Ramsey County Correctional Facility - Natural Resources Report

Prepared for:
Ramsey County Property Management
Attn: Mr. James Homolka
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September 24, 2021

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MIDWEST NATURAL RESOURCES

Mr. James Homolka
Ramsey County Property Management
121 7th Place East, Suite 220
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September 24, 2021

Mr. Homolka,

Midwest Natural Resources, Inc. (MNR) is pleased to provide the following survey report pertaining to the recent assessment of natural resources at the Ramsey County Correctional Facility property (**Map 1**).

Project Overview and Background Data

MNR was contracted this past spring by Ramsey County Property Management to conduct field surveys for avian, bumble bee, and vascular plant species on two separate county-owned parcels. Both parcels are associated with the Ramsey County Correctional Facility, located west of Century Avenue in Maplewood, Minnesota. Additionally, information pertaining to soils and invasives species were suggested as part of this study by a third party, and this request was directed through the Ramsey County Property Management Office. These items were not directly assessed in the field, but they are briefly addressed in this report.

A review of available historic aerial imagery was conducted prior to survey efforts. The north parcel, which is approximately 78 acres, is currently without any existing infrastructure with the exception of a gravel road. According to the 1940 aerial photo (**Figure 1**), most of the site was historically under agricultural production (hay or crop) and included a farmstead. Most of the site is now open fallow field with several wetland features and a woodland component.

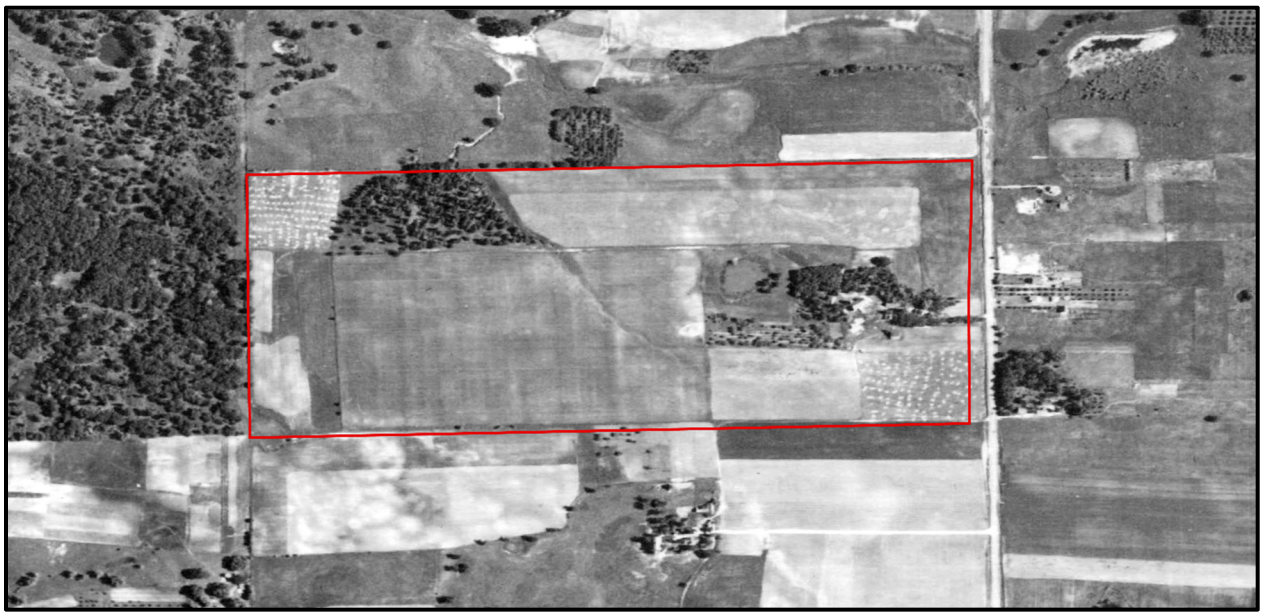


Figure 1. Aerial Photo (06-25-1940) of the north parcel

The second parcel, located immediately south of Lower Afton Road, is formerly The Ponds at Battle Creek Golf Course, a county-owned nine-hole course that permanently closed in September 2021. Aerial imagery from 1940 (**Figure 2**) indicates that the northern and southeast portions of the site were previously under hay or row-crop production, with potential grazing in the central portion. This central portion additionally includes several historic open-water features and an open peatland (floating mat). The site has since been developed and now includes a driving range and clubhouse, along with the landscaped fairways, rough, and greens.

Figure 2. Aerial Photo (06-25-1940) of the south parcel

Other available resources evaluated include the Minnesota Biological Survey sites of biodiversity significance data layer and the Minnesota Department of Natural Resources (DNR) Native Plant Community (NPC) data layer (**Map 2**). Although no sites of biodiversity significance nor NPCs are mapped within either of the parcel boundaries, a site of moderate biodiversity significance, Battle Creek Park SE, is mapped along the western boundary of the north parcel. According to the DNR, sites with this designation typically contain occurrences of rare species, moderately disturbed NPCs, and/or landscapes with a strong potential for recovery of NPCs and characteristic ecological processes. This site also coincides with a mapped NPC which is classified as Red Oak – White Oak Forest (MHs37a), a community which has a state conservation status rank (S-rank) of S3, indicating that it is vulnerable to extirpation.

Digital soils data was also reviewed at the request of a third-party entity through your department. Soils mapped within the survey area are primarily loams ranging from very poorly drained to well drained (**Table 1**); however, hydric soils represent only a small portion of the project area (**Map 3**). The mapped soils are illustrated in **Map 3a** (north parcel) and **Map 3b** (south parcel).

Table 1. Mapped soils within the project area.

Map Unit Symbol	Map Unit Name	Drainage Class and Hydric Status	Soil Series Description
166	Ronneby fine sandy loam	Somewhat poorly drained (Non-Hydric)	This series consists of very deep, somewhat poorly drained soils that formed in loamy glacial till on drumlins and moraines.
189	Auburndale silt loam, 0 to 2 % slopes	Poorly drained (Hydric)	This series consists of very deep, poorly drained soils formed in loess or silty alluvium, or both, and in the underlying loamy till.

