey by emitting ultrasonic sound that is beyond the audible range of most people. Bat detectors pick up these ultrasonic emissions, register their frequency, and transform them to an audible range. Using the frequency of the ultrasonic emissions and characteristics of the call, four of the seven bats present in Minnesota can be identified to species. The Little brown myotis and the Northern myotis can be identified

to the generic level. Presently, the call frequency has not been determined for the Eastern pipistrelle.

Foraging bat surveys are best conducted on warm, calm nights, from dusk to approximately 2400 hours, when nocturnal flying insects are most active. Bat surveys may be conducted throughout the spring, summer, and fall, when foraging bats are likely to be present. The demonstration of this technique at Fort Snelling State Park was conducted in September 1995. Areas were searched around the Interpretive Center, including the field and forest edge to the southeast and the bridge over the river channel to the west.

Results

No rare mammal species were documented at Fort Snelling State Park during MCBS animal surveys. Small mammal species collected from the drift fence were the Masked shrew (*Sorex cinereus*), White-footed mouse (*Peromyscus leucopus*), and Meadow vole (*Microtus pennsylvanicus*).

Rare bat species cannot be identified using the bat detector, so their presence in Fort Snelling State Park remains unknown. During the bat detector demonstration Big brown bats were visually located as they flew across open areas and audibly identified using the bat detector. This species appeared to be quite common. In addition, a few individual Little brown myotis and possibly a Hoary bat were detected. The abundance of wetlands and river backwaters present in Fort Snelling State Park provide excellent foraging areas for insectivorous bats. It is likely that additional surveys will reveal that this park is an important summer use area for bats.

General Management Recommendations

Based on the assessment of natural features in Fort Snelling State Park and Minnehaha Regional Park, MCBS was requested to prepare general recommendations for sustaining and enhancing these features in the parks. The existing Fort Snelling State Park plan (Minnesota DNR 1978a) recognizes the park as a “recreational state park” and divides the park into land classification zones. The large expanse of wetlands associated with Gun Club Lake that includes calcareous seepage fen and emergent marsh natural communities is in the “Ecological Protection Zone”, where management “will be directed toward perpetuating these ecological values”. MCBS recommends that these areas continue to be managed for the protection and improvement of the natural communities and native plants and animals that inhabit them. One potential additional protection measure would be the designation of these areas as Natural Heritage Registry sites, accomplished through a voluntary agreement with the Scientific and Natural Areas Program. This could help provide additional, ongoing stewardship assistance and help ensure the continued protection of these areas.

The Nicol’s Meadow area with calcareous seepage fen should be acquired by the park if the sellers are willing and protected together with the fens in the park.

Additional survey efforts by park personnel may uncover the presence of rare species that were not documented during MCBS surveys. Any additional locations of rare features should be reported to the NHNRP for inclusion in the NHIS Rare Features database.

Additional recommendations for natural communities, rare plants and rare animals are detailed below.

Natural Communities and Rare Plants

Upland Deciduous Forests

Mesic oak and maple basswood forests occur on steep slopes in the parks. Severe erosion, heavy foot traffic, and the invasion of common buckthorn and tatarian honeysuckle are the biggest threats to these natural communities. Stabilization of uplands above the bluffs by reducing the amount of pavement adjacent to the bluffs and planting native vegetation (preferably restored oak savanna) would help reduce erosion. Foot traffic should be discouraged on steep slopes, and limited in other areas to just a few well-placed trails. Cutting of buckthorn and honeysuckle would help clear the way for greater native species diversity.

Oak Savanna

Continued clearing and burning of the overgrown oak savanna surrounding present open areas should be a high priority. These areas represent an excellent opportunity to manage

and improve a nearly lost natural community. In some upland areas, former savanna has converted to disturbed aspen forest, but with some of the large, old open-grown oaks remaining (Figure 1). These areas may still possess a seed bank of at least some native prairie species. Intensive clearing and burning should be attempted here, and seeding of savanna herbaceous species from adjacent areas should be done if few species occur from natural seed germination.

Floodplain Forest

These areas are best managed by controlling non-native species invasions, maintaining natural hydrologic cycles, and avoiding development such as trails or buildings. A survey of the amount of garlic mustard should be done to discover how serious a threat this species poses to these parks.

Black Ash Seepage Swamp

These areas are already disturbed by mountain bike and foot traffic, particularly the portion in Minnehaha Regional Park. They would be greatly benefited by fencing or the provision of established, monitored trails outside the swamps to keep people out of them. Their existence is dependent on the continuation of seepage from the bluffs. Some areas appear to be disturbed by trails constructed with fill on top of former swamps so there is no longer active seepage; these activities should be avoided in the future. Careful inventories of invasive alien species should be done in these natural communities; they were not visited after spring and may contain plants not documented in this report.

Calcareous Seepage Fen and Emergent Marsh

The maintenance and restoration of natural hydrologic cycles are key to the continuation and improvement of these natural communities. While water tables cannot be controlled by park managers, it is important to be aware that lowered water tables that may result from increasing development adjacent to the park could have important negative effects on wetland natural communities in the park. In addition, the placement of control structures on Gun Club Lake has increased the size of the lake and decreased the size of marsh and fen communities by inundating them. Restoring the original size of the lake may result in restored natural communities as well, though the possibility of opening up exotic species habitat in newly exposed former lake-bed would have to be examined.

In the higher quality marshes and fens, cool season prescribed burning should improve the quality of the communities, reduce brush invasion, and possibly increase rare plant populations. Additional control of woody vegetation should be done by cutting or girdling larger trees and shrubs. The segment of trail that extends into the fen in Section 4 should be removed. No additional development should be done in these areas.

In the disturbed fens and marshes, larger scale efforts are needed to restore natural communities. Where ditches have been installed, natural hydrologic cycles would need to be restored. The most difficult management problem is extensive populations of reed

canary grass and phragmites. There has been some research on effective control methods for these species. In dense stands of reed canary grass, repeated herbicide application has been most effective; in areas with a mix of reed canary grass and natives, various combinations of burning, tilling and mowing have yielded some success (Wilson 1994, Preuninger and Umbanhowar 1994, Lyford 1993, Apfelbaum and Sams 1987). The best time to burn to control reed canary grass is late spring (June), but burning at this time can also set back native species.

Animals

Urban development around Fort Snelling State Park has reduced, if not eliminated, suitable habitat for a number of rare animal species that were once documented from this area, and has effectively isolated the park from other populations of these species. For example, the nearest MCBS record for the Eastern hognose snake was near Afton in eastern Washington County, and the nearest MCBS record for the Prairie vole was recorded from northern Goodhue County, near Cannon Falls. Both of these state-listed species were once reported from the Fort Snelling area, however, it is doubtful that they are present here, today. Since the time these records were obtained, the land within the boundaries of Fort Snelling State Park has undergone considerable alteration. Flood control measures and runoff from surrounding lands have affected the character and quality of the wetlands. Past land use practices have reduced the extent of forest tracts in the park, thus shifting the local fauna from forest-associated species toward habitat generalists and species adapted to forest-grassland edge habitats.

Fort Snelling State Park is constrained by its urban location and relatively small area in what management practices would enhance habitat for rare animal species within the park, itself. However, participation in larger-scale conservation efforts, that include other public lands along the Mississippi and Minnesota rivers, could improve lands of combined size to sustain populations of rare species. Wetlands and floodplain forests are habitats offering the greatest management potential for rare animal species in Fort Snelling State Park and adjacent lands.

Recommendations for rare species habitat management, additional surveys, and monitoring work for animals at Fort Snelling State Park are presented below.

Rare turtles

Aquatic habitat in Fort Snelling State Park provides suitable foraging and over-wintering sites for rare turtles, such as Blanding's turtles and Snapping turtles. However, equally important, yet largely absent from the park, is suitable nesting habitat. Nesting habitat for Blanding's turtles may be a limiting factor in successful reproduction (Dorff 1995). Both species require open, dry habitat in the vicinity of wetlands in which to lay their eggs. Old fields and ditch banks provide potential nesting habitat in the park, however, they are few in number. Old fields with wet soils and dense vegetation are unsuitable for nesting.

The Cedar Avenue dike has suitably dry and open conditions, however, the proximity to heavy traffic increases the risk of mortality to the turtles as they move from the wetland to the nest site. Efforts to maintain several areas of dry grassland habitat in the vicinity of wetlands could promote successful nesting by turtles.

Rare snakes

Historic stone structures within Fort Snelling State Park serve as over-wintering sites for snakes. The railroad trestle near the Sibley House is an important hibernaculum for Fox snakes and Eastern garter snakes. Additional structures in the park should be evaluated for their potential as snake hibernacula.

Rare snakes, including Fox snakes, Milk snakes, and Eastern hognose snakes, prefer the patchy forest and grassland conditions present at the park. However, surveys could not confirm any significant populations of these species. The surrounding communities and busy roads may prohibit movement of snakes into the park from other areas and contribute significantly to their mortality. No management can be suggested that would enhance the presence of rare snakes in the park.

Anuran monitoring

The low diversity of frogs and toads and low call indices recorded during the survey suggest that conditions at Fort Snelling State Park are not favorable as breeding sites for several species of anurans. Whether this is a reflection of poor water quality in the Minnesota and Mississippi rivers or the effects of the 1993 flooding cannot be determined by a single season's data. Continuation of annual anuran surveys in the park would provide important long-term data with which changes in frog and toad populations can be tracked.

Rare forest birds

The fragmented nature of forest habitats in the park is due, in part, to past land practices. However, much of the floodplain forest has probably always occurred in narrow strips or small tracts separated by river channels. Rare birds, like the Red-shouldered hawk and Cerulean warbler, require a forest patch size that may not be attainable at Fort Snelling State Park, regardless of management practices. The larger, contiguous tracts of floodplain forest, such as that on Pike Island and near Minnehaha Trail, appear potentially suitable for these species, although none were found during 1990 and 1993 surveys. Future surveys for the Red-shouldered hawks and Cerulean warblers during the breeding season may document their presence.

Although fragmentation results in the high bird species diversity observed at Fort Snelling State Park, it is an undesirable condition in terms of reproductive success. Nests near habitat edges suffer higher rates of nest predation and nest parasitism. A few species typical of more extensive forests, such as Brown creeper, Ovenbird, and Scarlet tanager, were found during the breeding season in the park, but they occurred in low numbers.

Forest management practices that can enhance habitat suitability for Red-shouldered hawk, Cerulean warbler, and forest songbirds include maintaining closed-canopies and connecting separated forest tracts.

Rare wetland birds

Wetland habitat diversity is important to wetland birds and any management activities in emergent marshes should maintain or enhance an interspersed vegetation with open water. The presence of emergent and submergent vegetation provides concealment, nesting cover, and feeding habitat for Common moorhens, as well as many other birds. Open water serves as important feeding areas for birds, such as grebes, waterfowl, and terns. Extensive areas dominated by dense cattails support low bird species diversity. Similarly, monocultures of common reed grass, reed-canary grass, or purple loosestrife provide very poor wetland bird habitat.

Rare mammals

No management actions are recommended for rare mammals. Grassland habitats in the park do not provide suitable habitat for prairie-associated species. The park is sufficiently isolated from other populations of Prairie voles and Plains pocket mice, that it is very unlikely they would establish themselves naturally at Fort Snelling State Park.

Summer habitat requirements for rare bats species are not well known. Construction of bat boxes to encourage summer use has not been totally successful. Northern myotis have been found in bat boxes in northern Minnesota, however, they are never common. Eastern pipistrelles have not been found using bat boxes in the state. Unfortunately, these two species cannot be identified using bat detectors and other techniques to document their presence are extremely labor intensive.

Bat monitoring

Documenting the presence of other bat species at Fort Snelling State Park can be done quite easily using bat detectors, and can provide valuable information concerning the importance of this park to foraging bats. While care should be taken to ensure that bats are correctly identified, seasonal use of park habitats by bats, as well as year-to-year variations, can be obtained with this device.

Maternity colonies may be present in the park, although none were located during MCBS surveys. The large cottonwood and silver maple trees in the floodplain forests may provide potential roosting habitat for females and young, as well as single individuals. Searches beneath loose bark and in hollow trunks and limbs may uncover roosting areas.

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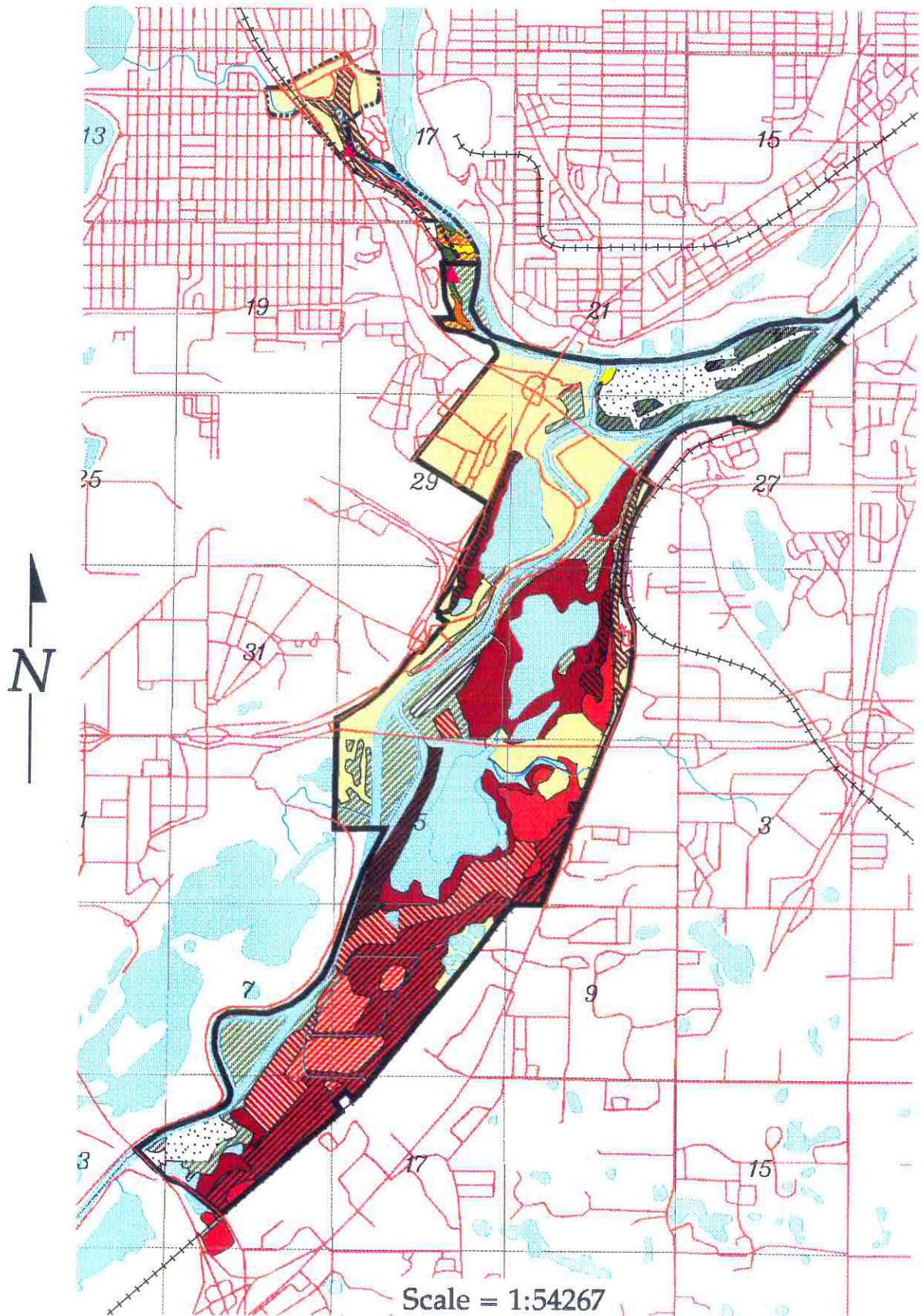
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Legend for Figure 1.

- | | | | |
|--|---|---|--|
|  | Aspen Forest |  | Natural community polygon boundaries and disturbed areas |
|  | Oak Forest - mesic subtype |  | Rivers and streams |
|  | Oak Forest - mesic subtype (disturbed) |  | Fort Snelling State Park statutory boundary |
|  | Maple-Basswood Forest |  | Minnehaha Regional Park boundary |
|  | Mesic Oak Savanna |  | Section lines |
|  | Mesic Oak Savanna (disturbed) |  | Roads |
|  | Mesic Prairie (restored) |  | Railroads |
|  | Floodplain Forest | | |
|  | Floodplain Forest (disturbed) | | |
|  | Black Ash Swamp - seepage subtype | | |
|  | Emergent Marsh | | |
|  | Emergent Marsh (dominated by reed canary grass) | | |
|  | Emergent Marsh (disturbed) | | |
|  | Calcareous Seepage Fen - prairie subtype | | |
|  | Calcareous Seepage Fen - prairie subtype (disturbed - dominated by reed canary grass) | | |
|  | Calcareous Seepage Fen - prairie subtype (disturbed) | | |
|  | Water bodies | | |
|  | Hardwood planting | | |
|  | Old field | | |
|  | Developed lands | | |

Figure 1.

Locations of natural communities and disturbed areas
of Fort Snelling State Park and Minnehaha Regional Park,
1993-95 Field Surveys.



Legend for Figure 2.

- | | | | |
|--|---|---|--|
|  | Oak Forest - mesic subtype |  | Rare Plant Record
(1970 and later) |
|  | Maple-Basswood Forest |  | Historic Rare Plant Record
(prior to 1970) |
|  | Mesic Oak Savanna |  | Rare Animal Record
(1970 and later) |
|  | Floodplain Forest |  | Historic Rare Animal Record
(prior to 1970) |
|  | Black Ash Swamp -
seepage subtype |  | Natural community
polygon boundaries
and disturbed areas |
|  | Emergent Marsh |  | Rivers and streams |
|  | Calcareous Seepage Fen -
prairie subtype |  | Fort Snelling
State Park
statutory boundary |
|  | Water bodies |  | Minnehaha Regional
Park boundary |
|  | Disturbed lands |  | Section lines |
| | |  | Roads |
| | |  | Railroads |

Figure 2.

Locations of natural communities and rare species
of Fort Snelling State Park and Minnehaha Regional Park,
1993-95 Field Surveys.

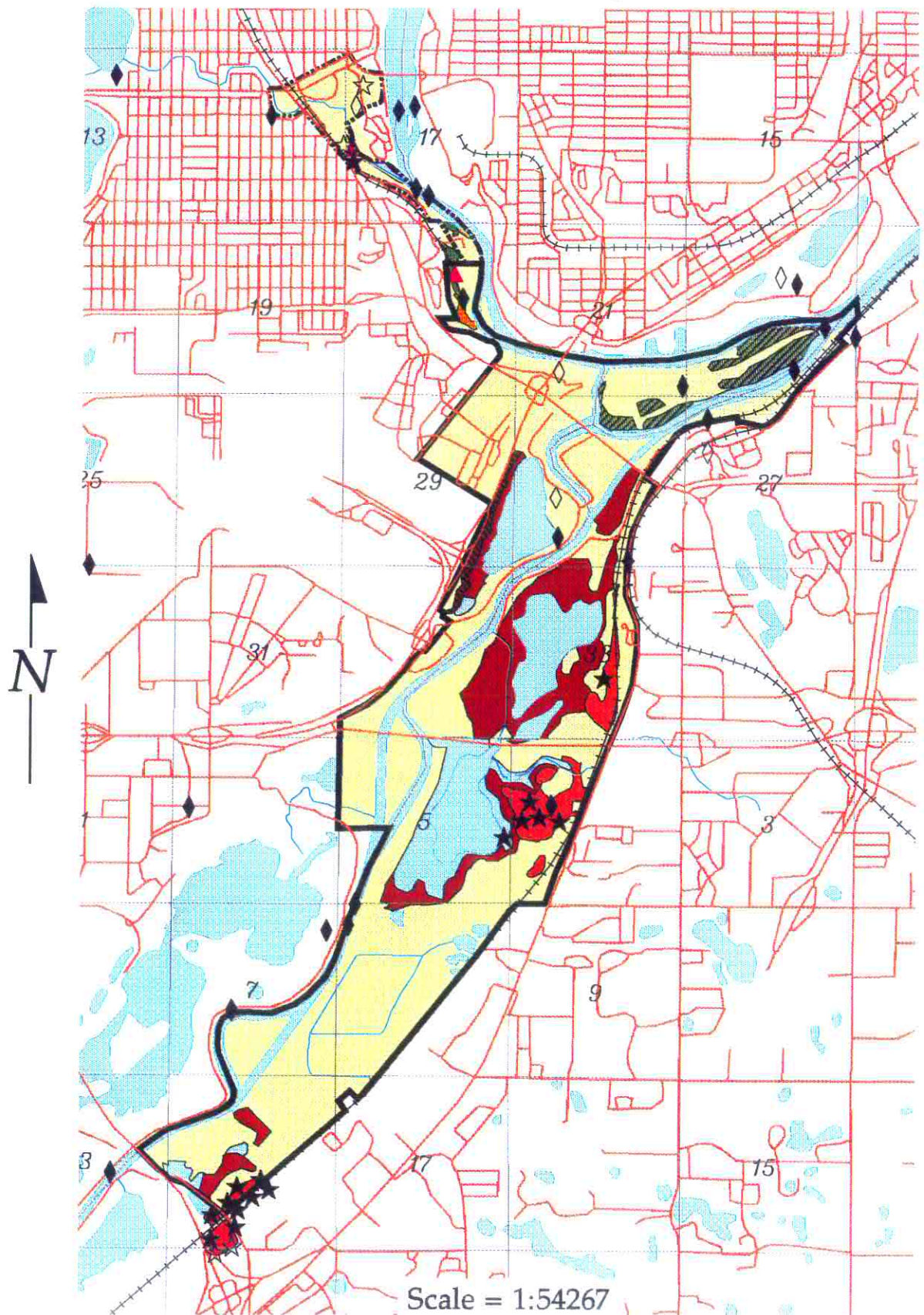
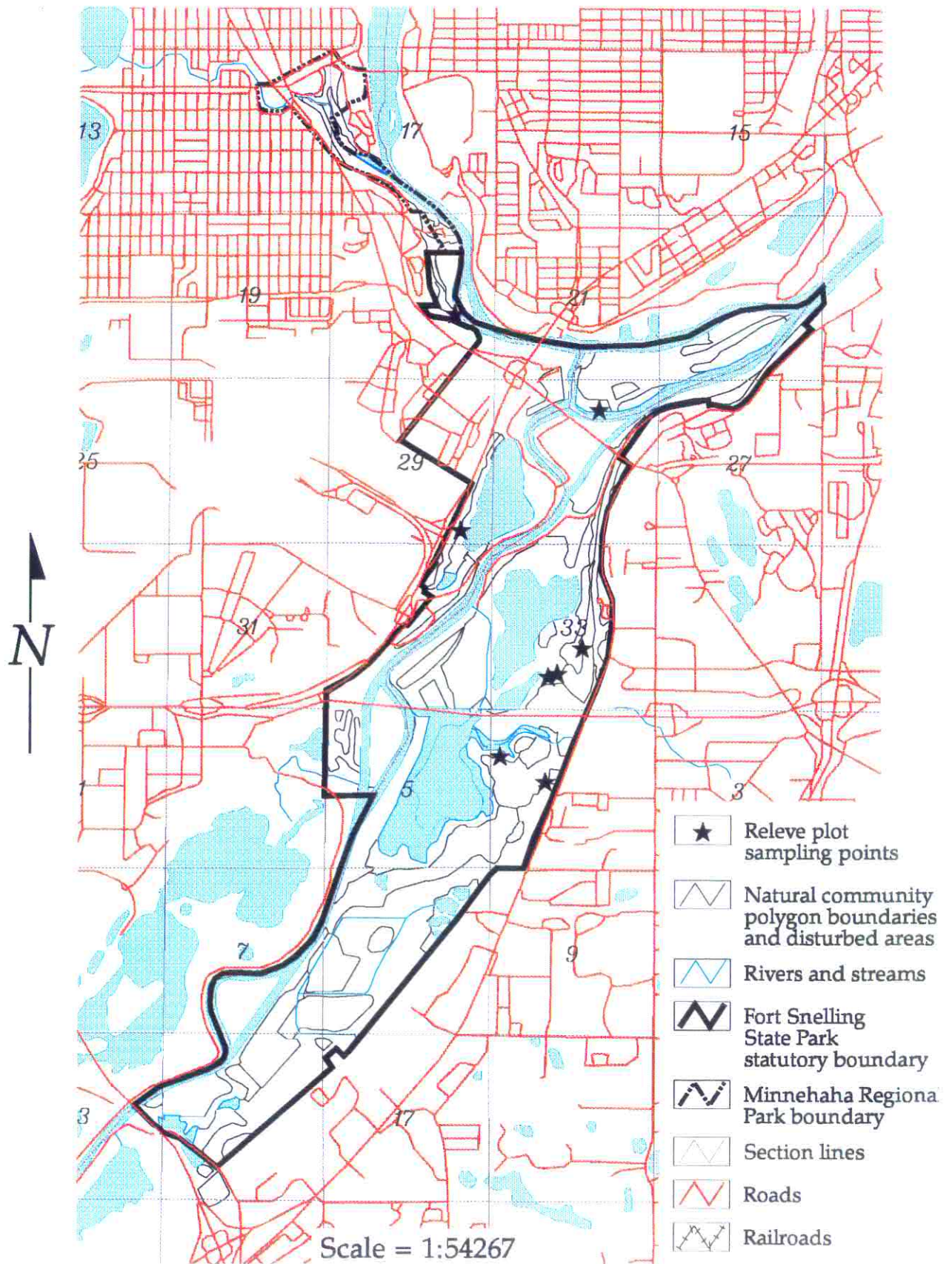


Figure 3.
 Releve plot sampling points
 in Fort Snelling State Park
 and Minnehaha Regional Park



Legend for Figure 4.

