

**VEGETATION SURVEYS OF THE OSCEOLA-MISSAUKEE GRASSLANDS STATE GAME AREA,
OSCEOLA AND MISSAUKEE COUNTIES, MICHIGAN**



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FOR:

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Cover photograph: OMG Unit 1 old field, Osceola Co., MI, 20 June 2014. All photographs in report by B.S. Slaughter.

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EXECUTIVE SUMMARY

In 2013, Michigan Department of Natural Resources, Wildlife Division (WLD) contracted with Michigan Natural Features Inventory (MNFI) to conduct an inventory of the vegetation and plant communities at the Osceola-Missaukee Grasslands State Game Area (OMG). This project was envisioned as the first component of a long-term plan to implement and monitor habitat management activities at the OMG. In summer 2014, meander surveys of vegetation were conducted at all four units of the OMG, resulting in the documentation of approximately 310 vascular plant taxa, including one state-listed species, the state threatened Vasey's rush (*Juncus vaseyi*). Major infestations of invasive plants, particularly reed canary grass (*Phalaris arundinacea*) were mapped for Unit 1 in September 2014. Old field was the primary habitat type comprising the OMG, followed by aspen associations and a variety of disturbed wetlands. Management of this area for wildlife and species of conservation concern, especially grassland birds, should focus on maintaining and enhancing graminoid-dominated habitats through the use of prescribed fire and mowing regimes. The introduction of native graminoids and forbs should be considered in areas that are currently dominated by non-native species.

INTRODUCTION

In 2013, Michigan Department of Natural Resources, Wildlife Division (WLD) contracted with Michigan Natural Features Inventory (MNFI) to conduct an inventory of the vegetation and plant communities at the Osceola-Missaukee Grasslands State Game Area (OMG), a complex of primarily early successional habitats spread out over four parcels (units) totaling approximately 465 ha (1,151 acres) in Osceola and Missaukee Counties, Michigan. The project had five main objectives:

- (1) Characterization and mapping of primary plant communities
- (2) Vegetation inventory, including a Floristic Quality Assessment (FQA) for each parcel and an overall FQA (Reznicek et al. 2014)
- (3) Documentation and quantification of invasive plant species populations of concern
- (4) Surveys for rare plant species
- (5) Recommendations for habitat management

This project was envisioned as the first component of a long-term plan to implement and monitor habitat management activities at the OMG intended to benefit a variety of game and non-game species. The OMG is notable for having supported the last Michigan population of greater prairie chicken (*Tympanuchus cupido*), and the area supports or recently supported at least three state-listed grassland bird species.

Overview of Area

The four units of the OMG are located in NE Osceola County (Units 1 and 2) and E Missaukee County (Units 3 and 4) (Figure 1). All four units occur in the Cadillac Sub-subsection as defined by Albert (1995) and the Cadillac Hummocky Moraines Level IV Ecoregion as defined by Omernik and Bryce (2010). Although this region is characterized by moderate to steeply sloped sandy end moraines and outwash plains and channels, the majority of the OMG occurs on more poorly drained glacial tills with abundant,

though often small, wetland depressions. All four units were likely characterized by mesic forests (beech – sugar maple – hemlock forest and hemlock – white pine forest) and a variety of forested and non-forested wetlands (Comer et al. 1995). A significant blowdown was noted in a portion of Unit 1.

Forest composition in this sub-subsection was significantly altered by logging and wetland drainage (Albert 1995). Today, the OMG is dominated by old field (ca. 64% of the land area) and aspen associations (Weber et al. 2006) (ca. 11% of the area). The remaining acreage is split among several open to forested wetland habitats (see individual unit descriptions).

METHODS

Meander surveys of the four units comprising the OMG were conducted in early and late summer 2014. Specifically, Unit 1 was surveyed on June 19, June 20, July 1, July 3, September 2, and September 3, 2014. Unit 2 was surveyed on July 3 and September 5, 2014. Unit 3 was surveyed June 17, 2014. Unit 4 was surveyed July 7, 2014. Meander surveys concentrated on characterizing common habitat types, compiling lists of vascular plant species, and surveys for rare species. Broad habitat types were delineated on aerial photographs in ArcMap 10.1. Although some of these habitat types overlap with MNFI natural communities (Kost et al. 2007), habitat types are described in generalized terms to emphasize the significant anthropogenic impact to these systems. All vascular plant species were entered into the Universal FQA Calculator (Freyman and Masters 2013) using the Michigan 2014 database (Reznicek et al. 2014) (Appendix). Over 50 specimens were collected and will be deposited at the University of Michigan Herbarium (MICH).

In mid-September, 2014, an attempt was made to map populations of invasive plant species in Unit 1, the largest of the four parcels. Species of primary interest were reed canary grass (*Phalaris arundinacea*), spotted knapweed (*Centaurea stoebe*), Canada thistle (*Cirsium arvense*), bull thistle (*C. vulgare*), autumn-olive (*Elaeagnus umbellata*), white sweet-clover (*Melilotus albus*), and Scots pine (*Pinus sylvestris*). Meander surveys were conducted to locate infestations of these species. GPS points were taken in the field and coded by species, area of infestation, and density of infestation, following a protocol developed by the MDNR Parks Stewardship Program (Higman et al. 2012) (Table 1).

Bird observations (visual and aural) were documented by Erin Victory (WLD) and Brad Slaughter on the above-listed vegetation survey dates. In addition, WLD seasonal staff conducted aural point counts at Unit 1 (not incorporated into this report).

Table 1. Size and density codes for invasive species occurrences.

Area Code	Area Description	Density Code	Density Description
1	Individual/few/several	1	Sparse (scattered individual stems or very small stands)
2	<1000 ft ²	2	Patchy (a mix of sparse and dense areas)
3	1000 ft ² to 0.5 ac	3	Dense (>40% of the area)
4	0.5-1 ac	4	Monoculture (nearly 100% of area)
5	>1 ac		

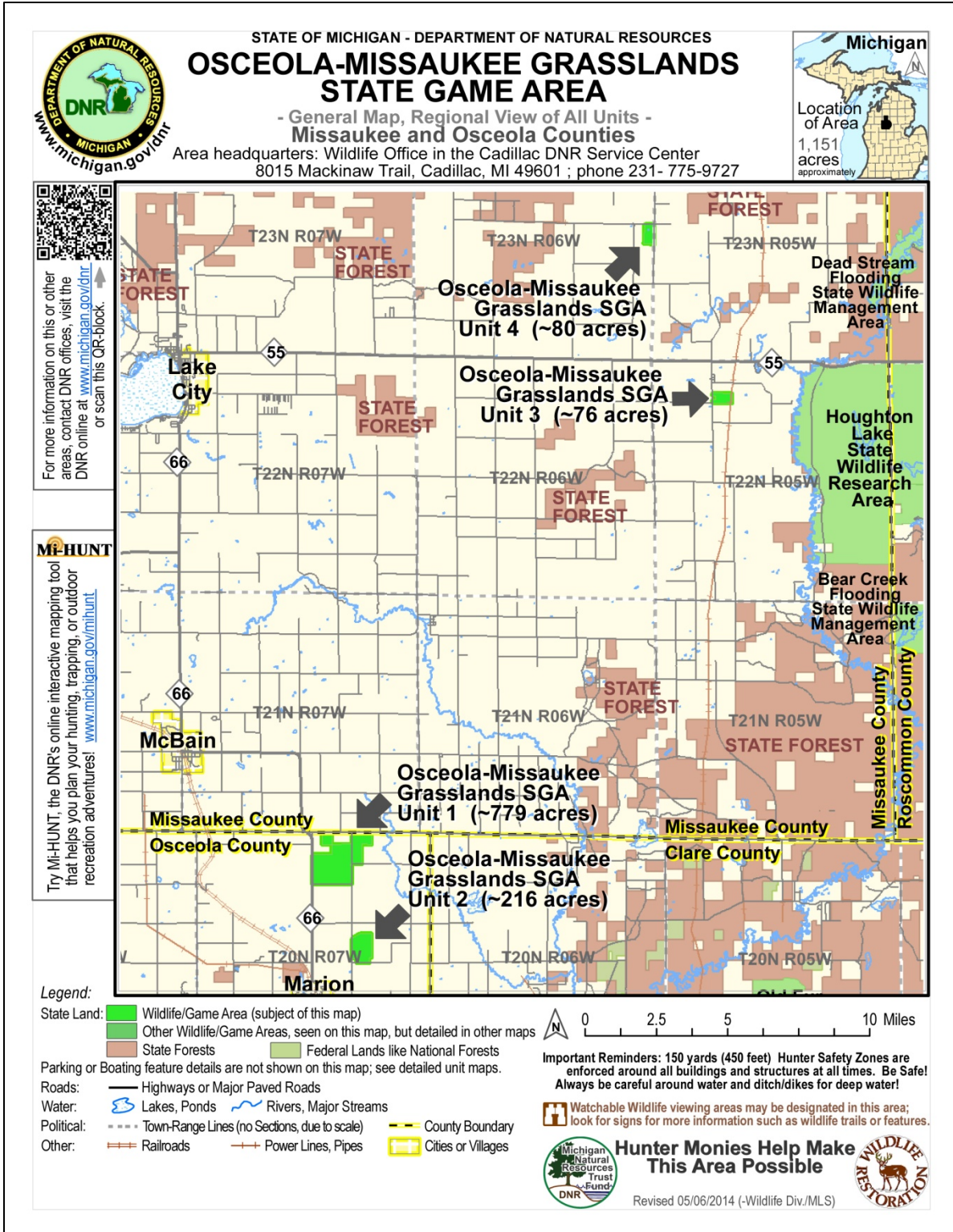


Figure 1. Location map of Osceola-Missaukee State Game Area, Osceola and Missaukee Cos., MI.

Site Summaries

Unit 1

Location: Osceola County, T20N R07W S02, 03. Approximately 3.0 mi N of Marion, beginning NE of the intersection of M-66 and 23 Mile Rd.



Figure 2. Osceola-Missaukee Grasslands State Game Area - Unit 1. AA= aspen association; EM= emergent marsh; MIT= wetland mitigation; OF= old field; OF-HAY= share-cropped old field; PP= planted pines; SC= shrub-carr; SF= swamp forest; WM= wet meadow.

Site Description

This approximately 315-ha (779 ac) area is predominantly characterized by old field habitats, including a very large old field with a significant management history concentrated in the southern portion of Section 3 (Figure 2). The remainder of the area is mostly comprised of open and shrub-dominated wetlands and aspen stands.

Primary Habitat

Old Field (OF)

Old field is the primary habitat in Unit 1, particularly in the southwestern portion of the site. In this area, loamy soils support a community dominated by non-native cool season grasses and forbs (Figure 3). Characteristic species include smooth brome (*Bromus inermis*), timothy (*Phleum pratense*), Kentucky bluegrass (*Poa pratensis*), red clover (*Trifolium pratense*), white clover (*T. repens*), alsike clover (*T. hybridum*), birdfoot trefoil (*Lotus corniculatus*), ox-eye daisy (*Leucanthemum vulgare*), and orange hawkweed (*Hieracium aurantiacum*). Characteristic native herbaceous species include tall goldenrod (*Solidago altissima*), old-field cinquefoil (*Potentilla simplex*), graceful sedge (*Carex gracillima*), quill sedge (*C. tenera*), and wild strawberry (*Fragaria virginiana*). Switch grass (*Panicum virgatum*) is locally common where it was planted historically. A portion of the large old field in this area is hayed (*OF-HAY*).

Within this large block of old field, ditches, constructed ponds, and natural depressions are frequent, and are predominantly dominated by reed canary grass (*Phalaris arundinacea*). Native species are locally common, particularly in the wettest depressions, and include tag alder (*Alnus incana*), slender willow (*Salix petiolaris*), meadowsweet (*Spiraea alba*), blue-joint (*Calamagrostis canadensis*), lake sedge (*Carex lacustris*), tussock sedge (*C. stricta*), graceful sedge, and Canada anemone (*Anemone canadensis*).

The old fields in the eastern and northern portions of Unit 1 are mostly less impacted by historical (and recent) management activities and support higher richness of native plant species (Figure 4). West of 20th Ave., several clearings associated with aspen clones are dominated by bracken fern (*Pteridium aquilinum*), associated with tall goldenrod, old-field cinquefoil, graceful sedge, poverty grass (*Danthonia spicata*), northern panic grass (*Dichanthelium boreale*), grass-leaved goldenrod (*Euthamia graminifolia*), meadowsweet, swamp dewberry (*Rubus hispidus*), small sundrops (*Oenothera perennis*), ox-eye daisy, and stout blue-eyed-grass (*Sisyrinchium angustifolium*). Tag alder is common at wet margins. Some of the more conservative plant species found in these sandy bracken-dominated openings include Indian paintbrush (*Castilleja coccinea*), racemed milkwort (*Polygala polygama*), and the state threatened Vasey's rush (*Juncus vaseyi*). A small, dense stand of white pine (*Pinus strobus*) (*PP*) derived from planted individuals occurs in the northwestern 40-acre parcel. The ground layer is bare in the dense shade of the pines.

East of 20th Ave., the higher, sandy areas support degraded old field communities dominated by smooth brome, timothy, spotted knapweed (*Centaurea stoebe*), hoary alyssum (*Berteroa incana*), tall goldenrod, and arrow-leaved aster (*Symphyotrichum urophyllum*). Other common species include old field goldenrod (*Solidago nemoralis*), early goldenrod (*S. juncea*), purple love grass (*Eragrostis spectabilis*), and hawkweeds (*Hieracium* spp.). Indian grass (*Sorghastrum nutans*) has been planted and established in some of these areas. The low, moist field at the intersection of 20th Ave. and E. Hibma Rd. supports vegetation similar to that described above for the southwestern portion of the property, including a large stand of introduced switch grass (*Panicum virgatum*).



Figure 3. Old field (OF) dominated by cool season grasses and non-native forbs.



Figure 4. In contrast to the old field in Figure 3, this clearing in the eastern portion of Unit 1 is dominated by bracken fern (*Pteridium aquilinum*) with much higher overall cover of native species.

Other Habitats

Swamp Forest (SF) and Shrub-Carr (SC)

Scattered throughout Unit 1 are several lowland areas dominated by shrubs (tag alder and slender willow; see Old Field description) and, locally, trees. Early- to mid-successional swamp forest in the northern portion of the property supports quaking aspen (*Populus tremuloides*), black cherry, red maple (*Acer rubrum*), black ash (*Fraxinus nigra*), paper birch (*Betula papyrifera*), Michigan holly (*Ilex verticillata*), and a diverse, dense ground layer, characterized by sensitive fern (*Onoclea sensibilis*), wood reedgrass (*Cinna latifolia*), fowl manna grass (*Glyceria striata*), lady fern (*Athyrium filix-femina*), northern shorthusk (*Brachyelytrum aristosum*), greater bladder sedge (*Carex intumescens*), and hop sedge (*C. lupulina*).

Emergent Marsh (EM), Wet Meadow (WM), and Wetland Mitigation (MIT)

Emergent marsh communities are local and associated with beaver floodings. The largest emergent marsh area is located in the eastern portion of the Unit, just W of 20th Ave. Surrounding this marsh is degraded wet meadow dominated by reed canary grass, associated with locally abundant Canada thistle (*Cirsium arvense*). The shallowly inundated interior of this wetland supports patchy herbaceous vegetation. Common species include blue-joint, lake sedge, tussock sedge, bottlebrush sedge (*Carex comosa*), porcupine sedge (*C. hystericina*), wool-grass (*Scirpus cyperinus*), softstem bulrush (*Schoenoplectus tabernaemontani*), and greater duckweed (*Spirodela polyrhiza*). The central, wettest zone is dominated by common cat-tail (*Typha latifolia*). Tag alder is scattered throughout this area. A small, shallow pond in the northern portion of the Unit supports aquatic species such as yellow pond-lily (*Nuphar variegata*), sweet-scented waterlily (*Nymphaea odorata*), and water-shield (*Brasenia schreberi*).

In the western portion of Unit 1, N of the large old field area, a Michigan Department of Transportation (MDOT) wetland mitigation supports large areas of shallow open water ringed by dense stands of reed canary grass.

Aspen Association (AA)

Aspen stands of various ages are scattered throughout Unit 1. These areas are primarily dominated by quaking aspen, with balsam poplar (*Populus balsamifera*) locally common. The understories support mixtures of wetland and upland species, depending on landscape position. Characteristic understory species in the wetter areas include red-osier (*Cornus sericea*), alder-leaved buckthorn (*Rhamnus alnifolia*), Virginia creeper (*Parthenocissus quinquefolia*), greater bladder sedge, wood anemone (*Anemone quinquefolia*), fragrant bedstraw (*Galium triflorum*), and large-leaved shinleaf (*Pyrola elliptica*). Drier areas support bracken fern, poverty grass, wild-basil (*Clinopodium vulgare*), autumn-olive (*Elaeagnus umbellata*), and other species noted above for old field associated with aspen clearings.

Notable Species

One rare species, the state threatened Vasey's rush (*Juncus vaseyi*), was documented from Unit 1 (Figure 5). Vasey's rush is a perennial rush of moist sandy soils with a widespread but localized

distribution within Michigan (Penskar 2009). As of October 2014, Vasey’s rush is known from 17 occurrences in the state. The population of Vasey’s rush is significant, as it is the first documented occurrence of a rare plant species from Osceola County (MNFI 2007, Reznicek et al. 2011).



Figure 5. The state threatened Vasey's rush (*Juncus vaseyi*), right-center.

A total of 35 plant specimens were collected and will be submitted to the University of Michigan Herbarium as potential Osceola County voucher specimens pending confirmation of identification (Table 2).

Table 2. Potential vouchers of vascular plant taxa not previously recorded from Osceola County.

Species	Common Name	Native (N) or Introduced (I)
<i>Carex aurea</i>	Sedge	N
<i>Carex bushii</i>	Bush’s sedge	I
<i>Carex stricta</i>	Sedge	N
<i>Castilleja coccinea</i>	Indian paintbrush	N
<i>Centaurea diffusa</i>	Tumble knapweed	I
<i>Dendrolycopodium hickeyi</i>	Pennsylvania clubmoss	N
<i>Dichanthelium boreale</i>	Northern panic grass	N

Species	Common Name	Native (N) or Introduced (I)
<i>Doellingeria umbellata</i>	Flat-topped white aster	N
<i>Echinochloa muricata</i>	Barnyard grass	I
<i>Equisetum variegatum</i>	Variiegated scouring rush	N
<i>Eragrostis spectabilis</i>	Purple love grass	N
<i>Erysimum cheiranthoides</i>	Wormseed mustard	I
<i>Eurybia macrophylla</i>	Big-leaved aster	N
<i>Gentianopsis crinita</i>	Fringed gentian	N
<i>Gratiola neglecta</i>	Clammy hedge hyssop	N
<i>Hieracium kalmii</i>	Kalm's hawkweed	N
<i>Juncus articulatus</i>	Jointed rush	N
<i>Juncus dudleyi</i>	Dudley's rush	N
<i>Juncus vaseyi</i> ^T	Vasey's rush	N
<i>Lotus corniculatus</i>	Birdfoot trefoil	I
<i>Ophioglossum pusillum</i>	Northern adder's-tongue	N
<i>Packera paupercula</i>	Northern ragwort	N
<i>Panicum capillare</i>	Witch grass	N
<i>Platanthera lacera</i>	Green fringed-orchid	N
<i>Sanicula marilandica</i>	Black snakeroot	N
<i>Schedonorus pratensis</i>	Meadow fescue	I
<i>Solidago altissima</i>	Tall goldenrod	N
<i>Spiranthes cernua</i>	Nodding ladies'-tresses	N
<i>Stellaria graminea</i>	Starwort	I
<i>Symphotrichum firmum</i>	Smooth swamp aster	N
<i>Symphotrichum lanceolatum</i>	Panicled aster	N
<i>Symphotrichum lateriflorum</i>	Calico aster	N
<i>Symphotrichum oolentangiense</i>	Sky blue aster	N
<i>Symphotrichum urophyllum</i>	Arrow-leaved aster	N
<i>Triosteum aurantiacum</i>	Horse-gentian	N

Invasive Plant Species Mapping

Meander surveys for target invasive plant species covered approximately 100 ha (247 ac). Reed canary grass was the most abundant target, dominating most of the drainages and widespread but sparsely distributed throughout upland habitats in the surveyed areas (Figure 6). Other target invasive plants were sparsely distributed and for the most part localized within the survey area. Non-native grasses (e.g., smooth brome, timothy, and Kentucky bluegrass) that dominate upland old fields were not targeted due to their ubiquitous presence throughout the Unit.