Map Unit Symbol	Map Unit Name	Drainage Class and Hydric Status	Soil Series Description
264	Freeon silt loam, 2 to 6 % slopes	Moderately well drained (Non-Hydric)	This series consists of very deep, moderately well drained soils which are deep to a densic contact.
266	Freer silt loam	Somewhat poorly drained (Non-Hydric)	This series consists of poorly drained soils that formed in a silty mantle of loess or lacustrine deposits and dense loamy glacial till on drumlins or moraines.
452	Comstock silt loam, 0 to 3 % slopes	Somewhat poorly drained (Non-Hydric)	This series consists of very deep, somewhat poorly drained soils formed in mostly silty lacustrine deposits on glacial lake plains and stream terraces.
507	Poskin silt loam	Somewhat poorly drained (Non-Hydric)	This series consists of very deep, somewhat poorly drained soils which are moderately deep to sandy outwash.
540	Seelyeville muck	Very poorly drained (Hydric)	This series consists of very deep, very poorly drained soils that formed in organic materials more than 51 inches thick. These soils are on glacial outwash plains, valley trains, flood plains, glacial lake plains and glacial moraines.
153B	Santiago silt loam, 2 to 6 % slopes	Well drained (Non-Hydric)	This series consists of well drained soils which are deep to a densic contact. They formed in loess or silty lacustrine deposits and in the underlying dense sandy loam till on ground moraines, disintegration moraines, and end moraines.
153C	Santiago silt loam, 6 to 15 % slopes	Well drained (Non-Hydric)	(See Santiago series, above)
342B	Kingsley sandy loam, 2 to 6 % slopes	Well drained (Non-Hydric)	This series consists of very deep, well drained soils that formed in loamy glacial till on glacial moraines.
342C	Kingsley sandy loam, 6 to 12 % slopes	Well drained (Non-Hydric)	(See Kingsley series, above)
342D	Kingsley sandy loam, 12 to 18 % slopes	Well drained (Non-Hydric)	(See Kingsley series, above)
342E	Kingsley sandy loam, 18 to 30 % slopes	Well drained (Non-Hydric)	(See Kingsley series, above)
49C	Antigo silt loam, 6 to 15 % slopes	Well drained (Non-Hydric)	This series consists of very deep, well drained soils formed in loess or silty alluvium and in loamy alluvium and in the underlying stratified sandy outwash. These soils are on outwash plains, stream terraces, eskers, kames, glacial lake plains, and moraines.
504B	Duluth silt loam, 1 to 6 % slopes	Moderately well drained (Non-Hydric)	This series consists of very deep, well drained soils that formed in a friable mantle of loamy eolian or glaciofluvial deposits and in the underlying firm loamy till on moraines and till plains.
504C	Duluth silt loam, 6 to 12 % slopes	Well drained (Non-Hydric)	(See Duluth series, above)
504D	Duluth silt loam, 12 to 25 % slopes	Well drained (Non-Hydric)	(See Duluth series, above)
W	Water	N/A	Open Water

Survey Methods

Avian Surveys

Bird surveys were implemented at both parcels on two separate dates (May 18 and 25, 2021). These surveys were conducted by Otto Gockman, a DNR approved avian surveyor. Surveys were conducted early in the day and under minimal wind conditions. Surveys of the north parcel were conducted entirely on foot, whereas

surveys of the south parcel were aided by use of a golf cart to quickly move between observation locations. Surveys occurred throughout the entire golf course, focusing on the various wetland features, forested/shrub-dominated habitat, and native gardens/plantings. Each observation location was evaluated for approximately 20 minutes before proceeding to the next given observation area. All avian species observed either visually or aurally were noted for each survey parcel.

Bumble Bee Surveys

Bumble bee surveys specifically targeted the federally-endangered rusty patched bumble bee (*Bombus affinis*). These efforts were conducted on August 13 and September 7, 2021 by Otto Gockman and Senior Ecologist Annie Weeks, both of whom have experience identifying the rusty patched bumble bee in the field.

Rusty patched bumble bee colonies rely on having consistent access to a diversity of flowering plants which can supply pollen and nectar throughout the species' active season, from early spring through the fall. Gardens and other planted spaces, such as parks and roadsides, as well as plant communities with a diversity of flowering species, provide optimal habitat for this species. Therefore, surveys focused on those areas with flowering forb species, both native and non-native. Individual bumble bees were captured using plastic cups and either placed directly in a cooler or evaluated immediately to determine the species of bumble bee. A list of all observed bumble bee species was recorded for each survey parcel.

Plant Surveys

Field efforts occurred over three separate site visits (May 18, June 18, and August 13, 2021) and were led by DNR approved rare plant surveyors (Otto Gockman, Botanist Jake Walden, and the undersigned). The repeated visits were intended to capture the full growing season. Each visit entailed general meander surveys throughout both survey parcels, as well as the collection of general site photos. A list of observed species was compiled independently for each parcel. Nomenclature used during the documentation process and included in this document follows MN TAXA, Minnesota's Vascular Plant Checklist, which is maintained by the DNR.

Survey Results

Avian Survey Results

The two parcels offer markedly different habitats for avifauna. The southern unit includes a diverse assemblage of vegetative communities but, due to its consistent use by golfers and groundskeeping activities, it is less likely to be utilized as a nesting area by many species. In contrast, the northern parcel offers less vegetative diversity but, due to its inaccessibility to visitors and minimal vegetation maintenance, it provides ideal habitat for bird species. These assessments appear to be consistent with the number of species documented during the surveys; whereas only 39 bird species were detected in the southern parcel, 53 bird species were detected in the northern parcel. Avian species lists for each survey parcel are provided in **Appendix A**. Furthermore, eight different Species in Greatest Conservation Need (SGCN) including the state-endangered Henslow's Sparrow (*Ammodramus henslowii*), were identified within the northern parcel. SGCN are native animals whose populations are rare, declining, or vulnerable to decline and are below levels desirable to ensure their long-term health and stability, according to Minnesota's Wildlife Action Plan 2015-2025. An additional two SGCN were observed within the southern parcel (**Table 2**).

Table 2. Species in Greatest Conservation Need (SGCN) documented within the survey parcels

Survey Parcel	Scientific Name	Common Name	State Status[1]	SGCN Criteria
North (Grassland)	*Ammodramus henslowii*	Henslow's sparrow	END	• Rare • Vulnerable/Declining Habitat • Habitat Loss

Survey Parcel	Scientific Name	Common Name	State Status[1]	SGCN Criteria
North (Grassland)	*Ammodramus savannarum*	grasshopper sparrow	NL	• Statistically valid decline documented • Rare • Vulnerable/Declining Habitat • Habitat Loss • Dependent on Large Habitat
	Cistothorus platensis	sedge wren	NL	Minnesota population represents significant portion of North American breeding/wintering population.
	Dolichonyx oryzivorus	bobolink	NL	• Statistically valid decline documented • Rare • Vulnerable/Declining Habitat • Habitat Loss • Minnesota population represents significant portion of North American breeding/wintering population.
	Spiza americana	dickcissel	NL	Statistically valid decline documented
	Spizella pusilla	field sparrow	NL	• Statistically valid decline documented • Rare • Vulnerable/Declining Habitat
	Stelgidopteryx serripennis	northern rough-winged swallow	NL	Statistically valid decline documented
	Sturnella magna	eastern meadowlark	NL	• Rare • Vulnerable/Declining Habitat • Habitat Loss
South (Golf Course)	*Chaetura pelagica*	chimney swift	NL	Statistically valid decline documented
	Toxostoma rufum	brown thrasher	NL	Statistically valid decline documented

[1]END= Endangered, NL= Not Listed

The current maintenance regime of mowing and haying the grassland within the northern parcel has likely maintained suitable habitat for grassland bird species such as Henslow's Sparrow. According to the Rare Species Guide, an online reference for Minnesota's state-listed species created by the DNR, Henslow's Sparrow requires "uncultivated grasslands and old fields with standing, dead vegetation and a substantial litter layer." Additionally, "grasslands inhabited by Henslow's sparrows require management to maintain their attractiveness to the species. Because of their need for tall vegetation and a substantial litter layer, Henslow's sparrows do not occupy heavily grazed areas...Mowing is compatible with habitat use by Henslow's sparrows if vegetation is allowed to grow to an acceptable height and density by the next breeding season." The current haying regime appears to have created a refugium for this species and other SGCN, which were previously more widespread in prairies, hay fields, and other grasslands in the region prior to the expansion of residential development.