Map #	MN Stat	Occur #	Element name	Common name
1	PTH	1	<i>Carex plantaginea</i>	Plantain-leaved sedge
2	THR	3	<i>Carex sterilis</i>	Sterile sedge
3	THR	7	<i>Carex sterilis</i>	Sterile sedge
4	THR	58	<i>Carex sterilis</i>	Sterile sedge
5	THR	102	<i>Carex sterilis</i>	Sterile sedge
6	THR	103	<i>Carex sterilis</i>	Sterile sedge
7	SPC	22	<i>Cypripedium candidum</i>	Small white lady's slipper
8	SPC	24	<i>Cypripedium candidum</i>	Small white lady's slipper
9	SPC	217	<i>Cypripedium candidum</i>	Small white lady's slipper
10	SPC	260	<i>Cypripedium candidum</i>	Small white lady's slipper
11	SPC	21	<i>Echinochloa walteri</i>	Walter's barnyard grass
12	PSC	1	<i>Gaura biennis</i>	Biennial gaura
13	THR	3	<i>Lycopodium porophilum</i>	Rock clubmoss
14	NON	1	<i>Oxypolis rigidior</i>	Cowbane
15	NON	21	<i>Oxypolis rigidior</i>	Cowbane
16	NON	40	<i>Oxypolis rigidior</i>	Cowbane
17	THR	1	<i>Rhynchospora capillacea</i>	Hair-like beak-rush
18	THR	1	<i>Scleria verticillata</i>	Whorled nut-rush
19	THR	9	<i>Valeriana edulis</i> ssp. <i>ciliata</i>	Valerian
20	THR	13	<i>Valeriana edulis</i> ssp. <i>ciliata</i>	Valerian

Minnesota Legal Status

THR = Threatened

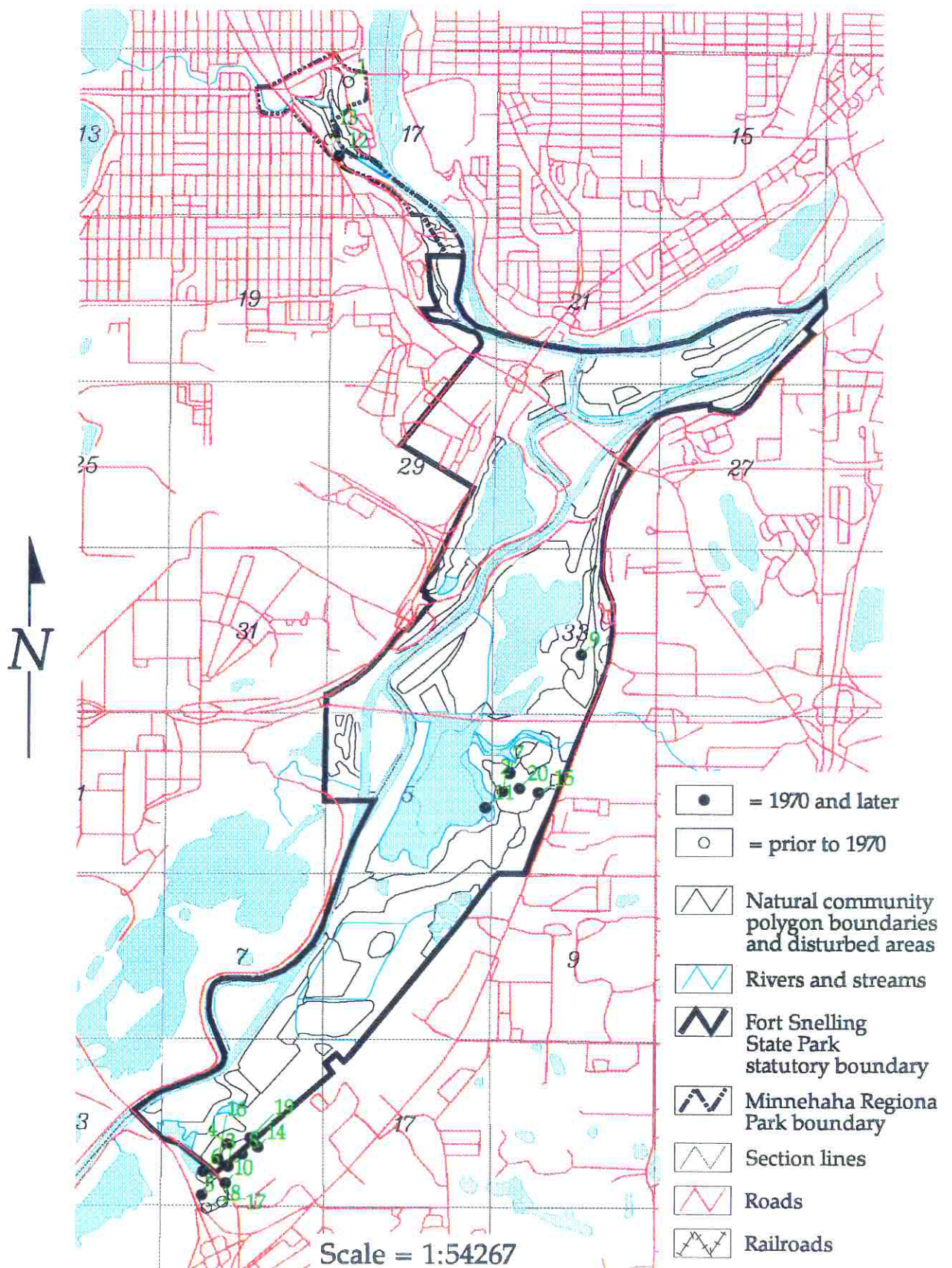
SPC = Special Concern

PTH = Proposed Threatened

PSC = Proposed Special Concern

NON = No legal status

Figure 4.
Rare plant species occurrences
in Fort Snelling State Park
and Minnehaha Regional Park



Legend for Figure 5.

Map #	MN Stat	Occur #	Element name	Common name
1	NON	6	<i>Actinonaias ligamentina</i>	Mucket mussel
2	NON	95	<i>Actinonaias ligamentina</i>	Mucket mussel
3	NON	96	<i>Actinonaias ligamentina</i>	Mucket mussel
4	NON	11	<i>Arcidens confragosus</i>	Rock-pocketbook mussel
5	NON	12	<i>Arcidens confragosus</i>	Rock-pocketbook mussel
6	SPC	53	<i>Bartramia longicauda</i>	Upland sandpiper
7	SPC	49	<i>Cycleptus elongatus</i>	Blue sucker
8	SPC	4	<i>Elaphe vulpina</i>	Fox snake
9	SPC	8	<i>Elaphe vulpina</i>	Fox snake
10	SPC	27	<i>Elaphe vulpina</i>	Fox snake
11	SPC	93	<i>Elaphe vulpina</i>	Fox snake
12	SPC	94	<i>Elaphe vulpina</i>	Fox snake
13	SPC	95	<i>Elaphe vulpina</i>	Fox snake
14	SPC	108	<i>Elaphe vulpina</i>	Fox snake
15	SPC	2	<i>Elliptio crassidens</i>	Elephant-ear mussel
16	THR	7	<i>Emydoidea blandingii</i>	Blanding's turtle
17	THR	423	<i>Emydoidea blandingii</i>	Blanding's turtle
18	THR	481	<i>Emydoidea blandingii</i>	Blanding's turtle
19	THR	699	<i>Emydoidea blandingii</i>	Blanding's turtle
20	END	46	<i>Falco peregrinus</i>	Peregrine falcon
21	SPC	8	<i>Fusconaia ebena</i>	Ebonyshell mussel
22	SPC	9	<i>Fusconaia ebena</i>	Ebonyshell mussel
23	THR	311	<i>Haliaeetus leucocephalus</i>	Bald eagle
24	THR	1439	<i>Haliaeetus leucocephalus</i>	Bald eagle
25	SPC	22	<i>Lampropeltis triangulum</i>	Milk snake
26	NON	11	<i>Lampsilis teres</i>	Yellow sandshell mussel
27	NON	12	<i>Lampsilis teres</i>	Yellow sandshell mussel
28	NON	13	<i>Lampsilis teres</i>	Yellow sandshell mussel
29	NON	19	<i>Ligumia recta</i>	Black sandshell mussel
30	NON	94	<i>Ligumia recta</i>	Black sandshell mussel
31	SPC	14	<i>Microtus ochrogaster</i>	Prairie vole
32	SPC	7	<i>Polyodon spathula</i>	Paddlefish
33	NON	26	<i>Quadrula metanevra</i>	Monkeyface mussel
34	NON	12	<i>Quadrula nodulata</i>	Wartyback mussel
35	NON	13	<i>Quadrula nodulata</i>	Wartyback mussel
36	SPC	4	<i>Scaphirhynchus platyrhynchus</i>	Shovelnose sturgeon
37	NON	29	<i>Tritogonia verrucosa</i>	Pistolgrip mussel
38	NON	0	<i>Vireo bellii</i>	Bell's vireo
39	NON	3	<i>Vireo bellii</i>	Bell's vireo

Minnesota Legal Status

END = Endangered
 THR = Threatened
 SPC = Special Concern
 NON = No legal status

Figure 5.
 Rare animal species occurrences
 in Fort Snelling State Park
 and Minnehaha Regional Park

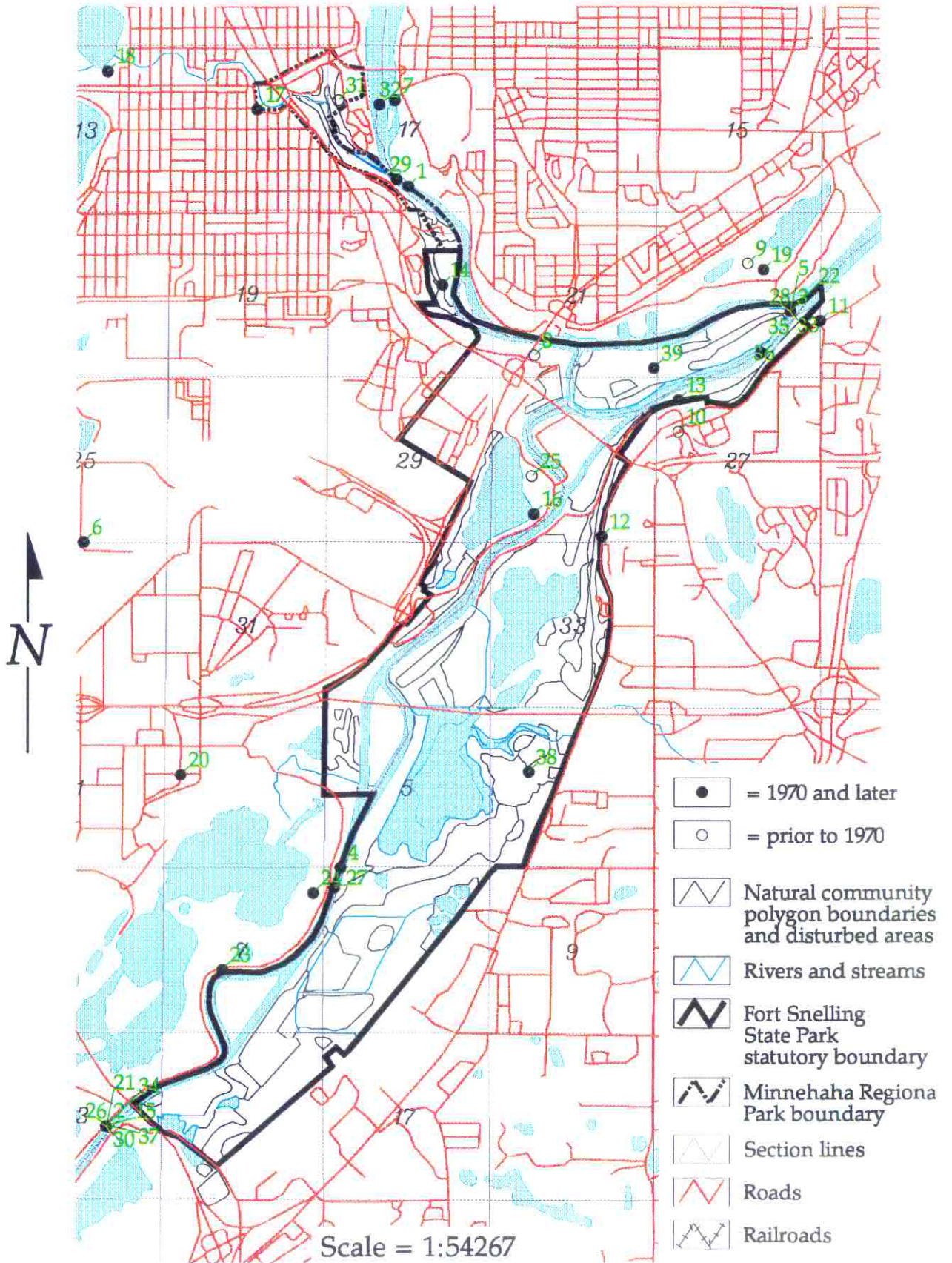


Figure 6.
 Animal Sampling Sites
 in Fort Snelling State Park,
 1993-1995 Field Surveys

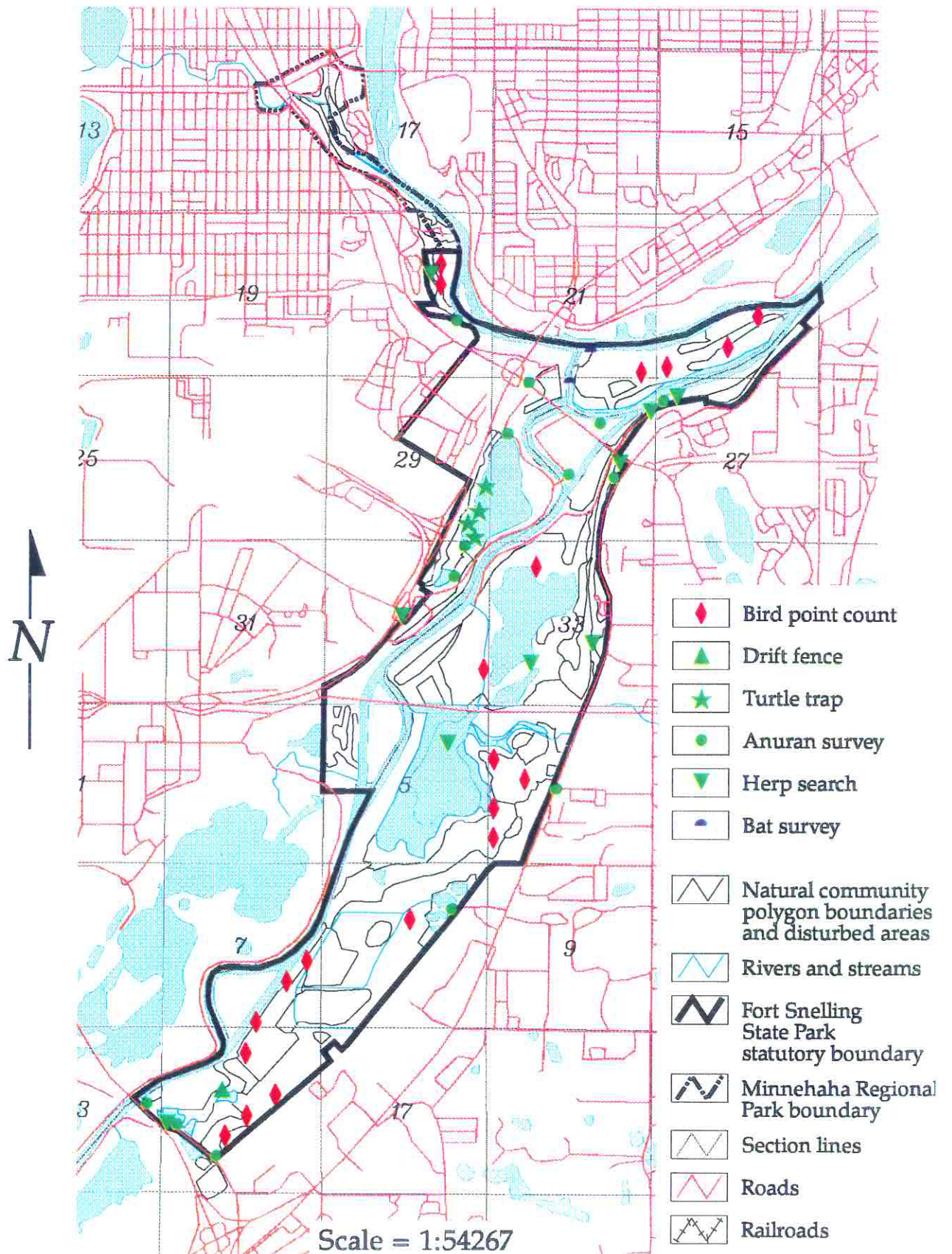


Table 1. Quality ranks, acreage, and occurrences of A-C quality natural communities in Fort Snelling State Park, Minnehaha Regional Park, and adjoining land.

Natural community	Quality rank	Total acreage	Number of occurrences
Calcareous seepage fen prairie subtype	C	141	5
Maple basswood forest	C	12	2
Mesic oak savanna	BC	7	1
Oak forest mesic subtype	C	29	0
Black ash swamp seepage subtype	C	<1	2
Mixed emergent marsh prairie subtype	B-C	381	2
Floodplain forest silver maple subtype	BC	92	1

Table 2. Relieve plots in Fort Snelling State Park: locations and natural communities.

Releve #	Natural Community	Date	Legal description
4088	Calcareous seepage fen prairie subtype	07/29/93	T27N R20W SESW04
4089	Calcareous seepage fen prairie subtype	05/28/93	T27N R20W SESW04
4922	Oak forest mesic subtype	08/25/94	T28N R23W SESE29
4923	Mesic oak savanna	08/11/94	T28N R23W NESE20
4924	Mixed emergent marsh prairie subtype	08/25/94	T28N R23W SESW33
4925	Mixed emergent marsh prairie subtype	08/25/94	T28N R23W SESW33
4926	Mixed emergent marsh prairie subtype	08/29/94	T27N R23W SWNW04
4927	Calcareous seepage fen prairie subtype	07/20/94	T28N R23W NWSW33
4928	Floodplain forest silver maple subtype	07/20/94	T28N R23W NWNE28

Table 3. Rare animals targeted for MCBS surveys at Fort Snelling State Park. Included are species federal and state statuses and their primary habitats.

Animal Group/Species	Status (F: federal/S: state)
AMPHIBIANS AND REPTILES	
<u>Upland deciduous forests, forest openings and brushland edges</u>	
Fox snake (<i>Elaphe vulpina</i>)	S: Special Concern
<u>Grasslands and wet meadows</u>	
Blue racer (<i>Coluber constrictor</i>)	S: Special Concern
Milk snake (<i>Lampropeltis triangulum</i>)	S: Special Concern
Eastern hognose snake (<i>Heterodon platyrhinos</i>)	S: Special Concern
Gopher snake (<i>Pituophis catenifer</i>)	S: Special Concern
<u>Aquatic habitats</u>	
Bullfrog (<i>Rana catesbeiana</i>)	S: Special Concern
Blanding's turtle (<i>Emydoidea blandingii</i>)	F: Candidate/S: Threatened
Snapping turtle (<i>Chelydra serpentina</i>)	S: Special Concern
Smooth softshell turtle (<i>Apalone mutica</i>)	S: proposed Special Concern
BIRDS	
<u>Lowland hardwoods and floodplain forest</u>	
Bald eagle (<i>Haliaeetus leucocephalus</i>)	F/S: Threatened
Red-shouldered hawk (<i>Buteo lineatus</i>)	S: Special Concern
Cerulean warbler (<i>Dendroica cerulea</i>)	F: Cand./S: prop. Special Concern
<u>Wetlands</u>	
American bittern (<i>Botaurus lentiginosus</i>)	S: Special Concern
Common moorhen (<i>Gallinula chloropus</i>)	S: Special Concern
Forster's Tern (<i>Sterna forsteri</i>)	S: Special Concern
Black Tern (<i>Chlidonias niger</i>)	F: Candidate
MAMMALS	
No rare species were targeted for park surveys	

Table 4. List of amphibian and reptile species recorded from Fort Snelling State Park, associated with their primary habitats. (Data was obtained from 1993 MCBS animal surveys and the NHIS Rare Features Database. ‡ indicates species has not been found since 1970.)

Upland deciduous forests, forest openings and brushland edges

- Fox snake (*Elaphe vulpina*)
- Redbelly snake (*Storeria occipitomaculata*)

Grasslands and wet meadows

- Western chorus frog (*Pseudacris triseriata*)
- Northern leopard frog (*Rana pipiens*)
- Plains garter snake (*Thamnophis radix*)
- ‡ Eastern hognose snake (*Heterodon platyrhinos*)
- ‡ Milk snake (*Lampropeltis triangulum*)

Aquatic habitats

- Green frog (*Rana clamitans*)
- Snapping turtle (*Chelydra serpentina*)
- Painted turtle (*Chrysemys picta*)
- Blanding's turtle (*Emydoidea blandingii*)

Habitat generalists

- American toad (*Bufo americanus*)
 - Eastern garter snake (*Thamnophis sirtalis*)
-

Table 5. List of breeding birds recorded from Fort Snelling State Park during MCBS surveys conducted in 1990 and 1993. Species are arranged in taxonomic order and listed under the habitats in which they were recorded. Their general habitat association is included in a separate column.

Species	Habitat association
Floodplain forest	
Red-tailed hawk (<i>Buteo jamaicensis</i>)	forest-edge
Mourning dove (<i>Zenaida macroura</i>)	forest-edge
Red-bellied woodpecker (<i>Melanerpes carolinus</i>)	forest
Downy woodpecker (<i>Picoides pubescens</i>)	forest-edge
Hairy woodpecker (<i>Picoides villosus</i>)	forest-edge
Northern flicker (<i>Colaptes auratus</i>)	forest-edge
Eastern wood-pewee (<i>Contopus virens</i>)	forest
Least flycatcher (<i>Empidonax minimus</i>)	forest
Great crested flycatcher (<i>Myiarchus crinitus</i>)	forest
Blue jay (<i>Cyanocitta cristata</i>)	forest-edge
American crow (<i>Corvus brachyrhynchos</i>)	forest-edge
Black-capped chickadee (<i>Parus atricapillus</i>)	forest-edge
White-breasted nuthatch (<i>Sitta carolinensis</i>)	forest
Brown creeper (<i>Certhia americana</i>)	forest
House wren (<i>Troglodytes aedon</i>)	forest-edge
Blue-gray gnatcatcher (<i>Poliophtila caerulea</i>)	forest
Veery (<i>Catharus fuscescens</i>)	forest
American robin (<i>Turdus migratorius</i>)	widespread
Gray catbird (<i>Dumetella carolinensis</i>)	forest-edge
Brown thrasher (<i>Toxostoma rufum</i>)	forest-edge
Cedar waxwing (<i>Bombycilla cedrorum</i>)	forest-edge
European starling (<i>Sturnus vulgaris</i>)	forest-edge
Yellow-throated vireo (<i>Vireo flavifrons</i>)	forest
Warbling vireo (<i>Vireo gilvus</i>)	forest-edge
Red-eyed vireo (<i>Vireo olivaceus</i>)	forest
American redstart (<i>Setophaga ruticilla</i>)	forest
Prothonotary warbler (<i>Protonotaria citrea</i>)	forest
Ovenbird (<i>Seiurus aurocapillus</i>)	forest
Scarlet tanager (<i>Piranga olivacea</i>)	forest
Northern cardinal (<i>Cardinalis cardinalis</i>)	forest-edge
Rose-breasted grosbeak (<i>Pheucticus ludovicianus</i>)	forest
Indigo bunting (<i>Passerina cyanea</i>)	forest-edge
Song sparrow (<i>Melospiza melodia</i>)	forest-edge
Common grackle (<i>Quiscalus quiscula</i>)	widespread
Brown-headed cowbird (<i>Molothrus ater</i>)	widespread
Northern oriole (<i>Icterus galbula</i>)	forest
American goldfinch (<i>Carduelis tristis</i>)	forest-edge

Table 5. continued.

