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File: Botanical Surveys, Kohler Golf Course
Project, Town of Wilson, Sheboygan
County, Wisconsin

Date: October 31, 2014

**Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan
County, Wisconsin**

INTRODUCTION

Stantec Consulting completed Botanical Surveys of the Kohler Golf Course project area in the Town of Wilson, Sheboygan County ("The Project Area").

The purpose of this report is to summarize botanical resources occurring within the Project Area (e.g., floristic diversity, plant communities, rare plants, and invasive species) based on previously compiled information and data collected during 2014 field assessments. This memorandum presents the project description, objectives, methods, and results of the botanical survey effort.

PROJECT DESCRIPTION

The Project Area consists of two parcels including one 247-acre parcel located adjacent to Lake Michigan which is owned by Kohler and one 135-acre parcel owned by the State of Wisconsin, located adjacent to the west limits of the Kohler parcel. The State parcel is being evaluated for possible alternative entrance route and maintenance facility locations. Based on previous site evaluations, the Project Area consists of a mix of upland and wetland habitats including, [REDACTED] old field, and pine plantations. The Black River is located in the central portion of the Project Area.

METHODS

Prior to conducting field assessments, Stantec obtained and reviewed pertinent mapping available for the Project Area including: recent aerial photography; United States Department of Agriculture (USDA) Soil Survey information; WDNR Wisconsin Wetland Inventory (WWI) maps; and site specific wetland delineation mapping. Stantec used additional information on the potential for threatened and endangered species, species of concern and unique or threatened plant communities that may occur within the Study Area from the Bureau of Natural Heritage Conservation Endangered Resources Review (ERR Log # 14-617) completed on September 2, 2014 for the Project Area. Rare species information presented in this review was used as a guide for focusing search efforts on rare plant species with documented occurrences in the vicinity of the Project Area. The potential for additional rare plant occurrences within the Project Area was assessed using local and regional floras, herbarium records, distribution maps, published reports, and existing site species lists.

The botanical survey field work was conducted over three days (Sept. 22, 24, and Oct. 2, 2014) by botanists Melissa Curran and Joshua Sulman, with assistance from environmental technician Matt Knickelbine. The botanical survey consisted of the following primary tasks: meander survey to collect comprehensive species lists, plant community mapping, and rare plant surveys.

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

Meander surveys were utilized to thoroughly investigate the plant communities within the Project Area. A pedestrian meander survey was conducted throughout the extent of the Project Area, with an emphasis on covering the range of variability in microhabitats, aspect, slope, substrate, shade, canopy type, and stand age found within the Project Area. During the meander survey, species lists of vascular plants were recorded for each plant community. Plant communities were visually surveyed in the field to identify and characterize dominant species, tree, shrub and/or herbaceous strata, obtain estimates of tree size classes and distribution, determine density and distribution of invasive species, past and current land uses, and relative plant community integrity. Variability in microsites was assessed to identify areas of high plant diversity, habitat quality, and the presence of small niche communities. Attention was given to investigating variation in topography, substrate type, landscape position, hydrology, and disturbance. Plant communities were classified and named according to the Wisconsin DNR Natural Heritage Inventory classification, Eggers & Reed (2014), Curtis (1959), and other common naming conventions. Communities that showed evidence of substantial disturbance and/or high coverage of invasive species were designated as "degraded." The spatial extent and distribution of plant communities within the Project Area was sketched onto aerial imagery and later digitized in GIS to produce estimates of acreage. In some cases, leaf-off aerial imagery was used to determine community boundaries in complex mosaics. Where two communities were found to co-occur in a fine-scale mosaic, they were characterized together as a "complex."

Floristic Quality Assessment (FQA) methodology was used to assess floristic quality within each community type, using the Wisconsin FQA Database for the Northcentral-Northeast Region as implemented in the Universal FQA Calculator.

Invasive species were identified in the field, and coverage within each plant community was estimated. Invasive species were considered to be those regulated in Wisconsin's Invasive Species Rule (Wis. Adm. Code ch. NR 40) as well as additional species widely considered to be invasive in Wisconsin's natural communities (e.g., reed canary grass). Extent and coverage class of invasive species were sketched onto aerial imagery and later digitized in GIS.

Rare plant surveys were conducted for species listed by the US as Endangered or Threatened, or by Wisconsin as Endangered, Threatened, or Special Concern. In addition to those species identified in the ERR (see attached Table 1), other rare plants encountered during the meander survey were documented. Rare plants were surveyed within the Project Area limits, and were mapped using a Trimble GPS capable of submeter accuracy. Where one to several individuals of a rare species were found within the space of 5 meters or less, they were represented by a single GPS point tagged with the number of individuals. Where rare species occurred in populations of greater extent, the perimeter of the population was mapped. Representative photographs were taken of plant communities and rare species.

RESULTS

The Project Area encompasses a range of vegetation types and conditions. Slopes range from nearly level (0 to 2 percent slopes) to locally, steeply sloping (20 percent slopes) terrain. Ground elevations range from a high of approximately 615 feet, on a wooded ridge on the Kohler Property, to 580 feet, at the shore of Lake Michigan. Plant communities within the Project Area display variability across a range of physiognomy, landscape position, and disturbance regime. Communities present include types dominated by trees, shrubs, or herbaceous plants; on upland, wetland or aquatic positions on the landscape; and range from relatively undisturbed

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

natural communities to those that occur as a result of planting, past agricultural land use, or human-caused disturbance.

The Kohler parcel consists of level to undulating terrain characterized by bands of alternating [redacted] running roughly parallel to the [redacted]. With the exception of the [redacted] most of the Kohler parcel is forested, with smaller areas of shrub and herbaceous vegetation located in the west portion of the Kohler parcel near the Black River. The State parcel, which is part of Kohler-Andrae State Park, consists of level to rolling terrain, generally sloping from a topographic high on the west to the Black River on the east. Two intermittent streams flowing from northwest to southeast cross the State Property, draining into the Black River. The State Property is comprised of forested, shrub, and herbaceous vegetation. The Black River bisects the Project Area from south to north, roughly on the property line between the Kohler and State parcels.

A total of 16 plant communities were identified and mapped within the Project Area. These included 8 upland communities and 8 wetland or aquatic communities. Each plant community is summarized in Table 2 and characterized in more detail below. Figure 1 illustrates the location and extent of each community and comprehensive species list for each community are attached (Attachment A). Representative community photographs are provided in Attachment B.

The rare plant species included in the ERR and/or identified during the current survey, their occurrence on the Kohler and State properties, habitat requirements, and areas of suitable habitat within the Project Area, are included in the attached Table 1.

Table 2. Plant Community Summary

Community	Acres	Species Richness		Mean C		FQI	
		Native	All	Native	All	Native	All
[redacted]	13.0	31	36	5.1	4.4	28.4	26.4
	7.5	7	10	4.0	2.8	10.6	8.9
	4.7	40	49	5.4	4.4	34.2	30.8
	154.6	74	91	5.0	4.1	43.0	39.1
	15.9	29	34	4.0	3.4	21.5	19.8
	41.8	78	101	4.3	3.4	38.0	34.2
	6.3	26	30	3.8	3.3	19.4	18.1
Old Field	26.4	24	49	3.5	1.7	17.1	11.9
[redacted]	0.3	35	41	4.7	4.0	27.8	25.6
	5.3	48	54	4.1	3.6	28.4	26.5
	38.4	54	62	4.9	4.3	36.0	33.9
	5.7	26	27	4.8	4.7	24.5	24.4
	8.1	50	53	4.6	4.4	32.5	32.0
	50.1	80	92	4.4	3.8	39.4	36.4
	13.1	39	45	5.5	4.8	34.3	32.2
Open Water - Aquatic Community	2.9	6	6	5.2	5.2	12.7	12.7

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

UPLAND PLANT COMMUNITIES

[REDACTED]

This is the dominant plant community occurring on the [REDACTED] that occur in a band adjacent to and just west of the [REDACTED]. This community is characterized by [REDACTED] consisting of [REDACTED]. The landforms consist of [REDACTED]. The [REDACTED] are partially [REDACTED] by a combination of [REDACTED] including the WI Threatened [REDACTED] the WI Threatened [REDACTED] and shrubs such as common and creeping junipers (*Juniperus communis*, *J. horizontalis* respectively). Areas of [REDACTED] provide habitats for species including the [REDACTED] and the WI-Special concern [REDACTED]. Problematic non-native species such as Japanese barberry (*Berberis thunbergii*), spotted knapweed (*Centaurea stoebe*) and cypress spurge (*Euphorbia cyparissias*) were noted only occasionally. Species diversity is relatively low for this community, but Mean C ranks as one of the highest; suggesting that this community contains many conservative native species with high C-values. In fact, many of the rare species have a C-value of 9 or greater.

[REDACTED]

This community occurs in the narrow band adjacent to [REDACTED] and directly affected by [REDACTED]. The community is characterized by a lack of [REDACTED] and the occurrence of annuals, including the [REDACTED] a WI Special Concern species. This community is affected by [REDACTED]

The upper [REDACTED] comprises a zone elevated several feet above the lower [REDACTED] that is [REDACTED] by perennial vegetation, including [REDACTED] as well as populations of willow species (*Salix*), and cottonwood (*Populus deltoides*).

[REDACTED]

This community occurs in the [REDACTED]. This community occurs on [REDACTED] and is characterized by [REDACTED]. This community contains an open canopy (25–75% cover) dominated by red and white pine (*Pinus resinosa*, *P. strobus* respectively) of approximately 8–12 inches diameter at breast height (dbh), an understory of creeping and common juniper, perennial graminoids and forbs, and interspersed with [REDACTED]. Soil development is poor, herbaceous cover is low, and [REDACTED] is frequently visible [REDACTED]. Notable rare plant occurrences observed in this community include [REDACTED] a WI Special Concern species; WI Threatened [REDACTED] and WI Threatened [REDACTED]. Problematic non-native species such as Japanese barberry, common comfrey (*Cynoglossum officinale*), common St. Johns-wort (*Hypericum perforatum*) and black locust (*Robinia pseudoacacia*) were noted in scattered pockets throughout this community.

[REDACTED]

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

This community occurs on undulating topography consisting of [redacted] running [redacted] and forms the dominant vegetation type of the [redacted] uplands. This community is extensive and relatively unfragmented, with unpaved trails that cause little or no break in the canopy. The variation in microtopography correlates with a range of moisture conditions from dry mesic to mesic. Low spots within this community are occupied by wetlands of the [redacted]. The forest canopy is mature, with dominants including white pine, sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), and red oak (*Quercus rubra*) of 12–30 inch dbh. Canopy coverage ranges from approximately 75–100%. Understory vegetation is relatively open with sparse coverage by shrubs and tree saplings. The herbaceous layer is dominated by Pennsylvania sedge (*Carex pensylvanica*), clubmosses (*Lycopodium obscurum*, *Huperzia lucidula*), and woodfern (*Dryopteris carthusiana*) - consistent with the effects of heavy deer browse. The forest canopy is denser and tree sizes are larger toward the west; trees are smaller, the canopy is more open, and the presence of weedy and invasive species, especially Japanese barberry, is more pronounced toward the east. The extensive and unfragmented tree canopy of this plant community may provide suitable habitat for the [redacted]. Problematic invasive species such as garlic mustard (*Alliaria petiolata*), Canada thistle (*Cirsium arvense*), common comfrey, cypress spurge, dames rocket (*Hesperis matronalis*) and reed canary grass (*Phalaris arundinacea*) were noted only occasionally. Invasive Japanese barberry was noted at 5–10% cover in the western portion of this community and 20% cover in the eastern portion of this community. This community contains the highest FQI within the Project Area. No rare species were noted within this community.