Taken individually, the SGCN birds present on the northern parcel are regionally uncommon, particularly outside of typical migratory windows. Collectively, they represent a biological assemblage more typical of western grasslands, which is unique for Ramsey County and the greater Twin Cities metropolitan area. Photos of the SGCN birds documented within the survey parcels are provided in **Appendix B**.

Bumble Bee Survey Results

Each of the survey parcels offers potential suitable habitat for the rusty patched bumble bee. The golf course's abundant plantings include a wide variety of flowering plants as nectar/pollen sources, along with semi-managed grassy spaces that could serve as appropriate sites for colonies to establish. The concern in this environment is the heavy use of chemicals to maintain various aspects of plantings, such as fertilizers,

herbicides, pesticides, etc., any of which could have an adverse effect on native pollinators. The grasslands, on the other hand, have an abundance of semi-managed grassland and old-field areas which include a variety of flowering plant species, though these are less diverse than those found on the golf course.

Table 3. Bumble bee species documented within the survey parcels

Scientific Name	Common Name	MN Status[1]	Fed Status[1]	North Parcel	South Parcel (Golf Course)
Bombus affinis	Rusty-patched bumble bee	NL	END		X
Bombus auricomus	Black and gold bumble bee	NL	NL	X	X
Bombus bimaculatus	Two-spotted bumble bee	NL	NL	X	X
Bombus fervidus	Yellow bumble bee	NL	NL	X	
Bombus impatiens	Common eastern bumble bee	NL	NL	X	X
Bombus pensylvanicus	American bumble bee	NL	NL	X	
Bombus rufocinctus	Red-belted bumble bee	NL	NL	X	X
Bombus vagans	Half-black bumble bee	NL	NL	X	

[1]END= Endangered, NL= Not Listed

Field efforts did not locate any populations of rusty patched bumble bee, though seven other species of bumble bees were documented (**Table 3**). However, we are aware of an independent rusty patched bumble bee observation at the golf course property, which is noted in the table accordingly. This observation was made by Tina Frederickson, a gardener at the golf course, several years ago and again as recently as July 2021 (**Figure 3**). Both detections were submitted to and have been confirmed by the Bumble Bee Watch, a community science project which tracks bumble bees throughout North America.

Figure 3. Image of a rusty patched bumble bee (*Bombus affinis*) captured at the golf course. Photo courtesy of Tina Frederickson.

Plant Survey Results

Northern Parcel

As noted, the majority of the northern parcel is open fallow field with several wetland features and a woodland component. The main open field component in the southern two-thirds of the parcel is graminoid- dominated and mainly comprised on non-native species. Prominent species include smooth brome (*Bromus inermis*), alfalfa (*Medicago sativa*), wild timothy (*Phleum pratense*), Kentucky bluegrass (*Poa pratensis*), with orchard grass (*Dactylis glomerata*), quackgrass (*Elymus repens*), reed canary grass (*Phalaris arundinacea*), tansy (*Tanacetum vulgare*), common dandelion (*Taraxacum officinale*), and hairy vetch (*Vicia villosa*). This segment additionally includes several wetland features that are dominated by hybrid cattail (*Typha* x *glauca*) and reed canary grass. One interesting sedge observed in several of the wetlands is the smooth-cone sedge (*Carex laeviconica*). Although this species is not state-listed, it happens to be uncommon. Tree cover present in the wooded area consists of white oak (*Quercus alba*), northern pin oak (*Quercus ellipsoidalis*), bur oak (*Quercus macrocarpa*), and American elm (*Ulmus americana*), with smooth brome dominating the ground layer.

The open field in the northwest portion of the upper third of the parcel is dominated by smooth brome with Canada thistle (*Cirsium arvense*), bird's-foot trefoil (*Lotus corniculatus*), Kentucky bluegrass, late goldenrod (*Solidago altissima*), showy goldenrod (*Solidago speciosa*), and tansy. The woodland directly east is mainly white oak and includes black cherry (*Prunus serotina*) and basswood (*Tilia americana*) with patchy canopy cover. The sub-canopy and shrub layer include box elder (*Acer negundo*), common buckthorn (*Rhamnus cathartica*), and Missouri gooseberry (*Ribes missouriense*). Native forbs are infrequent, and the ground layer primarily consists of non-natives including garlic mustard (*Alliaria petiolata*), common burdock (*Arctium minus*), and dame's rocket (*Hesperis matronalis*). This woodland additionally lacks leaf litter with soils entirely exposed, serving as a strong indication of invasive earthworms, which are widespread throughout the Twin Cities metro area. The open field directly east of the woodland is graminoid-dominated, but the forb component is far more prevalent than the other open areas within the parcel. Dominant graminoids include smooth brome and Kentucky bluegrass with ox-eye daisy (*Leucanthemum vulgare*), late goldenrod, showy goldenrod, heath aster (*Symphyotrichum ericoides*), and skyblue aster (*Symphyotrichum oolentangiense*).

Southern Parcel

The southern parcel, as previously noted, includes an existing golf course and associated native plantings along with a few remnant natural areas. The native plantings include the formal flower beds near the clubhouse as well as sporadic plantings throughout the golf course. The sporadic plantings are primarily vegetated with native prairie species. Prominent prairie graminoids include big bluestem (*Andropogon gerardii*), side-oats grama (*Bouteloua curtipendula*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), prairie dropseed (*Sporobolus heterolepis*), and little bluestem (*Schizachyrium scoparium*). Flowering prairie forbs include prairie coreopsis (*Coreopsis palmata*), bottle gentian (*Gentiana andrewsii*), ox-eye (*Heliopsis helianthoides*), sawtooth sunflower (*Helianthus grosseserratus*), northern plains blazing star (*Liatris ligulistylis*), wild bergamot (*Monarda fistulosa*), horsemint (*Monarda punctata*), gray-headed coneflower (*Ratibida pinnata*), and cup plant (*Silphium perfoliatum*).

Also included in these planting are six species that are listed rare species in Minnesota: Sullivant's milkweed (*Asclepias sullivantii*), wild indigo (*Baptisia* sp. – either *B. bracteata* or *B. lactea*), rattlesnake master (*Eryngium yuccifolium*), Kentucky coffee tree (*Gymnocladus dioica*), creeping juniper (*Juniperus horizontalis*), and swamp white oak (*Quercus bicolor*). All of these species are listed as Special Concern with the exception of the Sullivant's milkweed, which has a state status of threatened. However, it is clear that these species were all planted and are not native to the site.

The remnant natural areas include a small mesic hardwood component along with a floating mat feature as well as natural shoreline around the various ponds. The mesic hardwood community is restricted to a linear band along the southwestern edge of the property and extending into the adjacent property. The portion within the golf course site has an interrupted canopy of white oak, red oak (*Quercus rubra*), and black cherry. The sub-canopy and shrub layer include ironwood (*Ostrya virginiana*) and common buckthorn, and the ground layer includes Pennsylvania sedge (*Carex pensylvanica*), northern bedstraw (*Galium boreale*), Canada mayflower (*Maianthemum canadense*), rue anemone (*Thalictrum thalictroides*), and pointed-leaf tick-trefoil (*Desmodium glutinosum*). Due to the limited area within the parcel boundary, this community could not be classified to native plant community class or type.