Bird Community

Thirteen bird species of greatest conservation need (SGCN) were noted at this site during vegetation surveys. These were northern harrier (*Circus cyaneus*), great blue heron (*Ardea herodias*), upland sandpiper (*Bartramia longicauda*), Wilson's snipe (*Gallinago delicata*), northern flicker (*Colaptes*

auratus), eastern kingbird (*Tyrannus tyrannus*), sedge wren (*Cistothorus plattensis*), brown thrasher (*Toxostoma rufum*), field sparrow (*Spizella pusilla*), savannah sparrow (*Passerculus sandwichensis*), the state endangered Henslow's sparrow (*Ammodramus henslowii*), bobolink (*Dolichonyx oryzivorus*), and eastern meadowlark (*Sturnella magna*).

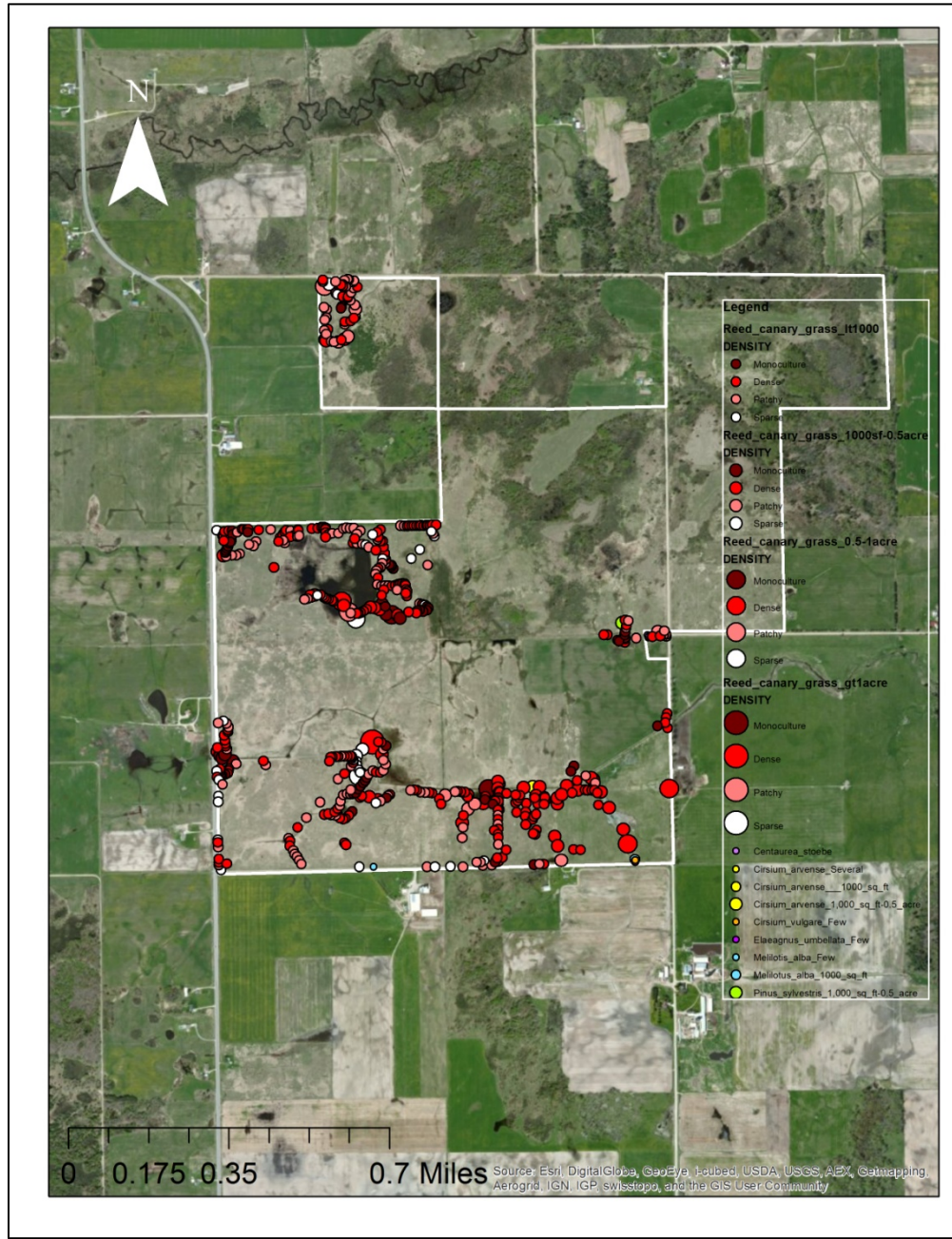


Figure 6. Map of invasive species points at OMG Unit 1. White, pink and red dots of varying sizes correspond to small to large, sparse to dense colonies of reed canary grass (*Phalaris arundinacea*). Other colors represent other species.

Osceola-Missaukee Grasslands SGA Unit 1

06/19/2014

Osceola-Missaukee SGA-O

Marion

Osceola

MI

USA

FQA DB Region:

Michigan

FQA DB Publication Year:

2014

FQA DB Description:

Reznicek, A.A., M.R. Penskar, B.S. Walters, and B.S. Slaughter. 2014. Michigan Floristic Quality Assessment Database. Herbarium, University of Michigan, Ann Arbor, MI and Michigan Natural Features Inventory, Michigan State University, Lansing, MI. <http://michiganflora.net>

Pracitioner:

Brad Slaughter, Erin Victory

Latitude:

44.1545

Longitude:

-85.1353

Weather Notes:

Duration Notes:

Community Type Notes:

Additional surveys 20 June, 1 July, 3 July, 2 September, 3 September 2014. Also noted: *Crataegus* sp., *Lactuca* sp., *Galium* sp., *Epilobium* sp., *Eleocharis* sp., *Persicaria* sp., *Viola* sp. The warm-season grasses (ANDGER, SORNUT, PANVIR) were introduced to the site.

Other Notes:

Private/Public:

Public

Conservatism-Based Metrics:

Total Mean C:

2.8

Native Mean C:

3.8

Total FQI:

42.5

Native FQI:

50

Adjusted FQI:

33

% C value 0:

28.3

% C value 1-3:

29.1

% C value 4-6:

37

% C value 7-10:

5.7

Native Tree Mean C:

2.5

Native Shrub Mean C:

3.6

Native Herbaceous Mean C:

3.9

Species Richness:

Total Species:

230

Native Species: 173 75.20%
 Non-native Species: 57 24.80%

Species Wetness:
 Mean Wetness: 0.1
 Native Mean Wetness: -0.8

Physiognomy Metrics:
 Tree: 12 5.20%
 Shrub: 28 12.20%
 Vine: 7 3%
 Forb: 121 52.60%
 Grass: 26 11.30%
 Sedge: 23 10%
 Rush: 0 0%
 Fern: 13 5.70%
 Bryophyte: 0 0%

Duration Metrics:
 Annual: 19 8.30%
 Perennial: 198 86.10%
 Biennial: 13 5.70%
 Native Annual: 9 3.90%
 Native Perennial: 161 70%
 Native Biennial: 3 1.30%

Species:

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Abies balsamea	Pinaceae	ABIBAL	native	3	0	tree	perennial	balsam fir
Acer rubrum	Sapindaceae	ACERUB	native	1	0	tree	perennial	red maple
Achillea millefolium	Asteraceae	ACHMIL	native	1	3	forb	perennial	yarrow
Agrostis gigantea	Poaceae	AGRIG	non-native	0	-3	grass	perennial	redtop
Alnus incana; a. rugosa	Betulaceae	ALNINC	native	5	-3	shrub	perennial	speckled alder
Ambrosia artemisiifolia	Asteraceae	AMBART	native	0	3	forb	annual	common ragweed
Amelanchier arborea	Rosaceae	AMEARB	native	4	3	tree	perennial	juneberry
Andropogon gerardii	Poaceae	ANDGER	native	5	0	grass	perennial	big bluestem
Anemone canadensis	Ranunculaceae	ANECAN	native	4	-3	forb	perennial	canada anemone
Anemone quinquefolia	Ranunculaceae	ANEQUI	native	5	3	forb	perennial	wood anemone
Antennaria howellii	Asteraceae	ANTHOW	native	2	5	forb	perennial	small pussytoes
Antennaria parlinii	Asteraceae	ANTPAL	native	2	5	forb	perennial	smooth pussytoes
Apocynum androsaemifolium	Apocynaceae	APOAND	native	3	5	forb	perennial	spreading dogbane

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
<i>Aralia nudicaulis</i>	Araliaceae	ARANUD	native	5	3	forb	perennial	wild sarsaparilla
<i>Arctium minus</i>	Asteraceae	ARCMIN	non-native	0	3	forb	biennial	common burdock
<i>Arisaema triphyllum</i>	Araceae	ARITRI	native	5	0	forb	perennial	jack-in-the-pulpit
<i>Asclepias incarnata</i>	Apocynaceae	ASCINC	native	6	-5	forb	perennial	swamp milkweed
<i>Asclepias syriaca</i>	Apocynaceae	ASCSYR	native	1	5	forb	perennial	common milkweed
<i>Athyrium filix-femina</i>	Athyriaceae	ATHFIL	native	4	0	fern	perennial	lady fern
<i>Barbarea vulgaris</i>	Brassicaceae	BARVUL	non-native	0	0	forb	biennial	yellow rocket
<i>Berteroa incana</i>	Brassicaceae	BERINC	non-native	0	5	forb	annual	hoary alyssum
<i>Betula papyrifera</i>	Betulaceae	BETPAP	native	2	3	tree	perennial	paper birch
<i>Bidens discoidea</i>	Asteraceae	BIDDIS	native	7	-3	forb	annual	swamp beggar-ticks
<i>Brachyelytrum aristosum; b. erectum</i>	Poaceae	BRAARI	native	7	5	grass	perennial	northern shorthusk
<i>Brasenia schreberi</i>	Cabombaceae	BRASCH	native	6	-5	forb	perennial	water-shield
<i>Bromus inermis</i>	Poaceae	BROINE	non-native	0	5	grass	perennial	smooth brome
<i>Calamagrostis canadensis</i>	Poaceae	CALCAN	native	3	-5	grass	perennial	blue-joint
<i>Campanula aparinoides</i>	Campanulaceae	CAMAPA	native	7	-5	forb	perennial	marsh bellflower
<i>Carex arctata</i>	Cyperaceae	CXARTT	native	3	5	sedge	perennial	sedge
<i>Carex aurea</i>	Cyperaceae	CXAURE	native	3	-3	sedge	perennial	sedge
<i>Carex bebbii</i>	Cyperaceae	CXBEBB	native	4	-5	sedge	perennial	sedge
<i>Carex bushii</i>	Cyperaceae	CXBUSH	non-native	0	0	sedge	perennial	bushs sedge
<i>Carex comosa</i>	Cyperaceae	CXCOMO	native	5	-5	sedge	perennial	sedge
<i>Carex crinita</i>	Cyperaceae	CXCRIN	native	4	-5	sedge	perennial	sedge
<i>Carex flava</i>	Cyperaceae	CXFLAV	native	4	-5	sedge	perennial	sedge
<i>Carex gracillima</i>	Cyperaceae	CXGRAA	native	4	3	sedge	perennial	sedge
<i>Carex hystericina</i>	Cyperaceae	CXHYST	native	2	-5	sedge	perennial	sedge
<i>Carex intumescens</i>	Cyperaceae	CXINTU	native	3	-3	sedge	perennial	sedge
<i>Carex lacustris</i>	Cyperaceae	CXLACU	native	6	-5	sedge	perennial	sedge
<i>Carex lupulina</i>	Cyperaceae	CXLUPA	native	4	-5	sedge	perennial	sedge
<i>Carex pellita; c. lanuginosa</i>	Cyperaceae	CXPELL	native	2	-5	sedge	perennial	sedge
<i>Carex retrorsa</i>	Cyperaceae	CXRETS	native	3	-5	sedge	perennial	sedge
<i>Carex stricta</i>	Cyperaceae	CXSTRI	native	4	-5	sedge	perennial	sedge
<i>Carex tenera</i>	Cyperaceae	CXTENE	native	4	0	sedge	perennial	sedge
<i>Carex vulpinoidea</i>	Cyperaceae	CXVULP	native	1	-5	sedge	perennial	sedge
<i>Castilleja coccinea</i>	Orobanchaceae	CASCOC	native	8	0	forb	biennial	indian paintbrush
<i>Centaurea diffusa</i>	Asteraceae	CENDIF	non-native	0	5	forb	annual	tumble knapweed
<i>Centaurea stoebe; c. maculosa</i>	Asteraceae	CENSTO	non-native	0	5	forb	biennial	spotted knapweed
<i>Cerastium fontanum</i>	Caryophyllaceae	CERFON	non-native	0	3	forb	perennial	mouse-ear chickweed
<i>Cichorium intybus</i>	Asteraceae	CICINT	non-native	0	3	forb	perennial	chicory
<i>Cicuta bulbifera</i>	Apiaceae	CICBUL	native	5	-5	forb	perennial	water hemlock
<i>Cinna latifolia</i>	Poaceae	CINLAT	native	5	-3	grass	perennial	wood reedgrass
<i>Circaea canadensis; c. lutetiana</i>	Onagraceae	CIRCAN	native	2	3	forb	perennial	enchanters-nightshade

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
<i>Cirsium arvense</i>	Asteraceae	CIRARV	non-native	0	3	forb	perennial	canada thistle
<i>Cirsium vulgare</i>	Asteraceae	CIRVUL	non-native	0	3	forb	biennial	bull thistle
<i>Clematis virginiana</i>	Ranunculaceae	CLEVIR	native	4	0	vine	perennial	virgins bower
<i>Clinopodium vulgare</i>	Lamiaceae	CLIVUL	native	3	5	forb	perennial	wild-basil
<i>Comptonia peregrina</i>	Myricaceae	COMPER	native	6	5	shrub	perennial	sweetfern
<i>Coptis trifolia</i>	Ranunculaceae	COPTRI	native	5	-3	forb	perennial	goldthread
<i>Cornus amomum</i>	Cornaceae	CORAMO	native	2	-3	shrub	perennial	silky dogwood
<i>Cornus canadensis</i>	Cornaceae	CORCAA	native	6	0	shrub	perennial	bunchberry
<i>Cornus foemina</i>	Cornaceae	CORFOE	native	1	0	shrub	perennial	gray dogwood
<i>Cornus sericea</i> ; <i>c. stolonifera</i>	Cornaceae	CORSER	native	2	-3	shrub	perennial	red-osier
<i>Dactylis glomerata</i>	Poaceae	DACGLO	non-native	0	3	grass	perennial	orchard grass
<i>Danthonia spicata</i>	Poaceae	DANSPI	native	4	5	grass	perennial	poverty grass; oatgrass
<i>Daucus carota</i>	Apiaceae	DAUCAR	non-native	0	5	forb	biennial	queen-annes-lace
<i>Dendrolycopodium hickeyi</i> ; <i>lycopodium h.</i>	Lycopodiaceae	DENHIC	native	5	5	fern	perennial	pennsylvania clubmoss
<i>Dichanthelium boreale</i> ; <i>panicum b.</i>	Poaceae	DICBOR	native	7	0	grass	perennial	northern panic grass
<i>Digitaria ischaemum</i>	Poaceae	DIGISC	non-native	0	3	grass	annual	smooth crab grass
<i>Diphasiastrum digitatum</i> ; <i>lycopodium d.</i>	Lycopodiaceae	DIPDIG	native	3	5	fern	perennial	ground-cedar
<i>Doellingeria umbellata</i> ; <i>aster u.</i>	Asteraceae	DOEUMB	native	5	-3	forb	perennial	flat-topped white aster
<i>Dryopteris carthusiana</i>	Dryopteridaceae	DRYCAR	native	5	-3	fern	perennial	spinulose woodfern
<i>Echinochloa muricata</i>	Poaceae	ECHMUR	native	1	-5	grass	annual	barnyard grass
<i>Elaeagnus umbellata</i>	Elaeagnaceae	ELAUMB	non-native	0	3	shrub	perennial	autumn-olive
<i>Eleocharis obtusa</i>	Cyperaceae	ELEOBT	native	3	-5	sedge	annual	spike-rush
<i>Eleocharis palustris</i> ; <i>e. smallii</i>	Cyperaceae	ELEPAL	native	5	-5	sedge	perennial	spike-rush
<i>Elymus repens</i> ; <i>agropyron r.</i>	Poaceae	ELYREP	non-native	0	3	grass	perennial	quack grass
<i>Equisetum arvense</i>	Equisetaceae	EQUARV	native	0	0	fern	perennial	common horsetail
<i>Equisetum fluviatile</i>	Equisetaceae	EQUFLU	native	7	-5	fern	perennial	water horsetail
<i>Equisetum scirpoides</i>	Equisetaceae	EQUSCI	native	7	0	fern	perennial	dwarf scouring rush
<i>Equisetum variegatum</i>	Equisetaceae	QUVAR	native	6	-3	fern	perennial	variegated scouring rush
<i>Eragrostis spectabilis</i>	Poaceae	ERASPE	native	3	5	grass	perennial	purple love grass
<i>Erigeron strigosus</i>	Asteraceae	ERISTR	native	4	3	forb	perennial	daisy fleabane
<i>Erysimum cheiranthoides</i>	Brassicaceae	ERYCHE	non-native	0	3	forb	annual	wormseed mustard
<i>Eupatorium perfoliatum</i>	Asteraceae	EUPPER	native	4	-3	forb	perennial	boneset
<i>Euphorbia virgata</i> ; <i>e. esula</i>	Euphorbiaceae	EUPVIR	non-native	0	5	forb	perennial	leafy spurge
<i>Eurybia macrophylla</i> ; <i>aster m.</i>	Asteraceae	EURMAC	native	4	5	forb	perennial	big-leaved aster
<i>Euthamia graminifolia</i>	Asteraceae	EUTGRA	native	3	0	forb	perennial	grass-leaved goldenrod
<i>Festuca saximontana</i>	Poaceae	FESSAX	native	6	5	grass	perennial	fescue
<i>Festuca trachyphylla</i> ; <i>f. ovina</i>	Poaceae	FESTRA	non-native	0	5	grass	perennial	sheep fescue
<i>Fragaria virginiana</i>	Rosaceae	FRAVIR	native	2	3	forb	perennial	wild strawberry
<i>Frangula alnus</i> ; <i>rhamnus frangula</i>	Rhamnaceae	FRAALN	non-native	0	0	shrub	perennial	glossy buckthorn
<i>Fraxinus nigra</i>	Oleaceae	FRANIG	native	6	-3	tree	perennial	black ash