Degraded [redacted] occurs between the [redacted] [redacted] on the [redacted]. This community is an [redacted]. The canopy is relatively open with 50–75% cover, and is dominated by black cherry (*Prunus serotina*), green ash (*Fraxinus pennsylvanica*), quaking aspen (*Populus tremuloides*) and paper birch (*Betula papyrifera*), of approximately 4–12 in. dbh. Understory is brushy with a high level of coverage by invasive species including honeysuckle (*Lonicera* spp.), multiflora rose (*Rosa multiflora*), and common buckthorn (*Rhamnus cathartica*), as well as blackberry (*Rubus allegheniensis*). This community contains one of the lowest FQI, Mean C and species richness values within the Project Area. No rare species were noted within this community.

This community occurs on the [redacted]. The canopy is dominated by mature, planted red pine of approximately 12–24 in. dbh, with a component of similarly-sized white pine and Norway spruce (*Picea abies*). The canopy varies from 80% to less than 50%, with sparser canopy more typical of the southernmost areas of the Kohler Property. The groundlayer includes relatively open areas with typical [redacted] herbaceous understory species, as well as areas dominated by dense Japanese barberry and other brushy species, where the tree canopy is sparse. This community contains the highest species diversity within the Project Area, but relatively low Mean C and FQI values, suggesting that many of the species are weedy. No rare species were noted within this community.

This community is limited to the [redacted]. The community occurs on irregular, rolling terrain consisting of [redacted]. The vegetation is

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

characterized by an open tree canopy with less than 50% coverage. Canopy dominants include white pine, red pine, paper birch, and northern pin oak (*Quercus ellipsoidalis*), of approximately 8–12 in. dbh. The groundlayer is dominated by Pennsylvania sedge and common juniper, and includes species typical of sandy, dry habitats, such as columbine (*Aquilegia canadensis*), velvet-leaf blueberry (*Vaccinium myrtilloides*), pin cherry (*Prunus pennsylvanica*), and partridgeberry (*Mitchella repens*). This community is similar in composition to the [REDACTED] but generally lacks [REDACTED] plant species. This community also contains one of the lowest FQI values within the Project Area. No rare species were noted within this community.

Old Field

This community covers an extensive area along the west edge of the State Property, on flat to rolling terrain, with a history of agricultural land use. The vegetation is dominated by introduced, cool season grasses, predominantly smooth brome (*Bromus inermis*), timothy (*Phleum pratense*), quackgrass (*Elymus repens*), Canada goldenrod (*Solidago canadensis*) and common milkweed (*Asclepias syriaca*). This community contains the lowest FQI within the Project Area. One small population of WI Threatened [REDACTED] was found adjacent to the [REDACTED]

WETLAND/AQUATIC PLANT COMMUNITIES

The [REDACTED] community occurs in [REDACTED] formed between [REDACTED] along the [REDACTED]. This community is characterized by a seasonally saturated hydroperiod, [REDACTED] and a mix of hydrophytic and non-hydrophytic vegetation. This community occurs in isolated pockets within the [REDACTED] communities. It is characterized by a tree canopy of red and white pine of approximately 6–12 in. dbh, with approximately 25–75% cover. Understory includes occasional shrubs including common juniper, honeysuckle, and willows. Herbaceous species include Baltic rush (*Juncus balticus*), bluejoint grass (*Calamagrostis canadensis*), grass-leaved goldenrod (*Euthamia graminifolia*), strawberry (*Fragaria virginiana*), showy goldenrod (*Solidago speciosa*), northern bog aster (*Symphotrichum boreale*) and lance-leaved coreopsis (*Coreopsis lanceolata* var. *lanceolata*). [REDACTED] (WI Threatened) was found scattered within this community.

This complex of wetland communities occurs in [REDACTED] roughly parallel to the [REDACTED]. Approximately 60 of these wetlands occur within a matrix of [REDACTED] predominantly within the [REDACTED]. The wetland plant community consists predominantly of [REDACTED] vegetation, with components of [REDACTED]. Tree canopy coverage within the [REDACTED] ranges from 0–90%, though few trees are rooted within the wetland. Hydrology varies from year-round to seasonal saturation. This community includes one [REDACTED] though the majority of the wetlands consist of small depressions. Generally, the wetlands are more widely-spaced farther to the west. Dominants include bluejoint grass, stinging nettle (*Urtica dioica*), reed canary grass, and tussock sedge (*Carex stricta*) in the herbaceous layer; speckled alder (*Alnus incana*) in the shrub layer; and green ash in the tree layer. Problematic non-native species include reed canary grass and Canada thistle. No rare species were noted within this community.

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

[REDACTED]

This plant community covers extensive areas within the Black River floodplain. The community is characterized by the dominant shrub species, [REDACTED] and a perennially saturated substrate. Occasional trees of green and black ash (*Fraxinus nigra*) occur within the [REDACTED] but do not exceed 30% canopy. Common groundlayer species include forget me not (*Myosotis scorpioides*), water horehound (*Lycopus uniflorus*), lake sedge (*Carex lacustris*), and reed canary grass. Degraded [REDACTED] occurs along a tributary stream that flows from the [REDACTED] of the Project Area that has been impacted by stormwater runoff and disturbance. The degraded [REDACTED] has a groundlayer dominated by garlic mustard and dames rocket. No rare species were noted within the higher quality or degraded communities.

[REDACTED]

This community occurs within the Black River floodplain, [REDACTED] sometimes forming extensive corridors. The [REDACTED] consists of two components: high quality [REDACTED] dominated by native sedges and grasses; and degraded [REDACTED] dominated by reed canary grass. Common species within the high quality [REDACTED] include bluejoint grass, lake sedge, tussock sedge, broad-leaved cat-tail (*Typha latifolia*), swamp milkweed, water horehound, and wild mint (*Mentha arvensis*). Degraded [REDACTED] occurs along the Black River corridor [REDACTED] that have been impacted by stormwater runoff, excess nutrient inputs, and disturbance. The degraded [REDACTED] is dominated by reed canary grass. No rare species were noted within the higher quality or degraded communities.

[REDACTED]

This community occurs within the floodplain of the Black River, [REDACTED]. The [REDACTED] consists of two components: a high quality [REDACTED] with an understory consisting of a mix of native species; and a degraded component, with an understory that is dominated by invasive plant species. The community is characterized by a relatively open tree canopy with 50–75% cover, dominated by green ash and black ash of approximately 6–18 in. dbh. The understory varies from brushy to relatively open. Speckled alder is dominant in the shrub layer; nannyberry (*Viburnum lentago*) is also common. Common herbaceous groundlayer species include bottomland aster (*Symphotrichum ontarionis*), water horehound, white avens (*Geum candense*) and bristly buttercup (*Ranunculus hispidus*).

The degraded component occurs on the [REDACTED]. The degraded component is characterized by a shrub layer dominated by invasive species: multiflora rose, honeysuckle and Japanese barberry. The herbaceous layer dominants include garlic mustard, dames rocket, and reed canary grass. No rare species were noted within the higher quality or degraded communities.

[REDACTED]

This community occurs in a narrow band between [REDACTED] on a gradually sloping landscape position [REDACTED] of the Black River floodplain, characterized by groundwater discharge. The community is characterized by a mature tree canopy of yellow birch, green and black ash, American beech, sugar maple, red maple (*Acer rubrum*) and American elm (*Ulmus americana*) of approximately 75–100% cover and size of approximately 12–24 in. dbh. The understory is open, with lady fern (*Athyrium angustum*), skunk cabbage (*Symplocarpus foetidus*), bristly buttercup, ostrich fern (*Matteuccia*

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

struthiopteris), and sensitive fern (*Onoclea sensibilis*). The trees in this community show morphological adaptations to the shallow water table, such as buttresses and shallow roots. Invasive species of concern in this community include Japanese barberry, dames rocket and common buckthorn. No rare species were noted within this community.

Aquatic

This community occurs in the Black River, within the channel, on sandbars, seasonally exposed mudflats, and quiet pools. Scouring and inundation limit the growth of vegetation to species of submerged, floating and emergent hydrophytes. The aquatic community is composed of a small number of native aquatic species, including American bur-reed (*Sparganium americanum*), waterweed (*Elodea canadensis*), and common water starwort (*Callitriche palustris*). No rare species were noted within this community.

RARE PLANTS

Six species of rare plants were identified within the Project Area (Figure 3), distributed primarily within the plant communities closest to the [REDACTED]. The most widely distributed species was [REDACTED] (Wisconsin Threatened), which is widespread within the [REDACTED] and also occurs in the [REDACTED] community on the [REDACTED]. This species is considered the dominant [REDACTED] within the [REDACTED] community. Several thousand individual plants are estimated to be present within the [REDACTED]. [REDACTED] was the only rare species identified on the [REDACTED] where it occurs in a small population in the [REDACTED]. Based on its location adjacent to the [REDACTED] this population was likely introduced, and not representative of a remnant habitat.

[REDACTED] is distributed widely within the [REDACTED] community, with the greatest number of plants in the [REDACTED]. Based on a fall 2014 count of non-flowering basal rosettes, approximately 150 individual plants were present in the [REDACTED] communities. This species can grow for five to eight years before it flowers. Once it flowers, the plant sets seed and then disappears. Therefore, the location, distribution and number of species within this population can change from year to year depending on favorable conditions for germination. As a result, it is recommended that any land disturbance within the [REDACTED] communities should have a recent site specific survey completed to document species presences/absence.

[REDACTED] (Wisconsin Threatened) is also widely distributed in the [REDACTED] communities. An isolated population of [REDACTED] occurs in the [REDACTED] area surrounded by [REDACTED]. While not as abundant as [REDACTED] approximately 350 individual plants were estimated to occur within the [REDACTED] communities.

[REDACTED] (Wisconsin Special Concern) was identified in two populations in the [REDACTED] community, where it occurs in [REDACTED]. Based on a fall 2014 estimate, over one-thousand individual plants were present between the two populations. [REDACTED] is an annual species and its location, distribution and number of species can change from year to year depending on favorable conditions for germination. It is recommended that any land disturbance within the [REDACTED] community should have a recent site specific survey completed to document species presences/absence.

[REDACTED] was found exclusively within the [REDACTED] community, where it occurs on [REDACTED]. This species is scattered in occurrence within the perimeter shown on Figure 3. Based on measurements of the fruits made in the field, some individuals were

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

identified as the native [redacted] however some individuals were intermediate in fruit characters with the introduced [redacted] suggesting that both are present.

[redacted] (Wisconsin Special Concern) was identified along the border of [redacted] near the [redacted]. This species was not identified in the ERR, but is known to occur in [redacted]. Approximately 20 individual plants were noted in two locations.

Five additional species identified in the ERR were not found in the Project Area. The [redacted] - Wisconsin Threatened) was not found; however, [redacted] which can easily be confused with it, was found in its expected habitat of [redacted]. Three of the species listed in the ERR [redacted]

have an optimal field survey period of June or April—June, according to DNR. Thus, while suitable habitat exists within the Project Area, it is unlikely that they would have been visible during the September-October botanical survey. It is highly recommended that additional rare species survey be completed earlier in the growing season.

