# Rare and Invasive Plant Surveys of Great Lakes Islands in Harbor Island National Wildlife Refuge


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**Cover Photo:** Great Lakes marsh on Harbor Island. Tussock sedge (*Carex stricta*) in foreground, common reed (*Phragmites australis* subsp. *americanus*) emergent in water, and water smartweed (*Persicaria amphibia*) floating emergent with pink flowers. Photo by Tyler J. Bassett. All photos by Tyler J. Bassett unless otherwise noted.



**Land Acknowledgement:** We collectively acknowledge that Michigan State University occupies the ancestral, traditional, and contemporary Lands of the Anishinaabeg – Three Fires Confederacy of Ojibwe, Odawa, and Potawatomi peoples. In particular, the University resides on Land ceded in the 1819 Treaty of Saginaw. We recognize, support, and advocate for the sovereignty of Michigan's twelve federally-recognized Indian nations, for historic Indigenous communities in Michigan, for Indigenous individuals and communities who live here now, and for those who were forcibly removed from their Homelands. By offering this Land Acknowledgement, we affirm Indigenous sovereignty and will work to hold Michigan State University more accountable to the needs of American Indian and Indigenous peoples.

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Campsite in anthropogenic limestone glade on Harbor Island. Solar panels charging battery packs and plant press drying in foreground.

# TABLE OF CONTENTS

# LIST OF FIGURES



# LIST OF TABLES



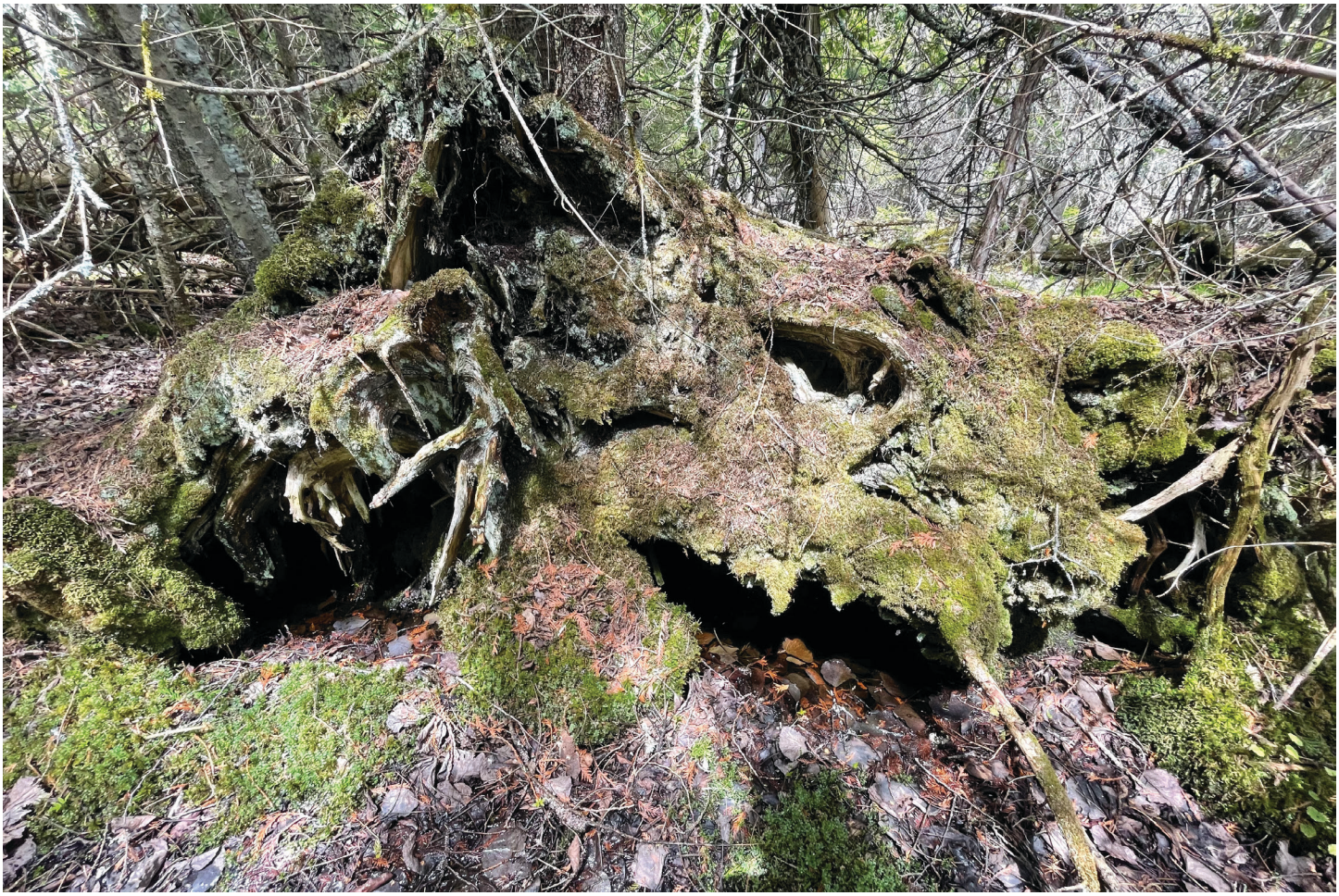
# APPENDICES

# Introduction

Great Lakes islands provide critical habitat for native biodiversity and support rare and endemic natural communities. A diverse assemblage of more than 32,000 islands occurs across the Great Lakes plus the connecting channels (Henson et al. 2010). The United States Fish and Wildlife Service (USFWS) National Wildlife Refuge (NWR) system includes thirty-six islands across the Great Lakes. These islands are managed to maintain the existing natural communities to support the needs of priority and migratory bird species, threatened and endangered species, and resident wildlife and provide valuable stopover habitat for birds and pollinators migrating across the Great Lakes.

Many of the islands within the Great Lakes that are part of the NWR system are remote, difficult to access, and challenging to survey. Despite limited access, these islands still face a variety of anthropogenic pressures including the establishment and spread of invasive plant and animal species and the impacts of climate change. Unfortunately, most biodiversity data are limited or outdated, which hinders effective management and decision-making.

To address this critical information gap, the USFWS contracted Michigan Natural Features Inventory (MNFI) to conduct botanical surveys, including rare and invasive plant species mapping and floristic surveys of natural communities; and ecological surveys, including qualitative natural community surveys and quantitative forest sampling. In 2021, botanical and ecological surveys were conducted in Michigan Islands NWR in Lake Huron (Bassett et al. 2022a, Cohen et al. 2022a) and Gravel Island and Green Bay NWRs in Lake Michigan (Bassett et al. 2022b, Cohen et al. 2022b). In 2022, botanical and ecological surveys were conducted in Huron NWR in Lake Superior (Bassett et al. 2023a, Cohen et al. 2023a), Harbor Island NWR in Lake Huron (*this report*, Cohen et al. 2023b), Michigan Islands NWR in Lake Michigan (Bassett et al. 2023b, Cohen et al. 2023c), and West Sister Island NWR in Lake Erie (Bassett et al. 2023c, Cohen et al. 2023d). Botanical surveys were also conducted in 2022 in Detroit River International Wildlife Refuge (Bassett et al. 2023d). This report focuses on the botanical surveys conducted in 2022 on Harbor and Standerson Islands in Harbor Island NWR.



Tipped-up white cedar (*Thuja occidentalis*) in rich conifer swamp on Harbor Island.

There were 442 rare vascular plant species in Michigan that were tracked in the Michigan Natural Heritage Database at the time of these surveys (MNFI 2023). This included species listed at the state- and federal-levels as threatened and endangered that are legally protected. Species of special concern are also tracked and include species that are considered at risk of declining but are not legally protected. Managing populations of these species and their habitat is a high conservation priority. These species are frequently associated with high-quality ecosystems, or natural communities, that further warrant prioritized management.

A critical goal of this project was to collect updated and new data for rare plant species occurrences to provide natural resource managers and planners with accurate, detailed, standardized baseline information on the viability and extent of rare plant species populations and the condition of their habitat on these islands. An equally critical goal of this project was to collect updated and new data for invasive plant species that potentially threaten the viability of rare plant species and high-quality natural communities on these islands. This baseline information facilitates site-level decisions about biodiversity stewardship; prioritizing protection, management and restoration decisions; monitoring the success of management and restoration; and informing landscape-level biodiversity planning efforts. Data on the location and extent of rare species and natural communities enables invasive species management to better protect these high conservation value targets. This report summarizes the findings of MNFI's rare and invasive plant surveys on Harbor and Standerson Islands in Harbor Island National Wildlife Refuge of the Seney National Wildlife Refuge Complex.


**Figure 1.** Harbor and Standerson Islands in northern Lake Huron.

# Methods

### *Study Area*

Harbor and Standerson Islands occur in the Potagannissing Bay of Lake Huron, Michigan, approximately a mile north of the town of Drummond on Drummond Island and 3.5 miles south of the Canadian border (Figure 1). The islands are underlain by shallow glacial drift overlying Silurian-aged sedimentary bedrocks, principally shale of the Cabot Head formation in the southern half of Harbor Island and dolomite of the Manitoulin formation in Standerson Island and the northern half of Harbor Island (Reed and Daniels 1987).

### Harbor Island

Harbor Island spans 695 acres and is the largest of more than 50 islands in Potagannissing Bay, and as such is a significant reservoir for native biodiversity (Scharf and Chamberlin 1978). The horseshoe shape of Harbor Island generates a large, protected bay that is used by fishermen and boaters for overnight anchorage and provides sheltered habitat for Great Lakes species. Much of the inner natural harbor of Harbor Island supports Great Lakes marsh, a natural community type that provides critical spawning habitat for fish and nesting and foraging habitat for secretive marsh birds. The gently rolling terrain of the island peaks around 100 feet above lake level.