Species	Habitat association
Wetlands	
Double-crested cormorant (<i>Phalacrocorax auritus</i>)	open
Great blue heron (<i>Ardea herodias</i>)	open
Great egret (<i>Casmerodius albus</i>)	open
Green heron (<i>Butorides virescens</i>)	open
Black-crowned night-heron (<i>Nycticorax nycticorax</i>)	open
Canada goose (<i>Branta canadensis</i>)	open
Wood duck (<i>Aix sponsa</i>)	open
Mallard (<i>Anas platyrhynchos</i>)	open
Blue-winged teal (<i>Anas discors</i>)	open
Bald eagle (<i>Haliaeetus leucocephalus</i>)	open
Ring-necked pheasant (<i>Phasianus colchicus</i>)	open
Killdeer (<i>Charadrius vociferus</i>)	open
Spotted sandpiper (<i>Actitis macularia</i>)	open
Forster's tern (<i>Sterna forsteri</i>)	open
Common nighthawk (<i>Chordeiles minor</i>)	widespread
Belted kingfisher (<i>Ceryle alcyon</i>)	open
Willow flycatcher (<i>Empidonax traillii</i>)	open
Eastern kingbird (<i>Tyrannus tyrannus</i>)	open
Tree swallow (<i>Tachycineta bicolor</i>)	open
Northern rough-winged swallow (<i>Stelgidopteryx serripennis</i>)	open
Bank swallow (<i>Riparia riparia</i>)	open
Barn swallow (<i>Hirundo rustica</i>)	open
Sedge wren (<i>Cistothorus platensis</i>)	open
Marsh wren (<i>Cistothorus palustris</i>)	open
Bell's vireo (<i>Vireo bellii</i>)	open
Yellow warbler (<i>Dendroica petechia</i>)	open
Common yellowthroat (<i>Geothlypis trichas</i>)	open
Swamp sparrow (<i>Melospiza georgiana</i>)	open
Red-winged blackbird (<i>Agelaius phoeniceus</i>)	open
Yellow-headed blackbird (<i>Xanthocephalus xanthocephalus</i>)	open
Late migrants (non-breeding)	
Olive-sided flycatcher (<i>Contopus borealis</i>)	
Alder flycatcher (<i>Empidonax alnorum</i>)	
Tennessee warbler (<i>Vermivora peregrina</i>)	
Wilson's warbler (<i>Wilsonia pusilla</i>)	

Appendix 1A. Natural Heritage Database Print-outs: An Explanation of Selected Fields

The Natural Heritage database is maintained by the Natural Heritage and Nongame Wildlife Research Program, a unit within the Section of Wildlife, Department of Natural Resources. It is the most complete source of data on Minnesota's rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features, and is used in fostering better understanding and protection of these rare features. The information in the database is drawn from many parts of Minnesota, and is constantly being updated, but it is not based on a comprehensive survey of the state. Therefore, there are currently many significant natural features present in the state which are not represented by the database. We are in the process of addressing this problem via the Minnesota County Biological Survey, a county-by-county inventory of rare natural features, which is now underway.

Please note that the print-outs are copyrighted and cannot be reproduced without permission.

Index

The Natural Heritage database maintains records of rare features, or "elements" in Minnesota. The records contain many fields which can be organized into variously formatted printouts. Each line in an abbreviated print-out, or index, represents one occurrence of a rare natural feature such as an endangered plant or animal, a rare plant community, or a significant geological feature. Your index is organized by township, range and section and includes the following fields:

TWP, RNG, SECTION: Township, range and section numbers. In most cases, print-outs will list records to the nearest section to protect rare features that are vulnerable to exploitation. If the data manager determines that there is a need for more detailed location information, more specific section information will be included. In that case, you will note that records have varying degrees of precision; some are listed only to the nearest section or sections, others are listed to the nearest 40 acres (e.g., SWNW32 means the SW1/4 of the NW1/4 of section 32). "0" is used as a place holder when a 1/2 section is specified (e.g., ON03=north 1/2 of section 3). When a community overlaps section boundaries, both sections will be listed in the section field without punctuation (e.g., NE19NW20=NE1/4 of section 19 and NW1/4 of section 20).

FED STATUS: Status of species under the Federal Endangered Species Law. Codes are LE=endangered, LT=threatened, C2=species which are candidates for listing, but about which there is not enough data to support listing proposals at this time, 3C=species that were once considered for listing, but which have proven more abundant than previously believed and are not subject to any identifiable threat at this time.

MN STATUS: Minnesota legal status of plant and animal species under the state endangered species law. Codes for status are as follows: END=endangered, THR=threatened, SPC=special concern. Additional species

are tracked that have no legal status, but are rare, and may become listed if they decline further; codes for these are PEN=proposed endangered, PTH=proposed threatened, PSC=proposed special concern, and NON=rare, but no legal status. This field is blank for natural communities and colonial waterbird nesting sites, which have no legal status in Minnesota, but are tracked by the database.

S RANK: The S (state) Rank assigned to natural community types is intended to reflect the known extent and condition of the natural communities in Minnesota. Community types are ranked on a scale from 1 to 5; those ranked "1" are considered in greatest need of conservation action in the state, while community types ranked "5" are considered secure under present conditions. A "?" following a rank (e.g. "S2?") is used in cases where only limited information is available on the community. Communities for which information is especially scarce are given a "U", for rank undetermined. **The ranks do not represent a legal protection status.** They are used by the Minnesota Department of Natural Resources to set priorities for research, inventory and conservation planning. The state ranks are periodically updated as inventory information becomes available.

ELEMENT AND OCCURRENCE NUMBER: For plant and animal species this is the scientific name with the common name in parentheses; for all other features it is the feature name. The occurrence number, in combination with the element name, uniquely identifies each record and may be used to retrieve additional information from the full-record printout.

MANAGED AREA: If the element occurs within the boundaries of an area managed by a public agency or a conservation organization such as The Nature Conservancy, the name of the area is recorded. If this field is blank, the element probably occurs on private land. If "(STATUTORY BOUNDARY)" occurs after the name of a managed area, the location is usually a private inholding within the statutory boundary of a state forest or state park. For many large managed areas such as national forests and most state forests, ownership information is often unknown.

Full Record Printout (compressed version)

Some users of Natural Heritage database information are interested in more detailed information about the individual occurrences of rare features than is provided by the index. The full record printout (compressed version) is designed to include additional fields from the database that are likely to be most relevant to users.

In the full record printout, the first line of each record contains the element name ("ename"), the

common name for plants and animals, and the occurrence number. The records are arranged by class (geologic processes; natural communities; other elements such as waterbird colonies, bat hibernacula, prairie chicken booming grounds; animals; plants), then alphabetically by element name, and finally by occurrence number. Again, the ename and the occurrence number are the cross reference with the index. Other fields are defined below.

Region: References the 6 DNR regions in the state.

State Status: Minnesota legal status of plant and animal species under the state endangered species law. Status categories include Endangered, Threatened, Special Concern and No Legal Status (rare but not listed in the state). This field is blank for natural communities and colonial waterbird nesting sites, which have no legal status in Minnesota, but are tracked by the database.

Federal Status: This field appears only for plant or animal species that have legal status under the federal Endangered Species Law - Endangered, Threatened, Category 2 (a candidate species), Category 3 (more abundant than previously thought).

S Rank: The S (state) rank assigned to natural community types is intended to reflect the known extent and condition of the natural communities in Minnesota. Community types are ranked on a scale from 1 to 5; those ranked "1" are considered in greatest need of conservation action in the state, while community types ranked "5" are considered secure under present conditions. A "?" following a rank (e.g. "S2?") is used in cases where only limited information is available on the community. Communities for which information is especially scarce are given a "U", for rank undetermined. **The ranks do not represent a legal protection status.** They are used by the Minnesota Department of Natural Resources to set priorities for research, inventory and conservation planning. The state ranks are periodically updated as inventory information becomes available.

Legal: Again, this field contains the township, range and section numbers. Records have varying degrees of precision; some are listed only to the nearest section or sections, others are listed to the nearest 40 acres (e.g., SWNW32 means the SW1/4 of the NW1/4 of section 32). "0" is used as a place holder when a 1/2 section is specified (e.g., ON03=north 1/2 of section 3). When a community overlaps section boundaries, both sections will be listed in the section field without punctuation (e.g., NE19NW20=NE1/4 of section 19 and NW1/4 of section 20). Often only the section number will be listed to protect exact locations.

Wildlife Area: The Section of Wildlife administrative number.

EO Size: The size in acres (often estimated) of natural communities.

EO Rank: An evaluation of the quality and condition of natural communities from A (highest) to D (lowest).

Current Status: Present protection status of a site from 0 (owner is not aware of record) to 9 (dedication as a Scientific and Natural Area).

Intended Status: Desired protection status. If a complete list of protection status codes is needed, please contact the Natural Heritage Program.

Quad Map: The U.S. Geologic topographic maps maintained by the Heritage Program.

Forestry District: The Division of Forestry's district number.

44 Site: The sitename allows the database to group occurrences that are located near each other. Usually this name refers to a county biological survey site; in other instances it is the name of a managed area, sometimes it is a more generic name that encompasses several managed areas and/or private land (e.g., sitename Felton Prairie pulls together occurrences on Felton Prairie SNA, Felton WMA and private lands), occasionally it is a colloquial name (Katinanta Bog); often it is a township name and section number.

CBS Site #: A number assigned to each county biological survey site. In each county, the numbering system begins with the number 1.

Latitude/longitude: The lat-long references the dots which are placed manually on the quad map files. There are various levels of precision in the original information, but this is not reflected in the lat-long data. For some of the data, particularly historical records, it was not possible to determine exactly where the original observation was made. Examples of this type of locational information would be "Fort Snelling", or "the south shore of Lake Owasso". During the manual mapping process for the least precise observations, the dot is placed in the center of the 7.5 minute quad map, and the lat-long coordinates are determined for the center of the dot. In cases where the occurrence is known within a quarter mile, the lat-long reflects the nearly exact location of the record.

Last Observation: The date of the most recent information about this record.

Ownership: Indicates whether the site is privately owned; for publicly owned land the agency with management responsibility is listed here.

Precision: This field indicates how precise the locational information is. There are six levels of precision: 1) occurrence is known within 1/4 mile radius (most precise level), 2) occurrence is known within 1/2 mile radius (usually within a section), 3) occurrence is known within one mile radius, 4) occurrence is known to exist within the quad map or general region, 5) occurrence is unmappable (often known only to the county level), 6) occurrence no longer exists at former location.

Managed Area(s): These are lands owned or managed by either a public agency or a private conservation organization such as The Nature Conservancy. If "(STATUTORY BOUNDARY)" occurs after the name of a managed area, the location is usually a private inholding within the statutory boundary of a state forest or state park. For many large managed areas such as national forests and most state forests, ownership information is often unknown.

Source: The collector or observer of the feature.

Voucher: The museum or herbarium where specimens are maintained and the accession number assigned by the repository. In the case of bald eagles, this is the breeding area number.

Verification: This, in general, reflects the reliability of information. In the case of old plant collections, the date of the collection determines whether the record is verified or unverified; collections before 1970 are unverified. The highest level of reliability is "verified" which usually indicates a collection was made or, as in the case of bird records, nesting was observed.

Remarks at end of records: The last 1-3 lines of each record contain more detailed notes about the occurrence, such as the number of individuals, descriptive information about habitat, associated species, etc.

Data Security

The locations of some rare features must be treated as sensitive information because widespread knowledge of these locations could result in harm to the rare features. The most sensitive information is the locations of species of wildflowers, including orchids, endangered species such as the Dwarf trout lily, and economically valuable plants such as Ginseng, because these are vulnerable to exploitation by collectors. Bald eagle nesting sites are also considered to be sensitive to disturbance by curious on-

lookers. For this reason, information from the Natural Heritage database should not be reproduced or published without permission from the Natural Heritage and Nongame Wildlife Research Program. We are concerned that any publication for public distribution not identify the precise locations of the vulnerable plant species referred to above. One way to handle this would be to list only the sections in which the sensitive species occur. If this is not acceptable for your purposes, please call and discuss this issue with the Environmental Review Specialist for the Heritage and Nongame Wildlife Research Program at 612/296-8279.

Another issue is the disturbance or eradication of a rare feature by development projects. If a threat to any of the features on your printout comes to your attention, please call the Environmental Review Specialist for the Heritage and Nongame Wildlife Research Program.

Data Requests.

The Heritage Database is updated continuously. Of particular significance is the body of new records being generated by the Minnesota County Biological Survey. For this reason, it is important to forward data requests to the Natural Heritage and Nongame Wildlife Research Program. In addition, printouts can be organized by the data management staff to meet the particular needs of requesters. Requests for rare features data should be forwarded to Mary Miller at 612/296-8319 or Jan Wolff at 612/296-8279.

APPENDIX 1B. RARE FEATURES IN FORT SNELLING STATE PARK

Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

16:56 Thursday, OCTOBER 26, 1995 1
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Federal Status	MN(legal) Status	Global Rank	State Rank	Last Observed	# of Occurs.	Element Name (Common Name)
			S3	1994	1	<u>NATURAL COMMUNITIES</u> BLACK ASH SWAMP SEEPAGE SUBTYPE
			S1	1994	3	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE
			S3	1994	1	FLOODPLAIN FOREST SILVER MAPLE SUBTYPE
			S1	1994	1	MESIC OAK SAVANNA (CENTRAL)
			S2	1994	2	MIXED EMERGENT MARSH (PRAIRIE)
				1989	2	<u>ANIMAL AGGREGATIONS</u> MUSSEL SAMPLING SITE
						<u>ANIMALS</u>
	NON	G5	SU	1989	1	ACTINONAIAS LIGAMENTINA (MUCKET MUSSEL)
	NON	G3	SU	1989	2	ARCIDENS CONFRAGOSUS (ROCK-POCKETBOOK MUSSEL)
	SPC	G5	S3	1993	4	ELAPHE VULPINA (FOX SNAKE)
C2	THR	G4	S2	1989	1	EMYDOIDEA BLANDINGII (BLANDING'S TURTLE)
	SPC	G4	S3	1989	1	FUSCONAIA EBENA (EBONYSHELL MUSSEL)
	SPC	G5	S3	1951	1	LAMPROPELTIS TRIANGULUM (MILK SNAKE)
	NON	G5	SU	1989	2	LAMPASILIS TERES (YELLOW SANDSHELL MUSSEL)
	NON	G3	SU	1989	1	QUADRULA METANEVRA (MONKEYFACE MUSSEL)
	NON	G3G4	S?	1989	1	QUADRULA NODULATA (WARTYBACK MUSSEL)
C1	SPC	G4	S3	1980	1	SCAPHIRHYNCHUS PLATORYNCHUS (SHOVELNOSE STURGEON)
	NON	G5	SU	1980	1	VIREO BELLII (BELL'S VIREO)
						<u>PLANTS</u>
	THR	G4	S2	1982	3	CAREX STERILIS (STERILE SEDGE)
	SPC	G4	S3	1993	3	CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER)
	SPC	G5	S3	1994	1	ECHINOCHLOA WALTERI (WALTER'S BARNYARD GRASS)
	NON	G4G5	SU	1909	1	HIERACIUM LONGIPILUM (LONG-BEARDED HAWKWEED)
	SPC	G5	S3	1924	1	OROBANCHE UNIFLORA (ONE FLOWERED BROOM-RAPE)
	NON	G5	SU	1982	2	OXYPOLIS RIGIDIOR (COWBANE)
	THR	G5T3?	S2	1982	2	VALERIANA EDULIS SSP. CILIATA (VALERIAN)

ELEMENTS PRINTED = 24

APPENDIX 1B. RARE FEATURES IN MINNEHAHA REGIONAL PARK

9:53 Monday, OCTOBER 30, 1995 1
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Minnesota Natural Heritage Database
 Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

Federal Status	MN(legal) Status	Global Rank	State Rank	Last Observed	# of Occurs.	Element Name (Common Name)
			S3	1994	1	<u>NATURAL COMMUNITIES</u>
			S3	1994	1	BLACK ASH SWAMP SEEPAGE SUBTYPE
						MOIST CLIFF (SOUTHEAST)
						<u>ANIMALS</u>
	NON	G5	SU	1977	1	ACTINONAIAS LIGAMENTINA (MUCKET MUSSEL)
C2	THR	G4	S2	1989	1	EMYDOIDEA BLANDINGII (BLANDING'S TURTLE)
	SPC	G5	S3	1917	1	MICROTUS OCHROGASTER (PRAIRIE VOLE)
						<u>PLANTS</u>
	PTH	G5	S2	1903	1	CAREX PLANTAGINEA (PLANTAIN-LEAVED SEDGE)
	PSC	G5	S3	1971	1	GAURA BIENNIS (BIENNIAL GAURA)
	THR	G4	S2	1902	1	LYCOPODIUM POROPHILUM (ROCK CLUBMOSS)

ELEMENTS PRINTED = 8

APPENDIX 1B. RARE FEATURES IN NICOL'S MEADOW ADJACENT TO FORT SNELLING
 STATE PARK
 MnDNR, Natural Heritage and Nongame Research Program

Minnesota Natural Heritage Database
 Element Occurrence Records

10:11 Monday, OCTOBER 30, 1995 1
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Federal Status	MN(legal) Status	Global Rank	State Rank	Last Observed	# of Occurs.	Element Name (Common Name)
			S1	1994	2	<u>NATURAL COMMUNITIES</u> CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE
						<u>PLANTS</u>
	THR	G4	S2	1994	2	CAREX STERILIS (STERILE SEDGE)
	SPC	G4	S3	1993	1	CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER)
	NON	G5	SU	1994	1	OXYPOLIS RIGIDIOR (COWBANE)
	THR	G5	S2	1942	1	RHYNCHOSPORA CAPILLACEA (HAIR-LIKE BEAK-RUSH)
	THR	G5	S2	1941	1	SCLERIA VERTICILLATA (WHORLED NUT-RUSH)

ELEMENTS PRINTED = 6

APPENDIX 1C. NATURAL COMMUNITY RECORDS FOR FORT SNELLING STATE PARK

14:41 Thursday, OCTOBER 26, 1995

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Minnesota Natural Heritage Database

MnDNR, Natural Heritage and Nongame Research Program

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Element Occurrence Records

Map Symbol codes: C = known within 1/4 mile radius; U = known within 1/2 mile radius; N = known within 1 mile radius

COUNTY NAME	TWP	RNG	SECTION	MAP SYM	FED STAT	MINN STAT	YEAR INFO	VOUCHER	ELEMENT and OCCURRENCE NUMBER	OWNER
HENNEPIN	T028N	R23W	SWNE20	C			1994		BLACK ASH SWAMP SEEPAGE SUBTYPE #9	DNR PARKS AND RECREATION
DAKOTA	T027N	R23W	NESW18	C			1980		CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #10	PRIVATE INHOLDING
DAKOTA	T027N	R23W	0W04	C			1994	RELEVES	CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #11	DNR PARKS AND RECREATION
DAKOTA	T028N	R23W	0WSE33	C			1994		CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #28	DNR PARKS AND RECREATION
RAMSEY	T028N	R23W	NE280S22	C			1994	RELEVE 1994	FLOODPLAIN FOREST SILVER MAPLE SUBTYPE #8	DNR PARKS AND RECREATION
HENNEPIN	T028N	R23W	NENWSE20	C			1994	RELEVE 1994	MESIC OAK SAVANNA (CENTRAL) #1	DNR PARKS AND RECREATION
DAKOTA	T028N	R23W	SE320E2833	C			1994	RELEVE 1994	MIXED EMERGENT MARSH (PRAIRIE) #23	DNR PARKS AND RECREATION
DAKOTA	T027N	R23W	0W0W0405	C			1994	RELEVE 1994	MIXED EMERGENT MARSH (PRAIRIE) #24	DNR PARKS AND RECREATION

RECORDS PRINTED = 8

APPENDIX 1C. NATURAL COMMUNITY RECORDS FOR FORT SNELLING STATE PARK

Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Element: BLACK ASH SWAMP SEEPAGE SUBTYPE #9

S Rank: S3
 EO Size: EO Rank: C Current Status: Intended Status:
 Site: MINNEHAHA/FORT SNELLING
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
 Source: DUNEVITZ, H.

Location: HENNEPIN COUNTY, MN DNR Region: 6
 Legal : T028N R23W SWNE20 Wildlife Area: 610
 Quad Map: ST. PAUL WEST (S17B) Forestry District: 613
 Latitude: 44 54' 0" Long: 93 11' 39" Last Obs.: 12 May 1994
 Precision: approx. boundaries have been determined

Voucher: Verification: verified
 SEEPAGE AREA AT BASE OF EAST-FACING SLOPE IN FORT SNELLING STATE PARK. DOM BY FRAXINUS NIGRA 5-25 CM DBH; OTHER TREES: FRAX PENNSYLVANICA, TILIA, ULMUS RUBRA, ACER SACCHARUM; 50% TREE COVER. SCATTERED SHRUBS: CORNUS STOL, SAMBUCUS CAN, RIBES AMER, RHAMNUS CATH. COMMON HERBS INCL SYMPHORICARPOS, CALTHA, IMPATIENS; SAXIFRAGA PENS UNCOMMON; OTHER HERBS MIX OF UPLAND FOREST, FLOODPLAIN SPECIES. 1/4 MILE ALONG BLUFF. ADJACENT TO FLOODPLAIN FOREST; MAPLE-BASSWOOD FOREST ABOVE

Element: CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #10

S Rank: S1
 EO Size: 5 acres EO Rank: C Current Status: 1 Intended Status: 2
 Site: NICOLS MEADOW AREA CBS Site #: 5
 Ownership: Private
 Managed Area(s): FORT SNELLING STATE PARK
 Source: WOOLSEY, H., MORLEY, T. 1976, DANA, B., SMITH, W.R.
 LOCATED IN THE LOWER MINNESOTA RIVER VALLEY. THIS SOMEWHAT DISTURBED FEN REMNANT WAS ONCE PART OF A LARGER FEN WHICH HAS BEEN MOSTLY DESTROYED BY HIGHWAY CONSTRUCTION. FEN STILL MAINTAINS TYPICAL CALCIPHILES AND 2 RARE PLANTS.

Location: DAKOTA COUNTY, MN DNR Region: 6
 Legal : T027N R23W NESW18 Wildlife Area: 610
 Quad Map: ST. PAUL SW (S17C) Forestry District: 612
 Latitude: 44 49' 27" Long: 93 13' 6" Last Obs.: 1980
 Precision: approx. boundaries have been determined

Voucher: Verification: verified

Element: CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #11

S Rank: S1
 EO Size: 70 acres approx EO Rank: C Current Status: 3 Intended Status: 6
 Site: GUN CLUB LAKE SOUTH CBS Site #: 3
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK
 Source: DELANEY, B. & FUGE, E. (RELEVE 1993); DUNEVITZ, H. (CO BIOL SURVEY 1994); NELSON & CO
 LARGE EXPANSE OF FEN ON DEEP SATURATED PEAT WITH SEVERAL AREAS OF CALCAREOUS GROUNDWATER DISCHARGE. SCATTERED AREAS OF LOWER-STATURED SEDGE-DOM VEG WITH CAREX STERILIS, C. PRAIREA, LOBELIA KALMII, TRIGLOCHIN MARITIMA, CYPRIPEDIUM CANDIDUM; SURROUNDED BY AREAS WITH 50% SHRUB COVER (CORNUS STOLONIFERA, SALIX SPP.), DIVERSE HERB LAYER, BUT HEAVY THATCH & SOME LG PHALARIS, PHRAGMITES PATCHES. MINNESOTA RIVER VALLEY, JUST SOUTH OF I-494 BRIDGE.