INVASIVE SPECIES

Invasive species documented within the Project Area include species listed as Restricted under Wisconsin's Invasive Species Rule (NR-40). These include Japanese knotweed, multiflora rose, garlic mustard, dame's rocket, and bush honeysuckles (Tartarian, Morrow's and/or Bell's). Additionally, two non-regulated but highly invasive plants were documented: reed canary grass and Japanese barberry. Additional invasive species may be present on the Project Area, but did not occur in significant numbers or coverage. Invasive species have the potential to aggressively invade and degrade natural community integrity, habitat value, and recreational value. Table 3 below provides recommendations for the chemical control and management of persistent invasive species that were mapped within the project area (Figure 2). Herbicide should be applied by experienced and licensed pesticide applicators and in accordance with product labels. Herbicide products labelled for aquatic use should be applied if the potential exists for the herbicide to contact surface waters. Several years of management, and potentially the addition of native seed, may be needed to attain adequate invasive species control at the site.

Table 3. Invasive species management recommendations

Species	Treatment Method	Timing	Recommended Herbicide (Active Ingredient / Common Product Name Example)
Japanese barberry	Foliar application (recommended in areas with greater than 30% cover or dense localized populations to reduce labor)	When plant is actively growing and fully leafed out	Triclopyr (Garlon 4, Element 4)
	Cut-stump (more feasible with smaller populations)	Apply at any time of year	Glyphosate (Roundup), Triclopyr (Garlon 4, Element 4)
Honeysuckle species	Foliar application	When plant is actively growing and fully leafed out	Glyphosate (Roundup)
	Cut-stump (recommended for	Apply at any time of	Glyphosate (Roundup),

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

Species	Treatment Method	Timing	Recommended Herbicide (Active Ingredient / Common Product Name Example)
	medium to large shrubs to reduce overspray)	year	Triclopyr (Garlon 4, Element 4)
Multiflora rose	Foliar application (more feasible with localized dense populations)	When plant is actively growing and fully leafed out	Glyphosate (Roundup), Triclopyr (Garlon 4, Element 4)
	Cut-stump (recommended in areas where damage to non-target species is a concern)	Apply at any time of year	Glyphosate (Roundup), Triclopyr (Garlon 4, Element 4)
Japanese knotweed	Recommended method: Mow or cut the plant two times during the growing season (in spring and again when plant flowers) and then apply foliar treatment to regrowth in the fall (when plant reaches 3 feet high).	Described in Treatment Method column	Aminopyralid (Milestone)
	Alternative method: cut-stump	When plant is actively growing	Glyphosate (Roundup), Triclopyr (Garlon 4, Element 4)
Reed canary grass	Foliar (spot treat with a backpack sprayer in areas with scattered populations)	Spring (prior to seed production) or fall (may mow first and allow for appropriate regrowth prior to treating)	Glyphosate (Rodeo, Aquaneat), Clethodim (Select Max)
Garlic mustard	Foliar	Treat rosettes in spring or fall or treat flowering plants	Glyphosate (Roundup), Triclopyr (Garlon 4, Element 4)
Dame's rocket	Foliar	Treat rosettes in spring or fall or treat flowering plants	Glyphosate (Roundup), Triclopyr (Garlon 4, Element 4)

Reference: Botanical Surveys, Kohler Golf Course Project, Town of Wilson, Sheboygan County, Wisconsin

CONCLUSION

On September 22, 24 and October 2, 2014, Stantec staff conducted a botanical survey of the Kohler Golf Course Project Area, consisting of parcels owned by Kohler Company and the State of Wisconsin, totaling 382 acres. Meander surveys of the entire Project Area were utilized to identify, characterize, and map plant communities, rare plant populations, and distribution and density of invasive species. A total of 16 plant communities were identified and characterized. Populations of 6 species of rare plants were identified and mapped. The extent and density of at least 7 species of invasive plants were mapped. Based on the results of this botanical survey, additional rare plant surveys are strongly recommended for species identified in the ERR, whose optimal period for identification occur in June.

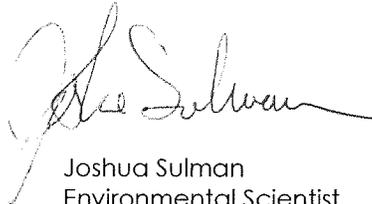
If you have any questions, or require any additional information, please call us at (920) 592-8400.

Sincerely,

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Attachment: Table 1 – Rare Species Summary, Figure 1 – Botanical Community Overview Map, Figure 2 – Invasive Species, Figure 3 – Rare Species, Attachment A – Species Lists, Attachment B – Photo Log

Table 1. Summary of Rare Species Identified in Endangered Resources Review and Botanical Survey

Scientific Name	Common Name	Identified in ERR	Observed Locations	Wisconsin Status	US Status	Habitat Requirements	Habitat Suitability on Kohler Property	Habitat Suitability on State Property	Optimal field survey period (WI DNR)
		yes	none	Endangered			High	Low	June
		yes	Kohler	Special Concern			High	Low	early July-late Sept.
		yes	Kohler, State	Threatened			High	Low	early July-late Sept.
		yes	Kohler	Special Concern			High	Low	early July-late Sept.
		yes	Kohler	Threatened			High	Low	late June-late Aug.
		yes	Kohler	Threatened			High	Low	early June-late Aug.
		yes	none	Threatened			High	Low	June
		yes	none	Special Concern			High	Moderate	mid April-late June
		yes	none	Threatened			High	Low	late Aug.-early Sept.
		yes	none	Special Concern			Moderate	Low	early July - late Aug.
		no	Kohler	Special Concern			High	Low	late May - late July

One figure page was redacted since it contained information on species tracked by Wisconsin's Natural Heritage Inventory (NHI) program. This information is considered sensitive and is not subject to Wisconsin's Open Records Law (per s. 23.27, Wis. Stats.)

One figure page was redacted since it contained information on species tracked by Wisconsin's Natural Heritage Inventory (NHI) program. This information is considered sensitive and is not subject to Wisconsin's Open Records Law (per s. 23.27, Wis. Stats.)

2014 Species List - [REDACTED]

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Ammophila breviligulata</i>	american beach-grass	native	grass	10	5
<i>Arabidopsis lyrata</i>	lyrate rock-cress	native	forb	4	3
<i>Artemisia campestris</i>	field wormwood	native	forb	4	5
<i>Asclepias syriaca</i>	common milkweed	native	forb	1	5
<i>Asclepias verticillata</i>	whorled milkweed	native	forb	2	5
<i>Berberis thunbergii</i>	japanese barberry	non-native	shrub	0	3
<i>Centaurea stoebe</i>	spotted knapweed	non-native	forb	0	5
<i>Cycloloma atriplicifolium</i>	winged pigweed	native	forb	3	3
<i>Cyperus schweinitzii</i>	great plains sand sedge	native	sedge	4	3
<i>Elymus canadensis</i>	canada wild-rye	native	grass	4	3
<i>Equisetum hyemale</i>	common scouring rush	native	fern ally	3	0
<i>Euphorbia cyparissias</i>	cypress spurge	non-native	forb	0	5
<i>Festuca saximontana</i>	rocky mountain fescue	native	grass	7	5
<i>Juniperus communis</i>	common juniper	native	shrub	3	3
<i>Juniperus horizontalis</i>	creeping juniper	native	shrub	9	3
<i>Lathyrus japonicus</i>	beach pea	native	forb	9	3
<i>Lithospermum caroliniense</i>	hairy puccoon	native	forb	10	5
<i>Monarda fistulosa</i>	wild bergamot	native	forb	3	3
<i>Monarda punctata</i>	dotted horsemint	native	forb	3	5
<i>Oenothera biennis</i>	common evening-primrose	native	forb	1	3
<i>Pinus resinosa</i>	red pine	native	tree	7	3
<i>Pinus strobus</i>	eastern white pine	native	tree	5	3
<i>Populus alba</i>	white poplar	non-native	tree	0	5
<i>Populus deltoides</i>	eastern cottonwood	native	tree	2	0
<i>Rosa blanda</i>	early wild rose	native	shrub	4	3
<i>Rudbeckia hirta</i>	black-eyed susan	native	forb	4	3
<i>Salix eriocephala</i>	diamond willow	native	shrub	4	-3
<i>Salix interior</i>	sandbar willow	native	shrub	2	-3
<i>Saponaria officinalis</i>	bouncing-bet	non-native	forb	0	3
<i>Schizachyrium scoparium</i>	little bluestem	native	grass	4	3
<i>Solidago gigantea</i>	giant goldenrod	native	forb	3	-3
<i>Solidago speciosa</i>	showy goldenrod	native	forb	5	5

FQA Metrics	Species Richness	Mean C Value	FQI
Native	31	5.1	28.4
All Species	36	4.4	26.4

ohler Golf Course
 Sheboygan County, Wisconsin

2014 Species List - [REDACTED]

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Asparagus officinalis</i>	asparagus	forb	non-native	0	3
<i>Bidens frondosa</i>	common beggar-ticks	forb	native	1	-3
<i>Lathyrus japonicus</i>	beach pea	forb	native	9	3
<i>Phalaris arundinacea</i>	reed canary grass	grass	non-native	0	-3
<i>Populus deltoides</i>	eastern cottonwood	tree	native	2	0
<i>Salix eriocephala</i>	diamond willow	shrub	native	4	-3
<i>Salix interior</i>	sandbar willow	shrub	native	2	-3
<i>Tragopogon pratensis</i>	meadow salsify	forb	non-native	0	5
<i>Xanthium strumarium</i>	rough cocklebur	forb	native	1	0

FQA Metrics	Species Richness	Mean C Value	FQI
Native	7	4.0	10.6
All Species	10	2.8	8.9

2014 Species List -

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Acer rubrum</i>	red maple	native	tree	3	0
<i>Achillea millefolium</i>	common yarrow	native	forb	1	3
<i>Arctostaphylos uva-ursi</i>	bearberry	native	shrub	7	5
<i>Artemisia campestris</i>	field wormwood	native	forb	4	5
<i>Asclepias syriaca</i>	common milkweed	native	forb	1	5
<i>Asparagus officinalis</i>	asparagus	non-native	forb	0	3
<i>Berberis thunbergii</i>	japanese barberry	non-native	shrub	0	3
<i>Betula papyrifera</i>	paper birch	native	tree	3	3
<i>Campanula rotundifolia</i>	harebell	native	forb	5	3
<i>Chenopodium pratericola</i>	desert goosefoot	native	forb	5	5
<i>Cynoglossum officinale</i>	common comfrey	non-native	forb	0	5
<i>Dichanthelium acuminatum</i> var. <i>acuminatum</i>	mat panic grass	native	grass	2	0
<i>Elymus canadensis</i>	canada wild-rye	native	grass	4	3
<i>Elymus trachycaulus</i>	slender wheat grass	native	grass	4	3
<i>Fagus grandifolia</i>	american beech	native	tree	8	3
<i>Galium boreale</i>	northern bedstraw	native	forb	5	0
<i>Galium triflorum</i>	fragrant bedstraw	native	forb	5	3
<i>Hieracium umbellatum</i>	narrow-leaved hawkweed	native	forb	6	5
<i>Hypericum perforatum</i>	common st. johns-wort	non-native	forb	0	5
<i>Juncus balticus</i>	baltic rush	native	rush	5	-5
<i>Juniperus communis</i>	common juniper	native	shrub	3	3
<i>Juniperus horizontalis</i>	creeping juniper	native	shrub	9	3
<i>Lactuca canadensis</i>	canada lettuce	native	forb	2	3
<i>Lithospermum carolinense</i>	hairy puccoon	native	forb	10	5
<i>Maianthemum canadense</i>	canada mayflower	native	forb	5	3
<i>Mitchella repens</i>	partridgeberry	native	forb	6	3
<i>Phlox pilosa</i>	downy phlox	native	forb	7	3
<i>Pinus resinosa</i>	red pine	native	tree	7	3
<i>Pinus strobus</i>	eastern white pine	native	tree	5	3
<i>Pinus sylvestris</i>	scots pine	non-native	tree	0	5
<i>Poa compressa</i>	canada bluegrass	non-native	grass	0	3
<i>Polygonatum pubescens</i>	downy solomons-seal	native	forb	6	3
<i>Prunus pumila</i>	sand cherry	native	shrub	9	5
<i>Prunus virginiana</i>	chokecherry	native	tree	3	3
<i>Pteridium aquilinum</i>	bracken fern	native	fern	2	3
<i>Robinia pseudoacacia</i>	black locust	non-native	tree	0	3
<i>Rubus idaeus</i> var. <i>strigosus</i>	american red raspberry	native	shrub	3	3
<i>Schizachne purpurascens</i>	false melic grass	native	grass	7	3
<i>Schizachyrium scoparium</i>	little bluestem	native	grass	4	3
<i>Solidago juncea</i>	early goldenrod	native	forb	4	5
<i>Solidago speciosa</i>	showy goldenrod	native	forb	5	5
<i>Symphoricarpos albus</i> var. <i>albus</i>	common snowberry	native	shrub	7	3
<i>Taraxacum officinale</i>	common dandelion	non-native	forb	0	3
<i>Toxicodendron radicans</i>	eastern poison-ivy	native	vine	4	0
<i>Verbascum thapsus</i>	common mullein	non-native	forb	0	5