**Table 1.** USFWS Great Lakes Region target invasive speices.

| Scientific Name | Common Name |
|---|---|
| *Alliaria petiolata* | Garlic mustard |
| *Alnus glutinosa* | Black alder |
| *Berberis thunbergii* | Japanese barberry |
| *Butomus umbellatus* | Flowering rush |
| *Celastrus orbiculatus* | Oriental bittersweet |
| *Centaurea stoebe* | Spotted knapweed |
| *Cirsium arvense* | Canada thistle |
| *Dioscorea polystachya* | Chinese yam |
| *Dipsacus fullonum* | Wild teasel |
| *Dipsacus laciniatus* | Cut-leaf teasel |
| *Eichhornia crassipes* | Water hyacinth |
| *Elaeagnus umbellata* | Autumn olive |
| *Fallopia japonica* | Japanese knotweed |
| *Fallopia sachalinensis* | Giant knotweed |
| *Frangula alnus* (syn. *Rhamnus frangula*) | Glossy buckthorn |
| *Hesperis matronalis* | Dame's rocket |
| *Hydrocharis morsus-ranae* | European frog-bit |
| *Iris pseudacorus* | Yellow flag iris |
| *Ligustrum vulgare* | Common privet |
| *Lonicera* spp. | Bush honeysuckle |
| *Ludwigia peploides* | Floating primrose willow |
| *Myriophyllum aquaticum* | Parrot-feather milfoil |
| *Phalaris arundinacea* | Reed canary grass |
| *Phragmites australis* subsp. *australis* | Invasive reed |
| *Pistia stratiotes* | Water lettuce |
| *Populus alba* | White poplar |
| *Rhamnus cathartica* | Common buckthorn |
| *Robinia pseudoacacia* | Black locust |
| *Rosa multiflora* | Multiflora rose |
| *Vincetoxicum nigrum* (syn. *Cynanchum louiseae*) | Black swallow-wort |
| *Vincetoxicum rossicum* (syn. *Cynanchum rossicum*) | Dog-strangling vine |

Harbor Island became a part of the National Wildlife Refuge system when it was purchased from The Nature Conservancy in 1983 and is managed by the NWR to maintain the existing natural communities in order to support the needs of priority and migratory bird species, rare species, and resident wildlife. The island is open to day use and is primarily utilized for fishing and boating in the sheltered bay and swimming along the sand beaches along the northern and northeastern shoreline and the interior of the island is open to visitors for hiking, foraging, and hunting.

### Standerson Island

Standerson Island spans 25 acres and is situated 0.4 miles northwest of Harbor Island. It was added to Seney National Wildlife Refuge in 2019 after being in the hands of a single private owner for more than 70 years, during which it was used for hunting and hiking, and was not developed. No anthropogenic structures were installed on the island. The NWR System elected to purchase the island to protect habitat for raptors, migratory birds, and rare plant and animal species. The potential for human recreation was also considered (USFWS 2019).

### *Prioritization and survey targets*

Prior to conducting rare and invasive plant surveys, we reviewed previous data and generated target species lists to focus survey effort on known locations and potential habitat for these species. Invasive species targets are prioritized by USFWS for the Great Lakes region (see Table 1). We prioritized survey effort by reviewing natural community delineations and evaluating the conservation status (G- and S-ranks; Appendix 1.1) of each natural community (Table

**Table 2.** Natural community types targeted for surveys on Harbor and Standerson Islands. Natural community delineations are based on Michigan Natural Features Inventory Classification System, were determined remotely, and may differ from natural communities observed during field surveys. (Cohen et al. 2020). Global and State Rank (G- and S-Rank) values are based on NatureServe (2002). (see Appendix 1).

| Natural community | Harbor | Standerson |
|---|---|---|
| Boreal forest | GU/S3 | |
| Great Lakes marsh | G2/S3 | - |
| Hardwood-conifer swamp | G4/S3 | - |
| Limestone bedrock glade | G3G5/S2 | - |
| Limestone bedrock lakeshore | G4G5/S2 | - |
| Limestone cobble shore | G2G3/S3 | |
| Mesic northern forest | G4/S3 | - |
| Northern hardwood swamp | - | G4/S3 |
| Sand and gravel beach | G3?/S3 | - |

2; Cohen et al 2023b). Rare plant survey targets included species with previously documented element occurrences (EOs) in the Michigan Natural Heritage Database from Harbor and Standerson Islands, and species with previously documented EOs from Drummond Island and nearby portions of the mainland that are found in similar natural communities as those on Harbor and Standerson Islands (Table 3; MNFI 2023). An EO is an area of land or water where a significant element of biodiversity including rare species and natural communities currently occurs or historically occurred. Each EO may be comprised of multiple observations of a species or community through space or time, and is given a unique numeric identifier, an EO ID.

***Field surveys***

We conducted meander surveys on each island, using the following approach to maximize the probability of encountering targets and incidental observations of rare and invasive plant species. This approach was repeated across all the NWRs surveyed by MNFI in 2021 and 2022 (Bassett et al. 2022a, 2022b, 2023a, 2023b, 2023c, 2023d). We surveyed the entire perimeter of each island, as a potential entry point for invasive species and due to the high probability of encountering rare species in coastal ecosystems, particularly the unique primary limestone communities. We also conducted meanders through the interior of each island, crossing through each natural community as delineated prior to surveys (USFWS 2021, Cohen et al. 2023b). The survey route adequately covered the natural community and micro-habitats or areas of non-homogenous habitat within each community type. These were noted in either aerial imagery and other GIS data prior to the survey, or while meandering during the survey. We also conducted floristic surveys during the course of meanders. On large islands (> 25 acres), we generated a species list for each natural community on each island. If a natural community was represented by multiple patches or polygons on an island, we pooled species lists across that natural community type. On small islands (≤ 25 acres), we generated a species list for the whole island. Botanical surveys were conducted on Harbor Island from June 1 through June 2, July 11 through July 15, and July 25 through July 27, 2022; and on Standerson Island on July 11, 2022. Prior to this survey effort, Harbor Island was last visited by MNFI staff in 2000. This was the first visit to Standerson Island by MNFI staff.

We collected data on rare and invasive plant species using applications on a Samsung tablet, augmented by hand-written field notes. For rare species we used a custom Survey123 form, "MNFI Rare Species App Form" (see Appendix E in USFWS 2021). In this form, we collected data on population parameters including an estimate of abundance and proportion of fertile plants; habitat, including natural community designation and dominant species; any notable microhabitat features; and threats such as invasive species. Refuge staff have access to rare species data through the USFWS subscription to the Michigan Natural Heritage Database. Floristic surveys were

**Table 3.** Rare plant species targeted and observed during surveys. Species observed during current surveys in **bold**. Targeted species have been previously documented on Harbor Island (EOID numerical); or on Drummond Island or adjacent mainland in Chippewa County (EOID = NA, most with multiple EOs) with suitable habitat on Harbor and Standersons Islands. *Gymnocarpium robertianum* is known from both Harbor and Drummond Islands. *Platanthera unalascensis* observed in 2022 only on Drummond Island, never on Harbor or Standerson Islands. See Appendix 1 for G/S and EO Rank definitions.

| Scientific Name | Common Name | Status | G/S Rank | EOID | EO Rank | Year Last Observed | Natural Communities |
|---|---|---|---|---|---|---|---|
| *Calypso bulbosa* | Calypso orchid | T | G5/S2 | NA | NA | 2019 | boreal forest, dry-mesic northern forest, rich conifer swamp |
| *Carex richardsonii* | Richardson's sedge | SC | G5/S3S4 | NA | NA | 2018 | limestone cobble shore |
| *Carex scirpoidea* | Bulrush sedge | T | G5/S2 | NA | NA | 2013 | boreal forest, limestone cobble shore |
| *Cirsium pitcheri* | Pitcher's thistle | T | G3/S3 | NA | NA | 2014 | sand and gravel beach |
| *Cypripedium arietinum* | Ram's-head lady slipper | T | G4/S2 | NA | NA | 2014 | boreal forest, dry-mesic northern forest, rich conifer swamp |
| *Eleocharis compressa* | Flattened spike rush | T | G4/S2 | NA | NA | 2017 | limestone cobble shore |
| ***Gymnocarpium robertianum*** | **Limestone oak fern** | **T** | **G5/S2** | **26484** | **C** | **2022** | **boreal forest, rich conifer swamp** |
| *Iris lacustris* | Dwarf lake iris | T | G3/S3 | NA | NA | 2021 | boreal forest, limestone cobble shore, rich conifer swamp, sand and gravel beach |
| *Platanthera unalascensis* | Alaska orchid | SC | G5/S2S3 | NA | NA | 2022 | boreal forest |
| ***Potamogeton vaseyi*** | **Vasey's pondweed** | **T** | **G4/S1S2** | **26477** | **C** | **2022** | **Great Lakes marsh** |
| *Pterospera andromodea* | Pine-drops | T | G5/S2 | NA | NA | 2015 | boreal forest, dry-mesic northern forest, mesic northern forest |
| *Solidago houghtonii* | Houghton's goldenrod | T | G3/S3 | NA | NA | 2018 | limestone cobble shore, sand and gravel beach |
| *Tanacetum bipinnatum* var. *huronense* | Lake Huron tansy | T | G5T4T5/S3 | 6739 | F | 1978 | limestone cobble shore, sand and gravel beach |

completed by recording species lists in a field notebook. Nomenclature follows Voss and Reznicek (2012). We provide a crosswalk of Ojibwe names to scientific and common names in Appendix 3.1 for all species observed on Harbor and Standerson Islands that are listed in "Plants used by the Great Lakes Ojibwa" (Meeker et al. 1993). These culturally significant plants are also indexed to natural community type (Appendix 3.2).

For target and select non-target invasive plant species in high-quality natural communities, and for select invasive species occurrences outside high-quality natural communities, we mapped invasive species occurrences as a point, line, or polygon using the ArcCollector Web Map "R3 Invasive and Weed Observations layer" managed by the USFWS (see Appendix F in USFWS 2021). In this form, we estimated the area occupied by each invasive species, and observer data (e.g., name of observer, observation date). We also noted the presence and abundance of target and select non-target invasive species occurring in degraded areas in field notebooks. Refuge staff have access to invasive species data through the USFWS R3 portal on ArcGIS Online.