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Fraxinus pennsylvanica	Oleaceae	FRAPEN	native	2	-3	tree	perennial	red ash
Galium asprellum	Rubiaceae	GALASP	native	5	-5	vine	perennial	rough bedstraw
Galium triflorum	Rubiaceae	GALTRR	native	4	3	forb	perennial	fragrant bedstraw
Gaultheria procumbens	Ericaceae	GAUPRO	native	5	3	shrub	perennial	wintergreen
Gentiana andrewsii	Gentianaceae	GENAND	native	5	-3	forb	perennial	bottle gentian
Gentianopsis crinita	Gentianaceae	GENCRI	native	8	-3	forb	annual	fringed gentian
Geum aleppicum	Rosaceae	GEUALE	native	3	0	forb	perennial	yellow avens
Glyceria striata	Poaceae	GLYSTR	native	4	-5	grass	perennial	fowl manna grass
Gratiola neglecta	Plantaginaceae	GRANEG	native	5	-5	forb	annual	clammy hedge hyssop
Hieracium aurantiacum	Asteraceae	HIEAUR	non-native	0	5	forb	perennial	orange hawkweed
Hieracium caespitosum	Asteraceae	HIECAE	non-native	0	5	forb	perennial	king devil
Hieracium kalmii	Asteraceae	HIEKAL	native	3	5	forb	perennial	kalms hawkweed
Hieracium piloselloides	Asteraceae	HIEPIS	non-native	0	5	forb	perennial	king devil
Hypericum perforatum	Hypericaceae	HYPPER	non-native	0	5	forb	perennial	common st. johns-wort
Ilex verticillata	Aquifoliaceae	ILEVER	native	5	-3	shrub	perennial	michigan holly
Impatiens capensis	Balsaminaceae	IMPCAP	native	2	-3	forb	annual	spotted touch-me-not
Iris versicolor	Iridaceae	IRIVER	native	5	-5	forb	perennial	wild blue flag
Juncus articulatus	Juncaceae	JUNART	native	3	-5	forb	perennial	jointed rush
Juncus dudleyi	Juncaceae	JUNDUD	native	1	-3	forb	perennial	dudleys rush
Juncus effusus	Juncaceae	JUNEFF	native	3	-5	forb	perennial	soft-stemmed rush
Juncus tenuis	Juncaceae	JUNTEN	native	1	0	forb	perennial	path rush
Juncus vaseyi	Juncaceae	JUNVAS	native	10	-3	forb	perennial	vaseys rush
Lepidium campestre	Brassicaceae	LEPCAM	non-native	0	5	forb	biennial	field cress
Leucanthemum vulgare; chrysanthemum leucanthemum	Asteraceae	LEUVUL	non-native	0	5	forb	perennial	ox-eye daisy
Lonicera dioica	Caprifoliaceae	LONDIO	native	5	3	vine	perennial	red honeysuckle
Lonicera morrowii	Caprifoliaceae	LONMOR	non-native	0	3	shrub	perennial	morrow honeysuckle
Lotus corniculatus	Fabaceae	LOTCOR	non-native	0	3	forb	perennial	birdfoot trefoil
Lycopus americanus	Lamiaceae	LYCAME	native	2	-5	forb	perennial	common water horehound
Lycopus uniflorus	Lamiaceae	LYCUNI	native	2	-5	forb	perennial	northern bugle weed
Lysimachia ciliata	Myrsinaceae	LYSCIL	native	4	-3	forb	perennial	fringed loosestrife
Lythrum salicaria	Lythraceae	LYTSAL	non-native	0	-5	forb	perennial	purple loosestrife
Maianthemum canadense	Convallariaceae	MAICAN	native	4	3	forb	perennial	canada mayflower
Matricaria discoidea	Asteraceae	MATDIS	non-native	0	3	forb	annual	pineapple-weed
Medicago lupulina	Fabaceae	MEDLUP	non-native	0	3	forb	annual	black medick
Melilotus albus	Fabaceae	MELALB	non-native	0	3	forb	biennial	white sweet-clover
Melilotus officinalis	Fabaceae	MELLOF	non-native	0	3	forb	biennial	yellow sweet-clover
Mentha Ã—piperita	Lamiaceae	MENPIP	non-native	0	-5	forb	perennial	peppermint
Mimulus ringens	Phrymaceae	MIMRIN	native	5	-5	forb	perennial	monkey-flower
Mitchella repens	Rubiaceae	MITREP	native	5	3	forb	perennial	partridge-berry
Nuphar variegata	Nymphaeaceae	NUPVAR	native	7	-5	forb	perennial	yellow pond-lily

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
<i>Nymphaea odorata</i>	Nymphaeaceae	NYMODO	native	6	-5	forb	perennial	sweet-scented waterlily
<i>Oenothera perennis</i>	Onagraceae	OENPER	native	5	0	forb	perennial	small sundrops
<i>Onoclea sensibilis</i>	Onocleaceae	ONOSEN	native	2	-3	fern	perennial	sensitive fern
<i>Ophioglossum pusillum</i>	Ophioglossaceae	OPHPUS	native	6	-3	fern	perennial	northern adders-tongue
<i>Osmorhiza claytonii</i>	Apiaceae	OSMCLI	native	4	3	forb	perennial	hairy sweet-cicely
<i>Osmunda regalis</i>	Osmundaceae	OSMREG	native	5	-5	fern	perennial	royal fern
<i>Packera paupercula</i> ; <i>senecio p.</i> ; <i>senecio plattensis</i>	Asteraceae	PACPAU	native	3	0	forb	perennial	balsam ragwort
<i>Panicum capillare</i>	Poaceae	PANCAP	native	0	0	grass	annual	witch grass
<i>Panicum virgatum</i>	Poaceae	PANVIR	native	4	0	grass	perennial	switch grass
<i>Parthenocissus quinquefolia</i>	Vitaceae	PARQUI	native	5	3	vine	perennial	virginia creeper
<i>Persicaria maculosa</i> ; <i>polygonum persicaria</i>	Polygonaceae	PERMAC	non-native	0	0	forb	annual	lady's-thumb
<i>Phalaris arundinacea</i>	Poaceae	PHAARU	native	0	-3	grass	perennial	reed canary grass
<i>Phleum pratense</i>	Poaceae	PHLPRA	non-native	0	3	grass	perennial	timothy
<i>Pinus strobus</i>	Pinaceae	PINSTR	native	3	3	tree	perennial	white pine
<i>Pinus sylvestris</i>	Pinaceae	PINSYL	non-native	0	3	tree	perennial	scotch pine
<i>Plantago lanceolata</i>	Plantaginaceae	PLALAN	non-native	0	3	forb	perennial	english plantain
<i>Plantago rugelii</i>	Plantaginaceae	PLARUG	native	0	0	forb	perennial	red-stalked plantain
<i>Platanthera aquilonis</i> ; <i>habenaria hyperborea</i>	Orchidaceae	PLAAQU	native	5	-3	forb	perennial	northern green orchid
<i>Platanthera lacera</i> ; <i>habenaria l.</i>	Orchidaceae	PLALAC	native	6	-3	forb	perennial	green-fringed orchid
<i>Poa compressa</i>	Poaceae	POACOM	non-native	0	3	grass	perennial	canada bluegrass
<i>Poa palustris</i>	Poaceae	POAPAS	native	3	-3	grass	perennial	fowl meadow grass
<i>Poa pratensis</i>	Poaceae	POAPRA	non-native	0	3	grass	perennial	kentucky bluegrass
<i>Polygala polygama</i>	Polygalaceae	POLPOL	native	9	3	forb	biennial	racemed milkwort
<i>Polygonum aviculare</i>	Polygonaceae	POLAVI	non-native	0	3	forb	annual	knotweed
<i>Populus balsamifera</i>	Salicaceae	POPBAL	native	2	-3	tree	perennial	balsam poplar
<i>Populus tremuloides</i>	Salicaceae	POPTRE	native	1	0	tree	perennial	quaking aspen
<i>Potentilla argentea</i>	Rosaceae	POTARG	non-native	0	3	forb	perennial	silvery cinquefoil
<i>Potentilla norvegica</i>	Rosaceae	POTNOR	native	0	0	forb	annual	rough cinquefoil
<i>Potentilla recta</i>	Rosaceae	POTREC	non-native	0	5	forb	perennial	rough-fruited cinquefoil
<i>Potentilla simplex</i>	Rosaceae	POTSIM	native	2	3	forb	perennial	old-field cinquefoil
<i>Prunella vulgaris</i>	Lamiaceae	PRUVUL	native	0	0	forb	perennial	self-heal
<i>Prunus serotina</i>	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry
<i>Prunus virginiana</i>	Rosaceae	PRUVIR	native	2	3	shrub	perennial	choke cherry
<i>Pseudognaphalium obtusifolium</i> ; <i>gnaphalium o.</i>	Asteraceae	PSEOBT	native	2	5	forb	biennial	old-field balsam
<i>Pteridium aquilinum</i>	Dennstaedtiaceae	PTEAQU	native	0	3	fern	perennial	bracken fern
<i>Pyrola elliptica</i>	Ericaceae	PYRELL	native	6	3	forb	perennial	large-leaved shinleaf
<i>Ranunculus acris</i>	Ranunculaceae	RANACR	non-native	0	0	forb	perennial	tall or common buttercup
<i>Ranunculus hispidus</i>	Ranunculaceae	RANHIS	native	5	0	forb	perennial	swamp buttercup
<i>Rhamnus alnifolia</i>	Rhamnaceae	RHAALN	native	8	-5	shrub	perennial	alder-leaved buckthorn
<i>Ribes americanum</i>	Grossulariaceae	RIBAME	native	6	-3	shrub	perennial	wild black currant

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Ribes hirtellum	Grossulariaceae	RIBHIR	native	6	-3	shrub	perennial	swamp gooseberry
Rorippa aquatica; armoracia a.	Brassicaceae	RORAQU	native	8	-5	forb	perennial	lake cress
Rubus allegheniensis	Rosaceae	RUBALL	native	1	3	shrub	perennial	common blackberry
Rubus flagellaris	Rosaceae	RUBFLA	native	1	3	shrub	perennial	northern dewberry
Rubus hispidus	Rosaceae	RUBHIS	native	4	-3	shrub	perennial	swamp dewberry
Rubus occidentalis	Rosaceae	RUBOCC	native	1	5	shrub	perennial	black raspberry
Rubus pubescens	Rosaceae	RUBPUB	native	4	-3	shrub	perennial	dwarf raspberry
Rubus strigosus	Rosaceae	RUBSTR	native	2	0	shrub	perennial	wild red raspberry
Rumex acetosella	Polygonaceae	RUMACL	non-native	0	3	forb	perennial	sheep sorrel
Salix humilis	Salicaceae	SALHUM	native	4	3	shrub	perennial	prairie willow
Salix lucida	Salicaceae	SALLUC	native	3	-3	shrub	perennial	shining willow
Salix petiolaris	Salicaceae	SALPET	native	1	-3	shrub	perennial	slender willow
Sambucus canadensis	Adoxaceae	SAMCAN	native	3	-3	shrub	perennial	elderberry
Sanicula marilandica	Apiaceae	SANMAR	native	4	3	forb	perennial	black snakeroot
Schedonorus pratensis; festuca p.	Poaceae	SCHPRA	non-native	0	3	grass	perennial	meadow fescue
Schizachyrium scoparium; andropogon s.	Poaceae	SCHSCO	native	5	3	grass	perennial	little bluestem
Schoenoplectus tabernaemontani; scirpus validus	Cyperaceae	SCHTAB	native	4	-5	sedge	perennial	softstem bulrush
Scirpus atrovirens	Cyperaceae	SCIATV	native	3	-5	sedge	perennial	bulrush
Scirpus cyperinus	Cyperaceae	SCICYP	native	5	-5	sedge	perennial	wool-grass
Scirpus pendulus	Cyperaceae	SCIPEN	native	3	-5	sedge	perennial	bulrush
Sisyrinchium angustifolium	Iridaceae	SISANG	native	4	0	forb	perennial	stout blue-eyed-grass
Solanum dulcamara	Solanaceae	SOLDUL	non-native	0	0	vine	perennial	bittersweet nightshade
Solidago altissima	Asteraceae	SOLALT	native	1	3	forb	perennial	tall goldenrod
Solidago gigantea	Asteraceae	SOLGIG	native	3	-3	forb	perennial	late goldenrod
Solidago juncea	Asteraceae	SOLJUN	native	3	5	forb	perennial	early goldenrod
Solidago nemoralis	Asteraceae	SOLNEM	native	2	5	forb	perennial	old-field goldenrod
Solidago rugosa	Asteraceae	SOLRUG	native	3	0	forb	perennial	rough-leaved goldenrod
Sorghastrum nutans	Poaceae	SORNUT	native	6	3	grass	perennial	indian grass
Spiraea alba	Rosaceae	SPIALB	native	4	-3	shrub	perennial	meadowsweet
Spiranthes cernua	Orchidaceae	SPICER	native	4	-3	forb	perennial	nodding ladies-tresses
Spirodela polyrhiza	Araceae	SPIPOL	native	6	-5	forb	perennial	greater duckweed
Stellaria graminea	Caryophyllaceae	STEGRE	non-native	0	5	forb	perennial	starwort
Stellaria longifolia	Caryophyllaceae	STELOF	native	5	-3	forb	perennial	long-leaved chickweed
Symphotrichum firmum; aster puniceus	Asteraceae	SYMFIR	native	4	-3	forb	perennial	smooth swamp aster
Symphotrichum lanceolatum; aster l.	Asteraceae	SYMLAN	native	2	-3	forb	perennial	panicked aster
Symphotrichum lateriflorum; aster l.	Asteraceae	SYMLAT	native	2	0	forb	perennial	calico aster
Symphotrichum oolentangiense; aster o.	Asteraceae	SYMOOL	native	4	5	forb	perennial	prairie heart-leaved aster
Symphotrichum urophyllum; aster sagittifolius	Asteraceae	SYMURO	native	2	5	forb	perennial	arrow-leaved aster
Taraxacum officinale	Asteraceae	TAROFF	non-native	0	3	forb	perennial	common dandelion
Thelypteris palustris	Thelypteridaceae	THEPAL	native	2	-3	fern	perennial	marsh fern

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Tragopogon pratensis	Asteraceae	TRAPRA	non-native	0	5	forb	biennial	common goats beard
Trientalis borealis	Myrsinaceae	TRIBOR	native	5	0	forb	perennial	star-flower
Trifolium hybridum	Fabaceae	TRIHYP	non-native	0	3	forb	perennial	alsike clover
Trifolium pratense	Fabaceae	TRIPRA	non-native	0	3	forb	perennial	red clover
Trifolium repens	Fabaceae	TRIREP	non-native	0	3	forb	perennial	white clover
Trillium cernuum	Trilliaceae	TRICER	native	5	0	forb	perennial	nodding trillium
Triosteum aurantiacum	Caprifoliaceae	TRIAUN	native	5	5	forb	perennial	horse-gentian
Typha latifolia	Typhaceae	TYPLAT	native	1	-5	forb	perennial	broad-leaved cat-tail
Ulmus americana	Ulmaceae	ULMAME	native	1	-3	tree	perennial	american elm
Vaccinium myrtilloides	Ericaceae	VACMYR	native	4	-3	shrub	perennial	canada blueberry
Verbascum thapsus	Scrophulariaceae	VERTHA	non-native	0	5	forb	biennial	common mullein
Verbena hastata	Verbenaceae	VERHAS	native	4	-3	forb	perennial	blue vervain
Veronica anagallis-aquatica	Plantaginaceae	VERANA	native	4	-5	forb	perennial	water speedwell
Viburnum lentago	Adoxaceae	VIBLEN	native	4	0	shrub	perennial	nannyberry
Vicia tetrasperma	Fabaceae	VICTET	non-native	0	5	vine	annual	sparrow vetch
Vicia villosa	Fabaceae	VICVIL	non-native	0	5	vine	annual	hairy vetch
Viola blanda	Violaceae	VIOLBLA	native	5	-3	forb	perennial	sweet white violet

repens). Poverty grass (*Danthonia spicata*) is common on some of the higher, drier open areas, whereas graceful sedge (*Carex gracillima*) is important in mesic areas. Forbs are common, represented by a variety of native and non-native disturbance-tolerant species. Characteristic species include wild-basil (*Clinopodium vulgare*), ox-eye daisy (*Leucanthemum vulgare*), birdfoot trefoil (*Lotus corniculatus*), red clover (*Trifolium pratense*), alsike clover (*T. hybridum*), old-field cinquefoil (*Potentilla simplex*), yellow avens (*Geum aleppicum*), wild strawberry (*Fragaria virginiana*), common St. John's-wort (*Hypericum perforatum*), arrow-leaved aster (*Symphyotrichum urophyllum*), and tall goldenrod (*Solidago altissima*). Spotted knapweed (*Centaurea stoebe*) and hoary alyssum (*Berteroa incana*) are locally common on well-drained sandy soils.

Gray dogwood (*Cornus foemina*) is common and widespread in the old field communities. Other common woody species in this habitat include black cherry (*Prunus serotina*), white pine (*Pinus strobus*), autumn-olive (*Elaeagnus umbellata*), hawthorns (*Crataegus* spp.), Morrow honeysuckle (*Lonicera morrowii*), and meadowsweet (*Spiraea alba*).

Swamp forest (SF)

The northern portion of the site supports a large area of hardwood-dominated swamp forest (northern hardwood swamp) (Figure 8). The swamp forest is characterized by small-diameter black ash (*Fraxinus nigra*), green ash (*F. pennsylvanica*), silver maple (*Acer saccharinum*), and red maple (*A. rubrum*). Most of the canopy ashes were affected by emerald ash borer (*Agrilus planipennis*) and were dead or dying. The shrub layer is open, supporting tag alder (*Alnus incana*), Michigan holly (*Ilex verticillata*), and common elder (*Sambucus canadensis*).

The ground layer of the swamp forest is dense and species-rich. Characteristic species include sensitive fern (*Onoclea sensibilis*), fowl manna grass (*Glyceria striata*), spotted touch-me-not (*Impatiens capensis*), river-bank grape (*Vitis riparia*), marsh-marigold (*Caltha palustris*), reed canary grass (*Phalaris arundinacea*), jack-in-the-pulpit (*Arisaema triphyllum*), tufted loosestrife (*Lysimachia thyrsiflora*), and the sedges *Carex crinita*, *C. lupulina*, and *C. cristatella*.

Wet meadow (WM)

The southern portion of the unit supports a large, historically inundated depression that is currently dominated by reed canary grass with occasional common cat-tail (*Typha latifolia*) and a patch of the non-native, invasive common reed (*Phragmites australis* subsp. *australis*). This wetland is ringed by a zone of moist old field supporting blue-joint (*Calamagrostis canadensis*), lake sedge (*Carex lacustris*), and Canada anemone (*Anemone canadensis*).

Other Habitats

In addition to old field, wet meadow, and swamp forest, Unit 2 supports small areas dominated by quaking aspen (*Populus tremuloides*) and big-tooth aspen (*P. grandidentata*), associated with balsam poplar (*P. balsamifera*). The ground layer in these areas closely approximates dry-mesic northern forest (see AA on the map). Among the common ground layer species are black raspberry (*Rubus occidentalis*),

large-leaved aster (*Eurybia macrophylla*), white avens (*Geum canadense*), spreading dogbane (*Apocynum androsaemifolium*), bracken fern (*Pteridium aquilinum*), and Canada blueberry (*Vaccinium myrtilloides*).

A variety of shrub- and graminoid-dominated wetlands (WM, SC) are also common throughout Unit 2. Some of the less disturbed areas support tag alder associated with slender willow (*Salix petiolaris*), blue-joint, lake sedge, and tussock sedge (*Carex stricta*). Reed canary grass is locally common in these wetland areas.



Figure 8. Hardwood-dominated swamp forest (SF) at OMG Unit 2.

Bird Community

Four bird species of greatest conservation need (SGCN) were noted at this site during vegetation surveys. These were northern flicker (*Colaptes auratus*), eastern kingbird (*Tyrannus tyrannus*), sedge wren (*Cistothorus plattensis*), and field sparrow (*Spizella pusilla*).

Osceola-Missaukee Grasslands SGA Unit 2

07/03/2014

Osceola-Missaukee SGA-O

Marion

Osceola

MI

USA

FQA DB Region:

Michigan

FQA DB Publication Year:

2014

FQA DB Description:

Reznicek, A.A., M.R. Penskar, B.S. Walters, and B.S. Slaughter. 2014. Michigan Floristic Quality Assessment Database. Herbarium, University of Michigan, Ann Arbor, MI and Michigan Natural Features Inventory, Michigan State University, Lansing, MI. <http://michiganflora.net>

Pracitioner:

Brad Slaughter, Erin Victory

Latitude:

44.1222

Longitude:

-85.1221

Weather Notes:

Duration Notes:

Community Type Notes:

old field, northern wet meadow, northern shrub thicket, dry-mesic northern forest, northern hardwood swamp, aspen association

Other Notes:

Additional field survey 5 September 2014. Also noted: *Crataegus* sp., *Galium* sp., *Pilea* sp., *Sanicula* sp., *Stachys* sp.