FQA Metrics	Species Richness	Mean C Value	FQI
Native	40	5.4	34.2
All Species	49	4.4	30.8

2014 Species List - [REDACTED]

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Acer rubrum</i>	red maple	native	tree	3	0
<i>Acer saccharum</i>	sugar maple	native	tree	5	3
<i>Acer spicatum</i>	mountain maple	native	tree	6	3
<i>Achillea millefolium</i>	common yarrow	native	forb	1	3
<i>Ageratina altissima</i>	white snakeroot	native	forb	1	3
<i>Alliaria petiolata</i>	invasive garlic mustard	non-native	forb	0	3
<i>Amelanchier arborea</i>	common serviceberry	native	shrub	6	3
<i>Anemone acutiloba</i>	sharp-lobed hepatica	native	forb	7	5
<i>Aquilegia canadensis</i>	wild columbine	native	forb	5	3
<i>Arisaema triphyllum</i>	jack-in-the-pulpit	native	forb	5	0
<i>Asclepias syriaca</i>	common milkweed	native	forb	1	5
<i>Athyrium angustum</i>	common lady fern	native	fern	5	0
<i>Berberis thunbergii</i>	japanese barberry	non-native	shrub	0	3
<i>Betula allegheniensis</i>	yellow birch	native	tree	7	0
<i>Betula papyrifera</i>	paper birch	native	tree	3	3
<i>Bromus pubescens</i>	hairy woodland brome	native	grass	6	3
<i>Calamagrostis canadensis</i>	blue-joint grass	native	grass	5	-5
<i>Carex intumescens</i>	greater bladder sedge	native	grass	5	-3
<i>Carex leptoneura</i>	few-nerved wood sedge	native	sedge	5	0
<i>Carex pedunculata</i>	long-stalk sedge	native	sedge	6	0
<i>Carex pensylvanica</i>	pennsylvania sedge	native	sedge	7	3
<i>Carex rosea</i>	curly-styled wood sedge	native	sedge	3	5
<i>Cinna arundinacea</i>	common wood-reed	native	grass	4	3
<i>Cinna latifolia</i>	drooping wood-reed	native	grass	5	-3
<i>Cirsium arvense</i>	canada thistle	non-native	grass	7	-3
<i>Coptis trifolia</i>	three-leaved gold-thread	native	forb	0	3
<i>Corylus cornuta</i>	beaked hazelnut	native	forb	8	-3
<i>Cynoglossum officinale</i>	common comfrey	non-native	shrub	5	3
<i>Dendrolycopodium obscurum</i>	flat-branched ground-pine	native	forb	0	5
<i>Diervilla lonicera</i>	northern bush-honeysuckle	native	shrub	6	5
<i>Dryopteris carthusiana</i>	spinulose wood fern	native	fern	7	-3
<i>Dryopteris intermedia</i>	fancy wood fern	native	fern	7	0
<i>Elymus canadensis</i>	canada wild-rye	native	grass	4	3
<i>Elymus trachycaulus</i>	slender wheat grass	native	grass	4	3
<i>Elymus virginicus</i>	virginia wild-rye	native	grass	6	-3
<i>Epifagus virginiana</i>	beech-drops	native	grass	6	-3
<i>Epipactis helleborine</i>	broad-leaved helleborine	non-native	forb	9	5
<i>Euphorbia cyparissias</i>	cypress spurge	non-native	forb	0	5
<i>Eurybia macrophylla</i>	large-leaved aster	native	forb	0	5
<i>Fagus grandifolia</i>	american beech	native	forb	4	5
<i>Festuca subverticillata</i>	nodding fescue	native	tree	8	3
<i>Fraxinus americana</i>	white ash	native	grass	4	3
<i>Galium boreale</i>	northern bedstraw	native	tree	5	0
<i>Galium triflorum</i>	fragrant bedstraw	native	forb	5	0
<i>Glechoma hederacea</i>	creeping-charlie	non-native	forb	5	3
<i>Hamamelis virginiana</i>	american witch-hazel	native	forb	0	3
<i>Hesperis matronalis</i>	dames rocket	non-native	forb	7	3

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List -

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
Huperzia lucidula	shining club-moss	native	fern ally	7	0
Juniperus communis	common juniper	native	shrub	3	3
Leonurus cardiaca	motherwort	non-native	forb	0	5
Luzula acuminata	hairy wood rush	native	rush	6	3
Maianthemum canadense	canada mayflower	native	forb	5	3
Maianthemum stellatum	starry false solomons-seal	native	forb	5	0
Mitchella repens	partridgeberry	native	forb	6	3
Muhlenbergia frondosa	common satin grass	native	grass	3	-3
Nabalus albus	lions-foot	native	forb	5	3
Oryzopsis asperifolia	rough-leaved rice grass	native	grass	6	5
Osmorhiza longistylis	smooth sweet cicely	native	forb	4	3
Oxalis stricta	common yellow wood-sorrel	native	forb	0	3
Phalaris arundinacea	reed canary grass	non-native	grass	0	-3
Picea glauca	white spruce	native	tree	7	3
Pinus resinosa	red pine	native	tree	7	3
Pinus strobus	eastern white pine	native	tree	5	3
Poa alsodes	grove bluegrass	native	grass	5	0
Poa compressa	canada bluegrass	non-native	grass	0	3
Poa nemoralis	wood bluegrass	non-native	grass	0	3
Poa pratensis	kentucky bluegrass	non-native	grass	0	3
Podophyllum peltatum	may-apple	native	forb	4	3
Populus tremuloides	quaking aspen	native	tree	2	0
Prunus serotina	wild black cherry	native	tree	3	3
Prunus virginiana	chokecherry	native	tree	3	3
Pyrola elliptica	elliptic shin-leaf	native	forb	6	3
Quercus rubra	northern red oak	native	tree	5	3
Ranunculus abortivus	small-flowered buttercup	native	forb	1	0
Rosa multiflora	multiflora invasive rose	non-native	shrub	0	3
Rubus allegheniensis	common blackberry	native	shrub	2	3
Rubus idaeus var. strigosus	american red raspberry	native	shrub	3	3
Rumex acetosella	common sheep sorrel	non-native	forb	0	3
Schizachne purpurascens	false melic grass	native	grass	7	3
Solidago gigantea	giant goldenrod	native	forb	3	-3
Spinum annotinum	common club-moss	native	fern ally	7	0
Symphoricarpos albus var. albus	common snowberry	native	shrub	7	3
Symphotrichum ciliolatum	northern heart-leaved aster	native	forb	4	5
Symphotrichum ontarionis	bottomland aster	native	forb	6	0
Taraxacum officinale	common dandelion	non-native	forb	0	3
Thelypteris palustris	eastern marsh fern	native	fern	7	-3
Tilia americana	american basswood	native	tree	5	3
Toxicodendron radicans	eastern poison-ivy	native	vine	4	0
Trientalis borealis	northern starflower	native	forb	7	0
Vaccinium myrtilloides	velvet-leaf blueberry	native	shrub	6	-3
Verbascum thapsus	common mullein	non-native	forb	0	5

FQA Metrics	Species Richness	Mean C Value	FQI
Native	74	5.0	43.0
All Species	91	4.1	39.1

Wohler Golf Course
Sheboygan County, Wisconsin

2014 Species List -

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Agrimonia gryposepala</i>	common agrimony	native	forb	2	3
<i>Amphicarpaea bracteata</i>	american hog-peanut	native	vine	5	0
<i>Arisaema triphyllum</i>	jack-in-the-pulpit	native	forb	5	0
<i>Athyrium angustum</i>	common lady fern	native	fern	5	0
<i>Berberis thunbergii</i>	japanese barberry	non-native	shrub	0	3
<i>Betula allegheniensis</i>	yellow birch	native	tree	7	0
<i>Betula papyrifera</i>	paper birch	native	tree	3	3
<i>Celastrus orbiculatus</i>	asian invasive bittersweet	non-native	vine	0	5
<i>Cornus alternifolia</i>	alternate-leaved dogwood	native	tree	7	3
<i>Elymus virginicus</i>	virginia wild-rye	native	grass	6	-3
<i>Fagus grandifolia</i>	american beech	native	tree	8	3
<i>Frangula alnus</i>	glossy invasive buckthorn	non-native	shrub	0	0
<i>Fraxinus pennsylvanica</i>	green ash	native	tree	2	-3
<i>Geum canadense</i>	white avens	native	forb	2	0
<i>Hesperis matronalis</i>	dames rocket	non-native	forb	0	3
<i>Juniperus communis</i>	common juniper	native	shrub	3	3
<i>Mitchella repens</i>	partridgeberry	native	forb	6	3
<i>Osmorhiza longistylis</i>	smooth sweet cicely	native	forb	4	3
<i>Osmunda claytoniana</i>	interrupted fern	native	fern	6	0
<i>Pinus strobus</i>	eastern white pine	native	tree	5	3
<i>Populus tremuloides</i>	quaking aspen	native	tree	2	0
<i>Prunus serotina</i>	wild black cherry	native	tree	3	3
<i>Quercus macrocarpa</i>	bur oak	native	tree	5	3
<i>Rosa multiflora</i>	multiflora invasive rose	non-native	shrub	0	3
<i>Rubus allegheniensis</i>	common blackberry	native	shrub	2	3
<i>Rubus idaeus var. strigosus</i>	american red raspberry	native	shrub	3	3
<i>Solidago canadensis</i>	canada goldenrod	native	forb	1	3
<i>Spiraea alba</i>	white meadowsweet	native	shrub	4	-3
<i>Symphotrichum lateriflorum</i>	calico aster	native	forb	3	0
<i>Thalictrum dasycarpum</i>	tall meadow-rue	native	forb	4	-3
<i>Toxicodendron radicans</i>	eastern poison-ivy	native	vine	4	0
<i>Urtica dioica</i>	stinging nettle	native	forb	1	0
<i>Viburnum lentago</i>	nannyberry	native	tree	4	0
<i>Zanthoxylum americanum</i>	common prickly-ash	native	shrub	3	3

FQA Metrics	Species Richness	Mean C Value	FQI
Native	29	4.0	21.5
All Species	34	3.4	19.8