Location: DAKOTA COUNTY, MN DNR Region: 6
 Legal : T027N R23W 0W04 Wildlife Area: 610
 Quad Map: ST. PAUL SW (S17C) Forestry District: 612
 Latitude: 44 51' 19" Long: 93 10' 54" Last Obs.: 27 May 1994
 Precision: approx. boundaries have been determined

Voucher: RELEVES Verification: verified

Element: CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #28

S Rank: S1
 EO Size: 30 acres approx EO Rank: C Current Status: Intended Status:
 Site: GUN CLUB LAKE NORTH CBS Site #: 2
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
 Source: DUNEVITZ, H. (CO BIOL SURVEY 1994)

Location: DAKOTA COUNTY, MN DNR Region: 6
 Legal : T028N R23W 0WSE33 Wildlife Area: 610
 Quad Map: ST. PAUL SW (S17C) Forestry District: 612
 Latitude: 44 51' 16" Long: 93 10' 35" Last Obs.: 20 July 1994
 Precision: approx. boundaries have been determined

Voucher: Verification: verified

DOMINANT GRAMINOIDS INCL CAREX STRICTA, C. LACUSTRIS, CALAMAGROSTIS CANADENSIS. RARE AND/OR CALCIPHILIC SPECIES: CYPRIPEDIUM CANDIDUM, C. PARVIFLORUM, CAREX INTERIOR, CAREX PRAIREA. SOME LARGE PATCHES PHRAGMITES. SATURATED DEEP PEAT ON GENTLE WEST-FACENT SLOPE WITH AREAS OF CALCAREOUS GROUNDWATER DISCHARGE. AT BASE OF STEEP FORESTED WEST-FACING BLUFF (W OF RR TRACKS). GRADES TO DIST FORMER FEN DOM BY PHALARIS & TO EMERGENT MARSH. JUST N OF I-494 BRIDGE, E OF GUN CLUB LAKE.

APPENDIX 1C. NATURAL COMMUNITY RECORDS FOR FORT SNELLING STATE PARK

Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Element: FLOODPLAIN FOREST SILVER MAPLE SUBTYPE #8

S Rank: S3
 EO Size: 90 acres approx EO Rank: BC Current Status: Intended Status:
 Site: PIKE ISLAND CBS Site #: 37
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
 Source: DUNEVITZ, H. (CO BIOL SURVEY 1994); ALMENDINGER, J.C. (CO BIOL SURVEY 1990)
 NATURAL FLOODPLAIN FOREST ON E 1/2 & SW PORTION OF PIKE ISLAND, AN ACTIVE FLOOD-PLAIN WITH CHANNELS, DEBRIS DAMS, & RUDERAL FLORA. INTERIOR OF ISLAND DOM BY ACER SACCHARINUM, MIXED WITH LARGE (80-150CM) POPULUS DELT, ACER NEG, & ULMUS AMER. ON MARGIN OF ISLAND. SHRUB LAYER NEARLY ABSENT, MOSTLY FRAXINUS PENN. GROUND LAYER COVER OF LAPORTEA, URTICA, LEERSIA ORY, ELYMUS VIR, & EUPATORIUM RUG. MANY VINES: SICYOS, AMPHICARPA, VITIS, MENISPEMUM. CUTOVER & GRAZED.

Location: RAMSEY COUNTY, MN DNR Region: 6
 Legal : T028N R23W NE280S22 Wildlife Area: 610
 Quad Map: ST. PAUL WEST (S17B) Forestry District: 612
 Latitude: 44 53' 38" Long: 93 9' 23" Last Obs.: 20 July 1994
 Precision: approx. boundaries have been determined

Voucher: RELEVE 1994 Verification: verified

Element: MESIC OAK SAVANNA (CENTRAL) #1

S Rank: S1
 EO Size: 5 acres approx. EO Rank: BC Current Status: Intended Status:
 Site: MINNEHAHA/FORT SNELLING
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
 Source: DUNEVITZ, H.
 NW PORTION FT SNELLING STATE PARK, JUST EAST OF PAVED BIKE TRAIL, ON SLOPE ABOVE THE MISSISSIPPI RIVER. 5% CANOPY COVER OF QUERCUS MACROCARPA, Q. ELLIPSOIDALIS. COMMON HERBS INCLUDE ANDROPOGON GERARDII, POA PRATENSIS, SOLIDAGO RIGIDA, S. CANADENSIS, MONARDA FISTULOSA, DESMODIUM CANADENSE, RATIBIDA PINNATA, KUHNIA EUPATORIODES. SITE RECENTLY CLEARED OF BRUSH & PRESCRIBE-BURNED SPRING 1994. GENTLE EAST-FACING SLOPE ON SANDY LOAM, ADJACENT TO OVERGROWN BRUSHY SAVANNA.

Location: HENNEPIN COUNTY, MN DNR Region: 6
 Legal : T028N R23W NENWSE20 Wildlife Area: 610
 Quad Map: ST. PAUL WEST (S17B) Forestry District: 613
 Latitude: 44 53' 48" Long: 93 11' 31" Last Obs.: 11 August 1994
 Precision: approx. boundaries have been determined

Voucher: RELEVE 1994 Verification: verified

Element: MIXED EMERGENT MARSH (PRAIRIE) #23

S Rank: S2
 EO Size: 140 acres approx EO Rank: B Current Status: Intended Status:
 Site: GUN CLUB LAKE NORTH CBS Site #: 2
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
 Source: DUNEVITZ, H. (CO BIOL SURVEY 1994)
 PATCHES VARIOUSLY DOM BY ZIZANIA PALUSTRIS (DEEPEST WATER), SCIRPUS FLUVIATILIS, TYPHA ANGUSTIFOLIA, LEERSIA ORYZOIDES, &/OR PHRAGMITES AUSTRALIS. PATCHY SHRUB COVER INCL SALIX EXIGUA, AMORPHA FRUTICOSA. OTHER COMMON HERB SPECIES INCLUDE BIDENS CERNUA, BIDENS FRONDOSA, SAGITTARIA LAT, SPARGANIUM EURYCARPUM, POLYGONUM COCCINEUM. ON SATURATED PEAT, MOST AREAS WITH STANDING WATER, SURROUNDING NORTH PORTION GUN CLUB LAKE. GRADES TO FEN EAST EDGE. MINNESOTA RIVER VALLEY.

Location: DAKOTA COUNTY, MN DNR Region: 6
 Legal : T028N R23W SE320E2833 Wildlife Area: 610
 Quad Map: ST. PAUL SW (S17C) Forestry District: 612
 Latitude: 44 51' 0" Long: 93 10' 48" Last Obs.: 25 August 1994
 Precision: approx. boundaries have been determined

Voucher: RELEVE 1994 Verification: verified

Element: MIXED EMERGENT MARSH (PRAIRIE) #24

S Rank: S2
 EO Size: 60 acres approx EO Rank: Current Status: Intended Status:
 Site: GUN CLUB LAKE SOUTH CBS Site #: 3
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
 Source: DUNEVITZ, H. (CO BIOL SURVEY 1994)
 PATCHES VARIOUSLY DOM BY ZIZANIA PALUSTRIS (DEEPER WATER), SCIRPUS FLUVIATILIS, SPARGANIUM EURYCARPUM, AND/OR PHRAGMITES AUSTRALIS. PATCHY SHRUB COVER (<25%) (AMORPHA FRUTICOSA, SALIX EXIGUA). OVERALL HIGH NATIVE SPECIES DIVERSITY. PORTIONS PROBABLY FORMER FEN, NOW FLOODED BY EXPANDED LAKE. ON SATURATED PEAT ON THE EAST SIDE OF GUN CLUB LAKE. ADJACENT TO CALCAREOUS SEEPAGE FEN ON EAST EDGE, DISTURBED MARSH & FEN WITH EXTENSIVE PHALARIS ON SOUTH. MINNESOTA RIVER VALLEY.

Location: DAKOTA COUNTY, MN DNR Region: 6
 Legal : T027N R23W 0W0W0405 Wildlife Area: 610
 Quad Map: ST. PAUL SW (S17C) Forestry District: 612
 Latitude: 44 50' 55" Long: 93 11' 52" Last Obs.: 29 August 1994
 Precision: approx. boundaries have been determined

Voucher: RELEVE 1994 Verification: verified

APPENDIX 1D. NATURAL COMMUNITY RECORDS FOR MINNEHAHA REGIONAL PARK

Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Map Symbol codes: C = known within 1/4 mile radius; U = known within 1/2 mile radius; N = known within 1 mile radius

COUNTY NAME	TWP	RNG	SECTION	MAP SYM	FED STAT	MINN STAT	YEAR INFO	VOUCHER	ELEMENT and OCCURRENCE NUMBER	OWNER
HENNEPIN	T028N	R23W	0W0W17	C			1994		BLACK ASH SWAMP SEEPAGE SUBTYPE #10	MINNEHAHA CITY PARK
HENNEPIN	T028N	R23W	0NNWSW17	C			1994		MOIST CLIFF (SOUTHEAST) #14	MINNEHAHA CITY PARK

RECORDS PRINTED = 2

APPENDIX 1D. NATURAL COMMUNITY RECORDS FOR MINNEHAHA REGIONAL PARK

Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Element: BLACK ASH SWAMP SEEPAGE SUBTYPE #10

S Rank: S3
EO Size: EO Rank: CD Current Status: Intended Status:
Site: MINNEHAHA/FORT SNELLING

Ownership: City Park

Managed Area(s): MINNEHAHA REGIONAL PARK MISSISSIPPI NATL RIVER & RECREATION AREA

Source: DUNEVITZ,H.

SEEPAGE SWAMP AT BASE OF NORTHEAST-FACING SLOPE IN MINNEHAHA PARK. DOMINATED BY FRAXINUS NIGRA. HERB LAYER INCLUDES SYMPHORICARPOS, CALTHA, IMPATIENS (ALL COMMON). PORTIONS DOMINATED BY POA, SOME AREAS WITH TRACKS FROM MOUNTAIN BIKES, HIKERS. ADJACENT TO FLOODPLAIN FOREST, HIKING TRAILS; DISTURBED OAK FOREST ON BLUFF ABOVE.

Location: HENNEPIN COUNTY, MN

Legal : T028N R23W 0W0W17

Quad Map: ST. PAUL WEST (S17B)

Latitude: 44 54' 45" Long: 93 12' 25"

Precision: approx. boundaries have been determined

DNR Region: 6

Wildlife Area: 610

Forestry District: 613

Last Obs.: 12 May 1994

Voucher:

Verification: verified

Element: MOIST CLIFF (SOUTHEAST) #14

S Rank: S3
EO Size: EO Rank: C Current Status: Intended Status:
Site: MINNEHAHA/FORT SNELLING

Ownership: City Park

Managed Area(s): MINNEHAHA REGIONAL PARK MISSISSIPPI NATL RIVER & RECREATION AREA

Source: DUNEVITZ,H.

NORTHEAST-FACING STEEP SLOPE ABOVE MINNEHAHA CREEK. CLIFFS VARY FROM DRY TO MOIST; PORTIONS WITH SOME SEEPAGE. TALLEST CLIFFS ABOUT 15 M TALL. LAYERS INCLUDE LIMESTONE, SHALE & SANDSTONE. PORTIONS WITH MUCH EROSION FROM DEVELOPED AREA ABOVE. DRIEST AREAS WITH CAMPANULA ROTUNDIPOLIA, AQUILEGIA CANADENSIS, GALIUM BOREALE, SOLIDAGO CF SCIAPHILA; WETTEST WITH CYSTOPTERIS BULBIFERA, PILEA PUMILA, MOSSES & LIVERWORTS. ADJACENT VEG DISTURBED MESIC OAK FOREST.

Location: HENNEPIN COUNTY, MN

Legal : T028N R23W 0NWSW17

Quad Map: ST. PAUL WEST (S17B)

Latitude: 44 54' 34" Long: 93 12' 16"

Precision: approx. boundaries have been determined

DNR Region: 6

Wildlife Area: 610

Forestry District: 613

Last Obs.: 10 August 1994

Voucher:

Verification: verified

APPENDIX 1E. RARE PLANT SPECIES OCCURRENCES WITHIN FORT SNELLING STATE PARK

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Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Map Symbol codes: C = known within 1/4 mile radius; U = known within 1/2 mile radius; N = known within 1 mile radius

COUNTY NAME	TWP	RNG	SECTION	MAP SYM	FED STAT	MINN STAT	YEAR STAT	VOUCHER INFO	ELEMENT and OCCURRENCE NUMBER	OWNER
DAKOTA	T027N	R23W	SWNW04	C		THR	1982	MIN	CAREX STERILIS (STERILE SEDGE) #3	DNR PARKS AND RECREATION
DAKOTA	T027N	R23W	NWSE18	C		THR	1982	MIN	CAREX STERILIS (STERILE SEDGE) #7	PRIVATE INHOLDING
DAKOTA	T027N	R23W	NESW18	C		THR	1982	MIN 759320	CAREX STERILIS (STERILE SEDGE) #58	DNR PARKS AND RECREATION
DAKOTA	T027N	R23W	SWNW04	C		SPC	1982	MIN	CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #22	DNR PARKS AND RECREATION
DAKOTA	T027N	R23W	NWSE18	C		SPC	1982	MIN	CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #24	PRIVATE INHOLDING
DAKOTA	T028N	R23W	NWSE33	C		SPC	1993	MIN	CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #217	DNR PARKS AND RECREATION
DAKOTA	T027N	R23W	NENESE05	C		SPC	1994	MIN	ECHINOCHLOA WALTERI (WALTER'S BARNYARD GRASS) #21	DNR PARKS AND RECREATION
DAKOTA				G		NON	1909	218477 MIN	HIERACIUM LONGIPILUM (LONG-BEARDED HAWKWEED) #13	DNR PARKS AND RECREATION
DAKOTA	T027N	R23W		G		SPC	1924	227559 MIN	OROBANCHE UNIFLORA (ONE FLOWERED BROOM-RAPE) #3	DNR PARKS AND RECREATION
DAKOTA	T027N	R23W	NWSE18	C		NON	1982	MIN	OXYPOLIS RIGIDIOR (COWBANE) #1	PRIVATE INHOLDING
DAKOTA	T027N	R23W	SENW04	C		NON	1982	MIN	OXYPOLIS RIGIDIOR (COWBANE) #21	DNR PARKS AND RECREATION
DAKOTA	T027N	R23W	NWSE18	C		THR	1980	MIN	VALERIANA EDULIS SSP. CILIATA (VALERIAN) #9	PRIVATE INHOLDING
DAKOTA	T027N	R23W	SWNW04	C		THR	1982	MIN	VALERIANA EDULIS SSP. CILIATA (VALERIAN) #13	DNR PARKS AND RECREATION

RECORDS PRINTED = 13

APPENDIX 1E. RARE PLANT SPECIES OCCURRENCES WITHIN FORT SNELLING STATE PARK

Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Element: CAREX STERILIS (STERILE SEDGE) #3
 State Status: THREATENED
 EO Size: EO Rank: B Current Status: 3 Intended Status: 6
 Site: GUN CLUB LAKE SOUTH CBS Site #: 3
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK
 Source: SMITH, W.R. (5953)
 COMMON IN SLOPING CALCAREOUS FEN. BETWEEN GUN CLUB LAKE & HWY 13 IN THE MINNESOTA VALLEY. WITH CYPRIPEDIUM CANDIDUM, TRIGLOCHIN MARITIMA, VALERIANA EDULIS, ERIOPHORUM ANGUSTIFOLIUM. (PREV COLL; WHEELER, B. (690874 MIN) 1978).

Location: DAKOTA COUNTY, MN
 Legal : T027N R23W SWNW04
 Quad Map: ST. PAUL SW (S17C)
 Latitude: 44 51' 20" Long: 93 11' 2"
 Precision: within 0.25 mile, confirmed
 DNR Region: 6
 Wildlife Area: 610
 Forestry District: 612
 Last Obs.: 18 May 1982
 Voucher: MIN Verification: verified

Element: CAREX STERILIS (STERILE SEDGE) #7
 State Status: THREATENED
 EO Size: EO Rank: B Current Status: 1 Intended Status: 2
 Site: NICOLS MEADOW
 Ownership: Private
 Managed Area(s): FORT SNELLING STATE PARK
 Source: SMITH, W.R. (5949)
 NICOLS MEADOW. COMMON IN CALCAREOUS FEN. WITH VALERIANA EDULIS, CYPRIPEDIUM CANDIDUM, ERIOPHORUM ANGUSTIFOLIUM. T27N R23W, NWNW SEC 18. THIS IS A REMNANT OF A LARGER FEN, NOW CONFINED TO NW OF RR TRACKS AND NE OF CEDAR AVE.

Location: DAKOTA COUNTY, MN
 Legal : T027N R23W NWSE18
 Quad Map: ST. PAUL SW (S17C)
 Latitude: 44 49' 33" Long: 93 13' 3"
 Precision: within 0.25 mile, confirmed
 DNR Region: 6
 Wildlife Area: 610
 Forestry District: 612
 Last Obs.: 18 May 1982
 Voucher: MIN Verification: verified

Element: CAREX STERILIS (STERILE SEDGE) #58
 State Status: THREATENED
 EO Size: EO Rank: Current Status: Intended Status:
 Site: NICHOLS MEADOW
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK
 Source: SMITH, W.R. (6158)
 IN THE MINNESOTA RIVER VALLEY, ABOUT 1/4 MILE NORTH OF NICHOLS. SLOPING CALCAREOUS FEN NEAR THE BASE OF A NORTHWEST FACING BLUFF. APPARENTLY RARE HERE, WITH CAREX INTERIOR, C. LANUGINOSA, C. STRICTA. DET GERALD WHEELER. (PREV. COLL; SMITH, W.R. (758241), NESW SEC 18 1982, 1 DUP.) OCCASIONAL HERE WITH CAREX INTERIOR, C. PRAIREA, C. TETANICA, C. STRICTA.

Location: DAKOTA COUNTY, MN
 Legal : T027N R23W NESW18
 Quad Map: ST. PAUL SW (S17C)
 Latitude: 44 49' 29" Long: 93 13' 13"
 Precision: within 0.25 mile, confirmed
 DNR Region: 6
 Wildlife Area: 610
 Forestry District: 612
 Last Obs.: 06 June 1982
 Voucher: MIN 759320 Verification: verified

Element: CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #22
 State Status: SPECIAL CONCERN
 EO Size: EO Rank: B Current Status: 3 Intended Status: 6
 Site: GUN CLUB LAKE SOUTH CBS Site #: 3
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK
 Source: SMITH, W.R. (5952)
 MORE THAN 100 PLANTS IN CALCAREOUS FEN. WITH CYPRIPEDIUM CALCEOLUS, CAREX STERILIS, VALERIANA EDULIS. T27N R23W, SENW SEC 4. (PREV COLL BELIEVED TO BE ROSENDAHL, C.O. (2458), FORT SNELLING RESERVATION WITH ZIZIA. VALERIAN, 1910.)

Location: DAKOTA COUNTY, MN
 Legal : T027N R23W SWNW04
 Quad Map: ST. PAUL SW (S17C)
 Latitude: 44 51' 20" Long: 93 11' 2"
 Precision: within 0.25 mile, confirmed
 DNR Region: 6
 Wildlife Area: 610
 Forestry District: 612
 Last Obs.: 18 May 1982
 Voucher: MIN Verification: verified

APPENDIX 1E. RARE PLANT SPECIES OCCURRENCES WITHIN FORT SNELLING STATE PARK

Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Element: CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #24
 State Status: SPECIAL CONCERN
 EO Size: EO Rank: C Current Status: 1 Intended Status: 2
 Site: NICOLS MEADOW AREA CBS Site #: 5
 Ownership: Private
 Managed Area(s): FORT SNELLING STATE PARK
 Source: SMITH, W.R. (5937)
 NICOLS MEADOW. CA 20 PLANTS SEEN IN CALCAREOUS FEN. WITH CYPRIPEDIUM CALCEOLUS, CALTHA PALUSTRIS, CARDAMINE BULBOSA, CAREX STERILIS. T27N R23W, NWNWSE SEC 18.
 THIS IS A REMNANT OF A LARGER FEN, NOW CONFINED TO NE OF CEDAR AVE.

Location: DAKOTA COUNTY, MN
 Legal : T027N R23W NWSE18
 Quad Map: ST. PAUL SW (S17C)
 Latitude: 44 49' 33" Long: 93 13' 3"
 Precision: within 0.25 mile, confirmed

DNR Region: 6
 Wildlife Area: 610
 Forestry District: 612
 Last Obs.: 18 May 1982

Voucher: MIN Verification: verified

Element: CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #217
 State Status: SPECIAL CONCERN
 EO Size: EO Rank: C Current Status: Intended Status:
 Site: GUN CLUB LAKE NORTH (443 acres) CBS Site #: 2
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
 Source: LEE, M.D. (MDL152)
 27 FLOWERING STEMS IN 2 ACRE WET MEADOW IN FLOODPLAIN OF MN RIVER. GROWING MOSTLY ON HUMMOCKS PRODUCED BY CAREX CF STRICTA. ASSOCIATES: THALICTRUM DASycAR-PUM, RUBUS PUBESCENS, SOLIDAGO GIGANTEA, SMILACINA STELLATA, CYPRIPEDIUM CALCEOLUS. WATER ANKLE DEEP BETWEEN HUMMOCKS. FORT SNELLING STATE PARK 1/4 MILE NORTH OF I494.

Location: DAKOTA COUNTY, MN
 Legal : T028N R23W NWSE33
 Quad Map: ST. PAUL SW (S17C)
 Latitude: 44 52' 2" Long: 93 10' 35"
 Precision: within 0.25 mile, confirmed

DNR Region: 6
 Wildlife Area: 610
 Forestry District: 612
 Last Obs.: 02 June 1993

Voucher: MIN Verification: verified

Element: ECHINOCHLOA WALTERI (WALTER'S BARNYARD GRASS) #21
 State Status: SPECIAL CONCERN
 EO Size: EO Rank: A Current Status: 0 Intended Status: 6
 Site: GUN CLUB LAKE SOUTH CBS Site #: 3
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK
 Source: DUNEVITZ, H. (1077)
 ON EAST SHORE OF GUN CLUB LAKE, ABOUT 1/2 MILE SOUTH OF I-494. IN EMERGENT MARSH. LOCALLY COMMON ALONG ABOUT 200 FEET OF SHORELINE. ASSOCIATED SPECIES INCLUDE ZIZANIA AQUATICA, BIDENS CERNUA, SPARGANIUM EURYCARPUM, PHRAGMITES AUSTRALIS.

Location: DAKOTA COUNTY, MN
 Legal : T027N R23W NENESE05
 Quad Map: ST. PAUL SW (S17C)
 Latitude: 44 51' 14" Long: 93 11' 17"
 Precision: within 0.25 mile, confirmed

DNR Region: 6
 Wildlife Area: 610
 Forestry District: 612
 Last Obs.: 29 August 1994

Voucher: MIN Verification: verified

Element: HIERACIUM LONGIPILUM (LONG-BEARDED HAWKWEED) #13
 State Status: No Legal Status
 EO Size: EO Rank: Current Status: 1 Intended Status:
 Site: site not named or no record
 Ownership: MN DNR Parks and Recreation
 Managed Area(s): FORT SNELLING STATE PARK
 Source: ROSENDAHL, C.O. (2343)
 FORT SNELLING PRESERVE, PRAIRIE.

Location: DAKOTA COUNTY, MN
 Legal :
 Quad Map: ST. PAUL SW (S17C)
 Latitude: 44 51' 32" Long: 93 10' 58"
 Precision: within quadrangle map

DNR Region: 6
 Wildlife Area: 605
 Forestry District: 612
 Last Obs.: 07 August 1909

Voucher: 218477 MIN Verification: verified

APPENDIX 1E. RARE PLANT SPECIES OCCURRENCES WITHIN FORT SNELLING STATE PARK

Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Element: OROBANCHE UNIFLORA (ONE FLOWERED BROOM-RAPE) #3

State Status: SPECIAL CONCERN

EO Size: EO Rank: Current Status: 1 Intended Status:

Site: site not named or no record

Ownership: MN DNR Parks and Recreation

Managed Area(s): FORT SNELLING STATE PARK

Source: DELLMAN, J.