Figure 4. Floating mat with moat dominated by American white waterlily (*Nymphaea odorata*)

Using the DNR's native plant community classification system, the floating mat would classify as a Northern Rich Fen – Graminoid – Sphagnum Rich Fen (Basin) – OPn92b (**Figure 4**). The feature includes lake sedge (*Carex lacustris*), leatherleaf (*Chamaedaphne calyculata*), tufted loosestrife (*Lysimachia thyrsiflora*), swamp cinquefoil (*Potentilla palustris*), broad-leaf arrowhead (*Sagittaria latifolia*), northern marsh fern (*Thelypteris palustris*), and poison sumac (*Toxicodendron vernix*), along with the invasive purple loosestrife (*Lythrum salicaria*). The S-rank for this native plant community is S4, meaning that the community is apparently secure, being uncommon but not rare.

The fringes surrounding the pond features present in the southern half of this parcel appear natural in origin and would classify as the Inland Lake Clay/Mud Shore – Clay/Mud Shore (Inland Lake) community type. This community also has an S-rank of S4. Areas with exposed substrate are comprised of native annual species including smartweeds (*Persicaria* spp.), large St. John's wort (*Hypericum majus*), beggarticks (*Bidens* spp.), nut sedges (*Cyperus* spp.), and jewelweed (*Impatiens capensis*) along with native perennials such as least spikerush (*Eleocharis acicularis*) and rice cut grass (*Leersia oryzoides*).

Cumulative vascular plant species lists, separated by survey parcel, are provided in **Appendix C**. Representative photographs of the survey area are presented in **Appendix D** with corresponding photo locations illustrated in **Map 4a** (north parcel) and **Map 4b** (south parcel).

Brief bios of project field staff are provided in **Appendix E**.

Conclusion

Field surveys occurred at various times throughout this past field season, focusing on the documentation of avian, bumble bee, and vascular plant species within the two subject parcels. Our survey efforts resulted in the detection of a number of SGCN bird species, including the state-endangered Henslow's Sparrow (**Figure 5**), within the northern parcel, as well as two SGCN bird species documented within the southern parcel. The northern parcel appears to provide suitable grassland habitat which is uncommon in both the county and greater metropolitan area.

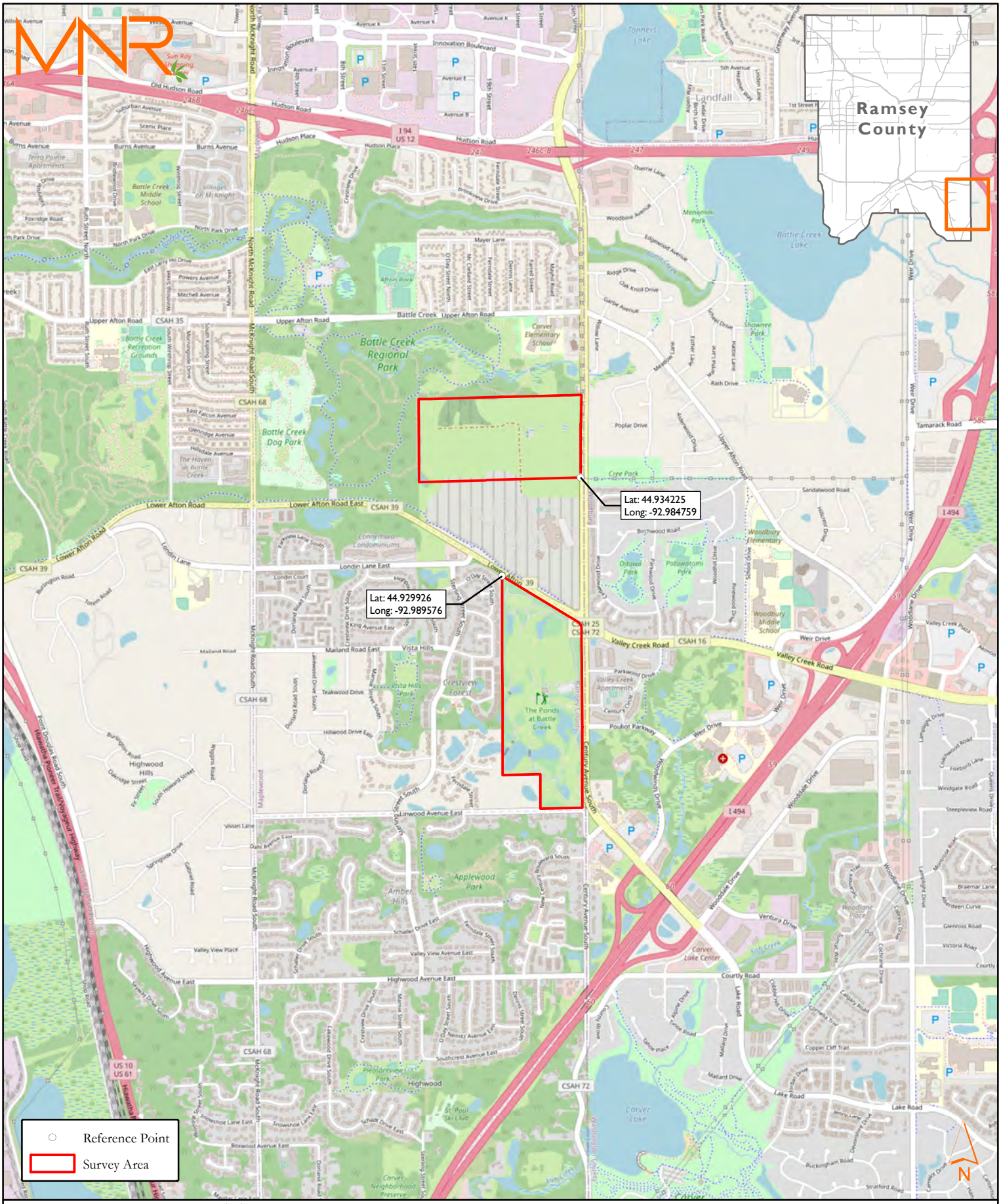
Figure 5. Henslow's sparrow (*Ammodramus henslowii*) singing while perched.

Regarding the bumble bee surveys, our survey efforts did not yield positive detection of the rusty patched bumble bee, although this species has recently been confirmed on the southern parcel by staff from the golf course. Given the presence of this species at this location, it is plausible that this species is present locally, including within the northern parcel, based on the presence of suitable habitat throughout. Finally, the surveys of vascular plants resulted in a robust list of species, including six species that have a state status in Minnesota. However, these specific species have been planted and should be considered ornamental rather than remnant rare plant populations.

We hope the above information is useful and informative, and we look forward to answering any further questions that you may have.

Sincerely,

Scott A. Milburn, MS
Principal Botanist/President
Midwest Natural Resources, Inc.