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
Acer rubrum	red maple	native	tree	3	0
Achillea millefolium	common yarrow	native	forb	1	3
Alliaria petiolata	invasive garlic mustard	non-native	forb	0	3
Antennaria plantaginifolia	plantain pussy-toes	native	forb	3	5
Aquilegia canadensis	wild columbine	native	forb	5	3
Arabidopsis lyrata	lyrate rock-cress	native	forb	4	3
Asclepias syriaca	common milkweed	native	forb	1	5
Asparagus officinalis	asparagus	non-native	forb	0	3
Berberis thunbergii	japanese barberry	non-native	shrub	0	3
Betula papyrifera	paper birch	native	tree	3	3
Boehmeria cylindrica	small-spike false nettle	native	forb	6	-5
Bromus pubescens	hairy woodland brome	native	grass	6	3
Campanula rotundifolia	harebell	native	forb	5	3
Carex arctata	drooping woodland sedge	native	sedge	5	5
Carex communis	colonial oak sedge	native	sedge	6	5
Carex intumescens	greater bladder sedge	native	sedge	5	-3
Carex leptoneura	few-nerved wood sedge	native	sedge	6	0
Carex pensylvanica	pennsylvania sedge	native	sedge	3	5
Carex tonsa	shaved sedge	native	sedge	4	5
Cerastium fontanum	big mouse-ear chickweed	non-native	forb	0	3
Cinna arundinacea	common wood-reed	native	grass	5	-3
Circaea alpina	alpine enchanters-nightshade	native	forb	7	-3
Cirsium arvense	canada thistle	non-native	forb	0	3
Coptis trifolia	three-leaved gold-thread	native	forb	8	-3
Crepis tectorum	narrow-leaved hawks-beard	non-native	forb	0	5
Cynoglossum officinale	common comfrey	non-native	forb	0	5
Danthonia compressa	flattened oat grass	native	grass	7	3
Dendrolycopodium obscurum	flat-branched ground-pine	native	fern ally	7	3
Dichanthelium acuminatum var. acuminatum	mat panic grass	native	grass	2	0
Diervilla lonicera	northern bush-honeysuckle	native	shrub	6	5
Dryopteris carthusiana	spinulose wood fern	native	fern	7	-3
Dryopteris intermedia	fancy wood fern	native	fern	7	0
Elymus trachycaulus	slender wheat grass	native	grass	4	3
Epifagus virginiana	beech-drops	native	forb	9	5
Erigeron canadensis	canadian horseweed	native	forb	0	3
Eurybia macrophylla	large-leaved aster	native	forb	4	5
Fagus grandifolia	american beech	native	tree	8	3
Fallopia cilioides	black-fringe bindweed	native	forb	1	5
Festuca saximontana	rocky mountain fescue	native	grass	7	5
Fragaria virginiana	wild strawberry	native	forb	1	3
Fraxinus pennsylvanica	green ash	native	tree	2	-3
Galium triflorum	fragrant bedstraw	native	forb	5	3
Geum canadense	white avens	native	forb	2	0
Hesperis matronalis	dames rocket	non-native	forb	0	3
Hieracium aurantiacum	orange hawkweed	non-native	forb	0	5
Juniperus communis	common juniper	native	shrub	3	3
Leonurus cardiaca	motherwort	non-native	forb	0	5
Leucanthemum vulgare	ox-eye daisy	non-native	forb	0	5
Lobelia inflata	indian-tobacco	native	forb	2	3
Lycopodium clavatum	running club-moss	native	fern ally	6	0
Lycopodium digitatum	crowfoot club-moss	native	fern ally	6	5
Lycopus uniflorus	northern bugleweed	native	forb	4	-5
Maianthemum canadense	canada mayflower	native	forb	5	3

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List -

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
Maianthemum stellatum	starry false solomons-seal	native	forb	5	0
Melampyrum lineare	narrow-leaved cow-wheat	native	forb	7	3
Melilotus officinalis	yellow invasive sweet-clover	non-native	forb	0	3
Mitchella repens	partridgeberry	native	forb	6	3
Monotropa uniflora	indian-pipe	native	forb	5	3
Oxalis stricta	common yellow wood-sorrel	native	forb	0	3
Parietaria pensylvanica	pennsylvanian pellitory	native	forb	2	3
Persicaria maculosa	lady's thumb smartweed	non-native	forb	0	0
Persicaria sagittata	arrow-leaved tear-thumb	native	forb	6	-5
Phalaris arundinacea	reed canary grass	non-native	grass	0	-3
Physalis virginiana	lance-leaved ground-cherry	native	forb	4	5
Picea abies	norway spruce	non-native	tree	0	5
Pinus resinosa	red pine	native	tree	7	3
Pinus strobus	eastern white pine	native	tree	5	3
Poa alsodes	grove bluegrass	native	grass	5	0
Poa compressa	canada bluegrass	non-native	grass	0	3
Polygonatum pubescens	downy solomons-seal	native	forb	6	3
Populus tremuloides	quaking aspen	native	tree	2	0
Prunus serotina	wild black cherry	native	tree	3	3
Prunus virginiana	chokecherry	native	tree	3	3
Quercus ellipsoidalis	northern pin oak	native	tree	5	5
Quercus macrocarpa	bur oak	native	tree	5	3
Quercus rubra	northern red oak	native	tree	5	3
Rosa multiflora	multiflora invasive rose	non-native	shrub	0	3
Rubus allegheniensis	common blackberry	native	shrub	2	3
Rubus idaeus var. strigosus	american red raspberry	native	shrub	3	3
Rumex acetosella	common sheep sorrel	non-native	forb	0	3
Sceptridium dissectum	cut-leaved grape fern	native	forb	4	0
Schedonorus pratensis	meadow fescue	non-native	grass	0	3
Schizachne purpurascens	false melic grass	native	grass	7	3
Senecio hieraciifolius	american burn-weed	native	forb	2	3
Solanum dulcamara	bittersweet nightshade	non-native	vine	0	0
Solanum ptychanthum	eastern black nightshade	native	forb	1	3
Solidago gigantea	giant goldenrod	native	forb	3	-3
Sporobolus cryptandrus	sand drop-seed	native	grass	3	3
Stellaria media	common chickweed	non-native	forb	0	3
Symphyotrichum ciliolatum	northern heart-leaved aster	native	forb	4	5
Symphyotrichum cordifolium	common blue heart-leaved aster	native	forb	6	5
Symphyotrichum lateriflorum	calico aster	native	forb	3	0
Symphyotrichum pilosum	frost aster	native	forb	1	3
Taraxacum officinale	common dandelion	non-native	forb	0	3
Thalictrum dioicum	early meadow-rue	native	forb	7	3
Toxicodendron radicans	eastern poison-ivy	native	vine	4	0
Trientalis borealis	northern starflower	native	forb	7	0
Urtica dioica	stinging nettle	native	forb	1	0
Vaccinium angustifolium	early low blueberry	native	shrub	4	3
Verbascum thapsus	common mullein	non-native	forb	0	5
Viola blanda	sweet white violet	native	forb	5	-3

FQA Metrics	Species Richness	Mean C Value	FQI
Native	78	4.3	38.0
All Species	101	3.4	34.2

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List - [REDACTED]

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
Acer rubrum	red maple	native	tree	3	0
Achillea millefolium	common yarrow	native	forb	1	3
Aquilegia canadensis	wild columbine	native	forb	5	3
Asclepias syriaca	common milkweed	native	forb	1	5
Berberis thunbergii	japanese barberry	non-native	shrub	0	3
Betula papyrifera	paper birch	native	tree	3	3
Carex pensylvanica	pennsylvania sedge	native	sedge	3	5
Dendrolycopodium obscurum	flat-branched ground-pine	native	fern ally	7	3
Elymus trachycaulus	slender wheat grass	native	grass	4	3
Eurybia macrophylla	large-leaved aster	native	forb	4	5
Fragaria virginiana	wild strawberry	native	forb	1	3
Galium boreale	northern bedstraw	native	forb	5	0
Juniperus communis	common juniper	native	shrub	3	3
Lonicera morrowii	morrrows honeysuckle	non-native	shrub	0	3
Mitchella repens	partridgeberry	native	forb	6	3
Monarda fistulosa	wild bergamot	native	forb	3	3
Oxalis stricta	common yellow wood-sorrel	native	forb	0	3
Pinus resinosa	red pine	native	tree	7	3
Pinus strobus	eastern white pine	native	tree	5	3
Pinus sylvestris	scots pine	non-native	tree	0	5
Poa pratensis	kentucky bluegrass	non-native	grass	0	3
Prunus pensylvanica	fire cherry	native	tree	4	3
Prunus serotina	wild black cherry	native	tree	3	3
Quercus ellipsoidalis	northern pin oak	native	tree	5	5
Schizachne purpurascens	false melic grass	native	grass	7	3
Solidago gigantea	giant goldenrod	native	forb	3	-3
Toxicodendron radicans	eastern poison-ivy	native	vine	4	0
Urtica dioica	stinging nettle	native	forb	1	0
Vaccinium angustifolium	early low blueberry	native	shrub	4	3
Vaccinium myrtilloides	velvet-leaf blueberry	native	shrub	6	-3

FQA Metrics	Species Richness	Mean C Value	FQI
Native	26	3.8	19.4
All Species	30	3.3	18.1

2014 Species List - Old Field

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
Achillea millefolium	common yarrow	native	forb	1	3
Agrostis gigantea	redtop	non-native	grass	0	-3
Asclepias syriaca	common milkweed	native	forb	1	5
Asparagus officinalis	asparagus	non-native	forb	0	3
Berberis thunbergii	japanese barberry	non-native	shrub	0	3
Berteroa incana	hoary-alyssum	non-native	forb	0	5
Bromus inermis	smooth brome	non-native	grass	0	5
 					
Centaurea stoebe	spotted knapweed	non-native	forb	0	5
Cirsium arvense	canada thistle	non-native	forb	0	3
Cornus alba	red-osier dogwood	native	shrub	3	-3
Daucus carota	queen annes-lace	non-native	forb	0	5
Elymus repens	quackgrass	non-native	grass	0	3
Equisetum hyemale	common scouring rush	native	fern ally	3	0
Euthamia graminifolia	common flat-topped goldenrod	native	forb	4	0
Fraxinus pennsylvanica	green ash	native	tree	2	-3
Hypericum perforatum	common st. johns-wort	non-native	forb	0	5
Juniperus communis	common juniper	native	shrub	3	3
Liatris pycnostachya	prairie blazing-star	native	forb	7	0
Linaria vulgaris	butter-and-eggs	non-native	forb	0	5
Lonicera morrowii	morrows honeysuckle	non-native	shrub	0	3
Malus pumila	cultivated apple	non-native	tree	0	5
Melilotus albus	white invasive sweet-clover	non-native	forb	0	3
Onoclea sensibilis	sensitive fern	native	fern	5	-3
Phalaris arundinacea	reed canary grass	non-native	grass	0	-3
Pheum pratense	timothy	non-native	grass	0	3
Picea glauca	white spruce	native	tree	7	3
Pinus strobus	eastern white pine	native	tree	5	3
Plantago major	broad-leaved plantain	non-native	forb	0	3
Poa pratensis	kentucky bluegrass	non-native	grass	0	3
Potentilla recta	sulphur cinquefoil	non-native	forb	0	5
Prunus serotina	wild black cherry	native	tree	3	3
Rosa multiflora	multiflora invasive rose	non-native	shrub	0	3
Rubus idaeus var. strigosus	american red raspberry	native	shrub	3	3
Rudbeckia hirta	black-eyed susan	native	forb	4	3
Silene latifolia	white campion	non-native	forb	0	5
Solidago canadensis	canada goldenrod	native	forb	1	3
Solidago gigantea	giant goldenrod	native	forb	3	-3
Solidago juncea	early goldenrod	native	forb	4	5
Spiraea alba	white meadowsweet	native	shrub	4	-3
Symphotrichum lanceolatum	white panicle aster	native	forb	4	-3
Symphotrichum novae-angliae	new england aster	native	forb	3	-3
Symphotrichum pilosum	frost aster	native	forb	1	3
Syringa vulgaris	common lilac	non-native	shrub	0	5
Taraxacum officinale	common dandelion	non-native	forb	0	3
Tragopogon pratensis	meadow salsify	non-native	forb	0	5
Ulmus pumila	siberian elm	non-native	tree	0	3
Urtica dioica	stinging nettle	native	forb	1	0
Viburnum lentago	nannyberry	native	tree	4	0