FT SNELLING PRAIRIE (PREV COLL. DELLMAN, 1920, "PRAIRIE")

Location: DAKOTA COUNTY, MN

Legal : T027N R23W

Quad Map: ST. PAUL SW (S17C)

Latitude: 44 51' 27" Long: 93 10' 52"

Precision: within quadrangle map

DNR Region: 6

Wildlife Area: 610

Forestry District: 612

Last Obs.: July 1924

Voucher: 227559 MIN Verification: verified

Element: OXYPOLIS RIGIDIOR (COWBANE) #1

State Status: No Legal Status

EO Size: EO Rank: Current Status: 1 Intended Status: 2

Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Private

Managed Area(s): FORT SNELLING STATE PARK

Source: SMITH, W.R. (7591)

NICOLS MEADOW. OCCASIONAL IN CALCAREOUS FEN. T27N R23W, NWNWSE SEC 18. THIS IS A REMNANT OF A LARGER FEN, NOW CONFINED TO NW OF RR TRACKS AND NE OF CEDAR AVE. (PREV COLL. OWNBAY, G.B. (4842), 1974.)

Location: DAKOTA COUNTY, MN

Legal : T027N R23W NWSE18

Quad Map: ST. PAUL SW (S17C)

Latitude: 44 49' 33" Long: 93 13' 3"

Precision: within 0.25 mile, confirmed

DNR Region: 6

Wildlife Area: 610

Forestry District: 612

Last Obs.: 11 September 1982

Voucher: MIN Verification: verified

Element: OXYPOLIS RIGIDIOR (COWBANE) #21

State Status: No Legal Status

EO Size: EO Rank: Current Status: 3 Intended Status: 6

Site: GUN CLUB LAKE SOUTH CBS Site #: 3

Ownership: MN DNR Parks and Recreation

Managed Area(s): FORT SNELLING STATE PARK

Source: SMITH, W.R. (7145)

FORT SNELLING STATE PARK, ABOUT 1 MILE E OF GUN CLUB LAKE IN THE MINNESOTA VALLEY. SLOPING CALCARFOUS FEN NEAR BASE OF NW-FACING BLUFF. FREQUENT HERE, WITH CIRSIUM MUTICUM, CHELONE GLABRA. SENW SEC 4, T27N R23W.

Location: DAKOTA COUNTY, MN

Legal : T027N R23W SENW04

Quad Map: ST. PAUL SW (S17C)

Latitude: 44 51' 20" Long: 93 11' 2"

Precision: within 0.25 mile, confirmed

DNR Region: 6

Wildlife Area: 610

Forestry District: 612

Last Obs.: 10 August 1982

Voucher: MIN Verification: verified

Element: VALERIANA EDULIS SSP. CILIATA (VALERIAN) #9

State Status: THREATENED

EO Size: EO Rank: Current Status: 1 Intended Status: 2

Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Private

Managed Area(s): FORT SNELLING STATE PARK

Source: SMITH, W.R. (2144)

NICOLS MEADOW. FREQUENT IN CALCAREOUS FEN, WITH SAXIFRAGA PENNSYLVANICA, CAREX STERILIS, CYPRIPEDIUM CANDIDUM, CALTHA PALUSTRIS. T27N R23W, NWNWSE SEC 18. THIS IS A REMNANT OF LARGER FEN, NOW CONFINED TO NE OF CEDAR AVE.

Location: DAKOTA COUNTY, MN

Legal : T027N R23W NWSE18

Quad Map: ST. PAUL SW (S17C)

Latitude: 44 49' 33" Long: 93 13' 3"

Precision: within 0.25 mile, confirmed

DNR Region: 6

Wildlife Area: 610

Forestry District: 612

Last Obs.: 22 May 1980

Voucher: MIN Verification: verified

APPENDIX 1E. RARE PLANT SPECIES OCCURRENCES WITHIN FORT SNELLING STATE PARK

Minnesota Natural Heritage Database
 Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Element: VALERIANA EDULIS SSP. CILIATA (VALERIAN) #13

State Status: THREATENED

EO Size: EO Rank: Current Status: 3 Intended Status: 6
 Site: GUN CLUB LAKE SOUTH CBS Site #: 3

Ownership: MN DNR Parks and Recreation

Managed Area(s): FORT SNELLING STATE PARK

Source: SMITH, W.R. (5959)

FREQUENT IN SLOPING CALCAREOUS FEN. BETWEEN GUN CLUB LAKE AND HWY 13 IN THE MINNESOTA VALLEY. WITH CYPRIPEDIUM CANDIDUM, TRIGLOCHIN MARITIMA, CAREX STERILIS
 ERIOPHORUM ANGUSTIFOLIUM. (PREV COLL: 6-15-1909 C.O.ROSENDAHL #2103 196275 MIN).

Location: DAKOTA COUNTY, MN

Legal : T027N R23W SWNW04

Quad Map: ST. PAUL SW (S17C)

Latitude: 44 51' 20" Long: 93 11' 2"

Precision: within 0.25 mile, confirmed

DNR Region: 6

Wildlife Area: 610

Forestry District: 612

Last Obs.: 18 May 1982

Voucher: MIN

Verification: verified

APPENDIX 1F. RARE PLANT SPECIES OCCURRENCES WITHIN MINNEHAHA REGIONAL PARK

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Minnesota Natural Heritage Database
 Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

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Map Symbol codes: C = known within 1/4 mile radius; U = known within 1/2 mile radius; N = known within 1 mile radius

COUNTY NAME	TWP	RNG	SECTION	MAP SYM	FED STAT	MINN STAT	YEAR INFO	VOUCHER	ELEMENT and OCCURRENCE NUMBER	OWNER
ENNEPIN	T028N	R23W	17	N		PTH	1903	78739 MIN	CAREX PLANTAGINEA (PLANTAIN-LEAVED SEDGE) #1	MINNEAPOLIS PARKS
ENNEPIN	T028N	R23W	NWSW17	C		PSC	1971	622050 MIN	GAURA BIENNIS (BIENNIAL GAURA) #1	MINNEAPOLIS PARKS
ENNEPIN	T028N	R23W	NWSW17	U		THR	1902	55302 MIN	LYCOPODIUM POROPHILUM (ROCK CLUBMOSS) #3	MINNEAPOLIS PARKS

RECORDS PRINTED = 3

APPENDIX 1F. RARE PLANT SPECIES OCCURRENCES WITHIN MINNEHAHA REGIONAL PARK

Minnesota Natural Heritage Database
Element Occurrence Records

MnDNR, Natural Heritage and Nongame Research Program

15:38 Thursday, OCTOBER 26, 1995
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Element: CAREX PLANTAGINEA (PLANTAIN-LEAVED SEDGE) #1
State Status: PROPOSED THREATENED
EO Size: EO Rank: Current Status: Intended Status:
Site: MINNEHAHA REGIONAL PARK
Ownership: City Park
Managed Area(s): MINNEHAHA REGIONAL PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: ROSENDAHL, C.O. (1170)
IN DEEPLY SHADED PLACES, LOAMY SOIL, MINNEHAHA PARK.

Location: HENNEPIN COUNTY, MN
Legal : T028N R23W 17
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 55' 1" Long: 93 12' 19"
Precision: within one mile
DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: May 1903

Voucher: 78739 MIN Verification: verified

Element: GAURA BIENNIS (BIENNIAL GAURA) #1
State Status: PROPOSED SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: MINNEHAHA REGIONAL PARK
Ownership: City Park
Managed Area(s): MINNEHAHA REGIONAL PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: MORLEY, T. (1270)
MPLS. 0.4 MI N OF 54TH ST S, 20 FT E OF OLD RR TRACKS, CA 150 FT W OF BLUFFS OF LOWER MINNEHAHA GLEN. COMMON LOCALLY.

Location: HENNEPIN COUNTY, MN
Legal : T028N R23W NWSW17
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 54' 38" Long: 93 12' 23"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: October 1971

Voucher: 622050 MIN Verification: verified

Element: LYCOPODIUM POROPHILUM (ROCK CLUBMOSS) #3
State Status: THREATENED
EO Size: EO Rank: Current Status: Intended Status:
Site: MINNEHAHA REGIONAL PARK
Ownership: City Park
Managed Area(s): MINNEHAHA REGIONAL PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: ROSENDAHL, C.O. (1154)
ON SANDSTONE LEDGE NEAR SOLDIERS HOME, MINNEAPOLIS.

Location: HENNEPIN COUNTY, MN
Legal : T028N R23W NWSW17
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 54' 38" Long: 93 12' 23"
Precision: within 0.50 mile
DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: September 1902

Voucher: 55302 MIN Verification: verified

Appendix 1G. Relevés and plant species lists for Fort Snelling State Park.

16:31 Tuesday, OCTOBER 31, 1995

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Relève #: FSSP01B EO Rec #: 0
*Surveyor's ID Code:
Date: 29 Month: JUL Year: 1993 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: GUN CLUB LAKE SOUTH CBS # 03
DNR Ownership Code: 40 (Mn Dnr Parks and Recreation)
*NC Code: CFSEPR (Calcareous Seepage Fen (Southeast) Prairie Subtype)
Community Ranking in Relève: B Stand typical of Community Type: _ Relève typical of Sta

LOCATIONAL INFORMATION

State Code: MN *County Code: 19 (Dakota)
Quad Codes DNR: S17C Universal: 44093G2 (St. Paul Sw)
Township: 027N (e.g. 143N) Range: 20W (e.g. 32W)
QORT: SE QRT: NW of Section 4
Latitude: 44 degrees, 51 minutes, 24 seconds LL/GPS registration:
Longitude: 93 degrees, 10 minutes, 16 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Relève Size (sq. m.): 100 Elev. (ft.): 715 Slope: 00LV Slope Position: _
*ECS Subsection: 21 (Oak Savannah)
Minnesota Soil Atlas Mapping Unit: P
*Geomorphic Unit: 29 (Mississippi Valley Outwash)

Remarks: SMALL HIGH DIVERSITY SPOT SURR. BY DISTURBED AREAS OF SALIX, CORNUS,
PHRAGMITES, PHALARIS. SOIL THICK PEAT. NO STANDING WATER. DOMINANT
SEDGES FORMING HUMMOCKS. FIRM, FIBROUS HOLLOWES. NEEDS FIRE.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: N Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Relève Handbook)

Woody Broadleaf Deciduous, Height: .1-2m, Cover barely present
+. Cornus stolonifera (Red-osier dogwood)

Graminoid, Height: 2-5m, Cover rare
+. Phragmites australis (Common reed grass)

Graminoid, Height: .0-2m, Cover continuous
4. Carex stricta
3. Festuca cf. rubra (Red fescue)
1. Agrostis stolonifera (Redtop)
1. Andropogon gerardii (Big bluestem)
1. Carex diandra
+. Carex granularis
+. Carex hystericina
THR +. Carex sterilis RA
+. Carex tetanica 02 71

----- EXAMPLE RECORD -----

! Cover.Sociability Genus Species Author Variety Author Remark !
! +.2 Epigaea repens L. var. glab. Fern. fl # # !
----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

Graminoid, Height: .0-2m, Cover continuous (continued)

- +. Eleocharis cf. compressa (Spike-rush)
- +. Muhlenbergia cf. glomerata
- +. Scirpus atrovirens

Forb, Height: .5-2m, Cover rare

- 2. Typha latifolia (Broad-leaved cattail)
- +. Typha angustifolia (Narrow-leaved cat-tail)

Forb, Height: .0-.5m, Cover interrupted

- 3. Solidago gigantea (Giant goldenrod)
- 3. Zizia aurea (Golden alexanders)
- 2. Helianthus giganteus (Giant sunflower)
- 2. Solidago canadensis
- 1. Aster cf. novae-angliae (New England aster)
- 1. Eupatorium cf. purpureum (Sweet Joe-pye weed)
- 1. Galium boreale (Northern bedstraw)
- NON 1. Oxypolis rigidior RA (Cowbane)
- 1. Pedicularis lanceolata (Swamp lousewort)
- 1. Phlox pilosa (Prairie phlox, downy phlox)
- 1. Pycnanthemum virginianum (Virginia mountain-mint)
- 1. Thalictrum dasycarpum (Tall meadow rue)
- +. Amphicarpaea bracteata (Hog-peanut)
- +. Angelica atropurpurea (Angelica)
- +. Apocynum cf. sibiricum (Indian hemp)
- +. Asclepias incarnata (Swamp milkweed)
- +. Aster umbellatus (Flat-topped aster)
- +. Campanula aparinoides (Marsh Bellflower)
- +. Chelone glabra (Turtlehead)
- +. Cirsium muticum (Swamp thistle)
- SPC +. Cyripedium candidum RA (White lady-slipper)
- +. Equisetum cf. arvense (Field horsetail)
- +. Fragaria virginiana (Common strawberry)
- +. Hypoxis hirsuta (Yellow star-grass)
- +. Lathyrus palustris (Marsh vetchling)
- +. Liatris ligulistylis (Blazing-star)
- +. Lycopus cf. americanus (Cut-leaved bugleweed)
- NON +. Lysimachia quadrifolia (Whorled loosestrife)
- +. Parnassia glauca (Grass of Parnassus)
- +. Prenanthes alba (White rattlesnake-root)
- +. Solidago riddellii (Riddell's goldenrod)
- +. Triglochin cf. maritima (Arrow-grass)
- THR +. Valeriana edulis ssp. ciliata RA (Valerian)
- +. Viola nephrophylla (Northern bog violet)
- +. Zigadenus elegans Group (White camas)
- R. Cyripedium calceolus RA (Yellow lady-slipper)
- R. Helenium autumnale (Sneezeweed)
- R. Rubus pubescens (Dwarf blackberry)

----- EXAMPLE RECORD -----

!	Cover.Sociability	Genus	Species	Author	Variety	Author	Remark	!
!	+.2	Epigaea	repens	L.	var. glab.	Fern.	fl # #	!

----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

16:31 Tuesday, OCTOBER 31, 1995

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Releve #: FSSP01A EO Rec #: 0
*Surveyor's ID Code:
Date: 28 Month: MAY Year: 1993 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: GUN CLUB LAKE SOUTH CBS # 03
DNR Ownership Code: 40 (Mn Dnr Parks and Recreation)
*NC Code: CFSEPR (Calcareous Seepage Fen (Southeast) Prairie Subtype)
Community Ranking in Releve: AB Stand typical of Community Type: _ Releve typical of Sta

LOCATIONAL INFORMATION

State Code: MN *County Code: 19 (Dakota)
Quad Codes DNR: S17C Universal: 44093G2 (St. Paul Sw)
Township: 027N (e.g. 143N) Range: 20W (e.g. 32W)
QORT: SE QRT: NW of Section 4
Latitude: 44 degrees, 51 minutes, 21 seconds LL/GPS registration:
Longitude: 93 degrees, 10 minutes, 50 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Releve Size (sq. m.): 100 Elev. (ft.): 715 Slope: 00LV Slope Position: _
*ECS Subsection: 21 (Oak Savannah)
Minnesota Soil Atlas Mapping Unit: P
*Geomorphic Unit: 29 (Mississippi Valley Outwash)

Remarks: GOOD POP OF CYPR CAND. ORCHID STUDY BY DNR PARKS IN 1990 AT SITE.
ANKLE DEEP H2O BETWEEN HUMMOCKS FORMED BY CAREX STRICTA. HYDROLOGIC
STATION AT SITE. DEEP ORGANIC PEAT SOIL. SAME PLOT AS 4088.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: N Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Releve Handbook)

Woody Broadleaf Deciduous, Height: .1-2m, Cover barely present

- +. Cornus stolonifera (Red-osier dogwood)
- R. Salix bebbiana (Bebb's willow)

Graminoid, Height: .0-2m, Cover continuous

- 4. Carex stricta
- 4. Festuca cf. rubra (Red fescue)
- THR 1. Carex sterilis RA
- +. Carex cf. tetanica
- +. Eleocharis (Spike-Rush)
- +. Muhlenbergia cf. glomerata

----- EXAMPLE RECORD -----

! Cover.Sociability Genus Species Author Variety Author Remark !
! +.2 Epigaea repens L. var. glab. Fern. fl # # !
----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

Forb, Height: .0-.5m, Cover patchy

- 2. *Zizia aurea* (Golden alexanders)
- 1. *Equisetum cf. arvense* (Field horsetail)
- 1. *Typha glauca* Group (Hybrid cattail)
- +. *Angelica atropurpurea* (Angelica)
- +. *Aster novae-angliae* (New England aster)
- +. *Aster umbellatus* (Flat-topped aster)
- +. *Cardamine bulbosa* (Spring cress)
- +. *Cirsium muticum* (Swamp thistle)
- SPC +. *Cypripedium candidum* RA (White lady-slipper)
- +. *Hypoxis hirsuta* (Yellow star-grass)
- +. *Lathyrus palustris* (Marsh vetchling)
- +. *Liatris ligulistylis* (Blazing-star)
- +. cf. *Liatris* (Gay-feather)
- NON +. *Oxypolis rigidior* (Cowbane)
- +. *Pedicularis lanceolata* (Swamp lousewort)
- +. *Phlox pilosa* (Prairie phlox, downy phlox)
- +. *Prenanthes alba* (White rattlesnake-root)
- +. *Solidago gigantea* (Giant goldenrod)
- +. *Thalictrum dasycarpum* (Tall meadow rue)
- +. *Triglochin cf. maritima* (Arrow-grass)
- THR +. *Valeriana edulis ssp. ciliata* RA (Valerian)
- +. *Zigadenus elegans* Group (White camas)
- R. *Cypripedium calceolus* OP (Yellow lady-slipper)
- R. *Viola cf. nephrophylla* (Northern bog violet)

----- EXAMPLE RECORD -----

!	Cover.	Sociability	Genus	Species	Author	Variety	Author	Remark	!
!	+.2		<i>Epigaea</i>	<i>repens</i>	L.	var. <i>glab.</i>	Fern.	fl # #	!

----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

16:19 Tuesday, OCTOBER 31, 1995

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Relève #: _____ EO Rec #: 0
*Surveyor's ID Code: HLD (Hannah L. Dunevitz)
Date: 25 Month: AUG Year: 1994 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: Fort Snelling State Park
DNR Ownership Code: 40 (Mn Dnr Parks and Recreation)
*NC Code: OASEME (Oak Forest (Southeast) Mesic Subtype)
Community Ranking in Relève: C Stand typical of Community Type: _ Relève typical of Sta

LOCATIONAL INFORMATION

State Code: MN *County Code: 27 (Hennepin)
Quad Codes DNR: S17B Universal: 44093H2 (St. Paul West)
Township: 028N (e.g. 143N) Range: 23W (e.g. 32W)
QORT: SE QRT: SE of Section 29
Latitude: 44 degrees, 52 minutes, 40 seconds LL/GPS registration:
Longitude: 93 degrees, 11 minutes, 28 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Relève Size (sq. m.): 400 Elev. (ft.): 730 Slope: 22NE Slope Position: _
*ECS Subsection: 0
Minnesota Soil Atlas Mapping Unit: A
*Geomorphic Unit: 29 (Mississippi Valley Outwash)

Remarks: Canopy of open-grown oaks (25% cover, 61-85 cm dbh) & forest-grown
younger oaks (70% cover, 21-37 cm dbh). narrow slope, field & hwy above
, lake below. soil sand. perm marked metal post center plot.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: N Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Relève Handbook)

Woody Broadleaf Deciduous, Height: 20-35m, Cover continuous
5. Quercus rubra (Northern red oak)

Woody Broadleaf Deciduous, Height: 5-10m, Cover rare
2. Quercus rubra (Northern red oak)
1. Acer negundo (Box elder)
1. Fraxinus pennsylvanica (Green ash)

Woody Broadleaf Deciduous, Height: 2-5m, Cover rare
2. Fraxinus pennsylvanica (Green ash)
2. Rhamnus cathartica (Common buckthorn)
+. Acer negundo (Box elder)
+. Prunus serotina (Black cherry)

----- EXAMPLE RECORD -----

!	Cover.	Sociability	Genus	Species	Author	Variety	Author	Remark	!
!	+.2		Epigaea	repens	L.	var. glab.	Fern.	fl # #	!

----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

Climber, Height: .1-2m, Cover interrupted

- 5. Parthenocissus inserta (Virginia creeper)
- NON 1. Vitis riparia (Wild grape)
- + . Amphicarpaea bracteata (Hog-peanut)

----- EXAMPLE RECORD -----

! Cover.Sociability	Genus	Species	Author	Variety	Author	Remark	!
! +.2	Epigaea	repens	L.	var. glab.	Fern.	fl # #	!

----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

16:19 Tuesday, OCTOBER 31, 1995

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Relève #: _____ EO Rec #: 0
*Surveyor's ID Code: HLD (Hannah L. Dunevitz)
Date: 11 Month: AUG Year: 1994 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: Fort Snelling State Park
DNR Ownership Code: 40 (Mn Dnr Parks and Recreation)
*NC Code: MSCEXX (Mesic Oak Savanna (Central))
Community Ranking in Relève: BC Stand typical of Community Type: _ Relève typical of Sta

LOCATIONAL INFORMATION

State Code: MN *County Code: 27 (Hennepin)
Quad Codes DNR: S17B Universal: 44093H2 (St. Paul West)
Township: 028N (e.g. 143N) Range: 23W (e.g. 32W)
QORT: NE QRT: SE of Section 20
Latitude: 44 degrees, 53 minutes, 48 seconds LL/GPS registration:
Longitude: 93 degrees, 11 minutes, 31 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Relève Size (sq. m.): 100 Elev. (ft.): 720 Slope: 13E Slope Position: _
*ECS Subsection: 0
Minnesota Soil Atlas Mapping Unit: SLWD
*Geomorphic Unit: 29 (Mississippi Valley Outwash)

Remarks: Brush recently cleared; controlled burn done spring 1994. bur oak cent
er plot top-killed, sprouting from base. soil sandy loam. Average tree
cover in savanna 5%. permanent metal stake center of plot.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: N Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Relève Handbook)

Woody Broadleaf Deciduous, Height: 2-5m, Cover almost absent
+1 Quercus macrocarpa (Bur oak)

Woody Broadleaf Deciduous, Height: .5-2m, Cover barely present
1.1 Corylus americana (American hazelnut)
1.1 Rhus glabra (Smooth sumac)
1.1 Rubus strigosus (Red raspberry)
+1 Acer negundo (Box elder)
+1 Cornus foemina (Gray dogwood)
+1 Lonicera tatarica (Tartarian Honeysuckle)
+1 Symphoricarpos (Snowberry)
+1 Tilia americana (Basswood)

----- EXAMPLE RECORD -----

! Cover.Sociability Genus Species Author Variety Author Remark !
! +.2 Epigaea repens L. var. glab. Fern. fl # # !
----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

Woody Broadleaf Deciduous, Height: .0-.5m, Cover barely present

- + .1 Rhamnus cathartica (Common buckthorn)
- + .1 Rhus glabra (Smooth sumac)
- + .1 Rosa arkansana (Prairie rose)

Climber, Height: .1-2m, Cover barely present

- + .1 Clematis virginiana (Virgin's bower)
- + .1 Menispermum canadense (Canada moonseed)
- NON + .1 Vitis riparia (Wild grape)

Graminoid, Height: .0-2m, Cover continuous

- 4.1 Andropogon gerardii (Big bluestem)
- 4.1 Poa pratensis var. pratensis (Kentucky bluegrass)
- 2.1 Carex muhlenbergii
- 1.1 Carex (Sedge)
- 1.1 cf. Cyperus
- 1.1 Muhlenbergia cf. mexicana (Mexican satin grass)
- 1.1 Panicum oligosanthos (Scribner's panic grass)
- 1.1 Schizachyrium scoparium (Little Bluestem)
- 1.1 Sorghastrum nutans (Indian grass)
- + .1 cf. Festuca (Fescue)

Forb, Height: .0-2m, Cover patchy

- 3.1 Solidago canadensis
- 2.1 Melilotus alba (White sweet-clover)
- 2.1 Solidago rigida (Stiff goldenrod)
- 1.1 Artemisia campestris ssp. caudata
- 1.1 Desmodium canadense (Tick-trefoil)
- 1.1 Eupatorium rugosum (Common snakeroot)
- 1.1 Kuhnia eupatorioides var. corymbulosa (False boneset)
- 1.1 Monarda fistulosa (Wild bergamot)
- 1.1 Ratibida pinnata (Gray-headed coneflower)
- + .1 Anemone virginiana (Thimbleweed)
- + .1 Asclepias tuberosa (Butterfly-weed)
- + .1 Asparagus officinalis (Asparagus)
- + .1 Aster ericoides (Heath aster)
- + .1 Aster oolentangiensis (Sky-blue aster)
- + .1 Cirsium discolor (Field thistle)
- + .1 Comandra umbellata (Bastard toad-flax)
- + .1 Galium triflorum (Three-flowered bedstraw)
- + .1 Oenothera biennis (Common evening-primrose)
- + .1 Parthenocissus inserta (Virginia creeper)
- + .1 Rhus radicans var. rydbergii (Poison ivy)
- + .1 Smilacina racemosa (False Solomon's-seal)
- R.1 Bromus kalmii (Kalm's brome)
- R.1 Petalostemon candidum (White prairie-clover)
- R.1 Tragopogon dubius (Yellow goat's-beard)

----- EXAMPLE RECORD -----

!	Cover	Sociability	Genus	Species	Author	Variety	Author	Remark	!
!		+ .2	Epigaea	repens	L.	var. glab.	Fern.	fl # #	!