***Ranking and assessment***

We assessed the viability of each rare plant EO using standard Natural Heritage Methodology (NatureServe 2002). According to this methodology, each EO is assigned a rank from A (excellent estimated viability/ecological integrity) to D (poor estimated viability/ecological integrity) when sufficient data is available to assess a rank. When data is not available and for instances where an EO is not located, additional ranks include E (Verified extant), F (Failed to find), H (Historical), and X (Extirpated). See Appendix 1.2 for EO Rank definitions.

Finally, we conducted Floristic Quality Assessments (FQAs) for each natural community on each island (Reznicek et al. 2014). The FQA utilizes plant species composition to derive the Floristic Quality Index (FQI), a quantitative metric of habitat quality that can be used as a relatively objective comparison among natural community occurrences of the same type. Drawing upon expert consensus among botanists familiar with the flora of Michigan, each vascular plant species in Michigan has been assigned an a priori coefficient of conservatism (C-value) that ranges from 0 to 10 on a scale of increasing conservatism or fidelity to pre-European colonization habitats (Reznicek et al. 2014). Plant species with a C-value of 7 to 10 are considered highly conservative (Herman et al. 2001). A C-value of 4 to 6 indicates moderate conservatism and a C-value of 0 to 3 indicates low or no conservatism (e.g., ruderal species). Non-native species were given a C-value of 0 for these calculations. We calculated FQI for each natural community occurrence as

$$FQI = \overline{C} \times \sqrt{n}$$

where $\overline{C}$ = mean C-value and n = species richness. Sites with an FQI of 35 or greater are generally considered to be florstically important from a statewide perspective (Herman et al. 2001). Sites with an FQI of 35 or greater are generally considered to be florstically important from a statewide perspective (Herman et al. 2001).

*Left*: Menzie's rattlesnake plantain (*Goodyera oblongifolia*) in boreal forest on Harbor Island. *Right*: Kalm's lobelia (*Lobelia kalmii*), in Great Lakes marsh on Harbor Island. Photos by Elizabeth A. Haber.

Mesic northern forest on Harbor Island with ground layer dominated by Pennsylvania sedge (*Carex pennsylvanica*).

Limestone oak fern (*Gymnocarpium robertianum*, State Threatened) in boreal forest on Harbor Island. *Upper left*: Note glandular pubescence on blades. Photos by Joshua G. Cohen.

# Results and Discussion

Across Harbor and Standerson Islands in the Harbor Island NWR, we documented two rare plant EOs (Table 3), conducted FQAs in eleven natural community occurrences or disturbed habitats (Table 4), and documented occurrences of eleven invasive plant species, including four target species (Table 5).

***Harbor Island***

We recorded 317 plant species in eight natural communities and one anthropogenic cover type on Harbor Island, with a mean coefficient of conservatism of 4.2 (Table 4, Appendix 2.1). Six high-quality natural community element occurrences were surveyed on Harbor Island including boreal forest, dry-mesic northern forest, Great Lakes marsh, limestone cobble shore, mesic northern forest, and rich conifer swamp (Cohen et al. 2023b; Appendix 2.2-2.7). Two natural communities along the eastern shore of the island, interdunal wetland and sand and gravel beach, were too small to qualify as EOs (Appendix 2.8-2.9). We also recorded plant species in two limestone glades that we determined were of anthropogenic origin and not a natural community (Appendix 2.10). Rich conifer swamp was the most species-rich natural community on Harbor Island, with 134 species. We also documented over 100 plant species each in boreal forest, Great Lakes marsh, limestone cobble shore, and mesic northern forest. Other natural communities were less diverse in part because they occurred over a limited spatial extent. Dry-mesic northern forest, interdunal wetland, and sand and gravel beach supported 40, 43, and 37 species, respectively. We documented 35 plant species in anthropogenic glades.

We documented two new rare plant EOs on Harbor Island: limestone oak fern (*Gymnocarpium robertianum*, State Threatened) and Vasey's pondweed (*Potamogeton vaseyi*, State Threatened) (Table 3, Figure 2). [redacted]

[redacted] Lake Huron tansy (*Tanacetum bipinnatum* var. *huronense*; State Threatened) was documented on Harbor Island in 1978, but has not been observed during subsequent surveys, including the current study (MNFI 2023; Table 3). Suitable habitat occurs along much of the Harbor Island shoreline, especially the low dunes along the southeastern arm of the island. However, recent high Great Lakes water levels (2016-2020) may have reduced available habitat for this species.

We documented ten invasive plant species on Harbor Island, including three target species: Canada thistle (*Cirsium arvense*), European frog's-bit (*Hydrocharis morsus-ranae*), and reed canary grass (*Phalaris arundinacea*) (Table 4, Figure 3). We also mapped seven non-target species: marsh thistle (*C. palustre*), great hairy willow-herb (*Epilobium hirsutum*), wall lettuce (*Mycelis muralis*), Eurasian watermilfoil (*Myriophyllum spicatum*), wild parsnip (*Pastinaca sativa*), sweetbrier (*Rosa rubiginosa*), and invasive cat-tail (*Typha angustifolia* or *T.* x *glauca*). With the exception of marsh thistle and Canada thistle, we considered all of these species to be management priorities since they constitute significant threats to the island's eight natural communities and two state-listed plant species. Both thistle species are frequent on both Harbor and Standerson Islands, so management may not result in significant population reductions. Given the number of invasive species and the large size of Harbor Island, management decisions will need to consider many factors, including the ecological integrity of each natural community, threats to rare plant species, and the degree of site-level and regional threat posed by each invasive species. We recommend using the principles of integrated pest management to guide the investment of resources (USFWS Cal-IPC 2018) and coordinating management with the Three Shores Cooperative Invasive Species Management Area and tribal governments.

**Table 4.** Floristic quality summaries for Harbor and Standerson Islands. SR = Species richness (% native); C = mean coefficient of conservatism; FQI = Floristic quality index.

| | | Boreal Forest | Dry-mesic Northern Forest | Great Lakes Marsh | Limestone Cobble Shore | Mesic Northern Forest | Rich Conifer Swamp | Interdunal Wetland | Sand and Gravel Beach | Anthropo-genic Glade | Whole Island |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Harbor** | **SR** | 101 (82%) | 40 (85%) | 107 (89%) | 103 (85%) | 103 (80%) | 134 (92%) | 43 (72%) | 37 (81%) | 35 (63%) | 316 (86%) |
| | **C** | 3.6 | 3.6 | 4.6 | 3.5 | 3.1 | 4.4 | 3 | 2.9 | 1.9 | 4.2 |
| | **FQI** | 36.2 | 22.8 | 47.6 | 35.5 | 31.5 | 50.9 | 19.7 | 17.6 | 11.2 | |
| **Standerson** | **SR** | 59 (81%) | | | 75 (87%) | | | | | | 107 (85%) |
| | **C** | 3.2 | | | 3.9 | | | | | | 3.8 |
| | **FQI** | 24.6 | | | 33.8 | | | | | | |

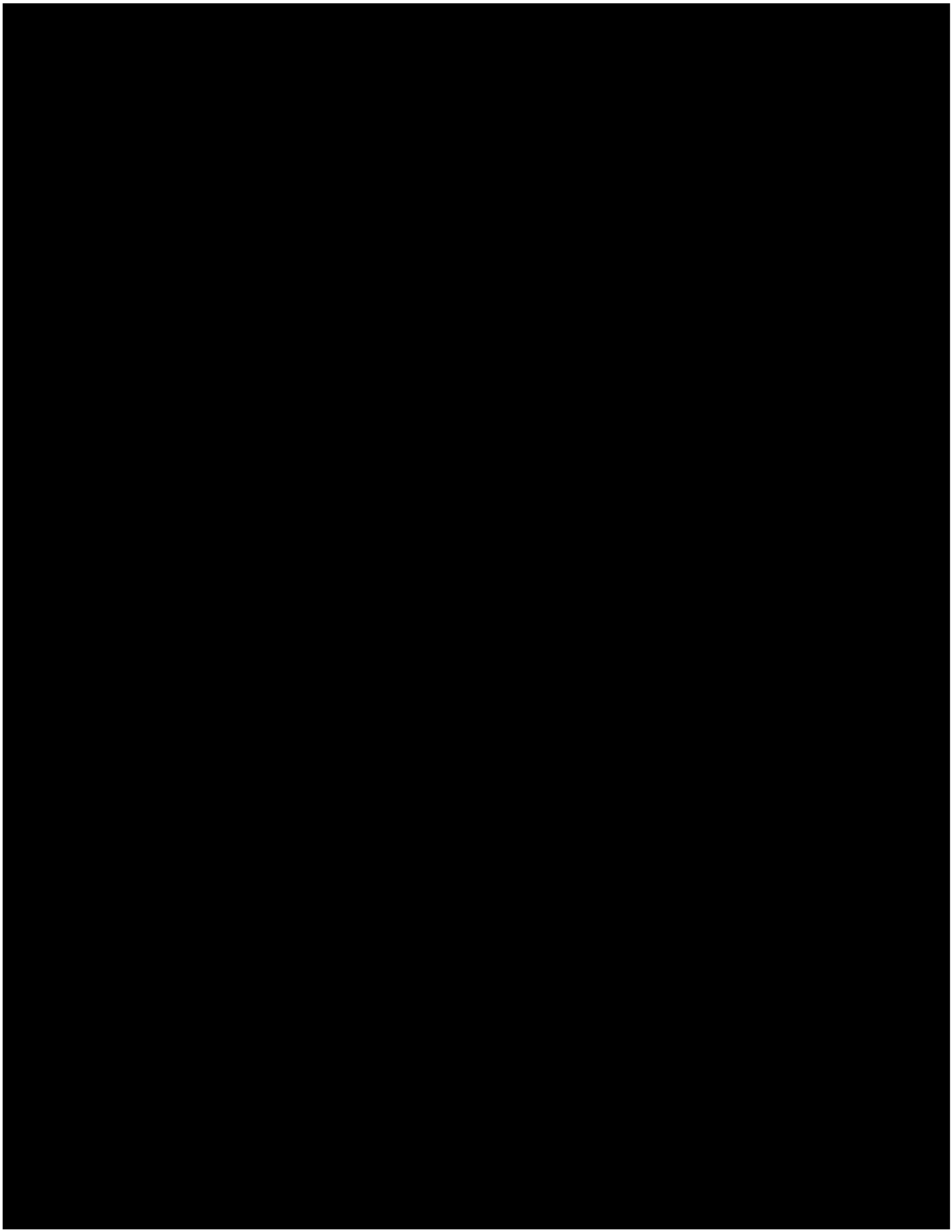


**Figure 2.** Rare plant species observed on Harbor Island during 2022 surveys.


**Figure 3.** Invasive plant species mapped on Harbor and Standerson Islands during 2022 surveys. Bittersweet nightshade (*Solanum dulcamara*), thistles (*Cirsium* spp.), and wall lettuce (*Mycelis muralis*) were mapped only in select locations.