FQA Metrics	Species Richness	Mean C Value	FQI
Native	24	3.5	17.1
All Species	49	1.7	11.9

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List -

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Asclepias syriaca</i>	common milkweed	native	forb	1	5
<i>Betula papyrifera</i>	paper birch	native	tree	3	3
<i>Botrypus virginianus</i>	rattlesnake fern	native	fern	6	3
<i>Calamagrostis canadensis</i>	blue-joint grass	native	grass	5	-5
<i>Carex pensylvanica</i>	pennsylvania sedge	native	sedge	3	5
<i>Cirsium arvense</i>	canada thistle	non-native	forb	0	3
<i>Cynoglossum officinale</i>	common comfrey	non-native	forb	0	5
<i>Dichanthelium acuminatum</i> var. <i>acuminatum</i>	mat panic grass	native	grass	2	0
<i>Elymus trachycaulus</i>	slender wheat grass	native	grass	4	3
<i>Epipactis helleborine</i>	broad-leaved helleborine	non-native	forb	0	5
<i>Equisetum arvense</i>	common horsetail	native	fern ally	1	0
<i>Equisetum hyemale</i>	common scouring rush	native	fern ally	3	0
<i>Euthamia graminifolia</i>	common flat-topped goldenrod	native	forb	4	0
<i>Fragaria virginiana</i>	wild strawberry	native	forb	1	3
<i>Juncus balticus</i>	baltic rush	native	rush	5	-5
<i>Juniperus communis</i>	common juniper	native	shrub	3	3
<i>Juniperus horizontalis</i>	creeping juniper	native	shrub	9	3
<i>Lactuca canadensis</i>	canada lettuce	native	forb	2	3
<i>Lobelia inflata</i>	indian-tobacco	native	forb	2	3
<i>Lonicera morrowii</i>	morrows honeysuckle	non-native	shrub	0	3
<i>Lycopus uniflorus</i>	northern bugleweed	native	forb	4	-5
<i>Maianthemum stellatum</i>	starry false solomons-seal	native	forb	5	0
<i>Melampyrum lineare</i>	narrow-leaved cow-wheat	native	forb	7	3
<i>Picea glauca</i>	white spruce	native	tree	7	3
<i>Pinus resinosa</i>	red pine	native	tree	7	3
<i>Pinus strobus</i>	eastern white pine	native	tree	5	3
<i>Poa compressa</i>	canada bluegrass	non-native	grass	0	3
<i>Quercus rubra</i>	northern red oak	native	tree	5	3
<i>Rubus idaeus</i> var. <i>strigosus</i>	american red raspberry	native	shrub	3	3
<i>Schizachne purpurascens</i>	false melic grass	native	grass	7	3
<i>Schizachyrium scoparium</i>	little bluestem	native	grass	4	3
<i>Solidago gigantea</i>	giant goldenrod	native	forb	3	-3
<i>Solidago nemoralis</i>	gray goldenrod	native	forb	4	5
<i>Solidago speciosa</i>	showy goldenrod	native	forb	5	5
<i>Symphyotrichum boreale</i>	northern bog aster	native	forb	10	-5
<i>Symphyotrichum ciliolatum</i>	northern heart-leaved aster	native	forb	4	5
<i>Taraxacum officinale</i>	common dandelion	non-native	forb	0	3
<i>Viola labradorica</i>	alpine violet	native	forb	4	0

FQA Metrics	Species Richness	Mean C Value	FQI
Native	35	4.7	27.8
All Species	41	4.0	25.6

2014 Species List - [REDACTED]

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
Acer saccharum	sugar maple	native	tree	5	3
Alliaria petiolata	invasive garlic mustard	non-native	forb	0	3
Alnus incana	speckled alder	native	tree	4	-3
Anemone canadensis	canada anemone	native	forb	4	-3
Asclepias syriaca	common milkweed	native	forb	1	5
Barbarea vulgaris	yellow-rocket	non-native	forb	0	0
Berberis thunbergii	japanese barberry	non-native	shrub	0	3
Boehmeria cylindrica	small-spike false nettle	native	forb	6	-5
Calamagrostis canadensis	blue-joint grass	native	grass	5	-5
Cardamine pensylvanica	pennsylvania bitter-cress	native	forb	3	-3
Carex intumescens	greater bladder sedge	native	sedge	5	-3
Carex lacustris	common lake sedge	native	sedge	6	-5
Carex leptoneura	few-nerved wood sedge	native	sedge	6	0
Carex pensylvanica	pennsylvania sedge	native	sedge	3	5
Carex radiata	straight-styled wood sedge	native	sedge	4	0
Carex stricta	hummock sedge	native	sedge	7	-5
Cinna arundinacea	common wood-reed	native	grass	5	-3
Circaea canadensis	broad-leaf enchanters-nightshade	native	forb	2	3
Cirsium arvense	canada thistle	non-native	forb	0	3
Epipactis helleborine	broad-leaved helleborine	non-native	forb	0	5
Equisetum arvense	common horsetail	native	fern ally	1	0
Eutrochium maculatum	spotted joe-pye-weed	native	forb	4	-5
Fraxinus pensylvanica	green ash	native	tree	2	-3
Galium tinctorium	southern three-lobed bedstraw	native	forb	5	-5
Geum canadense	white avens	native	forb	2	0
Glyceria grandis	american manna grass	native	grass	6	-5
Glyceria striata	fowl manna grass	native	grass	4	-5
Iris virginica	southern blue flag	native	forb	5	-5
Juncus effusus	soft rush	native	rush	4	-5
Lactuca biennis	tall blue lettuce	native	forb	3	0
Lemna minor	common duckweed	native	forb	4	-5
Lycopus uniflorus	northern bugleweed	native	forb	4	-5
Mentha arvensis	wild mint	native	forb	3	-3
Mimulus ringens	allegheny monkey-flower	native	forb	6	-5
Onoclea sensibilis	sensitive fern	native	fern	5	-3
Osmorhiza longistylis	smooth sweet cicely	native	forb	4	3
Persicaria punctata	dotted smartweed	native	forb	5	-5
Phalaris arundinacea	reed canary grass	non-native	grass	0	-3
Pilea pumila	canadian clearweed	native	forb	3	-3
Populus tremuloides	quaking aspen	native	tree	2	0
Potentilla norvegica	rough cinquefoil	native	forb	0	0
Ranunculus pensylvanicus	bristly buttercup	native	forb	5	-5
Ranunculus recurvatus	hooked buttercup	native	forb	5	-3
Rubus idaeus var. strigosus	american red raspberry	native	shrub	3	3
Scirpus cyperinus	wool-grass	native	sedge	4	-5
Scutellaria galericulata	marsh skullcap	native	forb	5	-5
Scutellaria lateriflora	mad-dog skullcap	native	forb	5	-5
Sium suave	hemlock water-parsnip	native	forb	5	-5
Stachys tenuifolia	narrow-leaved hedge-nettle	native	forb	6	-3
Symphotrichum lanceolatum	white panicle aster	native	forb	4	-3
Symphotrichum ontarionis	bottomland aster	native	forb	6	0
Thelypteris palustris	eastern marsh fern	native	fern	7	-3
Urtica dioica	stinging nettle	native	forb	1	0
Vitis riparia	riverbank grape	native	vine	2	0

FQA Metrics	Species Richness	Mean C Value	FQI
Native	48	4.1	28.4
All Species	54	3.6	26.5

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List - [REDACTED]

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
Alliaria petiolata	invasive garlic mustard	non-native	forb	0	3
Alnus incana	speckled alder	native	tree	4	-3
Amphicarpaea bracteata	american hog-peanut	native	vine	5	0
Arisaema triphyllum	jack-in-the-pulpit	native	forb	5	0
Asclepias incarnata	marsh milkweed	native	forb	5	-5
Athyrium angustum	common lady fern	native	fern	5	0
Boehmeria cylindrica	small-spike false nettle	native	forb	6	-5
Calamagrostis canadensis	blue-joint grass	native	grass	5	-5
Carex lacustris	common lake sedge	native	sedge	6	-5
Carex stricta	hummock sedge	native	sedge	7	-5
Carex tuckermanii	bent-seeded hop sedge	native	sedge	8	-5
Chelone glabra	turtlehead	native	forb	7	-5
Dryopteris cristata	crested shield fern	native	fern	7	-5
Echinocystis lobata	balsam-apple	native	vine	2	-3
Elymus virginicus	virginia wild-rye	native	grass	6	-3
Epilobium coloratum	cinnamon willow-herb	native	forb	3	-5
Eutrochium maculatum	spotted joe-pye-weed	native	forb	4	-5
Fraxinus nigra	black ash	native	tree	8	-3
Fraxinus pennsylvanica	green ash	native	tree	2	-3
Geum canadense	white avens	native	forb	2	0
Glechoma hederacea	creeping-charlie	non-native	forb	0	3
Glyceria grandis	american manna grass	native	grass	6	-5
Glyceria striata	fowl manna grass	native	grass	4	-5
Helenium autumnale	common sneezeweed	native	forb	4	-3
Hesperis matronalis	dames rocket	non-native	forb	0	3
Ilex verticillata	common winterberry	native	shrub	7	-3
Impatiens capensis	orange jewelweed	native	forb	2	-3
Iris virginica	southern blue flag	native	forb	5	-5
Juncus effusus	soft rush	native	rush	4	-5
Laportea canadensis	canadian wood-nettle	native	forb	4	-3
Lycopus uniflorus	northern bugleweed	native	forb	4	-5
Lysimachia ciliata	fringed loosestrife	native	forb	5	-3
Matteuccia struthiopteris	ostrich fern	native	fern	5	0
Mentha arvensis	wild mint	native	forb	3	-3
Myosotis scorpioides	common forget-me-not	non-native	forb	0	-5
Onoclea sensibilis	sensitive fern	native	fern	5	-3
Osmunda spectabilis	american royal fern	native	fern	7	-5
Osmundastrum cinnamomeum	cinnamon fern	native	fern	7	-3
Pedicularis lanceolata	fen betony	native	forb	8	-3
Persicaria amphibia	water smartweed	native	forb	5	-5
Persicaria sagittata	arrow-leaved tear-thumb	native	forb	6	-5
Phalaris arundinacea	reed canary grass	non-native	grass	0	-3
Pilea pumila	canadian clearweed	native	forb	3	-3
Ranunculus hispidus	hispid buttercup	native	forb	6	0
Rosa palustris	swamp rose	native	shrub	7	-5
Rumex obtusifolius	bitter dock	non-native	forb	0	0
Sagittaria latifolia	broad-leaved arrowhead	native	forb	3	-5