Private/Public:

Public

Conservatism-Based Metrics:

Total Mean C:	2.5
Native Mean C:	3.3
Total FQI:	33.7
Native FQI:	38.9
Adjusted FQI:	28.8
% C value 0:	27.5
% C value 1-3:	35.2
% C value 4-6:	36.3
% C value 7-10:	1.1
Native Tree Mean C:	3.3
Native Shrub Mean C:	3.3
Native Herbaceous Mean C:	3.3

Species Richness:

Total Species:	182	
Native Species:	139	76.40%
Non-native Species:	43	23.60%

Species Wetness:	
Mean Wetness:	-0.3
Native Mean Wetness:	-1.3

Physiognomy Metrics:		
Tree:	23	12.60%
Shrub:	20	11%
Vine:	5	2.70%
Forb:	88	48.40%
Grass:	21	11.50%
Sedge:	16	8.80%
Rush:	0	0%
Fern:	9	4.90%
Bryophyte:	0	0%

Duration Metrics:		
Annual:	13	7.10%
Perennial:	160	87.90%
Biennial:	9	4.90%
Native Annual:	8	4.40%
Native Perennial:	129	70.90%
Native Biennial:	2	1.10%

Species:

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Abies balsamea	Pinaceae	ABIBAL	native	3	0	tree	perennial	balsam fir
Acer rubrum	Sapindaceae	ACERUB	native	1	0	tree	perennial	red maple
Acer saccharinum	Sapindaceae	ACESAI	native	2	-3	tree	perennial	silver maple
Acer saccharum	Sapindaceae	ACESAU	native	5	3	tree	perennial	sugar maple
Achillea millefolium	Asteraceae	ACHMIL	native	1	3	forb	perennial	yarrow
Agrimonia gryposepala	Rosaceae	AGRGRY	native	2	3	forb	perennial	tall agrimony
Agrostis gigantea	Poaceae	AGRIGIG	non-native	0	-3	grass	perennial	redtop
Agrostis stolonifera	Poaceae	AGRSTO	non-native	0	-3	grass	perennial	creeping bent
Alisma triviale; a. plantago-aquatica	Alismataceae	ALITRI	native	1	-5	forb	perennial	northern water-plantain
Alnus incana; a. rugosa	Betulaceae	ALNINC	native	5	-3	shrub	perennial	speckled alder
Ambrosia artemisiifolia	Asteraceae	AMBART	native	0	3	forb	annual	common ragweed

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Anemone canadensis	Ranunculaceae	ANECAN	native	4	-3	forb	perennial	canada anemone
Apocynum androsaemifolium	Apocynaceae	APOAND	native	3	5	forb	perennial	spreading dogbane
Arisaema triphyllum	Araceae	ARITRI	native	5	0	forb	perennial	jack-in-the-pulpit
Asclepias incarnata	Apocynaceae	ASCINC	native	6	-5	forb	perennial	swamp milkweed
Asclepias syriaca	Apocynaceae	ASCSYR	native	1	5	forb	perennial	common milkweed
Athyrium filix-femina	Athyriaceae	ATHFIL	native	4	0	fern	perennial	lady fern
Barbarea vulgaris	Brassicaceae	BARVUL	non-native	0	0	forb	biennial	yellow rocket
Berteroa incana	Brassicaceae	BERINC	non-native	0	5	forb	annual	hoary alyssum
Betula papyrifera	Betulaceae	BETPAP	native	2	3	tree	perennial	paper birch
Bromus inermis	Poaceae	BROINE	non-native	0	5	grass	perennial	smooth brome
Calamagrostis canadensis	Poaceae	CALCAN	native	3	-5	grass	perennial	blue-joint
Caltha palustris	Ranunculaceae	CALPAR	native	6	-5	forb	perennial	marsh-marigold
Carex bebbii	Cyperaceae	CXBEBB	native	4	-5	sedge	perennial	sedge
Carex crinita	Cyperaceae	CXCRIN	native	4	-5	sedge	perennial	sedge
Carex cristatella	Cyperaceae	CXCRIS	native	3	-3	sedge	perennial	sedge
Carex gracillima	Cyperaceae	CXGRAA	native	4	3	sedge	perennial	sedge
Carex interior	Cyperaceae	CXINTE	native	3	-5	sedge	perennial	sedge
Carex intumescens	Cyperaceae	CXINTU	native	3	-3	sedge	perennial	sedge
Carex lacustris	Cyperaceae	CXLACU	native	6	-5	sedge	perennial	sedge
Carex lupulina	Cyperaceae	CXLUPA	native	4	-5	sedge	perennial	sedge
Carex retrorsa	Cyperaceae	CXRETS	native	3	-5	sedge	perennial	sedge
Carex stipata	Cyperaceae	CXSTIP	native	1	-5	sedge	perennial	sedge
Carex stricta	Cyperaceae	CXSTRI	native	4	-5	sedge	perennial	sedge
Carex tenera	Cyperaceae	CXTENE	native	4	0	sedge	perennial	sedge
Carex vulpinoidea	Cyperaceae	CXVULP	native	1	-5	sedge	perennial	sedge
Centaurea stoebe; c. maculosa	Asteraceae	CENSTO	non-native	0	5	forb	biennial	spotted knapweed
Cerastium fontanum	Caryophyllaceae	CERFON	non-native	0	3	forb	perennial	mouse-ear chickweed
Cichorium intybus	Asteraceae	CICINT	non-native	0	3	forb	perennial	chicory
Cicuta bulbifera	Apiaceae	CICBUL	native	5	-5	forb	perennial	water hemlock
Cinna latifolia	Poaceae	CINLAT	native	5	-3	grass	perennial	wood reedgrass
Cirsium arvense	Asteraceae	CIRARV	non-native	0	3	forb	perennial	canada thistle
Cirsium muticum	Asteraceae	CIRMUT	native	6	-5	forb	biennial	swamp thistle
Cirsium vulgare	Asteraceae	CIRVUL	non-native	0	3	forb	biennial	bull thistle
Clinopodium vulgare	Lamiaceae	CLIVUL	native	3	5	forb	perennial	wild-basil
Coptis trifolia	Ranunculaceae	COPTRI	native	5	-3	forb	perennial	goldthread
Cornus canadensis	Cornaceae	CORCAA	native	6	0	shrub	perennial	bunchberry
Cornus foemina	Cornaceae	CORFOE	native	1	0	shrub	perennial	gray dogwood
Cornus sericea; c. stolonifera	Cornaceae	CORSER	native	2	-3	shrub	perennial	red-osier
Danthonia spicata	Poaceae	DANSPI	native	4	5	grass	perennial	poverty grass; oatgrass

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
<i>Daucus carota</i>	Apiaceae	DAUCAR	non-native	0	5	forb	biennial	queen-annes-lace
<i>Dianthus armeria</i>	Caryophyllaceae	DIAARM	non-native	0	5	forb	annual	deptford pink
<i>Dianthus deltoides</i>	Caryophyllaceae	DIADEL	non-native	0	5	forb	perennial	maiden pink
<i>Dichanthelium boreale</i> ; panicum b.	Poaceae	DICBOR	native	7	0	grass	perennial	northern panic grass
<i>Dryopteris intermedia</i>	Dryopteridaceae	DRYINT	native	5	0	fern	perennial	evergreen woodfern
<i>Echinochloa muricata</i>	Poaceae	ECHMUR	native	1	-5	grass	annual	barnyard grass
<i>Elaeagnus umbellata</i>	Elaeagnaceae	ELAUMB	non-native	0	3	shrub	perennial	autumn-olive
<i>Eleocharis obtusa</i>	Cyperaceae	ELEOBT	native	3	-5	sedge	annual	spike-rush
<i>Elymus hystrix</i> ; <i>hystrix patula</i>	Poaceae	ELYHYS	native	5	3	grass	perennial	bottlebrush grass
<i>Elymus repens</i> ; <i>agropyron r.</i>	Poaceae	ELYREP	non-native	0	3	grass	perennial	quack grass
<i>Epilobium coloratum</i>	Onagraceae	EPICOL	native	3	-5	forb	perennial	cinnamon willow-herb
<i>Equisetum arvense</i>	Equisetaceae	EQUARV	native	0	0	fern	perennial	common horsetail
<i>Equisetum fluviatile</i>	Equisetaceae	EQUFLU	native	7	-5	fern	perennial	water horsetail
<i>Erigeron strigosus</i>	Asteraceae	ERISTR	native	4	3	forb	perennial	daisy fleabane
<i>Eurybia macrophylla</i> ; aster m.	Asteraceae	EURMAC	native	4	5	forb	perennial	big-leaved aster
<i>Euthamia graminifolia</i>	Asteraceae	EUTGRA	native	3	0	forb	perennial	grass-leaved goldenrod
<i>Fagus grandifolia</i>	Fagaceae	FAGGRA	native	6	3	tree	perennial	american beech
<i>Fragaria virginiana</i>	Rosaceae	FRAVIR	native	2	3	forb	perennial	wild strawberry
<i>Fraxinus americana</i>	Oleaceae	FRAAME	native	5	3	tree	perennial	white ash
<i>Fraxinus nigra</i>	Oleaceae	FRANIG	native	6	-3	tree	perennial	black ash
<i>Fraxinus pennsylvanica</i>	Oleaceae	FRAPEN	native	2	-3	tree	perennial	red ash
<i>Galium asprellum</i>	Rubiaceae	GALASP	native	5	-5	vine	perennial	rough bedstraw
<i>Galium triflorum</i>	Rubiaceae	GALTRR	native	4	3	forb	perennial	fragrant bedstraw
<i>Gentiana andrewsii</i>	Gentianaceae	GENAND	native	5	-3	forb	perennial	bottle gentian
<i>Geum aleppicum</i>	Rosaceae	GEUALE	native	3	0	forb	perennial	yellow avens
<i>Geum canadense</i>	Rosaceae	GEUCAN	native	1	0	forb	perennial	white avens
<i>Glyceria striata</i>	Poaceae	GLYSTR	native	4	-5	grass	perennial	fowl manna grass
<i>Gratiola neglecta</i>	Plantaginaceae	GRANEG	native	5	-5	forb	annual	clammy hedge hyssop
<i>Hypericum perforatum</i>	Hypericaceae	HYPPER	non-native	0	5	forb	perennial	common st. johns-wort
<i>Ilex verticillata</i>	Aquifoliaceae	ILEVER	native	5	-3	shrub	perennial	michigan holly
<i>Impatiens capensis</i>	Balsaminaceae	IMPCAP	native	2	-3	forb	annual	spotted touch-me-not
<i>Iris versicolor</i>	Iridaceae	IRIVER	native	5	-5	forb	perennial	wild blue flag
<i>Juncus articulatus</i>	Juncaceae	JUNART	native	3	-5	forb	perennial	jointed rush
<i>Juncus bufonius</i>	Juncaceae	JUNBUF	native	2	-3	forb	annual	toad rush
<i>Juncus effusus</i>	Juncaceae	JUNEFF	native	3	-5	forb	perennial	soft-stemmed rush
<i>Juncus tenuis</i>	Juncaceae	JUNTEN	native	1	0	forb	perennial	path rush
<i>Laportea canadensis</i>	Urticaceae	LAPCAN	native	4	-3	forb	perennial	wood nettle
<i>Larix laricina</i>	Pinaceae	LARLAR	native	5	-3	tree	perennial	tamarack
<i>Leucanthemum vulgare</i> ; <i>chrysanthemum leucanthemum</i>	Asteraceae	LEUVUL	non-native	0	5	forb	perennial	ox-eye daisy

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Lonicera morrowii	Caprifoliaceae	LONMOR	non-native	0	3	shrub	perennial	morrow honeysuckle
Lonicera Å—bella	Caprifoliaceae	LONBEL	non-native	0	3	shrub	perennial	hybrid honeysuckle
Lotus corniculatus	Fabaceae	LOTCOR	non-native	0	3	forb	perennial	birdfoot trefoil
Ludwigia palustris	Onagraceae	LUDPAL	native	4	-5	forb	perennial	water-purslane
Lycopus americanus	Lamiaceae	LYCAME	native	2	-5	forb	perennial	common water horehound
Lycopus uniflorus	Lamiaceae	LYCUNI	native	2	-5	forb	perennial	northern bugle weed
Lysimachia ciliata	Myrsinaceae	LYSCIL	native	4	-3	forb	perennial	fringed loosestrife
Lysimachia thyrsoflora	Myrsinaceae	LYSTHY	native	6	-5	forb	perennial	tufted loosestrife
Maianthemum canadense	Convallariaceae	MAICAN	native	4	3	forb	perennial	canada mayflower
Malus pumila	Rosaceae	MALPUM	non-native	0	5	tree	perennial	apple
Medicago lupulina	Fabaceae	MEDLUP	non-native	0	3	forb	annual	black medick
Melilotus albus	Fabaceae	MELALB	non-native	0	3	forb	biennial	white sweet-clover
Mentha canadensis; m. arvensis	Lamiaceae	MENCAS	native	3	-3	forb	perennial	wild mint
Mimulus ringens	Phrymaceae	MIMRIN	native	5	-5	forb	perennial	monkey-flower
Onoclea sensibilis	Onocleaceae	ONOSEN	native	2	-3	fern	perennial	sensitive fern
Oryzopsis asperifolia	Poaceae	ORYASP	native	6	5	grass	perennial	rough-leaved rice-grass
Osmunda cinnamomea	Osmundaceae	OSMCIN	native	5	-3	fern	perennial	cinnamon fern
Osmunda regalis	Osmundaceae	OSMREG	native	5	-5	fern	perennial	royal fern
Panicum capillare	Poaceae	PANCAP	native	0	0	grass	annual	witch grass
Panicum virgatum	Poaceae	PANVIR	native	4	0	grass	perennial	switch grass
Parthenocissus quinquefolia	Vitaceae	PARQUI	native	5	3	vine	perennial	virginia creeper
Persicaria sagittata; polygonum s.	Polygonaceae	PERSAG	native	5	-5	forb	annual	arrow-leaved tear-thumb
Phalaris arundinacea	Poaceae	PHAARU	native	0	-3	grass	perennial	reed canary grass
Phleum pratense	Poaceae	PHLPRA	non-native	0	3	grass	perennial	timothy
Phragmites australis var. americanus	Poaceae	PHRAUM	native	5	-3	grass	perennial	reed
Pinus strobus	Pinaceae	PINSTR	native	3	3	tree	perennial	white pine
Pinus sylvestris	Pinaceae	PINSYL	non-native	0	3	tree	perennial	scotch pine
Plantago lanceolata	Plantaginaceae	PLALAN	non-native	0	3	forb	perennial	english plantain
Plantago rugelii	Plantaginaceae	PLARUG	native	0	0	forb	perennial	red-stalked plantain
Platanthera lacera; habenaria l.	Orchidaceae	PLALAC	native	6	-3	forb	perennial	green-fringed orchid
Poa compressa	Poaceae	POACOM	non-native	0	3	grass	perennial	canada bluegrass
Poa palustris	Poaceae	POAPAS	native	3	-3	grass	perennial	fowl meadow grass
Poa pratensis	Poaceae	POAPRA	non-native	0	3	grass	perennial	kentucky bluegrass
Populus balsamifera	Salicaceae	POPBAL	native	2	-3	tree	perennial	balsam poplar
Populus deltoides	Salicaceae	POPDEL	native	1	0	tree	perennial	cottonwood
Populus grandidentata	Salicaceae	POPGRA	native	4	3	tree	perennial	big-tooth aspen
Populus tremuloides	Salicaceae	POPTRE	native	1	0	tree	perennial	quaking aspen
Potentilla argentea	Rosaceae	POTARG	non-native	0	3	forb	perennial	silvery cinquefoil
Potentilla recta	Rosaceae	POTREC	non-native	0	5	forb	perennial	rough-fruited cinquefoil

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Potentilla simplex	Rosaceae	POTSIM	native	2	3	forb	perennial	old-field cinquefoil
Prunella vulgaris	Lamiaceae	PRUVUL	native	0	0	forb	perennial	self-heal
Prunus serotina	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry
Pseudognaphalium obtusifolium; gnaphalium o.	Asteraceae	PSEOBT	native	2	5	forb	biennial	old-field balsam
Pteridium aquilinum	Dennstaedtiaceae	PTEAQU	native	0	3	fern	perennial	bracken fern
Quercus macrocarpa	Fagaceae	QUEMAC	native	5	3	tree	perennial	bur oak
Ranunculus acris	Ranunculaceae	RANACR	non-native	0	0	forb	perennial	tall or common buttercup
Ranunculus hispidus	Ranunculaceae	RANHIS	native	5	0	forb	perennial	swamp buttercup
Ribes americanum	Grossulariaceae	RIBAME	native	6	-3	shrub	perennial	wild black currant
Ribes hirtellum	Grossulariaceae	RIBHIR	native	6	-3	shrub	perennial	swamp gooseberry
Rosa multiflora	Rosaceae	ROSMUL	non-native	0	3	shrub	perennial	multiflora rose
Rubus allegheniensis	Rosaceae	RUBALL	native	1	3	shrub	perennial	common blackberry
Rubus occidentalis	Rosaceae	RUBOCC	native	1	5	shrub	perennial	black raspberry
Rubus pubescens	Rosaceae	RUBPUB	native	4	-3	shrub	perennial	dwarf raspberry
Rubus strigosus	Rosaceae	RUBSTR	native	2	0	shrub	perennial	wild red raspberry
Rudbeckia hirta	Asteraceae	RUDHIR	native	1	3	forb	perennial	black-eyed susan
Rumex acetosella	Polygonaceae	RUMACL	non-native	0	3	forb	perennial	sheep sorrel
Rumex crispus	Polygonaceae	RUMCRI	non-native	0	0	forb	perennial	curly dock
Salix discolor	Salicaceae	SALDIS	native	1	-3	shrub	perennial	pussy willow
Salix nigra	Salicaceae	SALNIG	native	5	-5	tree	perennial	black willow
Salix petiolaris	Salicaceae	SALPET	native	1	-3	shrub	perennial	slender willow
Sambucus canadensis	Adoxaceae	SAMCAN	native	3	-3	shrub	perennial	elderberry
Schedonorus pratensis; festuca p.	Poaceae	SCHPRA	non-native	0	3	grass	perennial	meadow fescue
Scirpus atrovirens	Cyperaceae	SCIATV	native	3	-5	sedge	perennial	bulrush
Scirpus cyperinus	Cyperaceae	SCICYP	native	5	-5	sedge	perennial	wool-grass
Scutellaria galericulata	Lamiaceae	SCUGAL	native	5	-5	forb	perennial	marsh skullcap
Sium suave	Apiaceae	SIUSUA	native	5	-5	forb	perennial	water-parsnip
Solanum dulcamara	Solanaceae	SOLDUL	non-native	0	0	vine	perennial	bittersweet nightshade
Solidago altissima	Asteraceae	SOLALT	native	1	3	forb	perennial	tall goldenrod
Solidago gigantea	Asteraceae	SOLGIG	native	3	-3	forb	perennial	late goldenrod
Solidago juncea	Asteraceae	SOLJUN	native	3	5	forb	perennial	early goldenrod
Solidago rugosa	Asteraceae	SOLRUG	native	3	0	forb	perennial	rough-leaved goldenrod
Sonchus asper	Asteraceae	SONASP	non-native	0	3	forb	annual	prickly sow-thistle
Spiraea alba	Rosaceae	SPIALB	native	4	-3	shrub	perennial	meadowsweet
Stellaria graminea	Caryophyllaceae	STEGRE	non-native	0	5	forb	perennial	starwort
Symphotrichum firmum; aster puniceus	Asteraceae	SYMFIR	native	4	-3	forb	perennial	smooth swamp aster
Symphotrichum lanceolatum; aster l.	Asteraceae	SYMLAN	native	2	-3	forb	perennial	panicked aster
Symphotrichum lateriflorum; aster l.	Asteraceae	SYMLAT	native	2	0	forb	perennial	calico aster
Symphotrichum oolentangiense; aster o.	Asteraceae	SYMOOL	native	4	5	forb	perennial	prairie heart-leaved aster

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Symphotrichum urophyllum; aster sagittifolius	Asteraceae	SYMURO	native	2	5	forb	perennial	arrow-leaved aster
Thelypteris palustris	Thelypteridaceae	THEPAL	native	2	-3	fern	perennial	marsh fern
Thuja occidentalis	Cupressaceae	THUOCC	native	4	-3	tree	perennial	arbor vitae
Tilia americana	Malvaceae	TILAME	native	5	3	tree	perennial	basswood
Tragopogon pratensis	Asteraceae	TRAPRA	non-native	0	5	forb	biennial	common goats beard
Trifolium hybridum	Fabaceae	TRIHYP	non-native	0	3	forb	perennial	alsike clover
Trifolium pratense	Fabaceae	TRIPRA	non-native	0	3	forb	perennial	red clover
Typha latifolia	Typhaceae	TYPLAT	native	1	-5	forb	perennial	broad-leaved cat-tail
Ulmus americana	Ulmaceae	ULMAME	native	1	-3	tree	perennial	american elm
Urtica dioica	Urticaceae	URTDIO	native	1	0	forb	perennial	stinging nettle
Vaccinium myrtilloides	Ericaceae	VACMYR	native	4	-3	shrub	perennial	canada blueberry
Verbascum thapsus	Scrophulariaceae	VERTHA	non-native	0	5	forb	biennial	common mullein
Verbena hastata	Verbenaceae	VERHAS	native	4	-3	forb	perennial	blue vervain
Vicia villosa	Fabaceae	VICVIL	non-native	0	5	vine	annual	hairy vetch
Vitis riparia	Vitaceae	VITRIP	native	3	0	vine	perennial	river-bank grape

Unit 3

Location: Missaukee County, T22N R05W S05. NE of intersection of E. Beeler Rd. and S. Merritt Rd. 0.25 mi S of Merritt.