----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

16:19 Tuesday, OCTOBER 31, 1995

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Relève #: _____ EO Rec #: 0
*Surveyor's ID Code: HLD (Hannah L. Dunevitz)
Date: 25 Month: AUG Year: 1994 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: Gun Club Lake North
DNR Ownership Code: 40 (Mn Dnr Parks and Recreation)
*NC Code: MEPRXX (Mixed Emergent Marsh (Prairie))
Community Ranking in Relève: B Stand typical of Community Type: _ Relève typical of Sta

LOCATIONAL INFORMATION

State Code: MN *County Code: 19 (Dakota)
Quad Codes DNR: S17C Universal: 44093G2 (St. Paul Sw)
Township: 028N (e.g. 143N) Range: 23W (e.g. 32W)
QORT: SE QRT: SW of Section 33
Latitude: 44 degrees, 51 minutes, 55 seconds LL/GPS registration:
Longitude: 93 degrees, 10 minutes, 45 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Relève Size (sq. m.): 100 Elev. (ft.): 700 Slope: 00LV Slope Position: _
*ECS Subsection: 0
Minnesota Soil Atlas Mapping Unit: A
*Geomorphic Unit: 29 (Mississippi Valley Outwash)

Remarks: On saturated peat just downslope from calcareous seepage fen to the east & near Gun Club Lake to the west, in the Minnesota River valley. Phragmites has been increasing in recent years.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: N Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Relève Handbook)

Graminoid, Height: .0-2m, Cover continuous

- 5. Leersia oryzoides (Rice cut grass)
- 2. Phragmites australis (Common reed grass)
- 2. Sparganium eurycarpum
- 1. Cyperus erythrorhizos
- 1. Echinochloa crusgalli (Barnyard grass)

Forb, Height: .0-2m, Cover patchy

- 2. Bidens cernua (Nodding bur-marigold)
- 2. Bidens frondosa (Leafy beggar-ticks)
- 2. Cicuta maculata (Water-hemlock)
- 2. Lythrum salicaria (Purple loosestrife)
- 2. Pilea pumila (Clearweed)
- 2. Polygonum coccineum (Swamp smartweed)
- 2. Sagittaria latifolia (Broad-leaved arrowhead)
- 1. Bidens coronata

----- EXAMPLE RECORD -----

! Cover.Sociability Genus Species Author Variety Author Remark !
! +.2 Epigaea repens L. var. glab. Fern. fl # # !
----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

Forb, Height: .0-2m, Cover patchy (continued)

- 1. Eupatorium perfoliatum (Common boneset)
- 1. Ranunculus pensylvanicus (Bristly buttercup)
- 1. Verbena hastata (Blue vervain)
- + Alisma triviale (Water-plantain)
- + Impatiens capensis (Spotted touch-me-not, jewel-we)
- + Physostegia virginiana (Obedient Plant)

----- EXAMPLE RECORD -----

!	Cover.	Sociability	Genus	Species	Author	Variety	Author	Remark	!
!		+ .2	Epigaea	repens	L.	var. glab.	Fern.	fl # #	!

----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

16:19 Tuesday, OCTOBER 31, 1995

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Releve #: _____ EO Rec #: 0
*Surveyor's ID Code: HLD (Hannah L. Dunevitz)
Date: 25 Month: AUG Year: 1994 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: Gun Club Lake North
DNR Ownership Code: 40 (Mn Dnr Parks and Recreation)
*NC Code: MEPRXX (Mixed Emergent Marsh (Prairie))
Community Ranking in Releve: B Stand typical of Community Type: _ Releve typical of Sta

LOCATIONAL INFORMATION

State Code: MN *County Code: 19 (Dakota)
Quad Codes DNR: S17C Universal: 44093G2 (St. Paul Sw)
Township: 028N (e.g. 143N) Range: 23W (e.g. 32W)
QORT: SE QRT: SW of Section 33
Latitude: 44 degrees, 51 minutes, 54 seconds LL/GPS registration:
Longitude: 93 degrees, 10 minutes, 49 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Releve Size (sq. m.): 100 Elev. (ft.): 700 Slope: 00LV Slope Position: _
*ECS Subsection: 0
Minnesota Soil Atlas Mapping Unit: A
*Geomorphic Unit: 29 (Mississippi Valley Outwash)

Remarks: On saturated muck. Part of large variable emergent marsh downslope from calcareous seepage fen to the east & near Gun Club Lake to the west. Phragmites has been increasing in recent years.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: N Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Releve Handbook)

Graminoid, Height: .0-2m, Cover continuous

5. Scirpus fluviatilis (River bulrush)
4. Leersia oryzoides (Rice cut grass)
SPC 3. Eleocharis pauciflora (Spike-rush)
2. Sparganium eurycarpum
+. Phragmites australis (Common reed grass)

Forb, Height: .0-2m, Cover rare

2. Polygonum coccineum (Swamp smartweed)
1. Bidens cernua (Nodding bur-marigold)
1. Sagittaria latifolia (Broad-leaved arrowhead)

----- EXAMPLE RECORD -----

! Cover.Sociability Genus Species Author Variety Author Remark !
! +.2 Epigaea repens L. var. glab. Fern. fl # # !
----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

16:19 Tuesday, OCTOBER 31, 1995

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Relève #: _____ EO Rec #: 0
*Surveyor's ID Code: HLD (Hannah L. Dunevitz)
Date: 20 Month: JUL Year: 1994 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: Gun Club Lake North
DNR Ownership Code: 40 (Mn Dnr Parks and Recreation)
*NC Code: CFSEPR (Calcareous Seepage Fen (Southeast) Prairie Subtype)
Community Ranking in Relève: C Stand typical of Community Type: _ Relève typical of Sta

LOCATIONAL INFORMATION

State Code: MN *County Code: 19 (Dakota)
Quad Codes DNR: S17C Universal: 44093G2 (St. Paul Sw)
Township: 28 N (e.g. 143N) Range: 23W (e.g. 32W)
QORT: NW QRT: SW of Section 33
Latitude: 44 degrees, 52 minutes, 3 seconds LL/GPS registration:
Longitude: 93 degrees, 10 minutes, 34 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Relève Size (sq. m.): 100 Elev. (ft.): 710 Slope: 05W Slope Position: _
*ECS Subsection: 0
Minnesota Soil Atlas Mapping Unit: P
*Geomorphic Unit: 29 (Mississippi Valley Outwash)

Remarks: soil saturated muck, 3 cm standing water between hummocks. grades to emergent marsh toe of slope. plot just west of large phragmites clones & large willow clumps.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: N Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Relève Handbook)

Graminoid, Height: .0-2m, Cover interrupted

- 3. Calamagrostis canadensis (Blue-joint)
- 2. Carex stricta
- 1. Carex lacustris
- 1. Sparganium eurycarpum
- +. Leersia oryzoides (Rice cut grass)
- +. Typha angustifolia (Narrow-leaved cat-tail)

Forb, Height: .0-2m, Cover interrupted

- 3. Impatiens capensis (Spotted touch-me-not, jewel-we)
- 1. Equisetum fluviatile (Water horsetail)
- 1. Lycopodium americanus (Cut-leaved bugleweed)
- 1. Polygonum amphibium (Water smartweed)
- 1. Polygonum coccineum (Swamp smartweed)
- +. Bidens (Bur-Marigold; Beggar-Ticks)
- +. Boehmeria cylindrica (False nettle)

----- EXAMPLE RECORD -----

! Cover.Sociability Genus Species Author Variety Author Remark !
! +.2 Epigaea repens L. var. glab. Fern. fl # # !
----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

Forb, Height: .0-2m, Cover interrupted (continued)

- + . Cicuta maculata (Water-hemlock)
- + . Eupatorium perfoliatum (Common boneset)
- + . Galium trifidum (Small bedstraw)
- + . Lathyrus palustris (Marsh vetchling)
- + . Lysimachia thyrsiflora (Tufted loosestrife)
- + . Ranunculus pensylvanicus (Bristly buttercup)
- + . Sagittaria latifolia (Broad-leaved arrowhead)
- + . Scutellaria lateriflora (Mad-dog skullcap)
- R. Thelypteris palustris (Northern marsh fern)
- R. no match in MNTaxa, MossTaxa, or LichTaxa
- R. Asclepias incarnata (Swamp milkweed)
- R. Cirsium vulgare (Bull thistle)
- R. Echinocystis lobata (Wild cucumber)
- R. Leonurus cardiaca (Motherwort)
- R. Rumex orbiculatus (Great water dock)
- R. Sium suave OP (Water-parsnip)

----- EXAMPLE RECORD -----

!	Cover.Sociability	Genus	Species	Author	Variety	Author	Remark	!
!	+ .2	Epigaea	repens	L.	var. glab.	Fern.	fl # #	!

----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

16:19 Tuesday, OCTOBER 31, 1995

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Relève #: _____ EO Rec #: 0
*Surveyor's ID Code: HLD (Hannah L. Dunevitz)
Date: 29 Month: AUG Year: 1994 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: Gun Club Lake South
DNR Ownership Code: 40 (Mn Dnr Parks and Recreation)
*NC Code: MEPRXX (Mixed Emergent Marsh (Prairie))
Community Ranking in Relève: A Stand typical of Community Type: _ Relève typical of Sta

LOCATIONAL INFORMATION

State Code: MN *County Code: 19 (Dakota)
Quad Codes DNR: S17C Universal: 44093G2 (St. Paul Sw)
Township: 027N (e.g. 143N) Range: 23W (e.g. 32W)
QORT: SW QRT: NW of Section 4
Latitude: 44 degrees, 51 minutes, 29 seconds LL/GPS registration:
Longitude: 93 degrees, 11 minutes, 10 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Relève Size (sq. m.): 100 Elev. (ft.): 700 Slope: 00LV Slope Position: _
*ECS Subsection: 0
Minnesota Soil Atlas Mapping Unit: A
*Geomorphic Unit: 29 (Mississippi Valley Outwash)

Remarks: Plot is on edge of Gun Club Lake in the Minnesota River Valley. Soil deep fibrous peat. Hummocks are saturated, with standing water between them. Large patches of Phragmites occur nearby.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: N Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Relève Handbook)

Woody Broadleaf Deciduous, Height: .1-2m, Cover rare
2. Amorpha fruticosa (False indigo)

Graminoid, Height: .0-2m, Cover interrupted
3. Sparganium eurycarpum
2. Calamagrostis canadensis (Blue-joint)
2. Cyperus engelmannii
2. Eleocharis (Spike-Rush)
2. Leersia oryzoides (Rice cut grass)
2. Scirpus fluviatilis (River bulrush)
1. Iris versicolor (Blue Flag)
1. Typha latifolia (Broad-leaved cattail)

----- EXAMPLE RECORD -----

! Cover.Sociability Genus Species Author Variety Author Remark !
! +.2 Epigaea repens L. var. glab. Fern. fl # # !
----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

Forb, Height: .0-2m, Cover interrupted

- 4. Lemna minor (Lesser duckweed)
- 3. Bidens cernua (Nodding bur-marigold)
- 2. Impatiens capensis (Spotted touch-me-not, jewel-we)
- 2. Lysimachia ciliata (Fringed loosestrife)
- 1. no match in MNTaxa, MossTaxa, or LichTaxa
- 1. Bidens coronata
- 1. Boehmeria cylindrica (False nettle)
- 1. Cicuta maculata (Water-hemlock)
- 1. Eupatorium purpureum (Sweet Joe-pye weed)
- 1. Galium trifidum (Small bedstraw)
- 1. Lycopus americanus (Cut-leaved bugleweed)
- 1. Lysimachia cf. terrestris (Yellow loosestrife)
- 1. Sagittaria latifolia (Broad-leaved arrowhead)
- 1. Sagittaria latifolia (Broad-leaved arrowhead)
- +. Alisma subcordatum (Water-plantain)
- +. Epilobium coloratum (Purple-leaved willow-herb)
- +. Polygonum amphibium (Water smartweed)
- +. Polygonum coccineum (Swamp smartweed)
- +. Scutellaria lateriflora (Mad-dog skullcap)
- +. Sium suave (Water-parsnip)

Lichen/Moss, Height: .0-.1m, Cover rare

- 2. no match in MNTaxa, MossTaxa, or LichTaxa

----- EXAMPLE RECORD -----

! Cover.Sociability	Genus	Species	Author	Variety	Author	Remark	!
! +.2	Epigaea	repens	L.	var. glab.	Fern.	fl # #	!
----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----							

16:31 Tuesday, OCTOBER 31, 1995

----- FINAL RELEVE REPORT FORM, MINNESOTA VEGETATION DATABASE -----

GENERAL INFORMATION

Surveyor's Relève #: _____ EO Rec #: 0
*Surveyor's ID Code: HLD (Hannah L. Dunevitz)
Date: 20 Month: JUL Year: 1994 (e.g. 04 JUL 1993)
CBS Site #: 0 or Site Name: Pike Island
DNR Ownership Code: 40 (Mn Dnr Parks and Recreation)
*NC Code: FFXKSM (Floodplain Forest Silver Maple Subtype)
Community Ranking in Relève: BC Stand typical of Community Type: _ Relève typical of Sta

LOCATIONAL INFORMATION

State Code: MN *County Code: 62 (Ramsey)
Quad Codes DNR: S17B Universal: 44093H2 (St. Paul West)
Township: 028N (e.g. 143N) Range: 23W (e.g. 32W)
QORT: NW QRT: NE of Section 28
Latitude: 44 degrees, 53 minutes, 18 seconds LL/GPS registration:
Longitude: 93 degrees, 10 minutes, 27 seconds *Accuracy: _ Marker: _

RELEVE INFORMATION

Relève Size (sq. m.): 400 Elev. (ft.): 700 Slope: 00LV Slope Position: _
*ECS Subsection: 0
Minnesota Soil Atlas Mapping Unit: A
*Geomorphic Unit: 29 (Mississippi Valley Outwash)

Remarks: Canopy of widely spaced, large diam Acer saccharinum; occas large
Populus deltoides outside plot. Evidence of recent flooding. Plot is
north of trail. Perm marked by metal stake center of plot.

OTHER DATA COLLECTED

Soils: N Forestry: N o=old growth Water Chemistry: N Publication: N
y=forestry

* = Variables with computerized code dictionaries (See Relève Handbook)

Woody Broadleaf Deciduous, Height: 35->35m, Cover continuous
5. Acer saccharinum (Silver maple, soft maple)

Woody Broadleaf Deciduous, Height: 20-35m, Cover patchy
2. Acer negundo (Box elder)
2. Acer saccharinum (Silver maple, soft maple)
2. Fraxinus pennsylvanica (Green ash)

Woody Broadleaf Deciduous, Height: 10-20m, Cover rare
2. Acer negundo (Box elder)
1. Celtis occidentalis (Hackberry)

Woody Broadleaf Deciduous, Height: .5-2m, Cover almost absent
R. Fraxinus pennsylvanica (Green ash)

----- EXAMPLE RECORD -----

! Cover.Sociability Genus Species Author Variety Author Remark !
! +.2 Epigaea repens L. var. glab. Fern. fl # # !
----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

Woody Broadleaf Deciduous, Height: .0-.5m, Cover almost absent

- 1. *Acer saccharinum* (Silver maple, soft maple)
- R. *Ulmus americana* (American elm)

Climber, Height: .0-.5m, Cover almost absent

- +. *cf. Ipomoea* (Common morning-glory)
- +. *Menispermum canadense* (Canada moonseed)

Graminoid, Height: .0-.5m, Cover rare

- 2. *Leersia oryzoides* (Rice cut grass)
- 1. *Elymus virginicus* (Wild-rye)
- R. *Carex* (Sedge)

Forb, Height: .0-.5m, Cover patchy

- 2. *Laportea canadensis* (Wood nettle)
- 1. *Pilea pumila* (Clearweed)
- 1. *Ranunculus abortivus* (Kidney-leaf buttercup)
- +. *Arctium minus* (Common burdock)
- +. *Aster ontarionis* (Ontario aster)
- +. *Bidens* (Bur-Marigold; Beggar-Ticks)
- +. *Campanula americana* (Tall bellflower)
- +. *Hackelia virginiana* (Virginia stickseed)
- +. *Melilotus* (Sweet Clover)
- +. *Rudbeckia laciniata* (Goldenglow)
- +. *Smilax hispida* (Green-briar)
- +. *Solanum ptycanthum* (Black nightshade)
- +. *Viola missouriensis*
- R. no match in MNTaxa, MossTaxa, or LichTaxa
- R. *Cirsium* (Common Thistle; Plumed Thistle)

----- EXAMPLE RECORD -----

!	Cover	Sociability	Genus	Species	Author	Variety	Author	Remark	!
!		+.2	<i>Epigaea</i>	<i>repens</i>	L.	var. <i>glab.</i>	Fern.	fl # #	!

----- FOR CODES, SEE RELEVE CODE SHEET OR RELEVE MANUAL -----

----- RELEVE SPECIES LIST REPORT FORM, MINNESOTA VEGETATION DATABASE -----

DNR RELEVE NUMBER: 9430
DATE: 28 AUG 1990
BY: John C. Almendinger
Ramsey County, MN
St. Paul West (S17B)

MINNESOTA NATURAL HERITAGE PROGRAM
Department of Natural Resources
500 Lafayette Road
St. Paul, Minnesota 55155-4007
(612) 296-3344

Site Name: Ft. Snelling State Park
Location: S of S of S. 22, T. 28 N, R. 23W
Ownership: MN DNR Parks and Recreation
Heritage Community Element: Floodplain Forest Silver Maple Subtype
Element Occurrence Size: 0 (acres), Rank: BC, Sitesize: 0 (acres)
Soil Atlas Mapping Unit: Mississippi Valley Outwash, A
Other Data Collected:

----- PLOT CHARACTERISTICS -----

Presence List - Floodplain Forest on Pike Island - List compiled by
John Almendinger & Nancy Albrecht

Acalypha rhomboidea (Three-sided mercury)
Acer negundo (Box elder)
Acer saccharinum (Silver maple, soft maple)
Ambrosia trifida (Great ragweed)
Amphicarpaea bracteata (Hog-peanut)
Anemone canadensis (Canada anemone)
Arctium minus (Common burdock)
Aster ontarionis (Ontario aster)
Aster umbellatus (Flat-topped aster)
Bidens (Bur-Marigold; Beggar-Ticks)
Bromus (Brome-Grass)
Bromus inermis (Smooth brome)
Cardamine pennsylvanica (Pennsylvania bitter-cress)
Carex cf. aurea
Chenopodium album (Lamb's quarters)
Cirsium arvense (Canada thistle)
Clematis virginiana (Virgin's bower)
Cuscuta (Dodder)
Elymus canadensis (Nodding wild-rye)
Elymus virginicus (Wild-rye)
Eupatorium rugosum (Common snakeroot)
Fraxinus pennsylvanica (Green ash)
Galium aparine (Cleavers)
Geranium maculatum (Wild geranium)
Glechoma hederacea (Creeping charlie)
Hackelia virginiana (Virginia stickseed)
Helenium autumnale (Sneezeweed)
Impatiens pallida (Pale touch-me-not, jewel-weed)
Lactuca (Lettuce)
Laportea canadensis (Wood nettle)
Leersia oryzoides (Rice cut grass)
Leonurus cardiaca (Motherwort)
Lobelia siphilitica (Great lobelia)
Menispermum canadense (Canada moonseed)
Muhlenbergia (Satin-Grass; Muhly Grass)
Myosoton aquaticum (Giant chickweed)

Oxalis cf. stricta (Yellow wood-sorrel)
Parthenocissus inserta (Virginia creeper)
Phalaris arundinacea (Reed canary grass)
Pilea (Clearweed)
Poa palustris (Fowl meadow grass)
Polygonum (Knotweed; Smartweed)
Populus deltoides (Cottonwood)
Rhamnus cathartica (Common buckthorn)
Rubus strigosus (Red raspberry)
Rudbeckia laciniata (Goldenglow)
Salix cf. amygdaloides (Peach-leaved willow)
Salix exigua (Sand-bar willow)
Scrophularia lanceolata (Lance-leaved figwort)
Setaria glauca (Yellow foxtail)
Sicyos angulatus (Bur-cucumber)
Smilax hispida (Green-briar)
Solanum dulcamara (Bittersweet nightshade)
Solanum ptycanthum (Black nightshade)
Solidago canadensis
Spartina pectinata (Prairie cordgrass)
Stachys palustris (Hedge-nettle)
Teucrium canadense (Germander)
Ulmus americana (American elm)
Urtica dioica (Stinging nettle)
Verbena urticifolia (White vervain)
Vernonia fasciculata (Ironweed)
Viola missouriensis
Vitis riparia (Wild grape)

----- RELEVE SPECIES LIST REPORT FORM, MINNESOTA VEGETATION DATABASE -----

DNR RELEVE NUMBER: 9431
DATE: 12 MAY 1994
BY: Hannah L. Dunevitz
Hennepin County, MN
St. Paul West (S17B)

MINNESOTA NATURAL HERITAGE PROGRAM
Department of Natural Resources
500 Lafayette Road
St. Paul, Minnesota 55155-4007
(612) 296-3344

Site Name: Minnehaha Park/Fort Snelling
Location: W of NE of S. 20, T. 28 N, R. 23W
Ownership: State of Minnesota (Other)
Heritage Community Element: Maple-Basswood Forest (Big Woods)
Element Occurrence Size: 20 (acres), Rank: C, Sitesize: 0 (acres)
Soil Atlas Mapping Unit: Mississippi Valley Outwash, SLWD
Other Data Collected:

----- PLOT CHARACTERISTICS -----

2 small tracts separated by a ravine. On steep to moderate east-facing slopes above Mississippi River & its floodplain. Minnehaha Park & state land. Canopy *Q rubra*, *Q macrocarpa*, *Tilia*, *Acer sacch.*

Acer negundo (Box elder)
Acer saccharum (Sugar maple)
Actaea rubra (Red baneberry)
Adiantum pedatum (Maidenhair fern)
Alliaria petiolata (Garlic-mustard)
Allium tricoccum (Wild leek)
Amelanchier (Juneberry; Serviceberry; Saska)
Aralia nudicaulis (Wild sarsaparilla)
Arisaema triphyllum (Jack-in-the-pulpit)
Asarum canadense (Wild ginger)
Aster
Athyrium angustum (Lady fern)
Carex (Sedge)
Carex cf. pedunculata
Carex sprengei
Caulophyllum thalictroides (Blue cohosh)
Caulophyllum thalictroides (Blue cohosh)
Cornus alternifolia (Pagoda dogwood)
Dicentra cucullaria (Dutchman's-breeches)
Fraxinus pennsylvanica (Green ash)
Galium concinnum
Galium triflorum (Three-flowered bedstraw)
Geranium maculatum (Wild geranium)
Hepatica acutiloba (Sharp-lobed hepatica)
Hydrophyllum virginianum (Virginia waterleaf)
Impatiens (Balsam; Jewelweed)
Lonicera tatarica (Tartarian Honeysuckle)
Menispermum canadense (Canada moonseed)
Ostrya virginiana (Ironwood, hop hornbeam)
Panicum (Panic Grass)
Parthenocissus cf. inserta (Virginia creeper)
Phlox divaricata (Blue Phlox)

cf. *Prenanthes* (White rattlesnake-root)
Prunus virginiana (Chokecherry)
Quercus macrocarpa (Bur oak)
Quercus rubra (Northern red oak)
Ranunculus abortivus (Kidney-leaf buttercup)
Rhamnus cathartica (Common buckthorn)
Ribes americanum (Wild black currant)
Ribes cynosbati (Prickly gooseberry, dogberry)
Rubus cf. *strigosus* (Red raspberry)
Sambucus pubens (Red-berried Elder)
Sanguinaria canadensis (Bloodroot)
Sanicula gregaria (Black snakeroot)
Smilacina racemosa (False Solomon's-seal)
Smilax cf. *ecirrata* (Carrion-flower)
Smilax hispida (Green-briar)
Solidago flexicaulis (Zig-zag goldenrod)
Taraxacum officinale (Common dandelion)
Thalictrum dioicum (Early meadow rue)
Tilia americana (Basswood)
Trillium cernuum
Trillium flexipes (Declining trillium)
Uvularia grandiflora (Yellow bellwort)
Viola (Violet)
Viola pubescens (Smooth yellow violet)

----- RELEVE SPECIES LIST REPORT FORM, MINNESOTA VEGETATION DATABASE -----

DNR RELEVE NUMBER: 9435
DATE: 12 MAY 1994
BY: Hannah L. Dunevitz
Hennepin County, MN
St. Paul West (S17B)

MINNESOTA NATURAL HERITAGE PROGRAM
Department of Natural Resources
500 Lafayette Road
St. Paul, Minnesota 55155-4007
(612) 296-3344

Site Name: Minnehaha/Fort Snelling
Location: SW of NE of S. 20, T. 28 N, R. 23W
Ownership: MN DNR Parks and Recreation
Heritage Community Element: Black Ash Swamp Seepage Subtype
Element Occurrence Size: 0 (acres), Rank: C, Sitesize: 0 (acres)
Soil Atlas Mapping Unit: Mississippi Valley Outwash, SLWD
Other Data Collected:

----- PLOT CHARACTERISTICS -----

Narrow seepage zone beneath east-facing steep bluff, about 1/4 mile long. Many down large trees; dominated by small *Fraxinus nigra* average 5-25 cm dbh. About 50% tree cover.