Source: OpenStreetMap, US Census Bureau, Date: 9/23/2021

0 0.25 0.5 Miles

Project Location
Natural Resource Surveys
Ramsey County Correctional Facility
Maplewood, Ramsey County, Minnesota

Map 1

Source: MnGeo, MN Department of Natural Resources, US Census Bureau, Date: 9/24/2021

0 500 1,000 Feet

Sites of Biodiversity Significance / Native Plant Communities
Natural Resource Surveys
Ramsey County Correctional Facility
Maplewood, Ramsey County, Minnesota

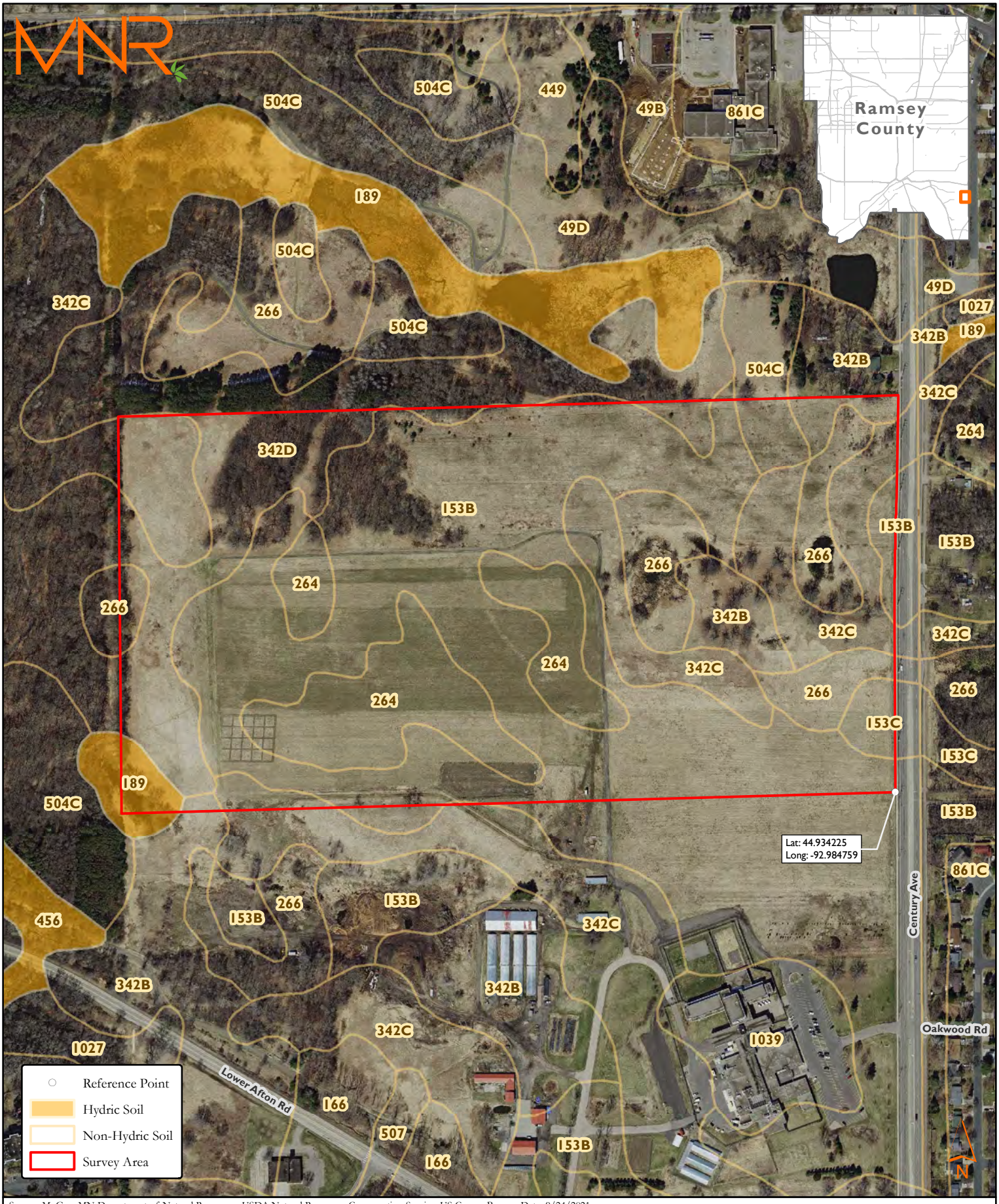
Map 2

Source: MnGeo, MN Department of Natural Resources, USDA Natural Resources Conservation Service, US Census Bureau, Date: 9/24/2021

0 500 1,000 Feet

Ramsey County Soil Survey
Natural Resource Surveys
Ramsey County Correctional Facility
Maplewood, Ramsey County, Minnesota