Kohler Golf Course
 Sheboygan County, Wisconsin

2014 Species List - [REDACTED]

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Salix amygdaloides</i>	peach-leaved willow	native	tree	4	-3
<i>Salix interior</i>	sandbar willow	native	shrub	2	-3
<i>Scutellaria galericulata</i>	marsh skullcap	native	forb	5	-5
<i>Sium suave</i>	hemlock water-parsnip	native	forb	5	-5
<i>Solanum dulcamara</i>	bittersweet nightshade	non-native	vine	0	0
<i>Solidago gigantea</i>	giant goldenrod	native	forb	3	-3
<i>Stachys tenuifolia</i>	narrow-leaved hedge-nettle	native	forb	6	-3
<i>Symphotrichum ontarionis</i>	bottomland aster	native	forb	6	0
<i>Symphotrichum puniceum</i>	purple-stem aster	native	forb	5	-5
<i>Symplocarpus foetidus</i>	skunk-cabbage	native	forb	8	-5
<i>Taraxacum officinale</i>	common dandelion	non-native	forb	0	3
<i>Thelypteris palustris</i>	eastern marsh fern	native	fern	7	-3
<i>Typha latifolia</i>	broad-leaved cat-tail	native	forb	1	-5
<i>Urtica dioica</i>	stinging nettle	native	forb	1	0
<i>Viburnum lentago</i>	nannyberry	native	tree	4	0

FQA Metrics	Species Richness	Mean C Value	FQI
Native	54	4.9	36.0
All Species	62	4.3	33.9

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List - Wet Meadow

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Boehmeria cylindrica</i>	small-spike false nettle	native	forb	6	-5
<i>Calamagrostis canadensis</i>	blue-joint grass	native	grass	5	-5
<i>Carex lacustris</i>	common lake sedge	native	sedge	6	-5
<i>Carex stricta</i>	hummock sedge	native	sedge	7	-5
<i>Dryopteris cristata</i>	crested shield fern	native	fern	7	-5
<i>Epilobium coloratum</i>	cinnamon willow-herb	native	forb	3	-5
<i>Eutrochium maculatum</i>	spotted joe-pye-weed	native	forb	4	-5
<i>Galium asprellum</i>	rough bedstraw	native	forb	7	-5
<i>Helenium autumnale</i>	common sneezeweed	native	forb	4	-3
<i>Ilex verticillata</i>	common winterberry	native	shrub	7	-3
<i>Impatiens capensis</i>	orange jewelweed	native	forb	2	-3
<i>Mentha arvensis</i>	wild mint	native	forb	3	-3
<i>Onoclea sensibilis</i>	sensitive fern	native	fern	5	-3
<i>Persicaria amphibia</i>	water smartweed	native	forb	5	-5
<i>Persicaria sagittata</i>	arrow-leaved tear-thumb	native	forb	6	-5
<i>Phalaris arundinacea</i>	reed canary grass	non-native	grass	0	-3
<i>Rosa blanda</i>	early wild rose	native	shrub	4	3
<i>Rumex britannica</i>	great water dock	native	forb	8	-5
<i>Salix interior</i>	sandbar willow	native	shrub	2	-3
<i>Scirpus cyperinus</i>	wool-grass	native	sedge	4	-5
<i>Spiraea alba</i>	white meadowsweet	native	shrub	4	-3
<i>Stachys palustris</i>	marsh hedge-nettle	native	forb	5	-5
<i>Symphotrichum puniceum</i>	purple-stem aster	native	forb	5	-5
<i>Symplocarpus foetidus</i>	skunk-cabbage	native	forb	8	-5
<i>Thelypteris palustris</i>	eastern marsh fern	native	fern	7	-3
<i>Typha latifolia</i>	broad-leaved cat-tail	native	forb	1	-5
<i>Urtica dioica</i>	stinging nettle	native	forb	1	0

FQA Metrics	Species Richness	Mean C Value	FQI
Native	26	4.8	24.5
All Species	27	4.7	24.4

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List - Wet Meadow (degraded)

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Alisma triviale</i>	northern water-plantain	native	forb	4	-5
<i>Alnus incana</i>	speckled alder	native	tree	4	-3
<i>Asclepias incarnata</i>	marsh milkweed	native	forb	5	-5
<i>Asclepias syriaca</i>	common milkweed	native	forb	1	5
<i>Athyrium angustum</i>	common lady fern	native	fern	5	0
<i>Bidens cernua</i>	nodding beggar-ticks	native	forb	4	-5
<i>Boehmeria cylindrica</i>	small-spike false nettle	native	forb	6	-5
<i>Calamagrostis canadensis</i>	blue-joint grass	native	grass	5	-5
<i>Callitriche palustris</i>	common water-starwort	native	forb	8	-5
<i>Cardamine pensylvanica</i>	pennsylvania bitter-cress	native	forb	3	-3'
<i>Carex lacustris</i>	common lake sedge	native	sedge	6	-5
<i>Cinna arundinacea</i>	common wood-reed	native	grass	5	-3
<i>Cirsium arvense</i>	canada thistle	non-native	forb	0	3
<i>Eleocharis obtusa</i>	blunt spike-rush	native	sedge	3	-5
<i>Elymus virginicus</i>	virginia wild-rye	native	grass	6	-3
<i>Eutrochium maculatum</i>	spotted joe-pye-weed	native	forb	4	-5
<i>Fraxinus pennsylvanica</i>	green ash	native	tree	2	-3
<i>Helenium autumnale</i>	common sneezeweed	native	forb	4	-3
<i>Iris virginica</i>	southern blue flag	native	forb	5	-5
<i>Laportea canadensis</i>	canadian wood-nettle	native	forb	4	-3
<i>Lemna minor</i>	common duckweed	native	forb	4	-5
<i>Ludwigia palustris</i>	marsh seed-box	native	forb	4	-5
<i>Lycopus uniflorus</i>	northern bugleweed	native	forb	4	-5
<i>Lythrum salicaria</i>	invasive purple loosestrife	non-native	forb	0	-5
<i>Matteuccia struthiopteris</i>	ostrich fern	native	fern	5	0
<i>Mentha arvensis</i>	wild mint	native	forb	3	-3
<i>Mimulus ringens</i>	allegheeny monkey-flower	native	forb	6	-5
<i>Onoclea sensibilis</i>	sensitive fern	native	fern	5	-3
<i>Osmunda claytoniana</i>	interrupted fern	native	fern	6	0
<i>Persicaria amphibia</i>	water smartweed	native	forb	5	-5
<i>Persicaria hydropiperoides</i>	false water-pepper	native	forb	6	-5
<i>Persicaria punctata</i>	dotted smartweed	native	forb	5	-5
<i>Phalaris arundinacea</i>	reed canary grass	non-native	grass	0	-3
<i>Pilea fontana</i>	bog clearweed	native	forb	7	-3
<i>Pilea pumila</i>	canadian clearweed	native	forb	3	-3
<i>Ranunculus hispidus</i>	hispid buttercup	native	forb	6	0
<i>Rorippa palustris</i>	common yellow-cress	native	forb	3	-5
<i>Rosa palustris</i>	swamp rose	native	shrub	7	-5
<i>Rumex britannica</i>	great water dock	native	forb	8	-5
<i>Sagittaria latifolia</i>	broad-leaved arrowhead	native	forb	3	-5
<i>Salix discolor</i>	pussy willow	native	tree	2	-3
<i>Salix petiolaris</i>	meadow willow	native	shrub	6	-3
<i>Schoenoplectus tabernaemontani</i>	soft-stem bulrush	native	sedge	4	-5
<i>Scirpus cyperinus</i>	wool-grass	native	sedge	4	-5
<i>Scutellaria lateriflora</i>	mad-dog skullcap	native	forb	5	-5
<i>Sium suave</i>	hemlock water-parsnip	native	forb	5	-5
<i>Sparganium americanum</i>	american bur-reed	native	forb	8	-5
<i>Sparganium eurycarpum</i>	common bur-reed	native	forb	5	-5
<i>Symphotrichum oolentangiense</i>	azure aster	native	forb	5	5
<i>Symplocarpus foetidus</i>	skunk-cabbage	native	forb	8	-5
<i>Thalictrum dasycarpum</i>	tall meadow-rue	native	forb	4	-3

Kohler Golf Course
 Sheboygan County, Wisconsin

2014 Species List - Wet Meadow (degraded)

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Typha latifolia</i>	broad-leaved cat-tail	native	forb	1	-5
<i>Urtica dioica</i>	stinging nettle	native	forb	1	0

FQA Metrics	Species Richness	Mean C Value	FQI
Native	50	4.6	32.5
All Species	53	4.4	32.0

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List - [REDACTED]

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
Acer rubrum	red maple	native	tree	3	0
Achillea millefolium	common yarrow	native	forb	1	3
Agrimonia gryposepala	common agrimony	native	forb	2	3
Alnus incana	speckled alder	native	tree	4	-3
Amphicarpaea bracteata	american hog-peanut	native	vine	5	0
Arisaema triphyllum	jack-in-the-pulpit	native	forb	5	0
Asclepias incarnata	marsh milkweed	native	forb	5	-5
Asclepias syriaca	common milkweed	native	forb	1	5
Athyrium angustum	common lady fern	native	fern	5	0
Berberis thunbergii	japanese barberry	non-native	shrub	0	3
Betula allegheniensis	yellow birch	native	tree	7	0
Betula papyrifera	paper birch	native	tree	3	3
Bidens frondosa	common beggar-ticks	native	forb	1	-3
Blephilia hirsuta	hairy wood mint	native	forb	7	3
Boehmeria cylindrica	small-spike false nettle	native	forb	6	-5
Bromus latiglumis	ear-leaved brome	native	grass	6	-3
Calamagrostis canadensis	blue-joint grass	native	grass	5	-5
Carex cristatella	crested oval sedge	native	sedge	4	-3
Carex intumescens	greater bladder sedge	native	sedge	5	-3
Carex lupulina	common hop sedge	native	sedge	6	-5
Carex radiata	straight-styled wood sedge	native	sedge	4	0
Carex stricta	hummock sedge	native	sedge	7	-5
Carex tuckermanii	bent-seeded hop sedge	native	sedge	8	-5
Cicuta maculata	common water-hemlock	native	forb	6	-5
Cinna arundinacea	common wood-reed	native	grass	5	-3
Cirsium arvense	canada thistle	non-native	forb	0	3
Clematis virginiana	virgins-bower	native	vine	4	0
Cornus alba	red-osier dogwood	native	shrub	3	-3
Crataegus punctata	dotted hawthorn	native	tree	2	5
Cryptotaenia canadensis	canadian honewort	native	forb	4	0
Dactylis glomerata	orchard grass	non-native	grass	0	3
Dryopteris carthusiana	spinulose wood fern	native	fern	7	-3
Elymus virginicus	virginia wild-rye	native	grass	6	-3
Epilobium coloratum	cinnamon willow-herb	native	forb	3	-5
Equisetum arvense	common horsetail	native	fern ally	1	0
Eurybia macrophylla	large-leaved aster	native	forb	4	5
Eutrochium maculatum	spotted joe-pye-weed	native	forb	4	-5
Fagus grandifolia	american beech	native	tree	8	3
Fragaria virginiana	wild strawberry	native	forb	1	3
Fraxinus nigra	black ash	native	tree	8	-3
Fraxinus pennsylvanica	green ash	native	tree	2	-3
Geum canadense	white avens	native	forb	2	0
Glyceria striata	fowl manna grass	native	grass	4	-5
Helenium autumnale	common sneezeweed	native	forb	4	-3
Hesperis matronalis	dames rocket	non-native	forb	0	3
Ilex verticillata	common winterberry	native	shrub	7	-3