**Table 5.** Invasive plant species documented on Harbor and Standerson Islands. Species in **bold** are USFWS Great Lakes Region target invasive species.

| Scientific Name | Common Name | Harbor | Standerson |
|---|---|---|---|
| ***Celastrus orbiculatus*** | **Oriental bittersweet** | | rare |
| ***Cirsium arvense*** | **Canada thistle** | **abundant** | frequent |
| *Cirsium palustre* | European swamp thistle | frequent | frequent |
| *Epilobium hirsutum* | Great hairy willow-herb | rare | |
| ***Hydrocharis morsus-ranae*** | **European frog's-bit** | rare | |
| *Mycelis muralis* | Wall lettuce | frequent | |
| *Myriophyllum spicatum* | Eurasian watermilfoil | rare | |
| *Pastinaca sativa* | Wild parsnip | rare | |
| ***Phalaris arundinacea*** | **Reed canary grass** | **locally abundant** | rare |
| *Rosa rubiginosa* | Sweetbrier | occasional | |
| *Typha* spp. | Invasive cat-tail | frequent | |

The highest priority species are infrequent and therefore easily treatable, and those most likely to negatively impact rare species and natural communities. For example, wild parsnip and invasive cat-tail were detected only a single time on Harbor Island. They are capable of forming dense stands and should be eradicated during this early stage. European frog's-bit occurred over a > 2 acre patch in Great Lakes marsh. It is currently one of the most problematic invasives in Michigan, particularly in the Lake Huron basin (Monfils et al. 2019). Eradicating this population is arguably the most important recommendation in this report.

Prioritizing management of other invasive species is less straighforward. For example, reed canary grass is a serious invasive species yet is common enough along and near the shore of Harbor Island that its eradication will be challenging and may not be a reasonable management threshold to set. Wall lettuce is becoming increasingly common in the Straits Region, especially threatening species that prefer limestone boulders, including Hart's-tongue fern (*Asplenium scolopendrium* var. *americanum*, Federally Threatened and State Endangered) and limestone oak fern. It is frequent over much of Harbor Island, but it is unclear how competitive it is in this context. The invasive potential of sweetbrier is unclear, but it was observed occasionally on Harbor Island. The high deer density on Harbor Island could facilitate the spread of sweetbrier, reducing competition by browsing other species. Whatever decisions are made about each species on an island-wide scale, we recommend sustained control of all invasive species near (e.g., at least a 100-m buffer) populations of rare plant species.

Striped coral-root (*Corallorhiza striata*) in boreal forest on Harbor Island.

We observed 33 other non-native species on Harbor Island which we did not consider to be a priority so did not map. These species include Kentucky bluegrass (*Poa pratensis*), bittersweet nightshade (*Solanum dulcamara*), thyme-leaved speedwell (*Veronica serpyllifolia*), black-medick (Medicago lupulina) and sheep sorrel (*Rumex acetosella*) (Appendix 2.1).

High-priority invasive European frog's-bit (*Hydrocharis morsus-ranae*) in Great Lakes marsh on Harbor Island. Photo by Elizabeth A. Haber.

Canada wild-rye (*Elymus canadensis*) in sand and gravel beach on Harbor Island. Photo by Jesse M. Lincoln..

***Standerson Island***

We recorded 107 plant species in two natural communities on Standerson Island, with a mean coefficient of conservatism of 3.8 (Table 4, Appendix 2.11). Natural community surveys were not prioritized by NWR on Standerson Island (Cohen et al. 2023b). However, we generated species lists and FQAs for two natural communities, boreal forest and limestone cobble shore (Appendix 2.12-2.13). There was a small inclusion of northern hardwood swamp within the boreal forest, contributing a few novel species to the list for that community. We documented 75 species in limestone cobble shore, and 59 species in boreal forest. We did not document any rare plant species on Standerson Island.

We documented four invasive species on Standerson Island (Table 5, Figure 4). Oriental bittersweet (*Celastrus orbiculatus*), Canada thistle, and reed canary grass are target species, while marsh thistle is not. We considered Oriental bittersweet and reed canary grass to be management priorities, as they are significant threats to the island's two natural communities. Both of these species were rare. They are capable of forming dense stands and should be eradicated during this early phase of invasion. Marsh thistle and Canada thistle are frequent on both Harbor and Standerson Islands, so management may not result in significant population reductions.

We observed 12 other non-native plant species on Standerson Island which we did not consider to be a priority so did not map. These species include yellow rocket (*Barbarea vulgaris*), white clover (*Trifolium repens*), creeping Charlie (*Glechoma hederacea*), common speedwell (*Veronica officinalis*), and Japanese rose (*Rosa rugosa*) (Appendix 2.11).

Limestone cobble shore on Standerson Island.

# Conclusion

We conducted botanical surveys on two Great Lakes islands in Harbor Island NWR to collect updated and new data for rare and invasive plant species occurrences. Data on the extent and distribution of these occurrences was collected to guide management prioritization and serve as a baseline for tracking the efficacy of that management. We also conducted natural community surveys on Harbor Island, and a separate report outlines a management prioritization across the natural community EOs (Cohen et al. 2023b). The scope of botanical surveys differs from natural community surveys, by including additional islands and degraded areas outside of natural community EOs, and by focusing on rare plant species as a conservation priority. Management priorities across Harbor Island NWR are outlined in the context of individual islands in this report. Here, we summarize these priorities, emphasizing the conservation of rare plant species as a factor for guiding management. We also highlight natural communities with exceptional floristic quality and invasive species that are of regional management concern.

We documented two rare plant species on Harbor Island during our surveys, and no rare plant species on Standerson Island. On Harbor Island, both species occurred in small patches, including limestone oak fern (*Gymnocarpium robertianum*, State Threatened) in boreal forest and Vasey's pondweed (*Potamogeton vaseyi*, State Threatened) in Great Lakes marsh. Subsequent surveys on Harbor Island should target additional observations of these species, in particular Vasey's pondweed. Aquatic habitats are difficult to comprehensively survey due to their inundation and it is likely we overlooked individuals.

Lake Huron tansy (*Tanacetum bipinnatum* var. *huronense*; State Threatened) has not been observed on Harbor Island since 1978, although limited suitable sand and gravel beach persists, so future surveys should target this species as well. We did not document calypso (*Calypso bulbosa*, State Threatened) or ram's-head lady-slipper (*Cypripedium arietinum*, Special Concern), despite multiple occurrences of these species on Drummond Island and ample boreal forest and rich conifer swamp habitat on Harbor and Standerson Islands. The overabundance of deer greatly reduces the likelihood that these orchid species occurs on Harbor and Standerson Islands. Finally, given the presence of nearby populations of dwarf lake iris (*Iris lacustris*, Federally and State Threatened) on Drummond Island and the mainland, and the abundant limestone cobble shore on Harbor Island, there was excellent potential for it to occur on Harbor sland. Though we did not document this species in 2022, we encourage future surveys to focus on this species. With the recession of lake levels it is possible that there will be expansion of suitable habitat and populations will be more detectable in the coming years.

Floristic quality of natural community types can help managers to prioritize systems with the greatest native plant diversity. As a rule of thumb natural community occurrences with an FQI above 35 are considered management priorities with exceptional floristic quality (Herman et al. 2001). Several natural communities on Harbor Island had an FQI greater than 35, including rich conifer swamp, Great Lakes marsh, boreal forest, and limestone cobble shore (Table 4). Floristic quality in mesic northern forest on Harbor Island and limestone cobble shore on Standerson Island were also notable, at 31.5 and 33.8, respectively. Floristic quality is best considered in the context of rare species and invasive species threats. For example, the invasive plant species European frog's-bit (*Hydrocharis morsus-ranae*) is a regional priority for control and is particularly problematic throughout Lake Huron and the St. Mary's River. It is an especially high priority for control on Harbor Island as it occurs in Great Lakes marsh, which supports exceptional floristic quality, including state-threatened Vasey's pondweed.

The species lists in this report are associated with overlapping, yet often different areas than in Cohen et al. (2023b; Appendix 1). Different surveyors may interpret community boundaries differently and include species that are associated with species of neighboring natural communities, and here our descriptions are more inclusive as they are not limited to EO boundaries. For example, we include separate species lists for interdunal wetland and sand and gravel beach, which due to their small size do not qualify as natural community element occurrences.

Finally, deer overabundance in Harbor Island NWR is apparent, as evidenced by browse on non-preferred species like balsam fir (*Abies balsamea*). We emphasize the importance of reducing deer densities in conjunction with invasive plant species management on Harbor and Standerson Islands, in particular to facilitate the floristic recovery of the island's forested ecosystems. The impacts of deer overabundance are discussed in greater detail in Cohen et al. (2023b).