Map 3

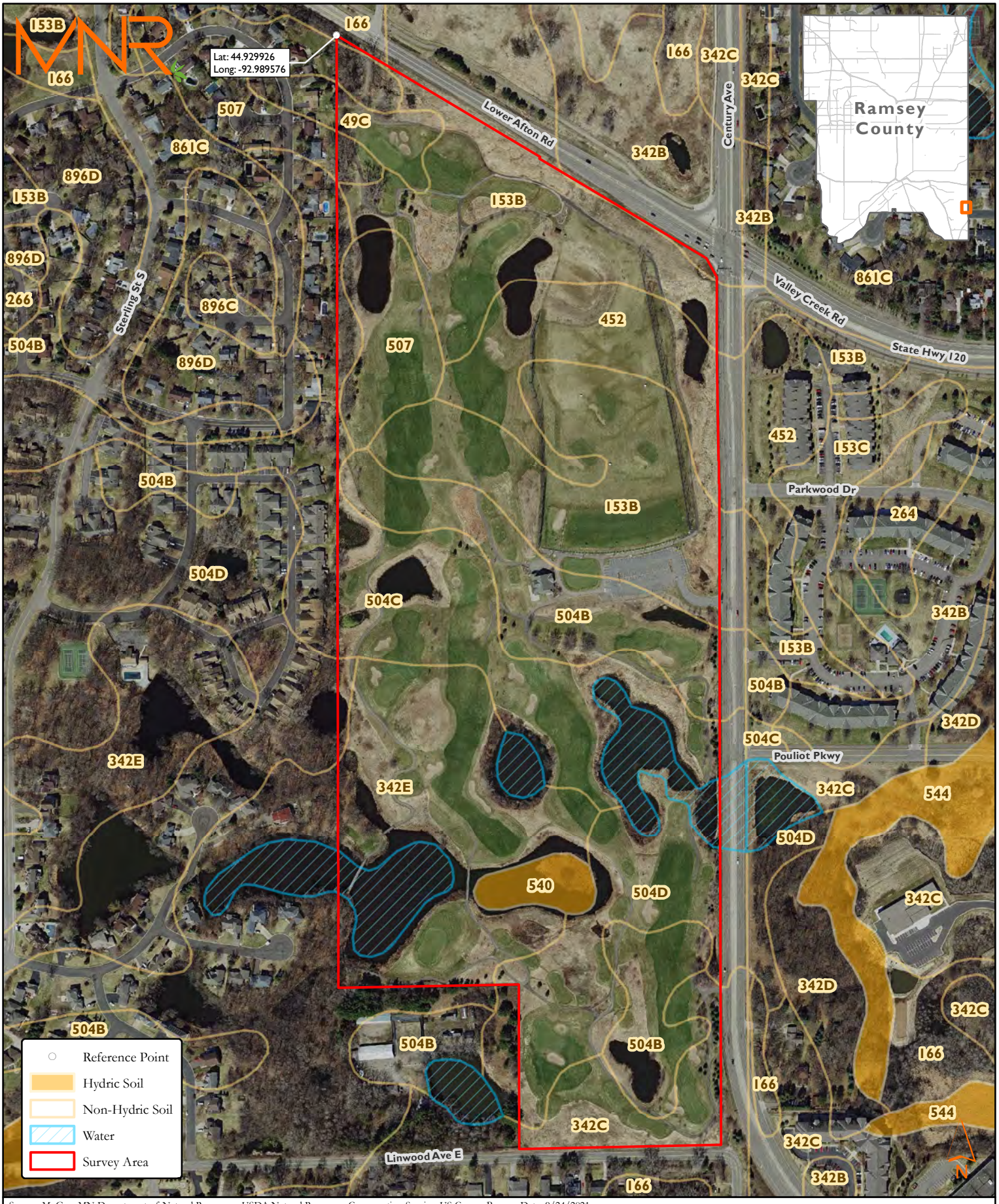


Source: MnGeo, MN Department of Natural Resources, USDA Natural Resources Conservation Service, US Census Bureau, Date: 9/24/2021

0 200 400 Feet

Ramsey County Soil Survey - North
Natural Resource Surveys
Ramsey County Correctional Facility
Maplewood, Ramsey County, Minnesota

Map 3a



Source: MnGeo, MN Department of Natural Resources, USDA Natural Resources Conservation Service, US Census Bureau, Date: 9/24/2021

Ramsey County Soil Survey - South
Natural Resource Surveys
Ramsey County Correctional Facility
Maplewood, Ramsey County, Minnesota

Map 3b

Source: MnGeo, MN Department of Natural Resources, US Census Bureau, Date: 9/24/2021

0 200 400 Feet

Photo Locations - North
Natural Resource Surveys
Ramsey County Correctional Facility
Maplewood, Ramsey County, Minnesota

Map 4a

Source: MnGeo, MN Department of Natural Resources, US Census Bureau, Date: 9/24/2021

0 200 400 Feet

Photo Locations - South
Natural Resource Surveys
Ramsey County Correctional Facility
Maplewood, Ramsey County, Minnesota

Map 4b

Appendix A – Avian Species List

Species List - North Parcel - Grassland		
American Crow	Song Sparrow	
American Goldfinch	Tree Swallow	
Baltimore Oriole	Turkey Vulture	
Barn Swallow	Warbling Vireo	
Black-capped Chickadee	White-breasted Nuthatch	
Blue Jay	Wood Duck	
Bobolink	Yellow Warbler	
Brown-headed Cowbird		
Canada Goose		
Clay-colored Sparrow		
Common Grackle		
Common Yellowthroat		
Cooper's Hawk		
Dickcissel		
Eastern Bluebird		
Eastern Kingbird		
Eastern Meadowlark		
Eastern Phoebe		
European Starling		
Field Sparrow		
Grasshopper Sparrow		
Gray Catbird		
Great Blue Heron		
Great Crested Flycatcher		
Great Egret		
Hairy Woodpecker		
Henslow's Sparrow		
House Finch		
House Sparrow		
House Wren		
Killdeer		
Mallard		
Mourning Dove		
Northern Cardinal		
Northern Flicker		
Northern Rough-winged Swallow		
Orchard Oriole		
Pileated Woodpecker		
Red-bellied Woodpecker		
Red-eyed Vireo		
Red-tailed Hawk		
Red-winged Blackbird		
Rose-breasted Grossbeak		
Ruby-throated Hummingbird		
Savannah Sparrow		
Sedge Wren		

Species List - South Parcel - Golf Course		
American Crow		
American Goldfinch		
American Robin		
Bald Eagle		
Baltimore Oriole		
Barn Swallow		
Black-capped Chickadee		
Blue Jay		
Brown Thrasher		
Brown-headed Cowbird		
Bufflehead		
Canada Goose		
Chimney Swift		
Chipping Sparrow		
Common Grackle		
Cooper's Hawk		
Eastern Kingbird		
Eastern Phoebe		
European Starling		
Gray Catbird		
Great Crested Flycatcher		
Great Egret		
Green Heron		
House Finch		
House Sparrow		
House Wren		
Mallard		
Mourning Dove		
Northern Cardinal		
Osprey		
Red-tailed Hawk		
Red-winged Blackbird		
Savannah Sparrow		
Song Sparrow		
Spotted Sandpiper		
Tree Swallow		
Turkey Vulture		
Warbling Vireo		
Wood Duck		
Yellow Warbler		

Appendix B – SGCN Photos

Photo of Henslow's Sparrow (*Ammodramus henslowii*) – Minnesota Endangered – A species in great conservation need (SGCN).

Photo of Henslow's Sparrow (*Ammodramus henslowii*) – Minnesota Endangered – A species in great conservation need (SGCN).

Photo of a Bobolink (*Dolichonyx oryzivorus*) individual – A species in great conservation need (SGCN).

Photo of a pair of Bobolinks (*Dolichonyx oryzivorus*) – A species in great conservation need (SGCN).

Photo of a Dickcissel (*Spiza americana*) individual – A species in great conservation need (SGCN).

Photo of a Dickcissel (*Spiza americana*) individual – A species in great conservation need (SGCN).