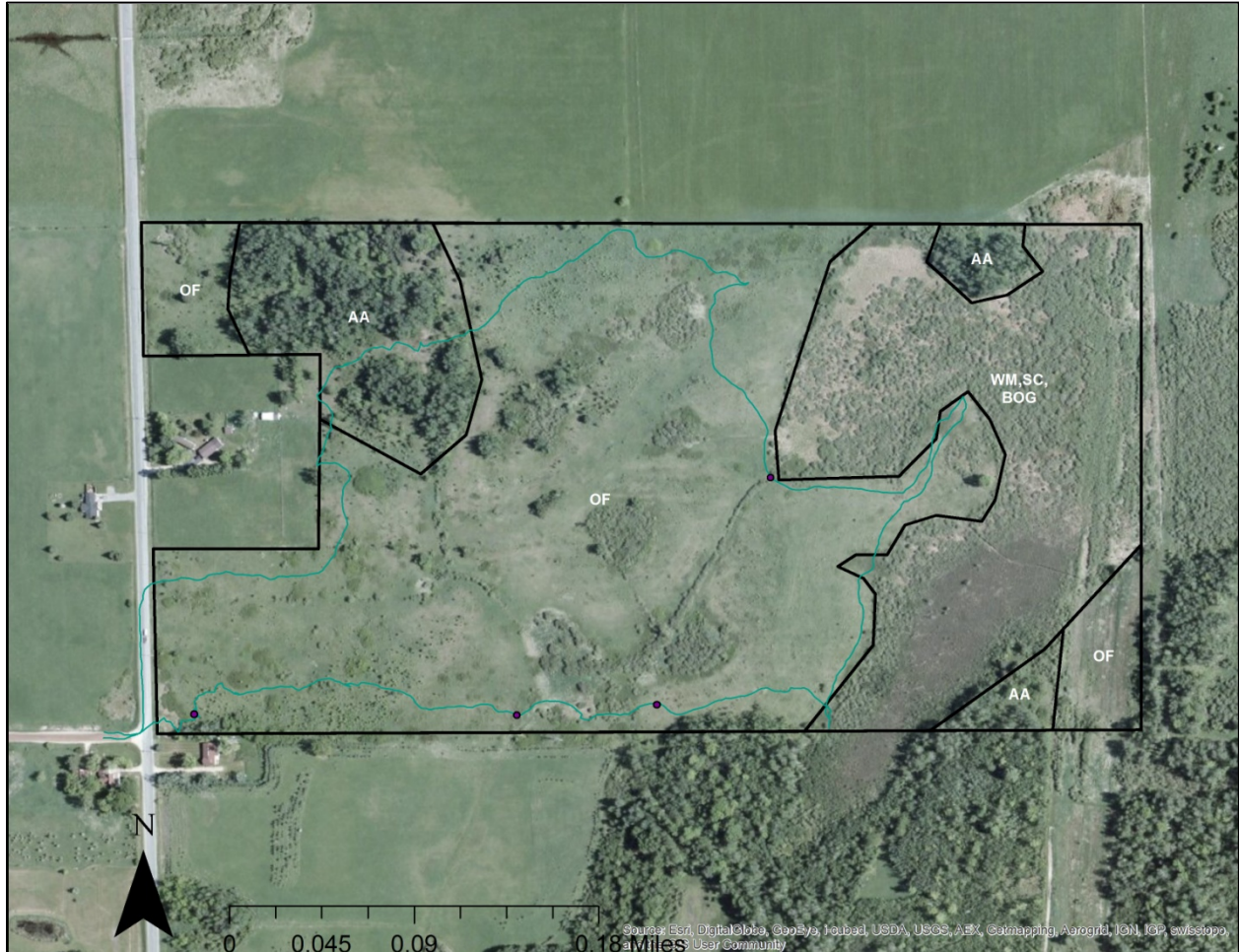


Figure 9. Osceola-Missaukee Grasslands State Game Area - Unit 3. AA= aspen association; BOG= bog; OF= old field; SC= shrub-carr; WM= wet meadow.

Site Description

The majority of this site is comprised of old field characterized by non-native cool-season grasses, native sedges, and a variety of native and non-native forbs (Figure 9). Common species include smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), timothy (*Phleum pratense*), graceful sedge (*Carex gracillima*), quill sedge (*Carex tenera*), tall goldenrod (*Solidago altissima*), wild strawberry (*Fragaria virginiana*), ox-eye daisy (*Leucanthemum vulgare*), yellow avens (*Geum aleppicum*), red clover (*Trifolium pratense*), white clover (*T. repens*), alsike clover (*T. hybridum*), orange hawkweed (*Hieracium aurantiacum*), arrow-leaved aster (*Symphyotrichum urophyllum*), old-field cinquefoil (*Potentilla simplex*), self-heal (*Prunella vulgaris*), common buttercup (*Ranunculus acris*), and mouse-ear chickweed (*Cerastium fontanum*). Shrubs and small trees are common, among the most prevalent being Scots pine

(*Pinus sylvestris*), hawthorns (*Crataegus* spp.), gray dogwood (*Cornus foemina*), and meadowsweet (*Spiraea alba*).

The eastern portion of Unit 3 supports a wetland complex dominated by slender willow (*Salix petiolaris*) and red-osier dogwood (*Cornus sericea*) with a dense ground layer supporting meadowsweet, reed canary grass (*Phalaris arundinacea*), and lake sedge (*Carex lacustris*). The southeastern portion of the site appears to support a degraded bog, perhaps dominated by leatherleaf (*Chamaedaphne calyculata*), although this small area was not field-checked. Small depressions with wet meadow and marsh vegetation are also found scattered through the old field areas, particularly along ditches. In the wettest areas, common cat-tail (*Typha latifolia*) is locally common.

In the northwestern portion of Unit 3, a small forested stand dominated by quaking aspen (*Populus tremuloides*) occurs adjacent to a private inholding.

Notable Species

Eight plant specimens were collected and will be submitted to the University of Michigan Herbarium as potential Missaukee County voucher specimens pending confirmation of identification. These are chestnut sedge (*Carex castanea*), quill sedge (*C. tenera*), sheep fescue (*Festuca trachyphylla*), birdfoot trefoil (*Lotus corniculatus*), alsike clover (*Trifolium hybridum*), red clover (*T. pratense*), sparrow vetch (*Vicia tetrasperma*), and hairy vetch (*V. villosa*).

Bird Community

Two bird species of greatest conservation need (SGCN) were noted at this site during vegetation surveys. These were eastern kingbird (*Tyrannus tyrannus*) (Figure 10) and savannah sparrow (*Passerculus sandwichensis*).



Figure 10. Eastern kingbird (*Tyrannus tyrannus*) was observed at OMG Unit 3.

Osceola-Missaukee Grasslands SGA Unit 3

06/17/2014

Osceola-Missaukee SGA-M

Missaukee

MI

USA

FQA DB Region:

Michigan

FQA DB Publication Year:

2014

FQA DB Description:

Reznicek, A.A., M.R. Penskar, B.S. Walters, and B.S. Slaughter. 2014. Michigan Floristic Quality Assessment Database. Herbarium, University of Michigan, Ann Arbor, MI and Michigan Natural Features Inventory, Michigan State University, Lansing, MI. <http://michiganflora.net>

Pracitioner:

Brad Slaughter, Erin Victory

Latitude:

44.3228

Longitude:

-84.9385

Weather Notes:

Duration Notes:

Community Type Notes:

primarily old field

Other Notes:

Also noted: *Crataegus* spp.

Private/Public:

Private

Conservatism-Based Metrics:

Total Mean C:

1.9

Native Mean C:

2.9

Total FQI:

17.5

Native FQI:

21.3

Adjusted FQI:

23.1

% C value 0:

40

% C value 1-3:

37.6

% C value 4-6:

21.2

% C value 7-10:

1.2

Native Tree Mean C:

2

Native Shrub Mean C:

3.3

Native Herbaceous Mean C:

3.1

Species Richness:

Total Species:

85

Native Species:

54 63.50%

Non-native Species:

31 36.50%

Species Wetness:

Mean Wetness:	1.8
Native Mean Wetness:	0.6

Physiognomy Metrics:

Tree:	12	14.10%
Shrub:	16	18.80%
Vine:	2	2.40%
Forb:	38	44.70%
Grass:	10	11.80%
Sedge:	6	7.10%
Rush:	0	0%
Fern:	1	1.20%
Bryophyte:	0	0%

Duration Metrics:

Annual:	3	3.50%
Perennial:	79	92.90%
Biennial:	3	3.50%
Native Annual:	0	0%
Native Perennial:	54	63.50%
Native Biennial:	0	0%

Species:

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Acer negundo	Sapindaceae	ACENEG	native	0	0	tree	perennial	box-elder
Acer rubrum	Sapindaceae	ACERUB	native	1	0	tree	perennial	red maple
Achillea millefolium	Asteraceae	ACHMIL	native	1	3	forb	perennial	yarrow
Agrimonia gryposepala	Rosaceae	AGRGRY	native	2	3	forb	perennial	tall agrimony
Amelanchier interior	Rosaceae	AMEINT	native	4	5	shrub	perennial	serviceberry
Apocynum androsaemifolium	Apocynaceae	APOAND	native	3	5	forb	perennial	spreading dogbane
Aronia prunifolia	Rosaceae	AROPRU	native	5	-3	shrub	perennial	chokeberry
Asclepias syriaca	Apocynaceae	ASCSYR	native	1	5	forb	perennial	common milkweed
Betula papyrifera	Betulaceae	BETPAP	native	2	3	tree	perennial	paper birch
Bromus inermis	Poaceae	BROINE	non-native	0	5	grass	perennial	smooth brome
Calamagrostis canadensis	Poaceae	CALCAN	native	3	-5	grass	perennial	blue-joint
Carex castanea	Cyperaceae	CXCAST	native	6	-3	sedge	perennial	sedge
Carex crinita	Cyperaceae	CXCRIN	native	4	-5	sedge	perennial	sedge
Carex gracillima	Cyperaceae	CXGRAA	native	4	3	sedge	perennial	sedge
Carex lacustris	Cyperaceae	CXLACU	native	6	-5	sedge	perennial	sedge
Carex stipata	Cyperaceae	CXSTIP	native	1	-5	sedge	perennial	sedge

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Carex tenera	Cyperaceae	CXTENE	native	4	0	sedge	perennial	sedge
Centaurea stoebe; c. maculosa	Asteraceae	CENSTO	non-native	0	5	forb	biennial	spotted knapweed
Cerastium fontanum	Caryophyllaceae	CERFON	non-native	0	3	forb	perennial	mouse-ear chickweed
Cirsium arvense	Asteraceae	CIRARV	non-native	0	3	forb	perennial	canada thistle
Clinopodium vulgare	Lamiaceae	CLIVUL	native	3	5	forb	perennial	wild-basil
Cornus foemina	Cornaceae	CORFOE	native	1	0	shrub	perennial	gray dogwood
Cornus sericea; c. stolonifera	Cornaceae	CORSER	native	2	-3	shrub	perennial	red-osier
Dactylis glomerata	Poaceae	DACGLO	non-native	0	3	grass	perennial	orchard grass
Daucus carota	Apiaceae	DAUCAR	non-native	0	5	forb	biennial	queen-annes-lace
Diervilla lonicera	Diervillaceae	DIELON	native	4	5	shrub	perennial	bush-honeysuckle
Doellingeria umbellata; aster u.	Asteraceae	DOEUMB	native	5	-3	forb	perennial	flat-topped white aster
Equisetum hyemale	Equisetaceae	EQUHYE	native	2	0	fern	perennial	scouring rush
Euphorbia virgata; e. esula	Euphorbiaceae	EUPVIR	non-native	0	5	forb	perennial	leafy spurge
Euthamia graminifolia	Asteraceae	EUTGRA	native	3	0	forb	perennial	grass-leaved goldenrod
Festuca trachyphylla; f. ovina	Poaceae	FESTRA	non-native	0	5	grass	perennial	sheep fescue
Fragaria virginiana	Rosaceae	FRAVIR	native	2	3	forb	perennial	wild strawberry
Fraxinus pennsylvanica	Oleaceae	FRAPEN	native	2	-3	tree	perennial	red ash
Gaultheria procumbens	Ericaceae	GAUPRO	native	5	3	shrub	perennial	wintergreen
Geum alepicum	Rosaceae	GEUALE	native	3	0	forb	perennial	yellow avens
Hieracium aurantiacum	Asteraceae	HIEAUR	non-native	0	5	forb	perennial	orange hawkweed
Hieracium piloselloides	Asteraceae	HIEPIS	non-native	0	5	forb	perennial	king devil
Hypericum perforatum	Hypericaceae	HYPPER	non-native	0	5	forb	perennial	common st. johns-wort
Leucanthemum vulgare; chrysanthemum leucanthemum	Asteraceae	LEUVUL	non-native	0	5	forb	perennial	ox-eye daisy
Lotus corniculatus	Fabaceae	LOTCOR	non-native	0	3	forb	perennial	birdfoot trefoil
Lysimachia thyrsiflora	Myrsinaceae	LYSTHY	native	6	-5	forb	perennial	tufted loosestrife
Medicago lupulina	Fabaceae	MEDLUP	non-native	0	3	forb	annual	black medick
Pedicularis canadensis	Orobanchaceae	PEDCAN	native	10	3	forb	perennial	wood-betony
Phalaris arundinacea	Poaceae	PHAARU	native	0	-3	grass	perennial	reed canary grass
Phleum pratense	Poaceae	PHLPRA	non-native	0	3	grass	perennial	timothy
Picea glauca	Pinaceae	PICGLA	native	3	3	tree	perennial	white spruce
Pinus strobus	Pinaceae	PINSTR	native	3	3	tree	perennial	white pine
Pinus sylvestris	Pinaceae	PINSYL	non-native	0	3	tree	perennial	scotch pine
Poa compressa	Poaceae	POACOM	non-native	0	3	grass	perennial	canada bluegrass
Poa pratensis	Poaceae	POAPRA	non-native	0	3	grass	perennial	kentucky bluegrass
Populus alba	Salicaceae	POPALB	non-native	0	5	tree	perennial	white poplar
Populus tremuloides	Salicaceae	POPTRE	native	1	0	tree	perennial	quaking aspen
Potentilla recta	Rosaceae	POTREC	non-native	0	5	forb	perennial	rough-fruited cinquefoil
Potentilla simplex	Rosaceae	POTSIM	native	2	3	forb	perennial	old-field cinquefoil
Prunella vulgaris	Lamiaceae	PRUVUL	native	0	0	forb	perennial	self-heal
Prunus serotina	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry
Prunus virginiana	Rosaceae	PRUVIR	native	2	3	shrub	perennial	choke cherry

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Quercus macrocarpa	Fagaceae	QUEMAC	native	5	3	tree	perennial	bur oak
Ranunculus acris	Ranunculaceae	RANACR	non-native	0	0	forb	perennial	tall or common buttercup
Ribes hirtellum	Grossulariaceae	RIBHIR	native	6	-3	shrub	perennial	swamp gooseberry
Rosa blanda	Rosaceae	ROSBLA	native	3	3	shrub	perennial	wild rose
Rubus allegheniensis	Rosaceae	RUBALL	native	1	3	shrub	perennial	common blackberry
Rubus flagellaris	Rosaceae	RUBFLA	native	1	3	shrub	perennial	northern dewberry
Rubus hispidus	Rosaceae	RUBHIS	native	4	-3	shrub	perennial	swamp dewberry
Rumex acetosella	Polygonaceae	RUMACL	non-native	0	3	forb	perennial	sheep sorrel
Rumex crispus	Polygonaceae	RUMCRI	non-native	0	0	forb	perennial	curly dock
Salix petiolaris	Salicaceae	SALPET	native	1	-3	shrub	perennial	slender willow
Schedonorus pratensis; festuca p.	Poaceae	SCHPRA	non-native	0	3	grass	perennial	meadow fescue
Schizachyrium scoparium; andropogon s.	Poaceae	SCHSCO	native	5	3	grass	perennial	little bluestem
Solidago altissima	Asteraceae	SOLALT	native	1	3	forb	perennial	tall goldenrod
Solidago juncea	Asteraceae	SOLJUN	native	3	5	forb	perennial	early goldenrod
Solidago rugosa	Asteraceae	SOLRUG	native	3	0	forb	perennial	rough-leaved goldenrod
Spiraea alba	Rosaceae	SPIALB	native	4	-3	shrub	perennial	meadowsweet
Symphyotrichum urophyllum; aster sagittifolius	Asteraceae	SYMURO	native	2	5	forb	perennial	arrow-leaved aster
Tragopogon dubius	Asteraceae	TRADUB	non-native	0	5	forb	biennial	goats beard
Trifolium hybridum	Fabaceae	TRIHYP	non-native	0	3	forb	perennial	alsike clover
Trifolium pratense	Fabaceae	TRIPRA	non-native	0	3	forb	perennial	red clover
Trifolium repens	Fabaceae	TRIREP	non-native	0	3	forb	perennial	white clover
Typha latifolia	Typhaceae	TYPLAT	native	1	-5	forb	perennial	broad-leaved cat-tail
Ulmus americana	Ulmaceae	ULMAME	native	1	-3	tree	perennial	american elm
Vaccinium angustifolium	Ericaceae	VACANG	native	4	3	shrub	perennial	low sweet blueberry
Valeriana officinalis	Valerianaceae	VALOFF	non-native	0	3	forb	perennial	garden-heliotrope
Viburnum rafinesquianum	Adoxaceae	VIBRAF	native	5	5	shrub	perennial	downy arrow-wood
Vicia tetrasperma	Fabaceae	VICTET	non-native	0	5	vine	annual	sparrow vetch
Vicia villosa	Fabaceae	VICVIL	non-native	0	5	vine	annual	hairy vetch

Unit 4

Location: Missaukee County, T23N R06W S13 SE1/4. SW of the intersection of E. Walker Rd. and N. Nelson Rd. , 4 mi NNW of Merritt.



Figure 11. Osceola-Missaukee Grasslands State Game Area - Unit 4. BOG= bog; EM= emergent marsh; OF= old field; PP= planted pines; SC= shrub-carr; WM= wet meadow.

Site Description

Despite its small size, Unit 4 supports several habitat types (Figure 11). The northwestern and southeastern portions of the site are characterized by old field habitats (OF), often bordered by and invaded by planted Scots pines (*Pinus sylvestris*) (PP). The old fields are primarily dominated by smooth brome (*Bromus inermis*), timothy (*Phleum pratense*), and Kentucky bluegrass (*Poa pratensis*). Other common herbaceous species include wild strawberry (*Fragaria virginiana*), yarrow (*Achillea millefolium*), sheep sorrel (*Rumex acetosella*), early goldenrod (*Solidago juncea*), common milkweed (*Asclepias syriaca*), hairy vetch (*Vicia villosa*), king devil (*Hieracium caespitosum*), orange hawkweed (*H. aurantiacum*), arrow-leaved aster (*Symphyotrichum urophyllum*), ox-eye daisy (*Leucanthemum vulgare*),

tall goldenrod (*Solidago altissima*), and starwort (*Stellaria graminea*). In addition to Scots pines, black cherry (*Prunus serotina*) is also scattered throughout the old field areas.