Acer saccharinum (Silver maple, soft maple)
Alliaria petiolata (Garlic-mustard)
Arisaema triphyllum (Jack-in-the-pulpit)
Caltha palustris (Marsh marigold)
Carex (Sedge)
Carex cf. lacustris
Chelone glabra (Turtlehead)
Cornus stolonifera (Red-osier dogwood)
Cystopteris bulbifera (Bulblet fern)
Equisetum cf. hyemale (Tall scouring-rush)
Fraxinus nigra (Black ash)
Fraxinus pennsylvanica (Green ash)
Galium aparine (Cleavers)
Geranium maculatum (Wild geranium)
Geum (Avens)
Glechoma hederacea (Creeping charlie)
Impatiens (Balsam; Jewelweed)
Iris versicolor (Blue Flag)
Lysimachia ciliata (Fringed loosestrife)
Onoclea sensibilis (Sensitive fern)
Parthenocissus quinquefolia (Virginia creeper)
Prunus virginiana (Chokecherry)
Ranunculus abortivus (Kidney-leaf buttercup)
Rhamnus cathartica (Common buckthorn)
Ribes americanum (Wild black currant)
Rudbeckia laciniata (Goldenglow)
Sambucus canadensis (Common Elder)
Saxifraga pennsylvanica (Swamp saxifrage)
Smilacina racemosa (False Solomon's-seal)
Smilacina stellata (Starry false Solomon's-seal)
Solanum cf. dulcamara (Bittersweet nightshade)

Releve Number 9435 Species List Continued, Page 2

Symplocarpus foetidus (Skunk cabbage)
Tilia americana (Basswood)
Ulmus rubra (Red elm, slippery elm)

APPENDIX 1H. NATURAL COMMUNITY AND RARE PLANT SPECIES RECORDS FOR

NICOL'S MEADOW ADJACENT TO FORT SNELLING STATE PARK

MnDNR, Natural Heritage and Nongame Research Program

12:02 Monday, OCTOBER 30, 1995

1

Minnesota Natural Heritage Database

Element Occurrence Records

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Map Symbol codes: C = known within 1/4 mile radius; U = known within 1/2 mile radius; N = known within 1 mile radius

COUNTY NAME	TWP	RNG	SECTION	MAP SYM	FED STAT	MINN STAT	YEAR INFO	VOUCHER	ELEMENT and OCCURRENCE NUMBER	OWNER
DAKOTA	T027N	R23W	NWSESW18	C			1994		CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #29	
DAKOTA	T027N	R23W	SWSESW18	C			1993		CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #30	
DAKOTA	T027N	R23W	SWSESW18	C	THR		1993		CAREX STERILIS (STERILE SEDGE) #102	STALLAND
DAKOTA	T027N	R23W	NWSESW18	C	THR		1994		CAREX STERILIS (STERILE SEDGE) #103	
DAKOTA	T027N	R23W	SWSESW18	C	SPC		1993		CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #260	STALLAND
DAKOTA	T027N	R23W	NWSESW18	C	NON		1994	MIN	OXYPOLIS RIGIDIOR (COWBANE) #40	
DAKOTA	T027N	R23W	18	U	THR		1942	373846 MIN	RHYNCHOSPORA CAPILLACEA (HAIR-LIKE BEAK-RUSH) #1	
DAKOTA	T027N	R23W	18	U	THR		1941	373845 MIN	SCLERIA VERTICILLATA (WHORLED NUT-RUSH) #1	

RECORDS PRINTED = 8

Element: CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #29

S Rank: S1
EO Size: 5 acres approx. EO Rank: C Current Status: Intended Status:
Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Owner unknown
Managed Area(s): not managed or no record
Source: DUNEVITZ, H. (CO BIOL SURVEY 1994)

SMALL FEN ON SLOPING SATURATED PEAT WITH CALC GROUNDWATER DISCHARGE. SEVERAL LOW SEDGE MAT ZONES WITH CAREX STERILIS, TRIGLOCHIN MARITIMA, LOBELIA KALMII, SURROUNDED BY TALLER VEG WITH CAREX PRAIRIA, CALAMAGROSTIS CANADENSIS, SCIRPUS ACUTUS, CORNUS STOLONIFERA, EUPATORIUM MACULATUM, SOLIDAGO GRAMINIFOLIA COMMON. LYTHRUM SALICARIA, PHALARIS, PHRAGMITES ALL PRESENT. SURR BY DIST: IMPOUNDED POND TO NORTH, WELL & NICOLS RD TO EAST, RR TRACKS TO SOUTH, CEDAR AVE TO WEST

Location: DAKOTA COUNTY, MN
Legal : T027N R23W NWSESW18
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 18" Long: 93 13' 20"
Precision: approx. boundaries have been determined
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 13 October 1994

Voucher: Verification: verified

Element: CALCAREOUS SEEPAGE FEN (SOUTHEAST) PRAIRIE SUBTYPE #30

S Rank: S1
EO Size: 10 acres approx EO Rank: C Current Status: Intended Status:
Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Owner unknown
Managed Area(s): not managed or no record
Source: LEOSCHKE, M. (NICOLS FEN BASELINE ASSESSMENT REPORT 1993)

FEN ON DEEP SATURATED PEAT SLOPING GENTLY TO THE NORTHWEST. COMMON NATIVE SPECIES: CAREX STRICTA, EUPATORIUM MACULATUM, ASTER UMBELLATUS, IMPATIENS CAPENSIS, SOLIDAGO CANADENSIS. EXOTICS COMMON: LYTHRUM SALICARIA, PHALARIS, PHRAGMITES. RARE &/OR CALCIPHILIC SPECIES INCLUDE CAREX STERILIS, CYPRIPIEDIUM CANDIDUM. AT BASE OF STEEP NW-FACING BLUFF. ADJACENT TO NICOLS RD TO EAST, CEDAR AVE TO WEST, RR TRACKS TO NORTH.

Location: DAKOTA COUNTY, MN
Legal : T027N R23W SWSESW18
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 13" Long: 93 13' 15"
Precision: approx. boundaries have been determined
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: September 1993

Voucher: Verification: verified

Element: CAREX STERILIS (STERILE SEDGE) #102

State Status: THREATENED
EO Size: EO Rank: Current Status: Intended Status:
Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Private
Managed Area(s): not managed or no record
Source: LEOSCHKE, M. (SIGHT RECORD)

IN CALCAREOUS SEEPAGE FEN JUST WEST OF NICOLS ROAD & SOUTH OF RAILROAD GRADE IN MINNESOTA RIVER VALLEY, IN SATURATED PEAT. ESTIMATED TOTAL COVER LESS THAN 15 SQUARE METERS. MOST COMMON IN WETTER & MORE OPEN AREAS WITHIN FEN. ASSOCIATED SPECIES INCLUDE CYPRIPIEDIUM CANDIDUM. MAY BE THREATENED BY HYDROLOGIC ALTERATION FROM NEARBY DEVELOPMENT & EXOTIC SPECIES INVASION, ESPECIALLY PHALARIS.

Location: DAKOTA COUNTY, MN
Legal : T027N R23W SWSESW18
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 13" Long: 93 13' 15"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: June 1993

Voucher: Verification: sight rec.

Element: CAREX STERILIS (STERILE SEDGE) #103

State Status: THREATENED
EO Size: EO Rank: Current Status: Intended Status:
Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Owner unknown
Managed Area(s): not managed or no record
Source: DUNEVITZ, H. & EGGERS, S. (SIGHT RECORD)

SMALL CALCAREOUS SEEPAGE FEN IN MINNESOTA RIVER VALLEY NORTH OF RAILROAD TRACKS, JUST WEST OF NICOLS ROAD. UNCOMMON IN LOW SEDGE MATS WITH TRIGLOCHIN MARITIMA, LOBELIA KALMII. MOST PERIGYNIA GONE (LATE IN SEASON), BUT ENOUGH REMAINED TO VERIFY IDENTIFICATION.

Location: DAKOTA COUNTY, MN
Legal : T027N R23W NWSESW18
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 20" Long: 93 13' 20"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 13 October 1994

Voucher: Verification: sight rec.

Element: CYPRIPEDIUM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #260

State Status: SPECIAL CONCERN

EO Size: EO Rank: Current Status: Intended Status:

Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Private

Managed Area(s): not managed or no record

Source: LEOSCHKE, M. (SIGHT RECORD)

IN CALCAREOUS SEEPAGE FEN IN THE MINNESOTA RIVER VALLEY, JUST SOUTH OF RAILROAD GRADE & WEST OF NICOLS ROAD. IN SATURATED PEAT. 35 CLUMPS WERE FOUND, MOST WITH AT LEAST ONE FLOWERING STEM. ASSOCIATED SPECIES INCLUDE CAREX STERILIS, CAREX STRICTA. MAY BE THREATENED BY HYDROLOGIC ALTERATION FROM NEARBY DEVELOPMENT AND FROM EXOTIC SPECIES, ESPECIALLY PHALARIS.

Location: DAKOTA COUNTY, MN

Legal : T027N R23W SWSESW18

Quad Map: ST. PAUL SW (S17C)

Latitude: 44 49' 13" Long: 93 13' 15"

Precision: within 0.25 mile, confirmed

DNR Region: 6

Wildlife Area: 610

Forestry District: 612

Last Obs.: June 1993

Voucher: Verification: sight rec.

Element: OXYPOLIS RIGIDIOR (COWBANE) #40

State Status: No Legal Status

EO Size: EO Rank: C Current Status: 0 Intended Status: 9

Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Owner unknown

Managed Area(s): not managed or no record

Source: DUNEVITZ, H. (1090)

JUST SOUTHWEST OF NICOLS ROAD, ON NORTHWEST SIDE OF RAILROAD TRACKS, SOUTHEAST OF SMALL IMPOUNDMENT. IN CALCAREOUS SEEPAGE FEN ON MOIST PEAT WITH NUMEROUS SMALL SPRINGS AND STREAMS. UNCOMMON. ASSOCIATED SPECIES INCLUDE: EUPATORIUM MACULATUM, CAREX PRAIREA, PYCNANTHEMUM VIRGINICUM, LOBELIA KALMII.

Location: DAKOTA COUNTY, MN

Legal : T027N R23W NWSESW18

Quad Map: ST. PAUL SW (S17C)

Latitude: 44 49' 20" Long: 93 13' 20"

Precision: within 0.25 mile, confirmed

DNR Region: 6

Wildlife Area: 610

Forestry District: 612

Last Obs.: 18 August 1994

Voucher: MIN Verification: verified

*** REPORTED DESTROYED ***

Element: RHYNCHOSPORA CAPILLACEA (HAIR-LIKE BEAK-RUSH) #1

State Status: THREATENED

EO Size: EO Rank: Current Status: Intended Status:

Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Owner unknown

Managed Area(s): not managed or no record

Source: MOORE, J.W. (15123)

MEADOW 1/2 MILE SOUTH OF NICOLS. NOT FOUND IN 1993 SURVEY OF SWSESW SEC 18 BY M. LEOSCHKE.

Location: DAKOTA COUNTY, MN

Legal : T027N R23W 18

Quad Map: ST. PAUL SW (S17C)

Latitude: 44 49' 11" Long: 93 13' 13"

Precision: within 0.50 mile

DNR Region: 6

Wildlife Area: 610

Forestry District: 612

Last Obs.: August 1942

Voucher: 373846 MIN Verification: verified

*** REPORTED DESTROYED ***

Element: SCLERIA VERTICILLATA (WHORLED NUT-RUSH) #1

State Status: THREATENED

EO Size: EO Rank: Current Status: Intended Status:

Site: NICOLS MEADOW AREA CBS Site #: 5

Ownership: Owner unknown

Managed Area(s): not managed or no record

Source: MOORE, BUTTERS & JENKINS (15122)

MEADOW 1/2 MILE SOUTH OF NICOLS. (PREV COLL; ROSENDAHL, C.O. (273142), 1924). NOT FOUND DURING 1993 SURVEY OF SWSESW SEC 18 BY M. LEOSCHKE.

Location: DAKOTA COUNTY, MN

Legal : T027N R23W 18

Quad Map: ST. PAUL SW (S17C)

Latitude: 44 49' 11" Long: 93 13' 13"

Precision: within 0.50 mile

DNR Region: 6

Wildlife Area: 610

Forestry District: 612

Last Obs.: September 1941

Voucher: 373845 MIN Verification: verified

APPENDIX 1I. RARE ANIMAL SPECIES OCCURRENCES WITHIN OR ADJACENT TO

FORT SNELLING STATE PARK AND MINNEHAHA REGIONAL PARK

MnDNR, Natural Heritage and Nongame Research Program

14:11 Thursday, OCTOBER 26, 1995

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Map Symbol codes: C = known within 1/4 mile radius; U = known within 1/2 mile radius; N = known within 1 mile radius

Minnesota Natural Heritage Database
Element Occurrence Records

COUNTY NAME	TWP	RNG	SECTION	MAP SYM	FED STAT	MINN STAT	YEAR INFO	VOUCHER	ELEMENT and OCCURRENCE NUMBER	OWNER
DAKOTA	T027N	R24W	SE13	C		NON	1989		ACTINONAIAS LIGAMENTINA (MUCKET MUSSEL) #95	
RAMSEY	T028N	R23W	SE22	C		NON	1989		ACTINONAIAS LIGAMENTINA (MUCKET MUSSEL) #96	
DAKOTA	T027N	R23W	NW08SW05	C		NON	1989		ARCIDENS CONFRAGOSUS (ROCK-POCKETBOOK MUSSEL) #11	
RAMSEY	T028N	R23W	SE22	C		NON	1989		ARCIDENS CONFRAGOSUS (ROCK-POCKETBOOK MUSSEL) #12	
HENNEPIN	T028N	R24W	2536	N		SPC	1978		BARTRAMIA LONGICAUDA (UPLAND SANDPIPER) #53	
RAMSEY	T028N	R23W	SE22	C	C2	SPC	1995		CYCLEPTUS ELONGATUS (BLUE SUCKER) #49	
HENNEPIN	T028N	R23W	0E200W21	U		SPC	1955	JFBM-1478	ELAPHE VULPINA (FOX SNAKE) #4	DNR PARKS AND RECREATION
RAMSEY	T028N	R23W	14212223	N		SPC	1937	JFBM-545	ELAPHE VULPINA (FOX SNAKE) #8	RAMSEY CO PARKS
DAKOTA	T028N	R23W	27	U		SPC	1953	JFBM-1672,73	ELAPHE VULPINA (FOX SNAKE) #27	
DAKOTA	T028N	R23W	NESE22	C		SPC	1993		ELAPHE VULPINA (FOX SNAKE) #93	
DAKOTA	T028N	R23W	SWSE28	C		SPC	1993		ELAPHE VULPINA (FOX SNAKE) #94	DNR PARKS AND RECREATION
DAKOTA	T028N	R23W	NENE28	C		SPC	1993		ELAPHE VULPINA (FOX SNAKE) #95	DNR PARKS AND RECREATION
HENNEPIN	T028N	R23W	SWNE20	C		SPC	1993		ELAPHE VULPINA (FOX SNAKE) #108	DNR PARKS AND RECREATION
DAKOTA	T027N	R24W	SE13	C		SPC	1989		ELLIPTIO CRASSIDENS (ELEPHANT-EAR MUSSEL) #2	
HENNEPIN	T028N	R23W	SESW28	C	C2	THR	1989		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #7	DNR PARKS AND RECREATION
HENNEPIN	T028N	R23W	SWNE18	C	C2	THR	1989		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #423	MINNEAPOLIS PARKS
HENNEPIN	T028N	R24W	NENW13	C	C2	THR	1989		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #481	MINNEAPOLIS PARKS
RAMSEY	T028N	R23W	SWNE22	C	C2	THR	1993		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #699	RAMSEY COUNTY PARKS
HENNEPIN	T027N	R23W	SWNW06	C	LE	END	1991		FALCO PEREGRINUS (PEREGRINE FALCON) #46	CONTROL DATA CORP.
DAKOTA	T027N	R24W	SE13	C		SPC	1989		FUSCONAIA EBENA (EBONYSHELL MUSSEL) #8	
RAMSEY	T028N	R23W	SE22	C		SPC	1989		FUSCONAIA EBENA (EBONYSHELL MUSSEL) #9	
HENNEPIN	T027N	R23W	NESW07	C	LT	THR	1986	HE -001	HALIAETUS LEUCOCEPHALUS (BALD EAGLE) #311	KELLEY, J.
HENNEPIN	T027N	R23W	NENE07	C	LT	THR	1995	HE -001	HALIAETUS LEUCOCEPHALUS (BALD EAGLE) #1439	PRIVATE
HENNEPIN	T028N	R23W	282932	N		SPC	1951	JFBM-1485	LAMPROPELTIS TRIANGULUM (MILK SNAKE) #22	DNR PARKS AND RECREATION
DAKOTA	T027N	R24W	SE13	C		NON	1989		LAMPSILIS TERES (YELLOW SANDSHELL MUSSEL) #11	
DAKOTA	T027N	R23W	NW08SW05	C		NON	1989		LAMPSILIS TERES (YELLOW SANDSHELL MUSSEL) #12	
RAMSEY	T028N	R23W	SE22	C		NON	1989		LAMPSILIS TERES (YELLOW SANDSHELL MUSSEL) #13	
DAKOTA	T027N	R24W	SE13	C		NON	1989		LIGUMIA RECTA (BLACK SANDSHELL MUSSEL) #94	
HENNEPIN	T028N	R23W	18	N		SPC	1917	328 JFBM	MICROTUS OCHROGASTER (PRAIRIE VOLE) #14	MINNEAPOLIS PARKS
RAMSEY	T028N	R23W	SE22	C	C2	SPC	1990		POLYODON SPATHULA (PADDLEFISH) #7	
RAMSEY	T028N	R23W	SE22	C		NON	1989		QUADRULA METANEVRA (MONKEYFACE MUSSEL) #26	
DAKOTA	T027N	R24W	SE13	C		NON	1989		QUADRULA NODULATA (WARTYBACK MUSSEL) #12	
RAMSEY	T028N	R23W	SE22	C		NON	1989		QUADRULA NODULATA (WARTYBACK MUSSEL) #13	
RAMSEY	T028N	R23W	SESW22	C	C1	SPC	1980		SCAPHIRHYNCHUS PLATORYNCHUS (SHOVELNOSE STURGEON) #4	
DAKOTA	T027N	R24W	SE13	C		NON	1989		TRITOGONIA VERRUCOSA (PISTOLGRIP MUSSEL) #29	
RAMSEY	T028N	R23W	21	N		NON	1980		VIREO BELLII (BELL'S VIREO) #3	DNR PARKS AND RECREATION

RECORDS PRINTED = 36

Element: ACTINONAIAS LIGAMENTINA (MUCKET MUSSEL) #95
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: DNR RIVER MILE 7.0 SITE 57
Ownership: Owner unknown
Managed Area(s): MINNESOTA VALLEY NWR
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (BLACK DOG LAKE OUTLET JUST UPSTREAM OF MN HWY 77 BRIDGE.)
Location: DAKOTA COUNTY, MN
Legal : T027N R24W SE13
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 32" Long: 93 14' 3"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 31 August 1989
Voucher: Verification: verified

Element: ACTINONAIAS LIGAMENTINA (MUCKET MUSSEL) #96
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: PIKE ISLAND MILE MARKER 0.3. SITE 59
Ownership: Owner unknown
Managed Area(s): MISSISSIPPI NATL RIVER & RECREATION AREA FORT SNELLING STATE PARK
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (PIKE ISLAND MILE MARKER 0.3; SITE 0.3-100M UPSTREAM OF MARKER.)
Location: RAMSEY COUNTY, MN
Legal : T028N R23W SE22
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 48" Long: 93 9' 1"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 30 August 1989
Voucher: Verification: verified

Element: ARCIDENS CONFRAGOSUS (ROCK-POCKETBOOK MUSSEL) #11
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: MILE MARKER 4.5 SITE 58
Ownership: Owner unknown
Managed Area(s): FORT SNELLING STATE PARK
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (MILE MARKER 4.5. SITE IS 10-120M UPSTREAM OF MILE MARKER.)
Location: DAKOTA COUNTY, MN
Legal : T027N R23W NW08SW05
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 50' 53" Long: 93 12' 20"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 29 August 1989
Voucher: Verification: verified

Element: ARCIDENS CONFRAGOSUS (ROCK-POCKETBOOK MUSSEL) #12
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: PIKE ISLAND MILE MARKER 3.0 SITE 59
Ownership: Owner unknown
Managed Area(s): MISSISSIPPI NATL RIVER & RECREATION AREA FORT SNELLING STATE PARK
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (PIKE ISLAND MILE MARKER 0.3. SITE 0.3-100M UPSTREAM OF MARKER.)
Location: RAMSEY COUNTY, MN
Legal : T028N R23W SE22
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 48" Long: 93 9' 1"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 30 August 1989
Voucher: Verification: verified

Element: BARTRAMIA LONGICAUDA (UPLAND SANDPIPER) #53
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: TWIN CITIES INTERNATIONAL AIRPORT
Ownership: Owner unknown
Managed Area(s): not managed or no record
Source: SVOBODA, F. (DNR GREEN SLIP)
POSITIVE NESTING. 6+ INDIVIDUALS OBSERVED IN SECTIONS 25 OR 36 BY SVOBODA: 1 PAIR WITH YOUNG OBSERVED AT TWIN CITIES INTERNATIONAL AIRPORT; 1 PAIR (NO YOUNG) OBSERVED ON WEST SIDE OF AIRPORT; 1 LONE INDIVIDUAL OBSERVED NEAR CEDAR AVE ON WEST EDGE OF OPEN SPACE.

Location: HENNEPIN COUNTY, MN
Legal : T028N R24W 2536
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 52' 35" Long: 93 14' 14"
Precision: within one mile

DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: July 1978

Voucher: Verification: verified

Element: CYCLEPTUS ELONGATUS (BLUE SUCKER) #49
State Status: SPECIAL CONCERN Federal Status: CANDIDATE, CATEGORY 2
EO Size: EO Rank: Current Status: Intended Status:
Site: ST. PAUL 17
Ownership: Owner unknown
Managed Area(s): not managed or no record
Source: MDNR ECO SERVICES
2 SPECIMENS SAMPLED WITH BOOM SHOCKER AT THE UPSTREAM END OF CHANNEL WHICH RUNS BETWEEN ISLAND AND LOCK WALL ON FORD DAM.

Location: RAMSEY COUNTY, MN
Legal : T028N R23W SENW17
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 54' 54" Long: 93 11' 57"
Precision: within 0.25 mile, confirmed

DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 19 June 1995

Voucher: Verification: photo rec.