Appendix C – Vascular Plant Species List

Species List - North Parcel - Grassland		
Acer ginnala	*Geranium maculatum*	*Sambucus racemosa var. pubens*
Acer negundo	*Glechoma hederacea*	*Schizachyrium scoparium var. scoparium*
Achillea millefolium	*Grindelia squarrosa*	*Schoenoplectus tabernaemontani*
Actaea rubra	*Hackelia virginiana*	*Silene latifolia*
Ageratina altissima var. altissima	*Hesperis matronalis*	*Sisyrinchium campestre*
Agrimonia gryposepala	*Hypericum perforatum*	*Solanum dulcamara*
Alisma triviale	*Juniperus virginiana var. virginiana*	*Solidago altissima*
Alliaria petiolata	*Leonurus cardiaca*	*Solidago gigantea*
Alopecurus aequalis var. aequalis	*Leucanthemum vulgare*	*Solidago speciosa*
Alopecurus pratensis	*Linaria vulgaris*	*Symphyotrichum ericoides*
Amphicarpaea bracteata	*Liparis cf. loeselii*	*Symphyotrichum lanceolatum*
Andropogon gerardii	*Lonicera morrowii*	*Symphyotrichum oolentangiense*
Anemone quinquefolia var. quinquefolia	*Lotus corniculatus*	*Tanacetum vulgare*
Antennaria neglecta	*Lysimachia thyrsiflora*	*Taraxacum officinale*
Arctium minus	*Maianthemum racemosum*	*Thalictrum thalictroides*
Arisaema triphyllum	*Matricaria discoidea*	*Thlaspi arvense*
Asclepias exaltata	*Medicago lupulina*	*Tilia americana*
Asclepias syriaca	*Medicago sativa*	*Toxicodendron rydbergii*
Athyrium filix-femina var. angustum	*Menispermum canadense*	*Trifolium pratense*
Barbarea vulgaris	*Monarda fistulosa*	*Trifolium repens*
Bolboschoenus fluviatilis	*Myosoton aquaticum*	*Typha x glauca*
Bromus inermis	*Osmorhiza sp.*	*Ulmus americana*
Bromus tectorum	*Osmunda claytoniana*	*Ulmus pumila*
Calystegia sepium	*Oxalis stricta*	*Urtica dioica subsp. gracilis*
Capsella bursa-pastoris	*Panicum virgatum*	*Viburnum lentago*
Carduus nutans	*Parthenocissus vitacea*	*Vicia villosa*
Carex atherodes	*Persicaria sagittata*	*Viola sororia*
Carex laeviconica	*Persicaria sp.*	*Vitis riparia*
Carex pensylvanica	*Phalaris arundinacea*	
Carex stipata var. stipata	*Pinus resinosa*	
Celtis occidentalis	*Pinus sylvestris*	
Centaurea stoebe subsp. micranthos	*Plantago major*	
Circaea lutetiana var. canadensis	*Poa pratensis subsp. pratensis*	
Cirsium arvense	*Potentilla recta*	
Cirsium vulgare	*Prunus serotina*	
Cornus racemosa	*Quercus alba*	
Cornus sericea	*Quercus ellipsoidalis*	
Coronilla varia	*Quercus macrocarpa*	
Crepis tectorum	*Ranunculus abortivus*	
Dactylis glomerata	*Ranunculus acris*	
Dryopteris carthusiana	*Ranunculus sceleratus*	
Elymus repens	*Rhamnus cathartica*	
Erigeron strigosus	*Ribes missouriense*	
Fraxinus pennsylvanica	*Rubus occidentalis*	
Galium aparine	*Rudbeckia hirta var. pulcherrima*	
Galium triflorum var. triflorum	*Rumex crispus*	

Species List - South Parcel - Golf Course		
Acer ginnala	*Carex diandra*	*Gentiana andrewsii*
Acer negundo	*Carex lacustris*	*Geranium sp.* (ornamental)
Acer platanoides	*Carex pellita*	*Geum canadense*
Acer rubrum	*Carex pensylvanica*	*Geum triflorum*
Acer saccharinum	*Carex stipata var. stipata*	*Glechoma hederacea*
Achillea millefolium	*Carex vulpinoidea*	*Gymnocladus dioica*
Agastache foeniculum	*Celtis occidentalis*	*Hackelia virginiana*
Ageratina altissima var. altissima	*Centaurea stoebe subsp. micranthos*	*Helianthus grosseserratus*
Alisma triviale	*Cerastium fontanum subsp. vulgare*	*Helianthus maximiliani*
Alliaria petiolata	*Ceratophyllum demersum*	*Heliopsis helianthoides*
Allium cf. tuberosum (planted)	*Chamaecrista fasciculata*	*Hemerocallis sp.* (ornamental)
Allium stellatum	*Chamaedaphne calyculata*	*Hesperis matronalis*
Ambrosia trifida	*Circaea lutetiana var. canadensis*	*Hieracium sp.*
Amelanchier sp. (planted)	*Cirsium arvense*	*Hypericum majus*
Amorpha canescens	*Cirsium discolor*	*Hypericum perforatum*
Amphicarpaea bracteata	*Cirsium vulgare*	*Impatiens capensis*
Andropogon gerardii	*Comandra umbellata*	*Iris sp.*
Anemone canadensis	*Conyza canadensis*	*Juglans nigra*
Anemone sp. (planted)	*Coreopsis palmata*	*Juncus arcticus var. balticus*
Antennaria parlinii	*Cornus amomum*	*Juncus canadensis*
Apocynum cannabinum	*Cornus racemosa*	*Juncus dudleyi*
Arctium minus	*Cornus sericea*	*Juncus tenuis*
Artemisia absinthium	*Coronilla varia*	*Juniperus horizontalis*
Artemisia biennis	*Dactylis glomerata*	*Juniperus virginiana*
Asclepias incarnata var. incarnata	*Dalea purpurea*	*Lamiastrum galeobdolon*
Asclepias sullivantii	*Daucus carota*	*Lathyrus ochroleucus*
Asclepias syriaca	*Desmodium canadense*	*Lemna minor*
Asclepias tuberosa	*Desmodium glutinosum*	*Lemna turionifera*
Astragalus canadensis	*Dulichium arundinaceum*	*Leonurus cardiaca*
Athyrium filix-femina var. angustum	*Echinacea purpurea*	*Lespedeza capitata*
Baptisia sp. (planted)	*Echinocystis lobata*	*Liatris aspera*
Barbarea vulgaris	*Eleocharis acicularis*	*Liatris ligulistylis*
Berberis thunbergii	*Eleocharis erythropoda*	*Linaria vulgaris*
Berteroa incana	*Elodea canadensis*	*Liparis loeselii*
Betula nigra	*Elymus canadensis*	*Lithospermum canescens*
Betula papyrifera	*Elymus repens*	*Lobelia cardinalis*
Bidens cernua	*Epilobium ciliatum*	*Lobelia siphilitica*
Bidens connata	*Equisetum sp.*	*Lonicera morrowii*
Boehmeria cylindrica	*Erechtites hieraciifolius var. hieraciifolius*	*Lonicera x bella*
Bolboschoenus fluviatilis	*Erigeron annuus*	*Lotus corniculatus*
Botrychium dissectum	*Erigeron philadelphicus*	*Lupinus perennis*
Bouteloua curtipendula	*Eryngium yuccifolium*	*Luzula multiflora subsp. multiflora*
Bromus inermis	*Festuca sp. (planted)*	*Lycopus americanus*
Caragana arborescens	*Fraxinus pennsylvanica*	*Lysimachia thyrsiflora*
Carduus nutans	*Galium aparine*	*Lythrum salicaria*
Carex cf. comata	*Galium triflorum var. triflorum*	*Malus sp.* (ornamental)