Several wetlands occur on the site, particularly in the central third of the area. Within these wetlands, tag alder (*Alnus incana*) and slender willow (*Salix petiolaris*) are typically common. The northernmost large wetland area supports disturbed emergent marsh and northern wet meadow in a former beaver pond. Moist to saturated zones are dominated by reed canary grass (*Phalaris arundinacea*) (Figure 12). The inundated central portion of the northern wetland is characterized by patchy herbaceous cover consisting of duckweeds (*Lemna* spp.), beggar-ticks (*Bidens* spp.), common water horehound (*Lycopus americanus*), water smartweed (*Persicaria amphibia*), and the sedge *Carex utriculata*.

South of the beaver pond is a degraded, shallow bog wetland ringed by meadowsweet (*Spiraea alba*) and wool-grass (*Scirpus cyperinus*) and dominated in the center by sphagnum mosses (*Sphagnum* spp.), swamp dewberry (*Rubus hispidus*), cotton-grass (*Eriophorum vaginatum*), and clumps of the ericaceous shrub leatherleaf (*Chamaedaphne calyculata*) (Figure 13).



Figure 12. Reed canary grass (*Phalaris arundinacea*) dominates an emergent marsh (EM) at OMG Unit 4.

The moist, sandy wetland margins throughout the site support a diversity of herbaceous species, including swamp sedge (*Carex debilis*), bracken fern (*Pteridium aquilinum*), swamp dewberry, blue-joint (*Calamagrostis canadensis*), low sweet blueberry (*Vaccinium angustifolium*), meadowsweet, chokeberry (*Aronia prunifolia*), and several mosses.

Notable Species

Five plant specimens were collected and will be submitted to the University of Michigan Herbarium as potential Missaukee County voucher specimens pending confirmation of identification. These are swamp sedge, northern sedge (*C. deflexa*), star duckweed (*Lemna trisulca*), path rush (*Juncus tenuis*), and swamp-candles (*Lysimachia terrestris*).

Bird Community

One species of greatest conservation need (SGCN) was noted at this site: eastern kingbird (*Tyrannus tyrannus*).



Figure 7. Degraded bog (BOG) at OMG Unit 4.

Osceola-Missaukee Grasslands SGA Unit 4

07/07/2014

Osceola-Missaukee SGA-M

Missaukee

MI

USA

FQA DB Region:

Michigan

FQA DB Publication Year:

2014

Reznicek, A.A., M.R. Penskar, B.S. Walters, and B.S. Slaughter. 2014. Michigan Floristic Quality Assessment Database. Herbarium, University of Michigan, Ann Arbor, MI and Michigan Natural Features Inventory, Michigan State University, Lansing, MI. <http://michiganflora.net>

FQA DB Description:

Practitioner:

Brad Slaughter

Latitude:

44.3824

Longitude:

-84.9764

Weather Notes:

Duration Notes:

Community Type Notes:

old field, aspen association (and clearings), pine plantation, emergent marsh (beaver pond), degraded bog

Other Notes:

Also noted: *Bidens* sp., *Crataegus* sp., *Lactuca* sp., *Lemna* min/tur.

Private/Public:

Private

Conservatism-Based Metrics:

Total Mean C:

2.6

Native Mean C:

3.8

Total FQI:

27.5

Native FQI:

33.3

Adjusted FQI:

31.5

% C value 0:

33.9

% C value 1-3:

31.3

% C value 4-6:

28.6

% C value 7-10:

6.3

Native Tree Mean C:

3

Native Shrub Mean C:

4

Native Herbaceous Mean C:

3.8

Species Richness:

Total Species:

112

Native Species:

77

68.80%

Non-native Species:

35

31.30%

Species Wetness:

Mean Wetness:	0.4
Native Mean Wetness:	-1.1

Physiognomy Metrics:

Tree:	8	7.10%
Shrub:	18	16.10%
Vine:	3	2.70%
Forb:	53	47.30%
Grass:	11	9.80%
Sedge:	15	13.40%
Rush:	0	0%
Fern:	4	3.60%
Bryophyte:	0	0%

Duration Metrics:

Annual:	7	6.30%
Perennial:	100	89.30%
Biennial:	5	4.50%
Native Annual:	3	2.70%
Native Perennial:	74	66.10%
Native Biennial:	0	0%

Species:

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Acer rubrum	Sapindaceae	ACERUB	native	1	0	tree	perennial	red maple
Achillea millefolium	Asteraceae	ACHMIL	native	1	3	forb	perennial	yarrow
Agrostis scabra; a. hyemalis	Poaceae	AGRSCA	native	4	0	grass	perennial	ticklegrass
Alnus incana; a. rugosa	Betulaceae	ALNINC	native	5	-3	shrub	perennial	speckled alder
Amelanchier interior	Rosaceae	AMEINT	native	4	5	shrub	perennial	serviceberry
Antennaria howellii	Asteraceae	ANTHOW	native	2	5	forb	perennial	small pussytoes
Apocynum androsaemifolium	Apocynaceae	APOAND	native	3	5	forb	perennial	spreading dogbane
Aronia prunifolia	Rosaceae	AROPRU	native	5	-3	shrub	perennial	chokeberry
Asclepias syriaca	Apocynaceae	ASCSYR	native	1	5	forb	perennial	common milkweed
Berteroa incana	Brassicaceae	BERINC	non-native	0	5	forb	annual	hoary alyssum
Bidens cernua	Asteraceae	BIDCER	native	3	-5	forb	annual	nodding beggar-ticks
Bromus inermis	Poaceae	BROINE	non-native	0	5	grass	perennial	smooth brome
Calamagrostis canadensis	Poaceae	CALCAN	native	3	-5	grass	perennial	blue-joint
Carex bebbii	Cyperaceae	CXBEBB	native	4	-5	sedge	perennial	sedge
Carex debilis	Cyperaceae	CXDEBI	native	6	-3	sedge	perennial	swamp sedge
Carex deflexa	Cyperaceae	CXDEFL	native	5	3	sedge	perennial	sedge

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Carex gracillima	Cyperaceae	CXGRAA	native	4	3	sedge	perennial	sedge
Carex intumescens	Cyperaceae	CXINTU	native	3	-3	sedge	perennial	sedge
Carex lacustris	Cyperaceae	CXLACU	native	6	-5	sedge	perennial	sedge
Carex oligosperma	Cyperaceae	CXOLIS	native	10	-5	sedge	perennial	sedge
Carex tenera	Cyperaceae	CXTENE	native	4	0	sedge	perennial	sedge
Carex utriculata; c. rostrata	Cyperaceae	CXUTRI	native	5	-5	sedge	perennial	sedge
Carex vulpinoidea	Cyperaceae	CXVULP	native	1	-5	sedge	perennial	sedge
Centaurea stoebe; c. maculosa	Asteraceae	CENSTO	non-native	0	5	forb	biennial	spotted knapweed
Chamaedaphne calyculata	Ericaceae	CHACAL	native	8	-5	shrub	perennial	leatherleaf
Cicuta bulbifera	Apiaceae	CICBUL	native	5	-5	forb	perennial	water hemlock
Cirsium arvense	Asteraceae	CIRARV	non-native	0	3	forb	perennial	canada thistle
Clinopodium vulgare	Lamiaceae	CLIVUL	native	3	5	forb	perennial	wild-basil
Comptonia peregrina	Myricaceae	COMPER	native	6	5	shrub	perennial	sweetfern
Dactylis glomerata	Poaceae	DACGLO	non-native	0	3	grass	perennial	orchard grass
Danthonia spicata	Poaceae	DANSPI	native	4	5	grass	perennial	poverty grass; oatgrass
Daucus carota	Apiaceae	DAUCAR	non-native	0	5	forb	biennial	queen-annes-lace
Dryopteris cristata	Dryopteridaceae	DRYCRI	native	6	-5	fern	perennial	crested shield fern
Eleocharis palustris; e. smallii	Cyperaceae	ELEPAL	native	5	-5	sedge	perennial	spike-rush
Elymus repens; agropyron r.	Poaceae	ELYREP	non-native	0	3	grass	perennial	quack grass
Equisetum hyemale	Equisetaceae	EQUHYE	native	2	0	fern	perennial	scouring rush
Erigeron strigosus	Asteraceae	ERISTR	native	4	3	forb	perennial	daisy fleabane
Eriophorum angustifolium	Cyperaceae	ERIANG	native	10	-5	sedge	perennial	narrow-leaved cotton-grass
Eriophorum vaginatum; e. spissum	Cyperaceae	ERIVAG	native	10	-5	sedge	perennial	cotton-grass
Euphorbia virgata; e. esula	Euphorbiaceae	EUPVIR	non-native	0	5	forb	perennial	leafy spurge
Euthamia graminifolia	Asteraceae	EUTGRA	native	3	0	forb	perennial	grass-leaved goldenrod
Fragaria virginiana	Rosaceae	FRAVIR	native	2	3	forb	perennial	wild strawberry
Gaultheria procumbens	Ericaceae	GAUPRO	native	5	3	shrub	perennial	wintergreen
Geum aleppicum	Rosaceae	GEUALE	native	3	0	forb	perennial	yellow avens
Glyceria canadensis	Poaceae	GLYCAN	native	8	-5	grass	perennial	rattlesnake grass
Hieracium aurantiacum	Asteraceae	HIEAUR	non-native	0	5	forb	perennial	orange hawkweed
Hieracium caespitosum	Asteraceae	HIECAE	non-native	0	5	forb	perennial	king devil
Hypericum perforatum	Hypericaceae	HYPPER	non-native	0	5	forb	perennial	common st. johns-wort
Ilex mucronata; nemopanthus m.	Aquifoliaceae	ILEMUC	native	7	-5	shrub	perennial	mountain holly
Ilex verticillata	Aquifoliaceae	ILEVER	native	5	-3	shrub	perennial	michigan holly
Impatiens capensis	Balsaminaceae	IMPCAP	native	2	-3	forb	annual	spotted touch-me-not
Iris versicolor	Iridaceae	IRIVER	native	5	-5	forb	perennial	wild blue flag
Juncus effusus	Juncaceae	JUNEFF	native	3	-5	forb	perennial	soft-stemmed rush
Juncus tenuis	Juncaceae	JUNTEN	native	1	0	forb	perennial	path rush
Lathyrus latifolius	Fabaceae	LATLAT	non-native	0	5	vine	perennial	everlasting pea
Lemna trisulca	Araceae	LEMTRI	native	6	-5	forb	perennial	star duckweed

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Leucanthemum vulgare; chrysanthemum leucanthemum	Asteraceae	LEUVUL	non-native	0	5	forb	perennial	ox-eye daisy
Lonicera morrowii	Caprifoliaceae	LONMOR	non-native	0	3	shrub	perennial	morrow honeysuckle
Lotus corniculatus	Fabaceae	LOTCOR	non-native	0	3	forb	perennial	birdfoot trefoil
Lycopus americanus	Lamiaceae	LYCAME	native	2	-5	forb	perennial	common water horehound
Lysimachia terrestris	Myrsinaceae	LYSTER	native	6	-5	forb	perennial	swamp-candles
Malus pumila	Rosaceae	MALPUM	non-native	0	5	tree	perennial	apple
Medicago lupulina	Fabaceae	MEDLUP	non-native	0	3	forb	annual	black medick
Melampyrum lineare	Orobanchaceae	MELLIN	native	6	3	forb	annual	cow-wheat
Melilotus albus	Fabaceae	MELALB	non-native	0	3	forb	biennial	white sweet-clover
Mentha spicata	Lamiaceae	MENSPI	non-native	0	-3	forb	perennial	spearmint
Onoclea sensibilis	Onocleaceae	ONOSEN	native	2	-3	fern	perennial	sensitive fern
Persicaria amphibia; polygonum a.	Polygonaceae	PERAMP	native	6	-5	forb	perennial	water smartweed
Phalaris arundinacea	Poaceae	PHAARU	native	0	-3	grass	perennial	reed canary grass
Phleum pratense	Poaceae	PHLPRA	non-native	0	3	grass	perennial	timothy
Picea glauca	Pinaceae	PICGLA	native	3	3	tree	perennial	white spruce
Pinus resinosa	Pinaceae	PINRES	native	6	3	tree	perennial	red pine
Pinus sylvestris	Pinaceae	PINSYL	non-native	0	3	tree	perennial	scotch pine
Plantago rugelii	Plantaginaceae	PLARUG	native	0	0	forb	perennial	red-stalked plantain
Poa palustris	Poaceae	POAPAS	native	3	-3	grass	perennial	fowl meadow grass
Poa pratensis	Poaceae	POAPRA	non-native	0	3	grass	perennial	kentucky bluegrass
Populus balsamifera	Salicaceae	POPBAL	native	2	-3	tree	perennial	balsam poplar
Populus tremuloides	Salicaceae	POPTRE	native	1	0	tree	perennial	quaking aspen
Potentilla recta	Rosaceae	POTREC	non-native	0	5	forb	perennial	rough-fruited cinquefoil
Potentilla simplex	Rosaceae	POTSIM	native	2	3	forb	perennial	old-field cinquefoil
Prunus virginiana	Rosaceae	PRUVIR	native	2	3	shrub	perennial	choke cherry
Pteridium aquilinum	Dennstaedtiaceae	PTEAQU	native	0	3	fern	perennial	bracken fern
Rorippa aquatica; armoracia a.	Brassicaceae	RORAQU	native	8	-5	forb	perennial	lake cress
Rubus allegheniensis	Rosaceae	RUBALL	native	1	3	shrub	perennial	common blackberry
Rubus hispidus	Rosaceae	RUBHIS	native	4	-3	shrub	perennial	swamp dewberry
Rubus strigosus	Rosaceae	RUBSTR	native	2	0	shrub	perennial	wild red raspberry
Rumex acetosella	Polygonaceae	RUMACL	non-native	0	3	forb	perennial	sheep sorrel
Rumex crispus	Polygonaceae	RUMCRI	non-native	0	0	forb	perennial	curly dock
Salix discolor	Salicaceae	SALDIS	native	1	-3	shrub	perennial	pussy willow
Salix nigra	Salicaceae	SALNIG	native	5	-5	tree	perennial	black willow
Salix petiolaris	Salicaceae	SALPET	native	1	-3	shrub	perennial	slender willow
Scirpus cyperinus	Cyperaceae	SCICYP	native	5	-5	sedge	perennial	wool-grass
Scirpus pendulus	Cyperaceae	SCIPEN	native	3	-5	sedge	perennial	bulrush
Solanum dulcamara	Solanaceae	SOLDUL	non-native	0	0	vine	perennial	bittersweet nightshade
Solidago altissima	Asteraceae	SOLALT	native	1	3	forb	perennial	tall goldenrod
Solidago canadensis	Asteraceae	SOLCAN	native	1	3	forb	perennial	canada goldenrod

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Solidago juncea	Asteraceae	SOLJUN	native	3	5	forb	perennial	early goldenrod
Solidago rugosa	Asteraceae	SOLRUG	native	3	0	forb	perennial	rough-leaved goldenrod
Solidago uliginosa	Asteraceae	SOLULI	native	4	-5	forb	perennial	bog goldenrod
Sonchus asper	Asteraceae	SONASP	non-native	0	3	forb	annual	prickly sow-thistle
Spiraea alba	Rosaceae	SPIALB	native	4	-3	shrub	perennial	meadowsweet
Stellaria graminea	Caryophyllaceae	STEGRE	non-native	0	5	forb	perennial	starwort
Symphotrichum urophyllum; aster sagittifolius	Asteraceae	SYMURO	native	2	5	forb	perennial	arrow-leaved aster
Taraxacum officinale	Asteraceae	TAROFF	non-native	0	3	forb	perennial	common dandelion
Tragopogon pratensis	Asteraceae	TRAPRA	non-native	0	5	forb	biennial	common goats beard
Trifolium hybridum	Fabaceae	TRIHYP	non-native	0	3	forb	perennial	alsike clover
Trifolium pratense	Fabaceae	TRIPRA	non-native	0	3	forb	perennial	red clover
Vaccinium angustifolium	Ericaceae	VACANG	native	4	3	shrub	perennial	low sweet blueberry
Vaccinium myrtilloides	Ericaceae	VACMYR	native	4	-3	shrub	perennial	canada blueberry
Valeriana officinalis	Valerianaceae	VALOFF	non-native	0	3	forb	perennial	garden-heliotrope
Verbascum thapsus	Scrophulariaceae	VERTHA	non-native	0	5	forb	biennial	common mullein
Vicia villosa	Fabaceae	VICVIL	non-native	0	5	vine	annual	hairy vetch

MANAGEMENT RECOMMENDATIONS

Of primary importance is characterizing habitat use by species of interest, including grassland birds, to set management direction and focus. Randomized bird point counts and vegetation plot monitoring should be continued to estimate population sizes, map occupied habitat, and further characterize occupied habitats. Currently, the habitats that appear to support the densest populations of grassland bird species are dominated by non-native, cool-season grasses and non-native forbs. Wet habitats dominated by native sedges appear to be favored by one species (sedge wren). Management activities that maintain a variety of grassland structures, from areas characterized by low vegetation density and height to areas of denser, taller vegetation are encouraged.

Although the primary historical plant communities of the OMG (e.g., mesic northern forest, hardwood-conifer swamp) likely experienced low fire frequency and severity, the application of prescribed fire to reduce woody encroachment in the managed early-successional open habitats is encouraged. In addition, fire may promote the persistence of several warm-season grasses that were introduced to the site (big bluestem, Indian grass, and switch grass), which are otherwise at a competitive disadvantage on the poorly drained soils, especially. In addition to fire, mowing can help set back woody invasion.

A variety of herbicides can also be used to reduce woody cover and combat invasive species. Herbicides used in more “natural” habitats (see site descriptions above) should be targeted to the species of interest (i.e., broadleaf selective herbicides should be used for autumn olive). In the large old field areas dominated by cool season grasses, non-selective herbicides such as glyphosate can be applied early or late in the growing season, when few non-targeted species are actively photosynthesizing. Where impacts on non-targeted species are of concern, grass-selective herbicides such as sethoxydim can be considered (Helzer 2010). In general, we advise conservative use of herbicides in areas of highest ecological integrity or areas of high native species richness and cover.

The choice of native grassland species to introduce to the OMG is complicated by the lack of natural prairie or savanna ecosystems on heavy, poorly drained glacial tills in the region. Barrens communities supporting a diversity of native prairie and savanna taxa are locally frequent on sandy, poorly drained soils, but the species that comprise these communities are for the most part poorly suited to the conditions that characterize most of the OMG. In addition, the widespread, control of dense populations of cool season grasses will likely require several installments of herbicide treatment and prescribed fire to prevent them from quickly outcompeting native species that are established at the site.

The following table (Table 3) lists some native grass and forb species that are potentially appropriate for introduction (or human dispersal, for those species already established locally) at the OMG. The better drained, sandy old fields have perhaps the best potential for supporting a diverse community of native savanna and grassland species. Further guidance on species that can be introduced in areas treated for reed canary grass can be found in Wisconsin Reed Canary Grass Management Working Group (2009). If possible, local seed sources should be identified and utilized.

Table 3. Native grass and forb species potentially suitable for introduction and establishment at OMG.