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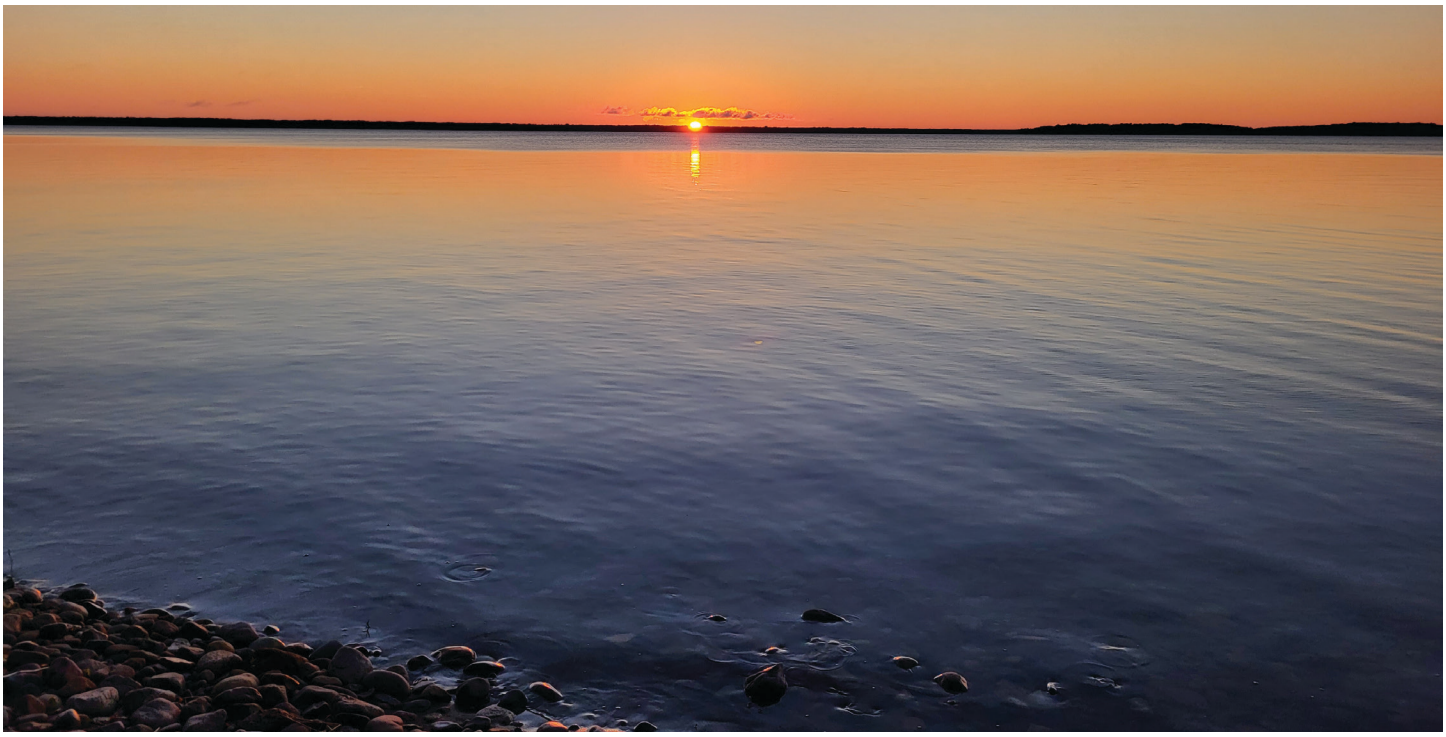

Sunrise on Harbor Island. Photo by Rachel A. Hackett.

# Appendix 1. Element and Element Occurrence Ranking Criteria

**Appendix 1.1.** Subnational (State) and Global element ranking criteria.

| Subnational Rank | | DEFINITION |
|---|---|---|
| **S1** | Critically Imperiled | At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors. |
| **S2** | Imperiled | At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors. |
| **S3** | Vulnerable | At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors. |
| **S4** | Apparently Secure | At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors. |
| **S5** | Secure | At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats. |
| **Global Rank** | | **DEFINITION** |
| **G1** | Critically Imperiled | At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors. |
| **G2** | Imperiled | At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors. |
| **G3** | Vulnerable | At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors. |
| **G4** | Apparently Secure | At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors. |
| **G5** | Secure | At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats. |
| **GU** | Unrankable | Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. NOTE: Whenever possible (when the range of uncertainty is three consecutive ranks or less), a range rank (e.g., G2G3) should be used to delineate the limits (range) of uncertainty. |

**Appendix 1.2.** Element Occurrence ranking criteria.

| Rank | Definition |
|---|---|
| **A** | **Excellent estimated viability** - Based on current information on EO rank factors (i.e., condition, size, and landscape context) for the EO, it is believed to have an excellent probability of persisting, if current conditions prevail, for a defined period of time, typically 20-100 years (for communities, persistence within the bounds of natural disturbance regimes). |
| **B** | **Good estimated viability** - Based on current information on EO rank factors (i.e., condition, size, and Iandscape context) for the EO, it is believed to have a good probability of persisting, if current conditions prevail, for a defined period of time, typically 20-100 years (for communities, persistence within the bounds of natural disturbance regimes). |
| **C** | **Fair estimated viability** - Based on current information on EO rank factors (i.e., condition, size, and landscape context) for the EO, it is believed to have a fair probability of persisting, if current conditions prevail, for a defined period of time, typically 20-100 years (for communities, persistence within the bounds of natural disturbance regimes). |
| **D** | **Poor estimated viability** - Based on current information on EO rank factors (i.e., condition, size, and landscape context) for the EO, it is believed to have a poor probability of persisting, if current conditions prevail, for a defined period of time, typically 20-100 years (for communities, persistence within the bounds of natural disturbance regimes). |
| **E** | **Verified Extant** - EO has been recently verified as still existing, but sufficient information on the factors used to estimate viability of the occurrence has not yet been obtained. Use of the E rank should be reserved for those situations where the occurrence is thought to be extant, but an A, B, C, D, or range rank cannot be assigned. |
| **H** | **Historical** - There is a lack of recent[1] field information verifying the continued existence of the EO, such as when the occurrence is based only on historical collections data, or when the occurrence was ranked A, B, C, D, or E at one time and is later, without field survey work, considered to be possibly extirpated due to general habitat loss or degradation of the environment in the area. |
| **F** | **Failed to find** - EO has not been found despite a search by an experienced observer at a time and under conditions appropriate for the Element at a Iocation where it was previously reported, but that still might be confirmed to exist at that location with additional field survey efforts. For EOs with vague locational information, the search must include areas of appropriate habitat within the range of locational uncertainty. An F rank, when applicable, supersedes an A, B, C, D, E, or H rank. |
| **X** | **Extirpated** - There is documented destruction of the habitat or environment of the EO, or persuasive evidence of its eradication based on adequate survey (i .e. , thorough or repeated survey efforts by one or more experienced observers at times and under conditions appropriate for the Element at that location). |
| **U** | **Unrankable** - An EO rank cannot be assigned due to lack of sufficient information on the occurrence. |
| **NR** | **Not Ranked** - An EO rank has not yet been assigned to the occurrence. |

# Appendix 2. Floristic Quality Assessments

We conducted Floristic Quality Assessments (FQAs) for each natural community on each island (Reznicek et al. 2014). The FQA utilizes plant species composition to derive the Floristic Quality Index (FQI), a quantitative metric of habitat quality that can be used as a relatively objective comparison among natural community occurrences of the same type. Drawing upon expert consensus among botanists familiar with the flora of Michigan, each vascular plant species in Michigan has been assigned an a priori coefficient of conservatism (C-value) that ranges from 0 to 10 on a scale of increasing conservatism or fidelity to pre-European colonization habitats (Reznicek et al. 2014). Plant species with a C-value of 7 to 10 are considered highly conservative (Herman et al. 2001). A C-value of 4 to 6 indicates moderate conservatism and a C-value of 0 to 3 indicates low or no conservatism (e.g., ruderal species). Non-native species were given a C-value of 0 for these calculations. We calculated FQI for each natural community occurrence as

$$FQI = \bar{C} \times \sqrt{n}$$

where $\bar{C}$ = mean C-value and n = species richness. Sites with an FQI of 35 or greater are generally considered to be florstically important from a statewide perspective (Herman et al. 2001). Sites with an FQI of 35 or greater are generally considered to be florstically important from a statewide perspective (Herman et al. 2001).

**Appendix 2.1.** Harbor Island FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 4.2 |
| Native Mean C: | 4.9 |
| Total FQI: | 74.8 |
| Native FQI: | 81 |
| Adjusted FQI: | 45.5 |
| % C value 0: | 16.4 |
| % C value 1-3: | 21.8 |
| % C value 4-6: | 42.9 |
| % C value 7-10: | 18.9 |
| Native Tree Mean C: | 3.9 |
| Native Shrub Mean C: | 4.8 |
| Native Herbaceous Mean C: | 5 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 317 | |
| Native Species: | 273 | 86.10% |
| Non-native Species: | 44 | 13.90% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | -0.9 |
| Native Mean Wetness: | -1.3 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 25 | 7.90% |
| Shrub: | 24 | 7.60% |
| Vine: | 6 | 1.90% |
| Forb: | 148 | 46.70% |
| Grass: | 30 | 9.50% |
| Sedge: | 52 | 16.40% |
| Rush: | 7 | 2.20% |
| Fern: | 25 | 7.90% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 14 | 4.40% |
| Perennial: | 286 | 90.20% |
| Biennial: | 17 | 5.40% |
| Native Annual: | 9 | 2.80% |
| Native Perennial: | 257 | 81.10% |
| Native Biennial: | 7 | 2.20% |