Element: ELAPHE VULPINA (FOX SNAKE) #4
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: FORT SNELLING STATE PARK
Ownership: MN DNR Parks and Recreation
Managed Area(s): MISSISSIPPI NATL RIVER & RECREATION AREA FORT SNELLING STATE PARK
Source: CLARKE, O.
5 SPECIMENS COLLECTED AT FORT SNELLING. THE FIRST COLLECTED ON JULY 14, 1927 (JFBM-379); THE SECOND COLLECTED BY MRS. RAUSCH IN 1933 (JFBM-365); THE THIRD COLLECTED BY O. CLARKE ON AUG. 30, 1955 (JFBM-1478). THE FOURTH AND FIFTH COLLECTED AND KEPT AT THE SMITHSONIAN (USNM 1727, 1728). SPECIMENS MAY NOT HAVE BEEN COLLECTED IN FORT SNELLING STATE PARK, BUT IN THE VICINITY OF THE FORT.

Location: HENNEPIN COUNTY, MN
Legal : T028N R23W 0E200W21
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 34" Long: 93 10' 55"
Precision: within 0.50 mile

DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: 30 August 1955

Voucher: JFBM-1478 Verification: verified

Element: ELAPHE VULPINA (FOX SNAKE) #8
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: HIDDEN FALLS-CROSBY REGIONAL PARK CBS Site #: 42
Ownership: Regional Park
Managed Area(s): HIDDEN FALLS-CROSBY REGIONAL PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: SWANSON, G.
SPECIMEN COLLECTED AT CROSBY FARM.

Location: RAMSEY COUNTY, MN
Legal : T028N R23W 14212223
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 54' 3" Long: 93 9' 20"
Precision: within one mile

DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 29 August 1937

Voucher: JFBM-545 Verification: verified

Element: ELAPHE VULPINA (FOX SNAKE) #27
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: MENDOTA
Ownership: Owner unknown
Managed Area(s): MISSISSIPPI NATL RIVER & RECREATION AREA
Source: HENDRICK, R. AND HOLMES
2 SPECIMENS, ONE MALE, ONE FEMALE, COLLECTED AT MENDOTA.

Location: DAKOTA COUNTY, MN
Legal : T028N R23W 27
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 10" Long: 93 9' 51"
Precision: within 0.50 mile
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 09 May 1953

Voucher: JFBM-1672,73 Verification: verified

Element: ELAPHE VULPINA (FOX SNAKE) #93
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: ST. PAUL 22
Ownership: Owner unknown
Managed Area(s): MISSISSIPPI NATL RIVER & RECREATION AREA
Source: RUSTERHOLZ, K.A. (DNR)
FOX SNAKE CROSSED HIGHWAY 13 @ JCT WITH LEXINGTON AVE (1445 CDT) IN DIRECTION OF MISS RIVER.

Location: DAKOTA COUNTY, MN
Legal : T028N R23W NESE22
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 45" Long: 93 8' 48"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 06 September 1993

Voucher: Verification: sight rec.

Element: ELAPHE VULPINA (FOX SNAKE) #94
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: FORT SNELLING STATE PARK
Ownership: MN DNR Parks and Recreation
Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: DORFF, C. (CO BIOL SURVEY 1993)
ONE FOX SNAKE FOUND DEAD ON THE WEST SHOULDER OF HWY 13, APPROX 1/2 MILE S OF THE MENDOTA BRIDGE. SAPLINGS AND SHRUBS TO THE WEST ALONG STEEP RIDGE, WITH MIXED DECIDUOUS FOREST TO THE EAST.

Location: DAKOTA COUNTY, MN
Legal : T028N R23W SWSE28
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 52' 37" Long: 93 10' 25"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 07 July 1993

Voucher: Verification: sight rec.

Element: ELAPHE VULPINA (FOX SNAKE) #95
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: FORT SNELLING STATE PARK
Ownership: MN DNR Parks and Recreation
Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: DORFF, C. (CO BIOL SURVEY 1993)
SIX FOX SNAKES FOUND IN ROCK CREVICES IN OLD ROCK TUNNEL NEAR THE SIBLEY HOUSE. TUNNEL STRUCTURE IS MOST LIKELY AN OLD RAILROAD TRESTLE, ALTHOUGH NO TRACKS CURRENTLY LIE ON IT & AN ACTIVE RR TRACK LIES DIRECTLY SE. THIS HIBERNACULUM WAS ALSO INHABITED BY EASTERN & RED-SIDED GARTER SNAKES & RED-BELLIED SNAKES. THE FOX SNAKES WERE CONCENTRATED ALONG A LARGE CREVICE NEAR THE NW OPENING. FLOOD-PLAIN FOREST LIES TO THE N.

Location: DAKOTA COUNTY, MN
Legal : T028N R23W NENE28
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 16" Long: 93 10' 3"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 06 October 1993

Voucher: Verification: photo rec.

Element: ELAPHE VULPINA (FOX SNAKE) #108
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: FORT SNELLING STATE PARK
Ownership: MN DNR Parks and Recreation
Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: MAIER, K. AND JENDRO, J. (CO BIOL SURVEY 1993)
ONE FOX SNAKE WAS FOUND UNDER A LARGE ROCK SLAB IN SMALL GRASSLAND SURROUNDED BY HARDWOODS. SOME SHRUBS AND FORBS WERE PRESENT ON THE PRAIRIE. THE SNAKE MEASURED 52CM IN LENGTH. THE LARGE LUMP IN ITS FOREBODY REGION WAS EVIDENCE THAT IT HAD RECENTLY FED. A GARTER SNAKE WAS ALSO COILED UNDER THE ROCK.

Location: HENNEPIN COUNTY, MN
Legal : T028N R23W SWNE20
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 56" Long: 93 11' 36"
Precision: within 0.25 mile, confirmed

DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: 15 June 1993

Voucher: Verification: photo rec.

Element: ELLIPTIO CRASSIDENS (ELEPHANT-EAR MUSSEL) #2
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: DNR RIVER MILE 7.0 SITE 57
Ownership: Owner unknown
Managed Area(s): MINNESOTA VALLEY NWR
Source: BRIGHT, R. (1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (BLACK DOG LAKE OUTLET JUST UPSTREAM OF MN HWY 77 BRIDGE.)

Location: DAKOTA COUNTY, MN
Legal : T027N R24W SE13
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 32" Long: 93 14' 3"
Precision: within 0.25 mile, confirmed

DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 31 August 1989

Voucher: Verification: verified

Element: EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #7
State Status: THREATENED Federal Status: CANDIDATE, CATEGORY 2
EO Size: EO Rank: Current Status: Intended Status:
Site: SNELLING LAKE UNIT
Ownership: MN DNR Parks and Recreation
Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: CLEVELAND, M. (1989 VOLUNTEER TURTLE SURVEY)
BLANDING'S TURTLE. 1989: ONE TURTLE 13 1/2 INCHES BY 15 1/4 INCHES OBSERVED AND PHOTO TAKEN. 1937: FOUR EGGS TAKEN FROM A CLUTCH OF 17 LAID DURING THE SUMMER IN THE MINNESOTA RIVER BOTTOMS AT FORT SNELLING BY J.C. BROWN.

Location: HENNEPIN COUNTY, MN
Legal : T028N R23W SESW28
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 52' 44" Long: 93 10' 55"
Precision: within 0.25 mile, confirmed

DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: 21 June 1989

Voucher: Verification: photo rec.

Element: EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #423
State Status: THREATENED Federal Status: CANDIDATE, CATEGORY 2
EO Size: EO Rank: Current Status: Intended Status:
Site: FORT SNELLING 18
Ownership: City Park
Managed Area(s): MINNEHAHA REGIONAL PARK
Source: ANNETTE (DNR GREEN SLIP)
1 TURTLE OBSERVED IN FRONT OF HOME AT 4920 39TH AVE. SO. HOME IS IMMEDIATELY ADJACENT TO MINNEHAHA CREEK ON WEST SIDE OF HIAWATHA AVE. CARAPACE WAS 10.5 IN. LONG BY 6-7 .5 IN. WIDE. PHOTOGRAPHS WERE TAKEN.

Location: HENNEPIN COUNTY, MN
Legal : T028N R23W SWNE18
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 54' 51" Long: 93 12' 58"
Precision: within 0.25 mile, confirmed

DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: 20 September 1989

Voucher: Verification: sight rec.

Element: EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #481
State Status: THREATENED Federal Status: CANDIDATE, CATEGORY 2
EO Size: EO Rank: Current Status: Intended Status:
Site: LAKE HIAWATHA PARK
Ownership: City Park
Managed Area(s): LAKE HIAWATHA PARK
Source: LARSEN, D.
OBSERVED ONE TURTLE DIGGING IN WOOD CHIPS ALONG HIAWATHA PARK WALKING TRAIL. LARGE SHAPE WITH SPECKLES ON SHELL, DID NOT NOTICE COLOR OF THROAT. YELLOW ON BOTTOM SHELL. SEEN IN THE EVENING.

Location: HENNEPIN COUNTY, MN
Legal : T028N R24W NENW13
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 55' 3" Long: 93 14' 4"
Precision: within 0.25 mile, confirmed

DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: 01 July 1989

Voucher: Verification: sight rec.

Element: EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #699
State Status: THREATENED Federal Status: CANDIDATE, CATEGORY 2
EO Size: EO Rank: Current Status: Intended Status:
Site: HIDDEN FALLS-CROSBY REGIONAL PARK
Ownership: Regional Park
Managed Area(s): HIDDEN FALLS-CROSBY REGIONAL PARK
Source: KLINE, M. (1993 BLANDING'S TURTLE SURVEY)
4 TURTLES, 7" IN LENGTH, OBSERVED SUNNING THEMSELVES IN LAGOON/ISOLATED POND IN CROSBY PARK.

Location: RAMSEY COUNTY, MN
Legal : T028N R23W SWNE22
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 54' 1" Long: 93 9' 13"
Precision: within 0.25 mile, confirmed

DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: May 1993

Voucher: Verification: photo rec.

Element: FALCO PEREGRINUS (PEREGRINE FALCON) #46
State Status: ENDANGERED Federal Status: ENDANGERED
EO Size: EO Rank: Current Status: Intended Status:
Site: EAST BLOOMINGTON 6
Ownership: Private
Managed Area(s): not managed or no record
Source: TORDOFF, H.
NESTING AREA. CONTROL DATA BUILDING.

Location: HENNEPIN COUNTY, MN
Legal : T027N R23W SWNW06
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 51' 22" Long: 93 13' 31"
Precision: within 0.25 mile, confirmed

DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: 1991

Voucher: Verification: verified

Element: FUSCONAIA EBENA (EBONY SHELL MUSSEL) #8
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: DNR RIVER MILE 7.0 SITE 57
Ownership: Owner unknown
Managed Area(s): MINNESOTA VALLEY NWR
Source: BRIGHT, R. (1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (BLACK DOG LAKE OUTLET JUST UPSTREAM OF MN HWY 77 BRIDGE.)

Location: DAKOTA COUNTY, MN
Legal : T027N R24W SE13
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 32" Long: 93 14' 3"
Precision: within 0.25 mile, confirmed

DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 31 August 1989

Voucher: Verification: verified

Element: FUSCONAIA EBENA (EBONYSHELL MUSSEL) #9
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: PIKE ISLAND MILE MARKER 3.0 SITE 59
Ownership: Owner unknown
Managed Area(s): MISSISSIPPI NATL RIVER & RECREATION AREA FORT SNELLING STATE PARK
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (PIKE ISLAND MILE MARKER 0.3. SITE 0.3-100M UPSTREAM OF MARKER.)
Location: RAMSEY COUNTY, MN
Legal : T028N R23W SE22
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 48" Long: 93 9' 1"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 30 August 1989
Voucher: Verification: verified

Element: HALIAEETUS LEUCOCEPHALUS (BALD EAGLE) #311
State Status: THREATENED
EO Size: EO Rank: Current Status: Intended Status:
Site: MEADOW LAKE MARSHES
Ownership: Private
Managed Area(s): not managed or no record
Source: MITCHELL,M. USFWS
NESTING AREA. MANAGEMENT PLAN COMPLETED.
Location: HENNEPIN COUNTY, MN
Legal : T027N R23W NESW07
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 50' 21" Long: 93 13' 12"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: 1986
Voucher: HE -001 Verification: verified

Element: HALIAEETUS LEUCOCEPHALUS (BALD EAGLE) #1439
State Status: THREATENED
EO Size: EO Rank: Current Status: Intended Status:
Site: EAST BLOOMINGTON 7
Ownership: Private
Managed Area(s): MINNESOTA VALLEY NWR
Source: GALLI,J. (DNR)
NESTING AREA. LONG MEADOW LAKE.
Location: HENNEPIN COUNTY, MN
Legal : T027N R23W NENE07
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 50' 45" Long: 93 12' 32"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: 1995
Voucher: HE -001 Verification: verified

Element: LAMPROPELTIS TRIANGULUM (MILK SNAKE) #22
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: FORT SNELLING STATE PARK
Ownership: MN DNR Parks and Recreation
Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: CUMMINGS,W.
1 SPECIMEN COLLECTED IN FORT SNELLING STATE PARK. 4 SPECIMENS COLLECTED IN FORT SNELLING STATE PARK (JFBM-195, 798, 859, 926) IN 1938 AND 1939.
Location: HENNEPIN COUNTY, MN
Legal : T028N R23W 282932
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 52' 56" Long: 93 10' 56"
Precision: within one mile
DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: 31 June 1951
Voucher: JFBM-1485 Verification: verified

Element: LAMPSILIS TERES (YELLOW SANDSHELL MUSSEL) #11
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: DNR RIVER MILE 7.0 SITE 57
Ownership: Owner unknown
Managed Area(s): MINNESOTA VALLEY NWR
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (BLACK DOG LAKE OUTLET JUST UPSTREAM OF MN HWY 77 BRIDGE.)
Location: DAKOTA COUNTY, MN
Legal : T027N R24W SE13
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 32" Long: 93 14' 3"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 31 August 1989
Voucher: Verification: verified

Element: LAMPSILIS TERES (YELLOW SANDSHELL MUSSEL) #12
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: MILE MARKER 4.5 SITE 58
Ownership: Owner unknown
Managed Area(s): FORT SNELLING STATE PARK
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (MILE MARKER 4.5. SITE IS 10-120M UPSTREAM OF MILE MARKER.)
Location: DAKOTA COUNTY, MN
Legal : T027N R23W NW08SW05
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 50' 53" Long: 93 12' 20"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 29 August 1989
Voucher: Verification: verified

Element: LAMPSILIS TERES (YELLOW SANDSHELL MUSSEL) #13
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: PIKE ISLAND MILE MARKER 0.3 SITE 59
Ownership: Owner unknown
Managed Area(s): MISSISSIPPI NATL RIVER & RECREATION AREA FORT SNELLING STATE PARK
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (PIKE ISLAND MILE MARKER 0.3; SITE 0.3-100M UPSTREAM OF MARKER.)
Location: RAMSEY COUNTY, MN
Legal : T028N R23W SE22
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 48" Long: 93 9' 1"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 30 August 1989
Voucher: Verification: verified

Element: LIGUMIA RECTA (BLACK SANDSHELL MUSSEL) #94
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: DNR RIVER MILE 7.0 SITE 57
Ownership: Owner unknown
Managed Area(s): MINNESOTA VALLEY NWR
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (BLACK DOG LAKE OUTLET JUST UPSTREAM OF MN HWY 77 BRIDGE.)
Location: DAKOTA COUNTY, MN
Legal : T027N R24W SE13
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 32" Long: 93 14' 3"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 31 August 1989
Voucher: Verification: verified

Element: MICROTUS OCHROGASTER (PRAIRIE VOLE) #14
State Status: SPECIAL CONCERN
EO Size: EO Rank: Current Status: Intended Status:
Site: MINNEHAHA FALLS
Ownership: City Park
Managed Area(s): MINNEHAHA REGIONAL PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: UNKNOWN
PRAIRIE VOLE. MALE, MINNEHAHA FALLS, MPLS.

Location: HENNEPIN COUNTY, MN
Legal : T028N R23W 18
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 54' 54" Long: 93 12' 22"
Precision: within one mile
DNR Region: 6
Wildlife Area: 610
Forestry District: 613
Last Obs.: April 1917
Voucher: 328 JFBM Verification: verified

Element: POLYODON SPATHULA (PADDLEFISH) #7
State Status: SPECIAL CONCERN Federal Status: CANDIDATE, CATEGORY 2
EO Size: EO Rank: Current Status: Intended Status:
Site: MISSISSIPPI GORGE REGIONAL PARK
Ownership: Owner unknown
Managed Area(s): MISSISSIPPI GORGE REGIONAL PARK
Source: MDNR ECO SERVICES
3 SPECIMENS OBSERVED IN THE MISSISSIPPI RIVER BELOW THE FORD DAM WHILE TESTING BOOM SHOCKING EQUIPMENT.

Location: RAMSEY COUNTY, MN
Legal : T028N R23W SENW17
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 54' 54" Long: 93 11' 57"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: June 1990
Voucher: Verification: sight rec.

Element: QUADRULA METANEVRA (MONKEYFACE MUSSEL) #26
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: PIKE ISLAND MILE MARKER 3.0 SITE 59
Ownership: Owner unknown
Managed Area(s): MISSISSIPPI NATL RIVER & RECREATION AREA FORT SNELLING STATE PARK
Source: BRIGHT, R. (1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (PIKE ISLAND MILE MARKER 0.3. SITE 0.3-100M UPSTREAM OF MARKER.)

Location: RAMSEY COUNTY, MN
Legal : T028N R23W SE22
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 48" Long: 93 9' 1"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 30 August 1989
Voucher: Verification: verified

Element: QUADRULA NODULATA (WARTYBACK MUSSEL) #12
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: DNR RIVER MILE 7.0 SITE 57
Ownership: Owner unknown
Managed Area(s): MINNESOTA VALLEY NWR
Source: BRIGHT, R. (1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (BLACK DOG LAKE OUTLET JUST UPSTREAM OF MN HWY 77 BRIDGE.)

Location: DAKOTA COUNTY, MN
Legal : T027N R24W SE13
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 32" Long: 93 14' 3"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 31 August 1989
Voucher: Verification: verified

Element: QUADRULA NODULATA (WARTYBACK MUSSEL) #13
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: PIKE ISLAND MILE MARKER 3.0 SITE 59
Ownership: Owner unknown
Managed Area(s): MISSISSIPPI NATL RIVER & RECREATION AREA FORT SNELLING STATE PARK
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (PIKE ISLAND MILE MARKER 0.3; SITE 0.3-100M UPSTREAM OF MARKER.)
Location: RAMSEY COUNTY, MN
Legal : T028N R23W SE22
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 48" Long: 93 9' 1"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 30 August 1989
Voucher: Verification: verified

Element: SCAPHIRHYNCHUS PLATORYNCHUS (SHOVELNOSE STURGEON) #4
State Status: SPECIAL CONCERN Federal Status: CANDIDATE, CATEGORY 1
EO Size: EO Rank: Current Status: Intended Status:
Site: FORT SNELLING STATE PARK
Ownership: Owner unknown
Managed Area(s): FORT SNELLING STATE PARK
Source: MDNR ECO SERVICES
1 SPECIMEN SAMPLED DURING STREAM SURVEY OF MINNESOTA RIVER AT RIVER MILE 0.2 THROUGH 0.6 (RUN 14D). RIVER MILES DETERMINED BY MAP WHEEL.
Location: RAMSEY COUNTY, MN
Legal : T028N R23W SESW22
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 35" Long: 93 9' 14"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 04 September 1980
Voucher: Verification: sight rec.

Element: TRITOGONIA VERRUCOSA (PISTOLGRIP MUSSEL) #29
State Status: No Legal Status
EO Size: EO Rank: Current Status: Intended Status:
Site: DNR RIVER MILE 7.0 SITE 57
Ownership: Owner unknown
Managed Area(s): MINNESOTA VALLEY NWR
Source: BRIGHT,R.(1989 MUSSEL SURVEY OF MINNESOTA RIVER)
DEAD SPECIMENS ONLY FOUND AT SITE (BLACK DOG LAKE OUTLET JUST UPSTREAM OF MN HWY 77 BRIDGE.)
Location: DAKOTA COUNTY, MN
Legal : T027N R24W SE13
Quad Map: ST. PAUL SW (S17C)
Latitude: 44 49' 32" Long: 93 14' 3"
Precision: within 0.25 mile, confirmed
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 31 August 1989
Voucher: Verification: verified

Element: VIREO BELLII (BELL'S VIREO) #3
State Status: No Legal Status
EO Size: EO Rank: Current Status: 1 Intended Status:
Site: FORT SNELLING STATE PARK
Ownership: MN DNR Parks and Recreation
Managed Area(s): FORT SNELLING STATE PARK MISSISSIPPI NATL RIVER & RECREATION AREA
Source: GREEN,J. (MOU FILES)
BELL'S VIREO. PN. IN. MALE WITH 1 YG OUT OF NEST. SEVERAL OTHER OBS. PREV RECORD FROM FT SNELLING IN 1922. 1980 RECORD ON PIKE ISLAND.
Location: RAMSEY COUNTY, MN
Legal : T028N R23W 21
Quad Map: ST. PAUL WEST (S17B)
Latitude: 44 53' 30" Long: 93 10' 2"
Precision: within one mile
DNR Region: 6
Wildlife Area: 610
Forestry District: 612
Last Obs.: 11 July 1980
Voucher: Verification: verified

Appendix 2. Locations and habitats of MCBS animal survey work conducted in Fort Snelling State Park, 1993 - 1995. Refer to Figure 6 for a map of these locations.

Location	Habitat
Herp Surveys	
Drift fence (1 total):	
T27N R23W SENW 18	Old field and adjacent floodplain forest
Turtle traps (5 total):	
T27N R23W NWNE 32	Emergent marsh
T28N R23W NESE 29	Emergent marsh
T28N R23W SESE 29 (3 traps)	Emergent marsh
Anuran call survey stops (14 total):	
T27N R23W NESW 4	Emergent marsh
T27N R23W SENE 8	Flooded gravel pit
T27N R23W NWSW 18	Floodplain forest
T27N R23W SESW 18	Fen
T27N R24W SENE 13	Floodplain forest
T28N R23W NESE 20	Mississippi River backwater
T28N R23W SWNE 28	Shrubby emergent marsh
T28N R23W NESW 28	Mississippi River shore
T28N R23W NWNW 28	Floodplain forest
T28N R23W SWNW 28	Snelling Lake shore
T28N R23W NENE 28	Floodplain forest
T28N R23W NESE 28	Floodplain forest
T28N R23W NENE 32	Emergent marsh
T28N R23W NENE 32	Emergent marsh
Terrestrial searches (9 total):	
T27N R23W NE 5	Emergent marsh
T27N R23W NWSW 18	Old field, forest edge
T28N R23W SWNE 20	Old field
T28N R23W NWNW 27	Old field, forest edge
T28N R23W NENE 28	Old field, forest edge
T28N R23W NESE 28	Old field, forest edge
T28N R23W SENW 32	Old field, forest edge
T28N R23W NWSE 33	Old field
T28N R23W SW 33	Emergent marsh

Appendix 2. continued.

Location	Habitat
Bird Surveys	
Point counts (20 total):	
T27N R23W SWNW 4	Shrubby emergent marsh
T27N R23W SWNW 4	Shrubby emergent marsh
T27N R23W NWSW 4	Shrubby emergent marsh
T27N R23W SWSW 4	Shrubby emergent marsh
T27N R23W NESE 7	Floodplain forest
T27N R23W NESE 7	Floodplain forest
T27N R23W SWSE 7	Floodplain forest
T27N R23W SWNE 8	Shrubby emergent marsh
T27N R23W NWNE 18	Shrubby emergent marsh
T27N R23W SWNE 18	Shrubby emergent marsh
T27N R23W NESW 18	Shrubby emergent marsh
T27N R23W NESE 18	Shrubby emergent marsh
T28N R23W SWNE 20	Floodplain forest
T28N R23W SWNE 20	Floodplain forest
T28N R23W SESE 21	Floodplain forest
T28N R23W SWSW 22	Floodplain forest
T28N R23W SESW 22	Floodplain forest
T28N R23W NWSE 22	Floodplain forest
T28N R23W NESE 32	Emergent marsh
T28N R23W NENW 33	Emergent marsh
Mammal Surveys	
Bat survey stops:	
T28N R23W SWSE 21	Old field, river shore, sewage pond
T28N R23W NENW 28	Mississippi River channel, floodplain forest