Species	Common Name	Soils		
		Dry	Mesic	Wet
<i>Andropogon gerardii</i>	Big bluestem	•	•	•
<i>Avenella flexuosa</i>	Hair grass	•		
<i>Asclepias syriaca</i>	Common milkweed	•	•	
<i>Bromus kalmii</i>	Kalm's brome	•		
<i>Calamagrostis canadensis</i>	Blue-joint			•
<i>Campanula rotundifolia</i>	Harebell	•		
<i>Carex bebbii</i>	Bebb's sedge			•
<i>Carex gracillima</i>	Graceful sedge		•	•
<i>Carex lacustris</i>	Lake sedge			•
<i>Carex pellita</i>	Woolly sedge			•
<i>Carex stricta</i>	Tussock sedge			•
<i>Carex tenera</i>	Quill sedge		•	•
<i>Carex vulpinoidea</i>	Fox sedge			•
<i>Eupatorium perfoliatum</i>	boneset			•
<i>Eutrochium maculatum</i>	Joe-pye-weed			•
<i>Geum aleppicum</i>	Yellow avens		•	•
<i>Glyceria striata</i>	Fowl manna grass			•
<i>Helianthus occidentalis</i>	Western sunflower	•		
<i>Houstonia longifolia</i>	Long-leaved bluets	•		
<i>Koeleria macrantha</i>	June grass	•		
<i>Krigia virginica</i>	Dwarf-dandelion	•		
<i>Liatris scariosa</i>	Northern blazing-star	•		
<i>Lobelia siphilitica</i>	Great blue lobelia			•
<i>Monarda fistulosa</i>	Wild-bergamot	•	•	
<i>Rudbeckia hirta</i>	Black-eyed Susan	•	•	
<i>Schizachyrium scoparium</i>	Little bluestem	•		
<i>Sorghastrum nutans</i>	Indian grass	•	•	
<i>Spartina pectinata</i>	Cord grass			•
<i>Symphyotrichum oolentangiense</i>	Sky-blue aster	•		
<i>Verbena hastata</i>	Blue vervain			•

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Appendix

Osceola-Missaukee Grasslands SGA Master List

06/17/2014

Osceola-Missaukee SGA

Osceola, Missaukee

MI

USA

FQA DB Region:

Michigan

FQA DB Publication Year:

2014

FQA DB Description:

Reznicek, A.A., M.R. Penskar, B.S. Walters, and B.S. Slaughter. 2014. Michigan Floristic Quality Assessment Database. Herbarium, University of Michigan, Ann Arbor, MI and Michigan Natural Features Inventory, Michigan State University, Lansing, MI. <http://michiganflora.net>

Pracitioner:

Brad Slaughter, Erin Victory

Latitude:

Longitude:

Weather Notes:

Duration Notes:

Community Type Notes:

Other Notes:

Private/Public:

Additional surveys 6/19, 6/20, 7/1, 7/3, 7/7, 9/2, 9/3, 9/5/14. Also noted: *Bidens* sp., *Crataegus* spp., *Lactuca* sp., *Lemna* min/tur, *Galium* sp., *Epilobium* sp., *Eleocharis* sp., *Persicaria* sp., *Pilea* sp., *Sanicula* sp., *Stachys* sp., *Viola* sp. The warm-season grasses (ANDGER, SORNUT, PANVIR) were introduced to the site.
Public

Conservatism-Based Metrics:

Total Mean C:	3.1
Native Mean C:	4
Total FQI:	54.6
Native FQI:	62
Adjusted FQI:	35.2
% C value 0:	25.5
% C value 1-3:	28.1
% C value 4-6:	40
% C value 7-10:	6.5
Native Tree Mean C:	3.3
Native Shrub Mean C:	3.9
Native Herbaceous Mean C:	4.1

Species Richness:		
Total Species:	310	
Native Species:	240	77.40%
Non-native Species:	70	22.60%

Species Wetness:	
Mean Wetness:	-0.1
Native Mean Wetness:	-1

Physiognomy Metrics:		
Tree:	28	9%
Shrub:	39	12.60%
Vine:	9	2.90%
Forb:	152	49%
Grass:	32	10.30%
Sedge:	33	10.60%
Rush:	0	0%
Fern:	17	5.50%
Bryophyte:	0	0%

Duration Metrics:		
Annual:	25	8.10%
Perennial:	270	87.10%
Biennial:	15	4.80%
Native Annual:	13	4.20%
Native Perennial:	223	71.90%
Native Biennial:	4	1.30%

Species:

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Abies balsamea	Pinaceae	ABIBAL	native	3	0	tree	perennial	balsam fir
Acer negundo	Sapindaceae	ACENEG	native	0	0	tree	perennial	box-elder
Acer rubrum	Sapindaceae	ACERUB	native	1	0	tree	perennial	red maple
Acer saccharinum	Sapindaceae	ACESAI	native	2	-3	tree	perennial	silver maple
Acer saccharum	Sapindaceae	ACESAU	native	5	3	tree	perennial	sugar maple
Achillea millefolium	Asteraceae	ACHMIL	native	1	3	forb	perennial	yarrow
Agrimonia gryposepala	Rosaceae	AGRGRY	native	2	3	forb	perennial	tall agrimony
Agrostis gigantea	Poaceae	AGRIGIG	non-native	0	-3	grass	perennial	redtop
Agrostis scabra; a. hyemalis	Poaceae	AGRSCA	native	4	0	grass	perennial	ticklegrass
Agrostis stolonifera	Poaceae	AGRSTO	non-native	0	-3	grass	perennial	creeping bent
Alisma triviale; a. plantago-aquatica	Alismataceae	ALITRI	native	1	-5	forb	perennial	northern water-plantain

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
<i>Alnus incana</i> ; <i>a. rugosa</i>	Betulaceae	ALNINC	native	5	-3	shrub	perennial	speckled alder
<i>Ambrosia artemisiifolia</i>	Asteraceae	AMBART	native	0	3	forb	annual	common ragweed
<i>Amelanchier arborea</i>	Rosaceae	AMEARB	native	4	3	tree	perennial	juneberry
<i>Amelanchier interior</i>	Rosaceae	AMEINT	native	4	5	shrub	perennial	serviceberry
<i>Andropogon gerardii</i>	Poaceae	ANDGER	native	5	0	grass	perennial	big bluestem
<i>Anemone canadensis</i>	Ranunculaceae	ANECAN	native	4	-3	forb	perennial	canada anemone
<i>Anemone quinquefolia</i>	Ranunculaceae	ANEQUI	native	5	3	forb	perennial	wood anemone
<i>Antennaria howellii</i>	Asteraceae	ANTHOW	native	2	5	forb	perennial	small pussytoes
<i>Antennaria parlinii</i>	Asteraceae	ANTPAL	native	2	5	forb	perennial	smooth pussytoes
<i>Apocynum androsaemifolium</i>	Apocynaceae	APOAND	native	3	5	forb	perennial	spreading dogbane
<i>Aralia nudicaulis</i>	Araliaceae	ARANUD	native	5	3	forb	perennial	wild sarsaparilla
<i>Arctium minus</i>	Asteraceae	ARCMIN	non-native	0	3	forb	biennial	common burdock
<i>Arisaema triphyllum</i>	Araceae	ARITRI	native	5	0	forb	perennial	jack-in-the-pulpit
<i>Aronia prunifolia</i>	Rosaceae	AROPRU	native	5	-3	shrub	perennial	chokeberry
<i>Asclepias incarnata</i>	Apocynaceae	ASCINC	native	6	-5	forb	perennial	swamp milkweed
<i>Asclepias syriaca</i>	Apocynaceae	ASCSYR	native	1	5	forb	perennial	common milkweed
<i>Athyrium filix-femina</i>	Athyriaceae	ATHFIL	native	4	0	fern	perennial	lady fern
<i>Barbarea vulgaris</i>	Brassicaceae	BARVUL	non-native	0	0	forb	biennial	yellow rocket
<i>Berteroa incana</i>	Brassicaceae	BERINC	non-native	0	5	forb	annual	hoary alyssum
<i>Betula papyrifera</i>	Betulaceae	BETPAP	native	2	3	tree	perennial	paper birch
<i>Bidens cernua</i>	Asteraceae	BIDCER	native	3	-5	forb	annual	nodding beggar-ticks
<i>Bidens discoidea</i>	Asteraceae	BIDDIS	native	7	-3	forb	annual	swamp beggar-ticks
<i>Brachyelytrum aristosum</i> ; <i>b. erectum</i>	Poaceae	BRAARI	native	7	5	grass	perennial	northern shorthusk
<i>Brasenia schreberi</i>	Cabombaceae	BRASCH	native	6	-5	forb	perennial	water-shield
<i>Bromus inermis</i>	Poaceae	BROINE	non-native	0	5	grass	perennial	smooth brome
<i>Calamagrostis canadensis</i>	Poaceae	CALCAN	native	3	-5	grass	perennial	blue-joint
<i>Caltha palustris</i>	Ranunculaceae	CALPAR	native	6	-5	forb	perennial	marsh-marigold
<i>Campanula aparinoides</i>	Campanulaceae	CAMAPA	native	7	-5	forb	perennial	marsh bellflower
<i>Carex arctata</i>	Cyperaceae	CXARTT	native	3	5	sedge	perennial	sedge
<i>Carex aurea</i>	Cyperaceae	CXAURE	native	3	-3	sedge	perennial	sedge
<i>Carex bebbii</i>	Cyperaceae	CXBEBB	native	4	-5	sedge	perennial	sedge
<i>Carex bushii</i>	Cyperaceae	CXBUSH	non-native	0	0	sedge	perennial	bushs sedge
<i>Carex castanea</i>	Cyperaceae	CXCAST	native	6	-3	sedge	perennial	sedge
<i>Carex comosa</i>	Cyperaceae	CXCOMO	native	5	-5	sedge	perennial	sedge
<i>Carex crinita</i>	Cyperaceae	CXCRIN	native	4	-5	sedge	perennial	sedge
<i>Carex cristatella</i>	Cyperaceae	CXCRIS	native	3	-3	sedge	perennial	sedge
<i>Carex debilis</i>	Cyperaceae	CXDEBI	native	6	-3	sedge	perennial	swamp sedge
<i>Carex deflexa</i>	Cyperaceae	CXDEFL	native	5	3	sedge	perennial	sedge
<i>Carex flava</i>	Cyperaceae	CXFLAV	native	4	-5	sedge	perennial	sedge
<i>Carex gracillima</i>	Cyperaceae	CXGRAA	native	4	3	sedge	perennial	sedge

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Carex hystericina	Cyperaceae	CXHYST	native	2	-5	sedge	perennial	sedge
Carex interior	Cyperaceae	CXINTE	native	3	-5	sedge	perennial	sedge
Carex intumescens	Cyperaceae	CXINTU	native	3	-3	sedge	perennial	sedge
Carex lacustris	Cyperaceae	CXLACU	native	6	-5	sedge	perennial	sedge
Carex lupulina	Cyperaceae	CXLUPA	native	4	-5	sedge	perennial	sedge
Carex oligosperma	Cyperaceae	CXOLIS	native	10	-5	sedge	perennial	sedge
Carex pellita; c. lanuginosa	Cyperaceae	CXPELL	native	2	-5	sedge	perennial	sedge
Carex retrorsa	Cyperaceae	CXRETS	native	3	-5	sedge	perennial	sedge
Carex stipata	Cyperaceae	CXSTIP	native	1	-5	sedge	perennial	sedge
Carex stricta	Cyperaceae	CXSTRI	native	4	-5	sedge	perennial	sedge
Carex tenera	Cyperaceae	CXTENE	native	4	0	sedge	perennial	sedge
Carex utriculata; c. rostrata	Cyperaceae	CXUTRI	native	5	-5	sedge	perennial	sedge
Carex vulpinoidea	Cyperaceae	CXVULP	native	1	-5	sedge	perennial	sedge
Castilleja coccinea	Orobanchaceae	CASCOC	native	8	0	forb	biennial	indian paintbrush
Centaurea diffusa	Asteraceae	CENDIF	non-native	0	5	forb	annual	tumble knapweed
Centaurea stoebe; c. maculosa	Asteraceae	CENSTO	non-native	0	5	forb	biennial	spotted knapweed
Cerastium fontanum	Caryophyllaceae	CERFON	non-native	0	3	forb	perennial	mouse-ear chickweed
Chamaedaphne calyculata	Ericaceae	CHACAL	native	8	-5	shrub	perennial	leatherleaf
Cichorium intybus	Asteraceae	CICINT	non-native	0	3	forb	perennial	chicory
Cicuta bulbifera	Apiaceae	CICBUL	native	5	-5	forb	perennial	water hemlock
Cinna latifolia	Poaceae	CINLAT	native	5	-3	grass	perennial	wood reedgrass
Circaea canadensis; c. lutetiana	Onagraceae	CIRCAN	native	2	3	forb	perennial	enchanters-nightshade
Cirsium arvense	Asteraceae	CIRARV	non-native	0	3	forb	perennial	canada thistle
Cirsium muticum	Asteraceae	CIRMUT	native	6	-5	forb	biennial	swamp thistle
Cirsium vulgare	Asteraceae	CIRVUL	non-native	0	3	forb	biennial	bull thistle
Clematis virginiana	Ranunculaceae	CLEVIR	native	4	0	vine	perennial	virgins bower
Clinopodium vulgare	Lamiaceae	CLIVUL	native	3	5	forb	perennial	wild-basil
Comptonia peregrina	Myricaceae	COMPER	native	6	5	shrub	perennial	sweetfern
Coptis trifolia	Ranunculaceae	COPTRI	native	5	-3	forb	perennial	goldthread
Cornus amomum	Cornaceae	CORAMO	native	2	-3	shrub	perennial	silky dogwood
Cornus canadensis	Cornaceae	CORCAA	native	6	0	shrub	perennial	bunchberry
Cornus foemina	Cornaceae	CORFOE	native	1	0	shrub	perennial	gray dogwood
Cornus sericea; c. stolonifera	Cornaceae	CORSER	native	2	-3	shrub	perennial	red-osier
Dactylis glomerata	Poaceae	DACGLO	non-native	0	3	grass	perennial	orchard grass
Danthonia spicata	Poaceae	DANSPI	native	4	5	grass	perennial	poverty grass; oatgrass
Daucus carota	Apiaceae	DAUCAR	non-native	0	5	forb	biennial	queen-annes-lace
Dendrolycopodium hickeyi; lycopodium h.	Lycopodiaceae	DENHIC	native	5	5	fern	perennial	pennsylvania clubmoss
Dianthus armeria	Caryophyllaceae	DIAARM	non-native	0	5	forb	annual	deptford pink
Dianthus deltoides	Caryophyllaceae	DIADEL	non-native	0	5	forb	perennial	maiden pink
Dichanthelium boreale; panicum b.	Poaceae	DICBOR	native	7	0	grass	perennial	northern panic grass

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Diervilla lonicera	Diervillaceae	DIELON	native	4	5	shrub	perennial	bush-honeysuckle
Digitaria ischaemum	Poaceae	DIGISC	non-native	0	3	grass	annual	smooth crab grass
Diphasiastrum digitatum; lycopodium d.	Lycopodiaceae	DIPDIG	native	3	5	fern	perennial	ground-cedar
Doellingeria umbellata; aster u.	Asteraceae	DOEUMB	native	5	-3	forb	perennial	flat-topped white aster
Dryopteris carthusiana	Dryopteridaceae	DRYCAR	native	5	-3	fern	perennial	spinulose woodfern
Dryopteris cristata	Dryopteridaceae	DRYCRI	native	6	-5	fern	perennial	crested shield fern
Dryopteris intermedia	Dryopteridaceae	DRYINT	native	5	0	fern	perennial	evergreen woodfern
Echinochloa muricata	Poaceae	ECHMUR	native	1	-5	grass	annual	barnyard grass
Elaeagnus umbellata	Elaeagnaceae	ELAUMB	non-native	0	3	shrub	perennial	autumn-olive
Eleocharis obtusa	Cyperaceae	ELEOBT	native	3	-5	sedge	annual	spike-rush
Eleocharis palustris; e. smallii	Cyperaceae	ELEPAL	native	5	-5	sedge	perennial	spike-rush
Elymus hystrix; hystrix patula	Poaceae	ELYHYS	native	5	3	grass	perennial	bottlebrush grass
Elymus repens; agropyron r.	Poaceae	ELYREP	non-native	0	3	grass	perennial	quack grass
Epilobium coloratum	Onagraceae	EPICOL	native	3	-5	forb	perennial	cinnamon willow-herb
Equisetum arvense	Equisetaceae	EQUARV	native	0	0	fern	perennial	common horsetail
Equisetum fluviatile	Equisetaceae	QUFLU	native	7	-5	fern	perennial	water horsetail
Equisetum hyemale	Equisetaceae	QUHYE	native	2	0	fern	perennial	scouring rush
Equisetum scirpoides	Equisetaceae	QUUSCI	native	7	0	fern	perennial	dwarf scouring rush
Equisetum variegatum	Equisetaceae	QUVAR	native	6	-3	fern	perennial	variegated scouring rush
Eragrostis spectabilis	Poaceae	ERASPE	native	3	5	grass	perennial	purple love grass
Erigeron strigosus	Asteraceae	ERISTR	native	4	3	forb	perennial	daisy fleabane
Eriophorum angustifolium	Cyperaceae	ERIANG	native	10	-5	sedge	perennial	narrow-leaved cotton-grass
Eriophorum vaginatum; e. spissum	Cyperaceae	ERIVAG	native	10	-5	sedge	perennial	cotton-grass
Erysimum cheiranthoides	Brassicaceae	ERYCHE	non-native	0	3	forb	annual	wormseed mustard
Eupatorium perfoliatum	Asteraceae	EUPPER	native	4	-3	forb	perennial	boneset
Euphorbia virgata; e. esula	Euphorbiaceae	EUPVIR	non-native	0	5	forb	perennial	leafy spurge
Eurybia macrophylla; aster m.	Asteraceae	EURMAC	native	4	5	forb	perennial	big-leaved aster
Euthamia graminifolia	Asteraceae	EUTGRA	native	3	0	forb	perennial	grass-leaved goldenrod
Fagus grandifolia	Fagaceae	FAGGRA	native	6	3	tree	perennial	american beech
Festuca saximontana	Poaceae	FESSAX	native	6	5	grass	perennial	fescue
Festuca trachyphylla; f. ovina	Poaceae	FESTRA	non-native	0	5	grass	perennial	sheep fescue
Fragaria virginiana	Rosaceae	FRAVIR	native	2	3	forb	perennial	wild strawberry
Frangula alnus; rhamnus frangula	Rhamnaceae	FRAALN	non-native	0	0	shrub	perennial	glossy buckthorn
Fraxinus americana	Oleaceae	FRAAME	native	5	3	tree	perennial	white ash
Fraxinus nigra	Oleaceae	FRANIG	native	6	-3	tree	perennial	black ash
Fraxinus pennsylvanica	Oleaceae	FRAPEN	native	2	-3	tree	perennial	red ash
Galium asprellum	Rubiaceae	GALASP	native	5	-5	vine	perennial	rough bedstraw
Galium triflorum	Rubiaceae	GALTRR	native	4	3	forb	perennial	fragrant bedstraw
Gaultheria procumbens	Ericaceae	GAUPRO	native	5	3	shrub	perennial	wintergreen
Gentiana andrewsii	Gentianaceae	GENAND	native	5	-3	forb	perennial	bottle gentian