**Appendix 2.1.** Harbor Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acer pensylvanicum | striped maple | ACEPEN | native | 5 | 3 |
| Acer rubrum | red maple | ACERUB | native | 1 | 0 |
| Acer saccharum | sugar maple | ACESAU | native | 5 | 3 |
| Acer spicatum | mountain maple | ACESPI | native | 5 | 3 |
| Achillea millefolium | yarrow | ACHMIL | native | 1 | 3 |
| Actaea rubra | red baneberry | ACTRUB | native | 7 | 3 |
| Agalinis purpurea | purple false foxglove | AGAPUR | native | 7 | -3 |
| Agrostis gigantea | redtop | AGRGIG | non-native | 0 | -3 |
| Agrostis scabra | ticklegrass | AGRSCA | native | 4 | 0 |
| Agrostis stolonifera | creeping bent | AGRSTO | non-native | 0 | -3 |
| Alnus incana | speckled alder | ALNINC | native | 5 | -3 |
| Amelanchier arborea | juneberry | AMEARB | native | 4 | 3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Anemone canadensis | canada anemone | ANECAN | native | 4 | -3 |
| Anemone cylindrica | thimbleweed | ANECYL | native | 6 | 5 |
| Antennaria howellii | small pussytoes | ANTHOW | native | 2 | 5 |
| Anthoxanthum odoratum | sweet vernal grass | ANTODO | non-native | 0 | 3 |
| Arabis pycnocarpa | hairy rock cress | ARAPYC | native | 6 | 3 |
| Aralia nudicaulis | wild sarsaparilla | ARANUD | native | 5 | 3 |
| Asclepias incarnata | swamp milkweed | ASCINC | native | 6 | -5 |
| Asclepias syriaca | common milkweed | ASCSYR | native | 1 | 5 |
| Barbarea vulgaris | yellow rocket | BARVUL | non-native | 0 | 0 |
| Betula alleghaniensis | yellow birch | BETALL | native | 7 | 0 |
| Betula papyrifera | paper birch | BETPAP | native | 2 | 3 |
| Bidens beckii | water-marigold | BIDBEC | native | 10 | -5 |
| Boechera stricta | drummond rock cress | BOESTR | native | 6 | 3 |
| Botrypus virginianus | rattlesnake fern | BOTVIR | native | 5 | 3 |
| Bromus ciliatus | fringed brome | BROCIL | native | 6 | -3 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Caltha palustris | marsh-marigold | CALPAR | native | 6 | -5 |
| Campanula aparinoides | marsh bellflower | CAMAPA | native | 7 | -5 |
| Capsella bursa-pastoris | shepherds-purse | CAPBUR | non-native | 0 | 3 |
| Cardamine pensylvanica | pennsylvania bitter cress | CARPEN | native | 1 | -3 |
| Carex aquatilis | sedge | CXAQUA | native | 7 | -5 |
| Carex arctata | sedge | CXARTT | native | 3 | 5 |
| Carex aurea | sedge | CXAURE | native | 3 | -3 |
| Carex bebbii | sedge | CXBEBB | native | 4 | -5 |
| Carex buxbaumii | sedge | CXBUXB | native | 10 | -5 |
| Carex canescens | sedge | CXCANE | native | 8 | -5 |
| Carex crawei | sedge | CXCRAE | native | 10 | -3 |
| Carex deweyana | sedge | CXDEWE | native | 3 | 3 |
| Carex diandra | sedge | CXDIAN | native | 8 | -5 |
| Carex disperma | sedge | CXDISP | native | 10 | -5 |
| Carex eburnea | sedge | CXEBUR | native | 7 | 3 |
| Carex flava | sedge | CXFLAV | native | 4 | -5 |

**Appendix 2.1.** Harbor Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Carex garberi | sedge | CXGARB | native | 8 | -3 |
| Carex gracillima | sedge | CXGRAA | native | 4 | 3 |
| Carex granularis | sedge | CXGRAN | native | 2 | -3 |
| Carex hystericina | sedge | CXHYST | native | 2 | -5 |
| Carex interior | sedge | CXINTE | native | 3 | -5 |
| Carex intumescens | sedge | CXINTU | native | 3 | -3 |
| Carex lacustris | sedge | CXLACU | native | 6 | -5 |
| Carex lasiocarpa | sedge | CXLASI | native | 8 | -5 |
| Carex laxiflora | sedge | CXLAXF | native | 8 | 0 |
| Carex leptalea | sedge | CXLEPA | native | 5 | -5 |
| Carex leptonervia | sedge | CXLEPO | native | 3 | 0 |
| Carex ormostachya | sedge | CXORMO | native | 5 | 5 |
| Carex pedunculata | sedge | CXPEDU | native | 5 | 3 |
| Carex pellita | sedge | CXPELL | native | 2 | -5 |
| Carex pensylvanica | sedge | CXPENS | native | 4 | 5 |
| Carex prairea | sedge | CXPRAI | native | 10 | -3 |
| Carex projecta | sedge | CXPROJ | native | 3 | -3 |
| Carex pseudo-cyperus | sedge | CXPSEU | native | 5 | -5 |
| Carex retrorsa | sedge | CXRETS | native | 3 | -5 |
| Carex rosea | curly-styled wood sedge | CXROSE | native | 2 | 5 |
| Carex scoparia | sedge | CXSCOP | native | 4 | -3 |
| Carex sterilis | sedge | CXSTER | native | 10 | -5 |
| Carex stipata | sedge | CXSTIP | native | 1 | -5 |
| Carex stricta | sedge | CXSTRI | native | 4 | -5 |
| Carex tetanica | sedge | CXTETA | native | 9 | -3 |
| Carex trisperma | sedge | CXTRIS | native | 9 | -5 |
| Carex tuckermanii | sedge | CXTUCK | native | 8 | -5 |
| Carex utriculata | sedge | CXUTRI | native | 5 | -5 |
| Carex vesicaria | sedge | CXVESI | native | 7 | -5 |
| Carex viridula | sedge | CXVIRU | native | 4 | -5 |
| Carex vulpinoidea | sedge | CXVULP | native | 1 | -5 |
| Celastrus orbiculatus | oriental bittersweet | CELORB | non-native | 0 | 5 |
| Cerastium fontanum | mouse-ear chickweed | CERFON | non-native | 0 | 3 |
| Cicuta bulbifera | water hemlock | CICBUL | native | 5 | -5 |
| Cinna latifolia | wood reedgrass | CINLAT | native | 5 | -3 |
| Circaea alpina | small enchanters-nightshade | CIRALP | native | 4 | -3 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium palustre | marsh thistle | CIRPAL | non-native | 0 | -3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Cladium mariscoides | twig-rush | CLAMAR | native | 10 | -5 |
| Clinopodium vulgare | wild-basil | CLIVUL | native | 3 | 5 |
| Comarum palustre | marsh cinquefoil | COMPAL | native | 7 | -5 |
| Conopholis americana | squaw-root | CONAME | native | 10 | 5 |
| Conyza canadensis | horseweed | CONCAN | native | 0 | 3 |
| Coptis trifolia | goldthread | COPTRI | native | 5 | -3 |
| Corallorhiza striata | striped coral-root | CORSTR | native | 6 | 3 |

**Appendix 2.1.** Harbor Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Corallorhiza trifida | early coral-root | CORTRF | native | 6 | -3 |
| Cornus amomum | silky dogwood | CORAMO | native | 2 | -3 |
| Cornus canadensis | bunchberry | CORCAA | native | 6 | 0 |
| Cornus sericea | red-osier | CORSER | native | 2 | -3 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Cystopteris bulbifera | bulblet fern | CYSBUL | native | 5 | -3 |
| Danthonia spicata | poverty grass; oatgrass | DANSPI | native | 4 | 5 |
| Dasiphora fruticosa | shrubby cinquefoil | DASFRU | native | 8 | -3 |
| Dendrolycopodium dendroideum | tree clubmoss | DENDEN | native | 5 | 3 |
| Dendrolycopodium obscurum | ground-pine | DENOBS | native | 5 | 3 |
| Dichanthelium boreale | northern panic grass | DICBOR | native | 7 | 0 |
| Dichanthelium implicatum | panic grass | DICIMP | native | 3 | 0 |
| Dichanthelium lindheimeri | panic grass | DICLID | native | 8 | -5 |
| Diervilla lonicera | bush-honeysuckle | DIELON | native | 4 | 5 |
| Dryopteris carthusiana | spinulose woodfern | DRYCAR | native | 5 | -3 |
| Dryopteris cristata | crested shield fern | DRYCRI | native | 6 | -5 |
| Dryopteris intermedia | evergreen woodfern | DRYINT | native | 5 | 0 |
| Eleocharis elliptica | golden-seeded spike rush | ELEELL | native | 6 | -5 |
| Eleocharis palustris | spike-rush | ELEPAL | native | 5 | -5 |
| Eleocharis quinqueflora | spike-rush | ELEQUI | native | 10 | -5 |
| Elodea canadensis | common waterweed | ELOCAN | native | 1 | -5 |
| Elymus canadensis | canada wild rye | ELYCAN | native | 5 | 3 |
| Elymus hystrix | bottlebrush grass | ELYHYS | native | 5 | 3 |
| Elymus trachycaulus | slender wheatgrass | ELYTRA | native | 8 | 3 |
| Epilobium coloratum | cinnamon willow-herb | EPICOL | native | 3 | -5 |
| Epilobium hirsutum | great hairy willow-herb | EPIHIR | non-native | 0 | -3 |
| Epilobium leptophyllum | fen willow-herb | EPILEP | native | 6 | -5 |
| Epipactis helleborine | helleborine | EPIHEL | non-native | 0 | 0 |
| Equisetum arvense | common horsetail | EQUARV | native | 0 | 0 |
| Equisetum fluviatile | water horsetail | EQUFLU | native | 7 | -5 |
| Equisetum scirpoides | dwarf scouring rush | EQUSCI | native | 7 | 0 |
| Equisetum sylvaticum | woodland horsetail | EQUSYL | native | 5 | -3 |
| Erigeron annuus | daisy fleabane | ERIANN | native | 0 | 3 |
| Erigeron philadelphicus | philadelphia fleabane | ERIPHI | native | 2 | 0 |
| Erucastrum gallicum | dog mustard | ERUGAL | non-native | 0 | 3 |
| Eupatorium perfoliatum | boneset | EUPPER | native | 4 | -3 |
| Eurybia macrophylla | big-leaved aster | EURMAC | native | 4 | 5 |
| Festuca occidentalis | western fescue | FESOCC | native | 6 | 5 |
| Fragaria virginiana | wild strawberry | FRAVIR | native | 2 | 3 |
| Fraxinus americana | white ash | FRAAME | native | 5 | 3 |
| Fraxinus nigra | black ash | FRANIG | native | 6 | -3 |
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Galeopsis tetrahit | hemp-nettle | GALTET | non-native | 0 | 3 |
| Galium asprellum | rough bedstraw | GALASP | native | 5 | -5 |
| Galium palustre | marsh bedstraw | GALPAL | native | 3 | -5 |
| Galium tinctorium | stiff bedstraw | GALTIN | native | 5 | -5 |