Species List - South Parcel - Golf Course		
Medicago lupulina	*Ratibida columnifera*	*Symphyotrichum lanceolatum*
Melilotus officinalis	*Ratibida pinnata*	*Symphyotrichum novae-angliae*
Monarda fistulosa	*Rhamnus cathartica*	*Symphyotrichum oolentangiense*
Monarda punctata var. villicaulis	*Rhus glabra*	*Symphyotrichum pilosum*
Myosoton aquaticum	*Rhus hirta*	*Syringa reticulata*
Nymphaea odorata	*Ribes americanum*	*Tanacetum vulgare*
Oenothera biennis	*Ribes missouriense*	*Taraxacum officinale*
Onoclea sensibilis	*Ribes rubrum*	*Thalictrum dioicum*
Osmorhiza sp.	*Rorippa palustris*	*Thalictrum thalictroides*
Osmunda claytoniana	*Rubus cf. allegheniensis*	*Thelypteris palustris var. pubescens*
Ostrya virginiana	*Rubus ferrofluvius*	*Tilia sp.* (ornamental)
Oxalis dillenii	*Rubus idaeus var. strigosus*	*Toxicodendron vernix*
Panicum virgatum	*Rubus occidentalis*	*Tradescantia ohiensis*
Parthenocissus vitacea	*Rudbeckia hirta*	*Triadenum fraseri*
Penstemon digitalis	*Rumex acetosella*	*Trifolium repens*
Persicaria amphibia	*Rumex crispus*	*Typha sp.*
Persicaria hydropiper	*Sagittaria latifolia*	*Ulmus americana*
Persicaria lapathifolia	*Sagittaria rigida*	*Ulmus pumila*
Persicaria pensylvanica	*Salix bebbiana*	*Urtica dioica subsp. gracilis*
Phalaris arundinacea	*Salix discolor*	*Utricularia vulgaris*
Picea glauca	*Salix eriocephala*	*Verbascum thapsus*
Picea pungens	*Salix interior*	*Verbena hastata*
Pinus banksiana	*Salix sp.* (ornamental)	*Verbena stricta*
Pinus resinosa	*Sambucus canadensis var. canadensis*	*Veronica peregrina*
Pinus strobus	*Sambucus racemosa var. pubens*	*Viburnum lentago*
Pinus sylvestris	*Schizachyrium scoparium*	*Viburnum opulus*
Plantago major	*Schoenoplectus tabernaemontani*	*Viburnum rafinesquianum*
Plantago rugelii	*Scirpus cyperinus*	*Vicia villosa*
Poa pratensis subsp. pratensis	*Scrophularia sp.*	*Viola macloskeyi var. pallens*
Polygonatum biflorum	*Setaria pumila subsp. pumila*	*Vitis riparia*
Populus deltoides	*Setaria viridis*	*Wolffia borealis*
Populus tremuloides	*Silphium perfoliatum*	*Wolffia columbiana*
Potentilla norvegica	*Sisyrinchium sp.*	*Zizia aurea*
Potentilla palustris	*Solanum dulcamara*	
Potentilla recta	*Solidago altissima*	
Prunus americana	*Solidago gigantea*	
Prunus serotina	*Solidago speciosa*	
Prunus virginiana	*Sonchus arvensis*	
Pseudognaphalium obtusifolium	*Sorghastrum nutans*	
Pycnanthemum virginianum	*Sparganium cf. eurycarpum*	
Quercus bicolor	*Spiraea alba*	
Quercus macrocarpa	*Spirodela polyrrhiza*	
Quercus rubra	*Sporobolus compositus*	
Ranunculus abortivus	*Sporobolus heterolepis*	
Ranunculus pensylvanicus	*Symphyotrichum ericoides*	
Ranunculus sceleratus	*Symphyotrichum laeve*	

Appendix D – Representative Photos

North Parcel: Photo pt 0035 (facing east) - Woodland community

North Parcel: Photo pt 0037 (facing north) - Open field of Kentucky bluegrass and smooth brome

North Parcel: Photo pt 0039 (facing north) – Small wetland community

North Parcel: Photo pt 0042 (facing east) - Open fallow field

North Parcel: Photo pt 0053 (facing east) - Open field with prevalent forbs

North Parcel: Photo pt 0056 (facing west) - Open field dominated by smooth brome and reed canary grass

South Parcel: Photo pt 0003 (facing east) - Unmaintained area along Lower Afton Rd

South Parcel: Photo pt 0011 (facing south) – Unmowed fringe of primarily reed canary grass

South Parcel: Photo pt 0014 (facing southeast)

South Parcel: Photo pt 0025 (facing southwest)

South Parcel: Photo pt 0026 (facing southeast)

South Parcel: Photo pt 0028 (facing west)

South Parcel: Photo pt 0030 (facing northeast)

South Parcel: Photo pt 0032 (facing northwest) - Wooded pond fringe

Appendix E – Staff Bios

Scott Milburn, MS

Scott founded MNR in 2005 and serves as its President and Principal Botanist. Scott has managed, as well as conducted, intensive field surveys for a wide range of projects including rare plant surveys and native plant community mapping across the state. These experiences have allowed him to forged strong working relationships with state and federal agencies.

Scott, a degreed botanist, is on the DNR List of Surveyors for Endangered and Threatened Plants, and is one of only a few on the list qualified to survey for moonworts/grapeferns (*Botrychium*/*Sceptridium*) along with the western prairie fringed orchid (*Platanthera praeclara*), dwarf trout lily (*Erythronium propullans*), and prairie bush clover (*Lespedeza leptostachya*). He additionally has a Special Permit (22798) to collect and voucher rare plants in Minnesota.

Otto Gockman

Otto has been working for MNR since 2006 and currently serves in the capacity of Senior Botanist. Otto specializes in wildlife surveys and habitat assessments, as well as rare species surveys for vascular plants, lichens, and bryophytes.

Otto has detected and documented hundreds of populations of state-listed vascular plant species throughout the entire state. He has documented over 75 species of lichens that are Minnesota state records, including three species new to North America and three additional species that are new to science. Otto now serves as the de facto lichenologist in the state.

In addition to his rare plant survey experience, Otto also has significant experience surveying for and detecting rare bird species throughout Minnesota and beyond. Past projects have included point count surveys, call-response surveys, and nest surveys for a variety of projects. Noteworthy avian detections in Minnesota include Loggerhead Shrike (Endangered), Peregrine Falcon (Threatened), Trumpeter Swan (Special Concern), Yellow Rail (Special Concern), and Lark Sparrow (Special Concern).

Otto is on the DNR List of Surveyors for Endangered and Threatened Plants for vascular plants, including moonworts/grapeferns, western prairie fringed orchid, dwarf trout lily, and prairie bush clover, as well as lichens and bryophytes. He is additionally a DNR-approved surveyor for endangered and threatened birds and prairie skippers and holds a US Fish and Wildlife Service recovery permit for the federally threatened Dakota skipper.

Jake Jacob Walden

Jake has been with MNR since 2018 and serves in the capacity of Botanist/Ecologist. He has a BS in Fisheries, Wildlife, and Conservation Biology from the University of Minnesota. Jake is responsible for conducting rare plant surveys, vegetation monitoring, native plant community classification, and wetland surveys. He has experience working on a variety of public- and private-sector projects throughout Minnesota. Jake is on the DNR List of Surveyors for Endangered and Threatened Plants as well as the specific list for moonworts/grapeferns surveyors. He is additionally approved to survey for endangered and threatened prairie skippers by the DNR and holds a US Fish and Wildlife Service recovery permit for the federally threatened Dakota skipper.

Annie Weeks, MS

Annie has an MS in restoration ecology and over 15 years of experience in natural resources consulting. Her area of expertise is in natural resources management and planning. At MNR, Annie primarily serves

as a Senior Ecologist and Project Manager on a variety of projects, including habitat management plans, operations and maintenance projects for oil and gas pipelines, vegetation monitoring, and vegetation sampling projects for government and private clients. She has experience conducting habitat assessments for threatened and endangered species, including the rusty patched bumble bee.