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<i>Gentianopsis crinita</i>	Gentianaceae	GENCRI	native	8	-3	forb	annual	fringed gentian
<i>Geum aleppicum</i>	Rosaceae	GEUALE	native	3	0	forb	perennial	yellow avens
<i>Geum canadense</i>	Rosaceae	GEUCAN	native	1	0	forb	perennial	white avens
<i>Glyceria canadensis</i>	Poaceae	GLYCAN	native	8	-5	grass	perennial	rattlesnake grass
<i>Glyceria striata</i>	Poaceae	GLYSTR	native	4	-5	grass	perennial	fowl manna grass
<i>Gratiola neglecta</i>	Plantaginaceae	GRANEG	native	5	-5	forb	annual	clammy hedge hyssop
<i>Hieracium aurantiacum</i>	Asteraceae	HIEAUR	non-native	0	5	forb	perennial	orange hawkweed
<i>Hieracium caespitosum</i>	Asteraceae	HIECAE	non-native	0	5	forb	perennial	king devil
<i>Hieracium kalmii</i>	Asteraceae	HIEKAL	native	3	5	forb	perennial	kalms hawkweed
<i>Hieracium piloselloides</i>	Asteraceae	HIEPIS	non-native	0	5	forb	perennial	king devil
<i>Hypericum perforatum</i>	Hypericaceae	HYPPER	non-native	0	5	forb	perennial	common st. johns-wort
<i>Ilex mucronata; nemopanthus m.</i>	Aquifoliaceae	ILEMUC	native	7	-5	shrub	perennial	mountain holly
<i>Ilex verticillata</i>	Aquifoliaceae	ILEVER	native	5	-3	shrub	perennial	michigan holly
<i>Impatiens capensis</i>	Balsaminaceae	IMPCAP	native	2	-3	forb	annual	spotted touch-me-not
<i>Iris versicolor</i>	Iridaceae	IRIVER	native	5	-5	forb	perennial	wild blue flag
<i>Juncus articulatus</i>	Juncaceae	JUNART	native	3	-5	forb	perennial	jointed rush
<i>Juncus bufonius</i>	Juncaceae	JUNBUF	native	2	-3	forb	annual	toad rush
<i>Juncus dudleyi</i>	Juncaceae	JUNDUD	native	1	-3	forb	perennial	dudleys rush
<i>Juncus effusus</i>	Juncaceae	JUNEFF	native	3	-5	forb	perennial	soft-stemmed rush
<i>Juncus tenuis</i>	Juncaceae	JUNTEN	native	1	0	forb	perennial	path rush
<i>Juncus vaseyi</i>	Juncaceae	JUNVAS	native	10	-3	forb	perennial	vaseys rush
<i>Laportea canadensis</i>	Urticaceae	LAPCAN	native	4	-3	forb	perennial	wood nettle
<i>Larix laricina</i>	Pinaceae	LARLAR	native	5	-3	tree	perennial	tamarack
<i>Lathyrus latifolius</i>	Fabaceae	LATLAT	non-native	0	5	vine	perennial	everlasting pea
<i>Lemna trisulca</i>	Araceae	LEMTRI	native	6	-5	forb	perennial	star duckweed
<i>Lepidium campestre</i>	Brassicaceae	LEPCAM	non-native	0	5	forb	biennial	field cress
<i>Leucanthemum vulgare; chrysanthemum leucanthemum</i>	Asteraceae	LEUVUL	non-native	0	5	forb	perennial	ox-eye daisy
<i>Lonicera dioica</i>	Caprifoliaceae	LONDIO	native	5	3	vine	perennial	red honeysuckle
<i>Lonicera morrowii</i>	Caprifoliaceae	LONMOR	non-native	0	3	shrub	perennial	morrow honeysuckle
<i>Lonicera Å—bella</i>	Caprifoliaceae	LONBEL	non-native	0	3	shrub	perennial	hybrid honeysuckle
<i>Lotus corniculatus</i>	Fabaceae	LOTCOR	non-native	0	3	forb	perennial	birdfoot trefoil
<i>Ludwigia palustris</i>	Onagraceae	LUDPAL	native	4	-5	forb	perennial	water-purslane
<i>Lycopus americanus</i>	Lamiaceae	LYCAME	native	2	-5	forb	perennial	common water horehound
<i>Lycopus uniflorus</i>	Lamiaceae	LYCUNI	native	2	-5	forb	perennial	northern bugle weed
<i>Lysimachia ciliata</i>	Myrsinaceae	LYSCIL	native	4	-3	forb	perennial	fringed loosestrife
<i>Lysimachia terrestris</i>	Myrsinaceae	LYSTER	native	6	-5	forb	perennial	swamp-candles
<i>Lysimachia thyrsoflora</i>	Myrsinaceae	LYSTHY	native	6	-5	forb	perennial	tufted loosestrife
<i>Lythrum salicaria</i>	Lythraceae	LYTSAL	non-native	0	-5	forb	perennial	purple loosestrife
<i>Maianthemum canadense</i>	Convallariaceae	MAICAN	native	4	3	forb	perennial	canada mayflower
<i>Malus pumila</i>	Rosaceae	MALPUM	non-native	0	5	tree	perennial	apple

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Matricaria discoidea	Asteraceae	MATDIS	non-native	0	3	forb	annual	pineapple-weed
Medicago lupulina	Fabaceae	MEDLUP	non-native	0	3	forb	annual	black medick
Melampyrum lineare	Orobanchaceae	MELLIN	native	6	3	forb	annual	cow-wheat
Melilotus albus	Fabaceae	MELALB	non-native	0	3	forb	biennial	white sweet-clover
Melilotus officinalis	Fabaceae	MELLOF	non-native	0	3	forb	biennial	yellow sweet-clover
Mentha canadensis; m. arvensis	Lamiaceae	MENCAS	native	3	-3	forb	perennial	wild mint
Mentha spicata	Lamiaceae	MENSPI	non-native	0	-3	forb	perennial	spearmint
Mentha Ã— piperita	Lamiaceae	MENPIP	non-native	0	-5	forb	perennial	peppermint
Mimulus ringens	Phrymaceae	MIMRIN	native	5	-5	forb	perennial	monkey-flower
Mitchella repens	Rubiaceae	MITREP	native	5	3	forb	perennial	partridge-berry
Nuphar variegata	Nymphaeaceae	NUPVAR	native	7	-5	forb	perennial	yellow pond-lily
Nymphaea odorata	Nymphaeaceae	NYMODO	native	6	-5	forb	perennial	sweet-scented waterlily
Oenothera perennis	Onagraceae	OENPER	native	5	0	forb	perennial	small sundrops
Onoclea sensibilis	Onocleaceae	ONOSEN	native	2	-3	fern	perennial	sensitive fern
Ophioglossum pusillum	Ophioglossaceae	OPHPUS	native	6	-3	fern	perennial	northern adders-tongue
Oryzopsis asperifolia	Poaceae	ORYASP	native	6	5	grass	perennial	rough-leaved rice-grass
Osmorhiza claytonii	Apiaceae	OSMCLI	native	4	3	forb	perennial	hairy sweet-cicely
Osmunda cinnamomea	Osmundaceae	OSMCIN	native	5	-3	fern	perennial	cinnamon fern
Osmunda regalis	Osmundaceae	OSMREG	native	5	-5	fern	perennial	royal fern
Packera pauperula; senecio p.; senecio plattensis	Asteraceae	PACPAU	native	3	0	forb	perennial	balsam ragwort
Panicum capillare	Poaceae	PANCAP	native	0	0	grass	annual	witch grass
Panicum virgatum	Poaceae	PANVIR	native	4	0	grass	perennial	switch grass
Parthenocissus quinquefolia	Vitaceae	PARQUI	native	5	3	vine	perennial	virginia creeper
Pedicularis canadensis	Orobanchaceae	PEDCAN	native	10	3	forb	perennial	wood-betony
Persicaria amphibia; polygonum a.	Polygonaceae	PERAMP	native	6	-5	forb	perennial	water smartweed
Persicaria maculosa; polygonum persicaria	Polygonaceae	PERMAC	non-native	0	0	forb	annual	lady's-thumb
Persicaria sagittata; polygonum s.	Polygonaceae	PERSAG	native	5	-5	forb	annual	arrow-leaved tear-thumb
Phalaris arundinacea	Poaceae	PHAARU	native	0	-3	grass	perennial	reed canary grass
Phleum pratense	Poaceae	PHLPRA	non-native	0	3	grass	perennial	timothy
Phragmites australis var. americanus	Poaceae	PHRAUM	native	5	-3	grass	perennial	reed
Picea glauca	Pinaceae	PICGLA	native	3	3	tree	perennial	white spruce
Pinus resinosa	Pinaceae	PINRES	native	6	3	tree	perennial	red pine
Pinus strobus	Pinaceae	PINSTR	native	3	3	tree	perennial	white pine
Pinus sylvestris	Pinaceae	PINSYL	non-native	0	3	tree	perennial	scotch pine
Plantago lanceolata	Plantaginaceae	PLALAN	non-native	0	3	forb	perennial	english plantain
Plantago rugelii	Plantaginaceae	PLARUG	native	0	0	forb	perennial	red-stalked plantain
Platanthera aquilonis; habenaria hyperborea	Orchidaceae	PLAAQU	native	5	-3	forb	perennial	northern green orchid
Platanthera lacera; habenaria l.	Orchidaceae	PLALAC	native	6	-3	forb	perennial	green-fringed orchid
Poa compressa	Poaceae	POACOM	non-native	0	3	grass	perennial	canada bluegrass
Poa palustris	Poaceae	POAPAS	native	3	-3	grass	perennial	fowl meadow grass

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<i>Poa pratensis</i>	Poaceae	POAPRA	non-native	0	3	grass	perennial	kentucky bluegrass
<i>Polygala polygama</i>	Polygalaceae	POLPOL	native	9	3	forb	biennial	racemed milkwort
<i>Polygonum aviculare</i>	Polygonaceae	POLAVI	non-native	0	3	forb	annual	knotweed
<i>Populus alba</i>	Salicaceae	POPALB	non-native	0	5	tree	perennial	white poplar
<i>Populus balsamifera</i>	Salicaceae	POPBAL	native	2	-3	tree	perennial	balsam poplar
<i>Populus deltoides</i>	Salicaceae	POPDEL	native	1	0	tree	perennial	cottonwood
<i>Populus grandidentata</i>	Salicaceae	POPGRA	native	4	3	tree	perennial	big-tooth aspen
<i>Populus tremuloides</i>	Salicaceae	POPTRE	native	1	0	tree	perennial	quaking aspen
<i>Potentilla argentea</i>	Rosaceae	POTARG	non-native	0	3	forb	perennial	silvery cinquefoil
<i>Potentilla norvegica</i>	Rosaceae	POTNOR	native	0	0	forb	annual	rough cinquefoil
<i>Potentilla recta</i>	Rosaceae	POTREC	non-native	0	5	forb	perennial	rough-fruited cinquefoil
<i>Potentilla simplex</i>	Rosaceae	POTSIM	native	2	3	forb	perennial	old-field cinquefoil
<i>Prunella vulgaris</i>	Lamiaceae	PRUVUL	native	0	0	forb	perennial	self-heal
<i>Prunus serotina</i>	Rosaceae	PRUSER	native	2	3	tree	perennial	wild black cherry
<i>Prunus virginiana</i>	Rosaceae	PRUVIR	native	2	3	shrub	perennial	choke cherry
<i>Pseudognaphalium obtusifolium</i> ; <i>gnaphalium o.</i>	Asteraceae	PSEOBT	native	2	5	forb	biennial	old-field balsam
<i>Pteridium aquilinum</i>	Dennstaedtiaceae	PTEAQU	native	0	3	fern	perennial	bracken fern
<i>Pyrola elliptica</i>	Ericaceae	PYRELL	native	6	3	forb	perennial	large-leaved shinleaf
<i>Quercus macrocarpa</i>	Fagaceae	QUEMAC	native	5	3	tree	perennial	bur oak
<i>Ranunculus acris</i>	Ranunculaceae	RANACR	non-native	0	0	forb	perennial	tall or common buttercup
<i>Ranunculus hispidus</i>	Ranunculaceae	RANHIS	native	5	0	forb	perennial	swamp buttercup
<i>Rhamnus alnifolia</i>	Rhamnaceae	RHAALN	native	8	-5	shrub	perennial	alder-leaved buckthorn
<i>Ribes americanum</i>	Grossulariaceae	RIBAME	native	6	-3	shrub	perennial	wild black currant
<i>Ribes hirtellum</i>	Grossulariaceae	RIBHIR	native	6	-3	shrub	perennial	swamp gooseberry
<i>Rorippa aquatica</i> ; <i>armoracia a.</i>	Brassicaceae	RORAQU	native	8	-5	forb	perennial	lake cress
<i>Rosa blanda</i>	Rosaceae	ROSBLA	native	3	3	shrub	perennial	wild rose
<i>Rosa multiflora</i>	Rosaceae	ROSMUL	non-native	0	3	shrub	perennial	multiflora rose
<i>Rubus allegheniensis</i>	Rosaceae	RUBALL	native	1	3	shrub	perennial	common blackberry
<i>Rubus flagellaris</i>	Rosaceae	RUBFLA	native	1	3	shrub	perennial	northern dewberry
<i>Rubus hispidus</i>	Rosaceae	RUBHIS	native	4	-3	shrub	perennial	swamp dewberry
<i>Rubus occidentalis</i>	Rosaceae	RUBOCC	native	1	5	shrub	perennial	black raspberry
<i>Rubus pubescens</i>	Rosaceae	RUBPUB	native	4	-3	shrub	perennial	dwarf raspberry
<i>Rubus strigosus</i>	Rosaceae	RUBSTR	native	2	0	shrub	perennial	wild red raspberry
<i>Rudbeckia hirta</i>	Asteraceae	RUDHIR	native	1	3	forb	perennial	black-eyed susan
<i>Rumex acetosella</i>	Polygonaceae	RUMACL	non-native	0	3	forb	perennial	sheep sorrel
<i>Rumex crispus</i>	Polygonaceae	RUMCRI	non-native	0	0	forb	perennial	curly dock
<i>Salix discolor</i>	Salicaceae	SALDIS	native	1	-3	shrub	perennial	pussy willow
<i>Salix humilis</i>	Salicaceae	SALHUM	native	4	3	shrub	perennial	prairie willow
<i>Salix lucida</i>	Salicaceae	SALLUC	native	3	-3	shrub	perennial	shining willow
<i>Salix nigra</i>	Salicaceae	SALNIG	native	5	-5	tree	perennial	black willow

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<i>Salix petiolaris</i>	Salicaceae	SALPET	native	1	-3	shrub	perennial	slender willow
<i>Sambucus canadensis</i>	Adoxaceae	SAMCAN	native	3	-3	shrub	perennial	elderberry
<i>Sanicula marilandica</i>	Apiaceae	SANMAR	native	4	3	forb	perennial	black snakeroot
<i>Schedonorus pratensis</i> ; <i>festuca p.</i>	Poaceae	SCHPRA	non-native	0	3	grass	perennial	meadow fescue
<i>Schizachyrium scoparium</i> ; <i>andropogon s.</i>	Poaceae	SCHSCO	native	5	3	grass	perennial	little bluestem
<i>Schoenoplectus tabernaemontani</i> ; <i>scirpus validus</i>	Cyperaceae	SCHTAB	native	4	-5	sedge	perennial	softstem bulrush
<i>Scirpus atrovirens</i>	Cyperaceae	SCIATV	native	3	-5	sedge	perennial	bulrush
<i>Scirpus cyperinus</i>	Cyperaceae	SCICYP	native	5	-5	sedge	perennial	wool-grass
<i>Scirpus pendulus</i>	Cyperaceae	SCIPEN	native	3	-5	sedge	perennial	bulrush
<i>Scutellaria galericulata</i>	Lamiaceae	SCUGAL	native	5	-5	forb	perennial	marsh skullcap
<i>Sisyrinchium angustifolium</i>	Iridaceae	SISANG	native	4	0	forb	perennial	stout blue-eyed-grass
<i>Sium suave</i>	Apiaceae	SIUSUA	native	5	-5	forb	perennial	water-parsnip
<i>Solanum dulcamara</i>	Solanaceae	SOLDUL	non-native	0	0	vine	perennial	bittersweet nightshade
<i>Solidago altissima</i>	Asteraceae	SOLALT	native	1	3	forb	perennial	tall goldenrod
<i>Solidago canadensis</i>	Asteraceae	SOLCAN	native	1	3	forb	perennial	canada goldenrod
<i>Solidago gigantea</i>	Asteraceae	SOLGIG	native	3	-3	forb	perennial	late goldenrod
<i>Solidago juncea</i>	Asteraceae	SOLJUN	native	3	5	forb	perennial	early goldenrod
<i>Solidago nemoralis</i>	Asteraceae	SOLNEM	native	2	5	forb	perennial	old-field goldenrod
<i>Solidago rugosa</i>	Asteraceae	SOLRUG	native	3	0	forb	perennial	rough-leaved goldenrod
<i>Solidago uliginosa</i>	Asteraceae	SOLULI	native	4	-5	forb	perennial	bog goldenrod
<i>Sonchus asper</i>	Asteraceae	SONASP	non-native	0	3	forb	annual	prickly sow-thistle
<i>Sorghastrum nutans</i>	Poaceae	SORNUT	native	6	3	grass	perennial	indian grass
<i>Spiraea alba</i>	Rosaceae	SPIALB	native	4	-3	shrub	perennial	meadowsweet
<i>Spiranthes cernua</i>	Orchidaceae	SPICER	native	4	-3	forb	perennial	nodding ladies-tresses
<i>Spirodela polyrhiza</i>	Araceae	SPIPOL	native	6	-5	forb	perennial	greater duckweed
<i>Stellaria graminea</i>	Caryophyllaceae	STEGRE	non-native	0	5	forb	perennial	starwort
<i>Stellaria longifolia</i>	Caryophyllaceae	STELOF	native	5	-3	forb	perennial	long-leaved chickweed
<i>Symphotrichum firmum</i> ; <i>aster puniceus</i>	Asteraceae	SYMFIR	native	4	-3	forb	perennial	smooth swamp aster
<i>Symphotrichum lanceolatum</i> ; <i>aster l.</i>	Asteraceae	SYMLAN	native	2	-3	forb	perennial	panicled aster
<i>Symphotrichum lateriflorum</i> ; <i>aster l.</i>	Asteraceae	SYMLAT	native	2	0	forb	perennial	calico aster
<i>Symphotrichum oolentangiense</i> ; <i>aster o.</i>	Asteraceae	SYMOOL	native	4	5	forb	perennial	prairie heart-leaved aster
<i>Symphotrichum urophyllum</i> ; <i>aster sagittifolius</i>	Asteraceae	SYMURO	native	2	5	forb	perennial	arrow-leaved aster
<i>Taraxacum officinale</i>	Asteraceae	TAROFF	non-native	0	3	forb	perennial	common dandelion
<i>Thelypteris palustris</i>	Thelypteridaceae	THEPAL	native	2	-3	fern	perennial	marsh fern
<i>Thuja occidentalis</i>	Cupressaceae	THUOCC	native	4	-3	tree	perennial	arbor vitae
<i>Tilia americana</i>	Malvaceae	TILAME	native	5	3	tree	perennial	basswood
<i>Tragopogon dubius</i>	Asteraceae	TRADUB	non-native	0	5	forb	biennial	goats beard
<i>Tragopogon pratensis</i>	Asteraceae	TRAPRA	non-native	0	5	forb	biennial	common goats beard
<i>Trientalis borealis</i>	Myrsinaceae	TRIBOR	native	5	0	forb	perennial	star-flower
<i>Trifolium hybridum</i>	Fabaceae	TRIHYP	non-native	0	3	forb	perennial	alsike clover

Scientific Name	Family	Acronym	Native?	C	W	Physiognomy	Duration	Common Name
Trifolium pratense	Fabaceae	TRIPRA	non-native	0	3	forb	perennial	red clover
Trifolium repens	Fabaceae	TRIREP	non-native	0	3	forb	perennial	white clover
Trillium cernuum	Trilliaceae	TRICER	native	5	0	forb	perennial	nodding trillium
Triosteum aurantiacum	Caprifoliaceae	TRIAUN	native	5	5	forb	perennial	horse-gentian
Typha latifolia	Typhaceae	TYPLAT	native	1	-5	forb	perennial	broad-leaved cat-tail
Ulmus americana	Ulmaceae	ULMAME	native	1	-3	tree	perennial	american elm
Urtica dioica	Urticaceae	URTDIO	native	1	0	forb	perennial	stinging nettle
Vaccinium angustifolium	Ericaceae	VACANG	native	4	3	shrub	perennial	low sweet blueberry
Vaccinium myrtilloides	Ericaceae	VACMYR	native	4	-3	shrub	perennial	canada blueberry
Valeriana officinalis	Valerianaceae	VALOFF	non-native	0	3	forb	perennial	garden-heliotrope
Verbascum thapsus	Scrophulariaceae	VERTHA	non-native	0	5	forb	biennial	common mullein
Verbena hastata	Verbenaceae	VERHAS	native	4	-3	forb	perennial	blue vervain
Veronica anagallis-aquatica	Plantaginaceae	VERANA	native	4	-5	forb	perennial	water speedwell
Viburnum lentago	Adoxaceae	VIBLEN	native	4	0	shrub	perennial	nannyberry
Viburnum rafinesquianum	Adoxaceae	VIBRAF	native	5	5	shrub	perennial	downy arrow-wood
Vicia tetrasperma	Fabaceae	VICTET	non-native	0	5	vine	annual	sparrow vetch
Vicia villosa	Fabaceae	VICVIL	non-native	0	5	vine	annual	hairy vetch
Viola blanda	Violaceae	VIOBLA	native	5	-3	forb	perennial	sweet white violet
Vitis riparia	Vitaceae	VITRIP	native	3	0	vine	perennial	river-bank grape