**Appendix 2.1.** Harbor Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Galium trifidum | small bedstraw | GALTRD | native | 6 | -3 |
| Galium triflorum | fragrant bedstraw | GALTRR | native | 4 | 3 |
| Gaultheria hispidula | creeping-snowberry | GAUHIS | native | 8 | -3 |
| Geranium robertianum | herb robert | GERROB | native | 3 | 3 |
| Glyceria striata | fowl manna grass | GLYSTR | native | 4 | -5 |
| Goodyera oblongifolia | menzies rattlesnake plantain | GOOOBL | native | 8 | 3 |
| Gymnocarpium dryopteris | oak fern | GYMDRY | native | 5 | 3 |
| Gymnocarpium robertianum | limestone oak fern | GYMROB | native | 10 | 3 |
| Hackelia deflexa | stickseed | HACDEF | native | 2 | 5 |
| Hackelia virginiana | beggars lice | HACVIR | native | 1 | 3 |
| Halenia deflexa | spurred gentian | HALDEF | native | 7 | 0 |
| Hepatica americana | round-lobed hepatica | HEPAME | native | 6 | 5 |
| Hieracium caespitosum | king devil | HIECAE | non-native | 0 | 5 |
| Hordeum jubatum | squirrel-tail grass | HORJUB | non-native | 0 | 0 |
| Hydrocharis morsus-ranae | european frogs-bit | HYDMOR | non-native | 0 | -5 |
| Hypericum majus | larger canada st. johns-wort | HYPMAJ | native | 4 | -3 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Impatiens capensis | spotted touch-me-not | IMPCAP | native | 2 | -3 |
| Iris versicolor | wild blue flag | IRIVER | native | 5 | -5 |
| Juncus articulatus | jointed rush | JUNART | native | 3 | -5 |
| Juncus balticus | rush | JUNBAL | native | 4 | -5 |
| Juncus brachycephalus | rush | JUNBRP | native | 7 | -5 |
| Juncus canadensis | canadian rush | JUNCAN | native | 6 | -5 |
| Juncus dudleyi | dudleys rush | JUNDUD | native | 1 | -3 |
| Juncus effusus | soft-stemmed rush | JUNEFF | native | 3 | -5 |
| Juncus tenuis | path rush | JUNTEN | native | 1 | 0 |
| Juniperus communis | common or ground juniper | JUNCOI | native | 4 | 3 |
| Larix laricina | tamarack | LARLAR | native | 5 | -3 |
| Lathyrus ochroleucus | pale vetchling | LATOCH | native | 8 | 5 |
| Lathyrus palustris | marsh pea | LATPAL | native | 7 | -3 |
| Lemna turionifera | red duckweed | LEMTUR | native | 5 | -5 |
| Leucanthemum vulgare | ox-eye daisy | LEUVUL | non-native | 0 | 5 |
| Linnaea borealis | twinflower | LINBOR | native | 6 | 0 |
| Lithospermum officinale | gromwell | LITOFF | non-native | 0 | 5 |
| Lobelia kalmii | bog lobelia | LOBKAL | native | 10 | -5 |
| Lonicera canadensis | canadian fly honeysuckle | LONCAN | native | 5 | 3 |
| Lycopus americanus | common water horehound | LYCAME | native | 2 | -5 |
| Lycopus uniflorus | northern bugle weed | LYCUNI | native | 2 | -5 |
| Lysimachia terrestris | swamp-candles | LYSTER | native | 6 | -5 |
| Lysimachia thyrsiflora | tufted loosestrife | LYSTHY | native | 6 | -5 |
| Maianthemum canadense | canada mayflower | MAICAN | native | 4 | 3 |
| Maianthemum racemosum | false spikenard | MAIRAC | native | 5 | 3 |
| Maianthemum stellatum | starry false solomon-seal | MAISTE | native | 5 | 0 |
| Matteuccia struthiopteris | ostrich fern | MATSTR | native | 3 | 0 |
| Medicago lupulina | black medick | MEDLUP | non-native | 0 | 3 |
| Melampyrum lineare | cow-wheat | MELLIN | native | 6 | 3 |

**Appendix 2.1.** Harbor Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Mentha canadensis | wild mint | MENCAS | native | 3 | -3 |
| Mitella nuda | naked miterwort | MITNUD | native | 8 | -3 |
| Moneses uniflora | one-flowered pyrola | MONEUN | native | 8 | 0 |
| Muhlenbergia mexicana | leafy satin grass | MUHMEX | native | 3 | -3 |
| Mycelis muralis | wall lettuce | MYCMUR | non-native | 0 | 5 |
| Myosotis arvensis | field scorpion-grass | MYOARV | non-native | 0 | 3 |
| Myrica gale | sweet gale | MYRGAL | native | 6 | -5 |
| Myriophyllum spicatum | eurasian water-milfoil | MYRSPI | non-native | 0 | -5 |
| Najas flexilis | slender naiad | NAJFLE | native | 5 | -5 |
| Nuphar advena | yellow pond-lily | NUPADV | native | 8 | -5 |
| Nuphar variegata | yellow pond-lily | NUPVAR | native | 7 | -5 |
| Nymphaea odorata | sweet-scented waterlily | NYMODO | native | 6 | -5 |
| Onoclea sensibilis | sensitive fern | ONOSEN | native | 2 | -3 |
| Orthilia secunda | one-sided pyrola | ORTSEC | native | 7 | 0 |
| Oryzopsis asperifolia | rough-leaved rice-grass | ORYASP | native | 6 | 5 |
| Osmunda cinnamomea | cinnamon fern | OSMCIN | native | 5 | -3 |
| Osmunda regalis | royal fern | OSMREG | native | 5 | -5 |
| Ostrya virginiana | ironwood; hop-hornbeam | OSTVIR | native | 5 | 3 |
| Packera glabella | yellowtop | PACGLA | non-native | 0 | -3 |
| Pastinaca sativa | wild parsnip | PASSAT | non-native | 0 | 5 |
| Persicaria amphibia | water smartweed | PERAMP | native | 6 | -5 |
| Phalaris arundinacea | reed canary grass | PHAARU | native | 0 | -3 |
| Phegopteris connectilis | northern beech-fern | PHECON | native | 5 | 3 |
| Phegopteris hexagonoptera | broad beech-fern | PHEHEX | native | 8 | 3 |
| Phragmites australis var. americanus | reed | PHRAUM | native | 5 | -3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Picea mariana | black spruce | PICMAR | native | 6 | -3 |
| Pinus resinosa | red pine | PINRES | native | 6 | 3 |
| Pinus strobus | white pine | PINSTR | native | 3 | 3 |
| Platanthera aquilonis | northern green orchid | PLAAQU | native | 5 | -3 |
| Poa alsodes | bluegrass | POAALS | native | 9 | 0 |
| Poa compressa | canada bluegrass | POACOM | non-native | 0 | 3 |
| Poa nemoralis | bluegrass | POANEM | non-native | 0 | 3 |
| Poa palustris | fowl meadow grass | POAPAS | native | 3 | -3 |
| Poa pratensis | kentucky bluegrass | POAPRA | non-native | 0 | 3 |
| Poa saltuensis | bluegrass | POASAL | native | 5 | 5 |
| Polygala paucifolia | gay-wings | POLPAU | native | 7 | 3 |
| Polygonatum pubescens | downy solomon seal | POLPUB | native | 5 | 5 |
| Polypodium virginianum | common polypody | POLVIR | native | 8 | 5 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Potamogeton foliosus | leafy pondweed | POTFOL | native | 4 | -5 |
| Potamogeton friesii | friess pondweed | POTFRI | native | 6 | -5 |
| Potamogeton gramineus | pondweed | POTGRM | native | 5 | -5 |
| Potamogeton natans | pondweed | POTNAT | native | 5 | -5 |
| Potamogeton richardsonii | richardsons pondweed | POTRIC | native | 5 | -5 |