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List - [REDACTED]

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Impatiens capensis</i>	orange jewelweed	native	forb	2	-3
<i>Iris virginica</i>	southern blue flag	native	forb	5	-5
<i>Juncus effusus</i>	soft rush	native	rush	4	-5
<i>Juniperus communis</i>	common juniper	native	shrub	3	3
<i>Laportea canadensis</i>	canadian wood-nettle	native	forb	4	-3
<i>Leersia oryzoides</i>	rice cut grass	native	grass	3	-5
<i>Lobelia siphilitica</i>	great blue lobelia	native	forb	5	-3
<i>Lycopus uniflorus</i>	northern bugleweed	native	forb	4	-5
<i>Matteuccia struthiopteris</i>	ostrich fern	native	fern	5	0
<i>Mentha arvensis</i>	wild mint	native	forb	3	-3
<i>Myosotis scorpioides</i>	common forget-me-not	non-native	forb	0	-5
<i>Onoclea sensibilis</i>	sensitive fern	native	fern	5	-3
<i>Osmorhiza longistylis</i>	smooth sweet cicely	native	forb	4	3
<i>Osmunda claytoniana</i>	interrupted fern	native	fern	6	0
<i>Parthenocissus quinquefolia</i>	virginia creeper	native	vine	5	3
<i>Pedicularis lanceolata</i>	fen betony	native	forb	8	-3
<i>Phalaris arundinacea</i>	reed canary grass	non-native	grass	0	-3
<i>Phleum pratense</i>	timothy	non-native	grass	0	3
<i>Picea glauca</i>	white spruce	native	tree	7	3
<i>Pinus strobus</i>	eastern white pine	native	tree	5	3
<i>Populus deltoides</i>	eastern cottonwood	native	tree	2	0
<i>Populus tremuloides</i>	quaking aspen	native	tree	2	0
<i>Prunella vulgaris</i> ssp. <i>vulgaris</i>	european heal-all	non-native	forb	0	0
<i>Prunus serotina</i>	wild black cherry	native	tree	3	3
<i>Quercus macrocarpa</i>	bur oak	native	tree	5	3
<i>Ranunculus acris</i>	tall european buttercup	non-native	forb	0	0
<i>Ranunculus hispidus</i>	hispid buttercup	native	forb	6	0
<i>Ranunculus recurvatus</i>	hooked buttercup	native	forb	5	-3
<i>Rosa multiflora</i>	multiflora invasive rose	non-native	shrub	0	3
<i>Rubus allegheniensis</i>	common blackberry	native	shrub	2	3
<i>Rubus idaeus</i> var. <i>strigosus</i>	american red raspberry	native	shrub	3	3
<i>Sanicula odorata</i>	cluster sanicle	native	forb	3	0
<i>Sium suave</i>	hemlock water-parsnip	native	forb	5	-5
<i>Solanum dulcamara</i>	bittersweet nightshade	non-native	vine	0	0
<i>Solidago flexicaulis</i>	zigzag goldenrod	native	forb	6	3
<i>Solidago gigantea</i>	giant goldenrod	native	forb	3	-3
<i>Spiraea alba</i>	white meadowsweet	native	shrub	4	-3
<i>Symphotrichum novae-angliae</i>	new england aster	native	forb	3	-3
<i>Symphotrichum ontarionis</i>	bottomland aster	native	forb	6	0
<i>Symplocarpus foetidus</i>	skunk-cabbage	native	forb	8	-5
<i>Taraxacum officinale</i>	common dandelion	non-native	forb	0	3
<i>Thalictrum dasycarpum</i>	tall meadow-rue	native	forb	4	-3
<i>Thuja occidentalis</i>	eastern white cedar	native	tree	9	-3
<i>Urtica dioica</i>	stinging nettle	native	forb	1	0
<i>Viburnum lentago</i>	nannyberry	native	tree	4	0
<i>Viola sororia</i>	common blue violet	native	forb	3	0

FQA Metrics	Species Richness	Mean C Value	FQI
Native	80	4.4	39.4
All Species	92	3.8	36.4

Kohler Golf Course
Sheboygan County, Wisconsin

2014 Species List -

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
Acer saccharum	sugar maple	native	tree	5	3
Athyrium angustum	common lady fern	native	fern	5	0
Berberis thunbergii	japanese barberry	non-native	shrub	0	3
Betula allegheniensis	yellow birch	native	tree	7	0
Betula papyrifera	paper birch	native	tree	3	3
Carex eburnea	bristle-leaf sedge	native	sedge	8	3
Carex intumescens	greater bladder sedge	native	sedge	5	-3
Carex pennsylvanica	pennsylvania sedge	native	sedge	3	5
Carex stricta	hummock sedge	native	sedge	7	-5
Carpinus caroliniana	musclewood	native	tree	6	0
Chelone glabra	turtlehead	native	forb	7	-5
Cinna arundinacea	common wood-reed	native	grass	5	-3
Coptis trifolia	three-leaved gold-thread	native	forb	8	-3
Elymus virginicus	virginia wild-rye	native	grass	6	-3
Epifagus virginiana	beech-drops	native	forb	9	5
Epipactis helleborine	broad-leaved helleborine	non-native	forb	0	5
Eupatorium perfoliatum	common boneset	native	forb	6	-3
Fagus grandifolia	american beech	native	tree	8	3
Fraxinus nigra	black ash	native	tree	8	-3
Fraxinus pennsylvanica	green ash	native	tree	2	-3
Hamamelis virginiana	american witch-hazel	native	shrub	7	3
Hesperis matronalis	dames rocket	non-native	forb	0	3
Ilex verticillata	common winterberry	native	shrub	7	-3
Impatiens capensis	orange jewelweed	native	forb	2	-3
Iris versicolor	northern blue flag	native	forb	5	-5
Laportea canadensis	canadian wood-nettle	native	forb	4	-3
Lycopus uniflorus	northern bugleweed	native	forb	4	-5
Matteuccia struthiopteris	ostrich fern	native	fern	5	0
Mentha arvensis	wild mint	native	forb	3	-3
Onoclea sensibilis	sensitive fern	native	fern	5	-3
Osmunda spectabilis	american royal fern	native	fern	7	-5
Osmundastrum cinnamomeum	cinnamon fern	native	fern	7	-3
Pilea pumila	canadian clearweed	native	forb	3	-3
Quercus macrocarpa	bur oak	native	tree	5	3
Quercus rubra	northern red oak	native	tree	5	3
Ranunculus acris	tall european buttercup	non-native	forb	0	0
Ranunculus hispidus	hispid buttercup	native	forb	6	0
Rhamnus cathartica	common invasive buckthorn	non-native	tree	0	0
Rumex obtusifolius	bitter dock	non-native	forb	0	0
Schizachne purpurascens	false melic grass	native	grass	7	3
Scirpus cyperinus	wool-grass	native	sedge	4	-5
Symplocarpus foetidus	skunk-cabbage	native	forb	8	-5
Thalictrum dasycarpum	tall meadow-rue	native	forb	4	-3
Thelypteris palustris	eastern marsh fern	native	fern	7	-3
Ulmus americana	american elm	native	tree	3	-3

FQA Metrics	Species Richness	Mean C Value	FQI
Native	39	5.5	34.3
All Species	45	4.8	32.2

Kohler Golf Course
 Sheboygan County, Wisconsin

2014 Species List - Aquatic

Scientific Name	Common Name	Native	Physiognomy	Coefficient of Conservatism	Region 3 Wetland Coefficient
<i>Alisma triviale</i>	northern water-plantain	native	forb	4	-5
<i>Bidens cernua</i>	nodding beggar-ticks	native	forb	4	-5
<i>Callitriche palustris</i>	common water-starwort	native	forb	8	-5
<i>Elodea canadensis</i>	canadian waterweed	native	forb	3	-5
<i>Lemna minor</i>	common duckweed	native	forb	4	-5
<i>Sparganium americanum</i>	american bur-reed	native	forb	8	-5

FQA Metrics	Species Richness	Mean C Value	FQI
Native	6	5.2	12.7
All Species	6	5.2	12.7

Three photo pages were redacted since they contained information on species tracked by Wisconsin's Natural Heritage Inventory (NHI) program. This information is considered sensitive and is not subject to Wisconsin's Open Records Law (per s. 23.27, Wis. Stats.)



Photo 7. View of old field on State Property.

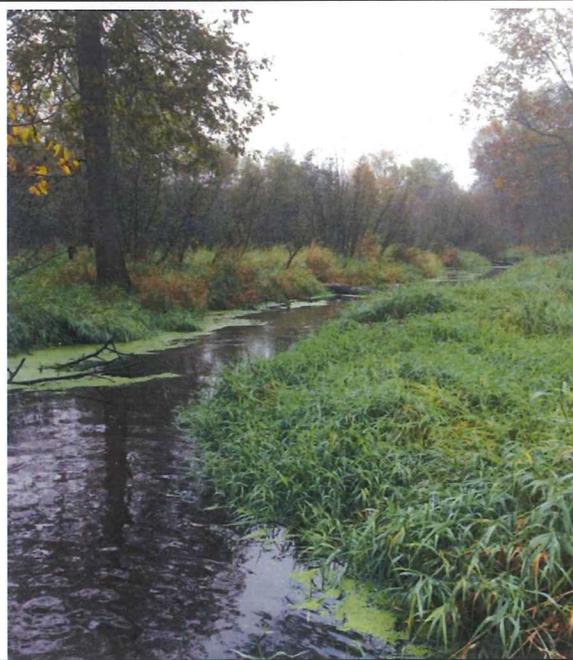


Photo 8. View of Black River, showing aquatic, degraded wet meadow dominated by reed canary grass (foreground); XXXXXXXXXX



Photo 9. Wet meadow, dominated by lake sedge, broad-leaved cat-tail.

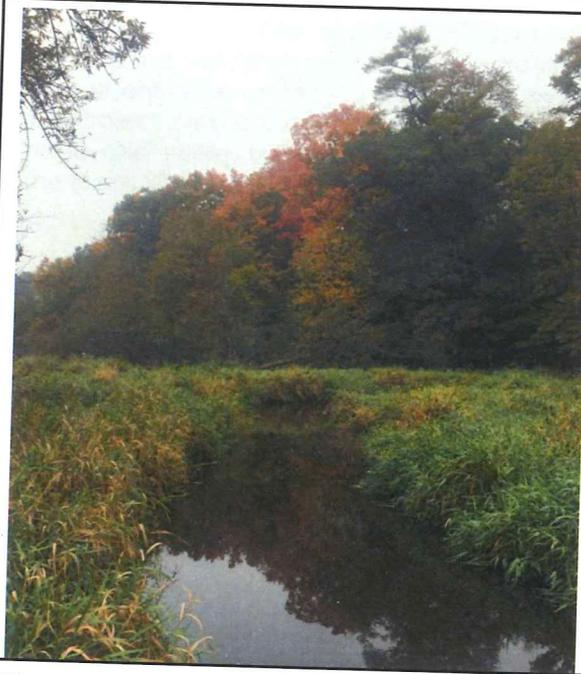


Photo 10. View of Black River, showing aquatic, degraded wet meadow dominated by reed canary grass (foreground); [REDACTED]

Six figure pages were redacted since they contained information on species tracked by Wisconsin's Natural Heritage Inventory (NHI) program. This information is considered sensitive and is not subject to Wisconsin's Open Records Law (per s. 23.27, Wis. Stats.)