**Appendix 2.1.** Harbor Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Potamogeton robbinsii | pondweed | POTROB | native | 10 | -5 |
| Potamogeton vaseyi | vaseys pondweed | POTVAS | native | 10 | -5 |
| Potamogeton zosteriformis | flat-stemmed pondweed | POTZOS | native | 5 | -5 |
| Potentilla anserina | silverweed | POTANS | native | 5 | -3 |
| Potentilla norvegica | rough cinquefoil | POTNOR | native | 0 | 0 |
| Primula mistassinica | birds-eye primrose | PRIMIS | native | 10 | -3 |
| Proserpinaca palustris | mermaid-weed | PROPAL | native | 6 | -5 |
| Prunella vulgaris | self-heal | PRUVUL | native | 0 | 0 |
| Prunus pensylvanica | pin cherry | PRUPEN | native | 3 | 3 |
| Prunus virginiana | choke cherry | PRUVIR | native | 2 | 3 |
| Pteridium aquilinum | bracken fern | PTEAQU | native | 0 | 3 |
| Pyrola americana | round-leaved pyrola | PYRAME | native | 7 | 0 |
| Quercus rubra | red oak | QUERUB | native | 5 | 3 |
| Ranunculus abortivus | small-flowered buttercup | RANABO | native | 0 | 0 |
| Ranunculus acris | tall or common buttercup | RANACR | non-native | 0 | 0 |
| Ranunculus recurvatus | hooked crowfoot | RANREC | native | 5 | -3 |
| Ranunculus reptans | creeping buttercup | RANRET | native | 8 | -3 |
| Ribes hirtellum | swamp gooseberry | RIBHIR | native | 6 | -3 |
| Ribes lacustre | swamp black currant | RIBLAC | native | 6 | -3 |
| Rorippa palustris | yellow cress | RORPAL | native | 1 | -5 |
| Rosa acicularis | wild rose | ROSACI | native | 4 | 3 |
| Rosa palustris | swamp rose | ROSPAL | native | 5 | -5 |
| Rosa rubiginosa | sweetbrier | ROSRUB | non-native | 0 | 3 |
| Rubus pubescens | dwarf raspberry | RUBPUB | native | 4 | -3 |
| Rubus strigosus | wild red raspberry | RUBSTR | native | 2 | 0 |
| Rumex acetosella | sheep sorrel | RUMACL | non-native | 0 | 3 |
| Rumex crispus | curly dock | RUMCRI | non-native | 0 | 0 |
| Sagittaria graminea | grass-leaved arrowhead | SAGGRA | native | 10 | -5 |
| Salix bebbiana | bebbs willow | SALBEB | native | 1 | -3 |
| Salix cordata | sand-dune willow | SALCOR | native | 10 | 0 |
| Sambucus racemosa | red-berried elder | SAMRAC | native | 3 | 3 |
| Schizachne purpurascens | false melic | SCHPUP | native | 5 | 3 |
| Schizachyrium scoparium | little bluestem | SCHSCO | native | 5 | 3 |
| Schoenoplectus acutus | hardstem bulrush | SCHACU | native | 5 | -5 |
| Schoenoplectus pungens | threesquare | SCHPUN | native | 5 | -5 |
| Schoenoplectus tabernaemontani | softstem bulrush | SCHTAB | native | 4 | -5 |
| Scirpus atrovirens | bulrush | SCIATV | native | 3 | -5 |
| Scirpus cyperinus | wool-grass | SCICYP | native | 5 | -5 |
| Scutellaria galericulata | marsh skullcap | SCUGAL | native | 5 | -5 |
| Scutellaria lateriflora | mad-dog skullcap | SCULAT | native | 5 | -5 |
| Selaginella eclipes | selaginella | SELECL | native | 5 | -3 |
| Sisyrinchium montanum | mountain blue-eyed-grass | SISMON | native | 4 | 0 |
| Sium suave | water-parsnip | SIUSUA | native | 5 | -5 |
| Solanum dulcamara | bittersweet nightshade | SOLDUL | non-native | 0 | 0 |
| Solidago hispida | hairy goldenrod | SOLHIS | native | 3 | 5 |
| Sorbus americana | american mountain-ash | SORAME | native | 4 | 0 |

**Appendix 2.1.** Harbor Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Sorbus decora | mountain-ash | SORDEC | native | 4 | 3 |
| Sparganium fluctuans | bur-reed | SPAFLU | native | 10 | -5 |
| Sphenopholis intermedia | slender wedgegrass | SPHINT | native | 4 | 0 |
| Spinulum annotinum | stiff clubmoss | SPIANN | native | 5 | 0 |
| Symphyotrichum ciliolatum | northern heart-leaved aster | SYMCIO | native | 4 | 5 |
| Symphyotrichum lateriflorum | calico aster | SYMLAT | native | 2 | 0 |
| Symphyotrichum puniceum | swamp aster | SYMPUN | native | 5 | -5 |
| Taraxacum officinale | common dandelion | TAROFF | non-native | 0 | 3 |
| Taxus canadensis | yew | TAXCAN | native | 5 | 3 |
| Teucrium canadense | wood-sage | TEUCAN | native | 4 | -3 |
| Thelypteris noveboracensis | new york fern | THENOV | native | 5 | 0 |
| Thelypteris palustris | marsh fern | THEPAL | native | 2 | -3 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |
| Tragopogon dubius | goats beard | TRADUB | non-native | 0 | 5 |
| Triadenum fraseri | marsh st. johns-wort | TRIFRA | native | 6 | -5 |
| Trientalis borealis | star-flower | TRIBOR | native | 5 | 0 |
| Trifolium campestre | low hop clover | TRICAM | non-native | 0 | 5 |
| Trifolium repens | white clover | TRIREP | non-native | 0 | 3 |
| Trillium grandiflorum | common trillium | TRIGRA | native | 5 | 3 |
| Turritis glabra | tower mustard | TURGLA | native | 3 | 5 |
| Typha angustifolia | narrow-leaved cat-tail | TYPANG | non-native | 0 | -5 |
| Typha latifolia | broad-leaved cat-tail | TYPLAT | native | 1 | -5 |
| Typha Ã—glauca | hybrid cat-tail | TYPGLA | non-native | 0 | -5 |
| Ulmus americana | american elm | ULMAME | native | 1 | -3 |
| Urtica dioica | stinging nettle | URTDIO | native | 1 | 0 |
| Utricularia cornuta | horned bladderwort | UTRCOR | native | 10 | -5 |
| Vaccinium angustifolium | low sweet blueberry | VACANG | native | 4 | 3 |
| Vaccinium macrocarpon | large cranberry | VACMAC | native | 8 | -5 |
| Vallisneria americana | eel-grass | VALAME | native | 7 | -5 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Verbena hastata | blue vervain | VERHAS | native | 4 | -3 |
| Veronica anagallis-aquatica | water speedwell | VERANA | native | 4 | -5 |
| Veronica officinalis | common speedwell | VEROOF | non-native | 0 | 3 |
| Veronica serpyllifolia | thyme-leaved speedwell | VERSER | non-native | 0 | 0 |
| Viola blanda | sweet white violet | VIOBLA | native | 5 | -3 |
| Viola cucullata | marsh violet | VIOCUC | native | 5 | -5 |
| Viola labradorica | dog violet | VIOLAB | native | 3 | 0 |
| Viola nephrophylla | northern bog violet | VIONEP | native | 8 | -3 |
| Viola renifolia | kidney-leaved violet | VIOREN | native | 6 | -3 |
| Viola sororia | common blue violet | VIOSOR | native | 1 | 0 |
| Vitis riparia | river-bank grape | VITRIP | native | 3 | 0 |

**Appendix 2.2.** Harbor Island Boreal Forest FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 3.6 |
| Native Mean C: | 4.4 |
| Total FQI: | 36.2 |
| Native FQI: | 40.1 |
| Adjusted FQI: | 39.9 |
| % C value 0: | 19.8 |
| % C value 1-3: | 29.7 |
| % C value 4-6: | 36.6 |
| % C value 7-10: | 13.9 |
| Native Tree Mean C: | 3.8 |
| Native Shrub Mean C: | 3.4 |
| Native Herbaceous Mean C: | 4.7 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 101 | |
| Native Species: | 83 | 82.20% |
| Non-native Species: | 18 | 17.80% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | 1.2 |
| Native Mean Wetness: | 1 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 17 | 16.80% |
| Shrub: | 8 | 7.90% |
| Vine: | 2 | 2% |
| Forb: | 39 | 38.60% |
| Grass: | 5 | 5% |
| Sedge: | 18 | 17.80% |
| Rush: | 0 | 0% |
| Fern: | 12 | 11.90% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 1 | 1% |
| Perennial: | 91 | 90.10% |
| Biennial: | 9 | 8.90% |
| Native Annual: | 1 | 1% |
| Native Perennial: | 80 | 79.20% |
| Native Biennial: | 2 | 2% |

**Appendix 2.2.** Harbor Island Boreal Forest FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acer pensylvanicum | striped maple | ACEPEN | native | 5 | 3 |
| Acer saccharum | sugar maple | ACESAU | native | 5 | 3 |
| Acer spicatum | mountain maple | ACESPI | native | 5 | 3 |
| Agrostis stolonifera | creeping bent | AGRSTO | non-native | 0 | -3 |
| Amelanchier arborea | juneberry | AMEARB | native | 4 | 3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Aralia nudicaulis | wild sarsaparilla | ARANUD | native | 5 | 3 |
| Betula alleghaniensis | yellow birch | BETALL | native | 7 | 0 |
| Betula papyrifera | paper birch | BETPAP | native | 2 | 3 |
| Botrypus virginianus | rattlesnake fern | BOTVIR | native | 5 | 3 |
| Carex arctata | sedge | CXARTT | native | 3 | 5 |
| Carex aurea | sedge | CXAURE | native | 3 | -3 |
| Carex bebbii | sedge | CXBEBB | native | 4 | -5 |
| Carex deweyana | sedge | CXDEWE | native | 3 | 3 |
| Carex disperma | sedge | CXDISP | native | 10 | -5 |
| Carex eburnea | sedge | CXEBUR | native | 7 | 3 |
| Carex garberi | sedge | CXGARB | native | 8 | -3 |
| Carex gracillima | sedge | CXGRAA | native | 4 | 3 |
| Carex granularis | sedge | CXGRAN | native | 2 | -3 |
| Carex intumescens | sedge | CXINTU | native | 3 | -3 |
| Carex laxiflora | sedge | CXLAXF | native | 8 | 0 |
| Carex pedunculata | sedge | CXPEDU | native | 5 | 3 |
| Carex projecta | sedge | CXPROJ | native | 3 | -3 |
| Carex retrorsa | sedge | CXRETS | native | 3 | -5 |
| Carex rosea | curly-styled wood sedge | CXROSE | native | 2 | 5 |
| Carex scoparia | sedge | CXSCOP | native | 4 | -3 |
| Carex stipata | sedge | CXSTIP | native | 1 | -5 |
| Carex tuckermanii | sedge | CXTUCK | native | 8 | -5 |
| Cerastium fontanum | mouse-ear chickweed | CERFON | non-native | 0 | 3 |
| Circaea alpina | small enchanters-nightshade | CIRALP | native | 4 | -3 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium palustre | marsh thistle | CIRPAL | non-native | 0 | -3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Clinopodium vulgare | wild-basil | CLIVUL | native | 3 | 5 |
| Corallorhiza striata | striped coral-root | CORSTR | native | 6 | 3 |
| Corallorhiza trifida | early coral-root | CORTRF | native | 6 | -3 |
| Cornus sericea | red-osier | CORSER | native | 2 | -3 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Dendrolycopodium dendroideum | tree clubmoss | DENDEN | native | 5 | 3 |
| Diervilla lonicera | bush-honeysuckle | DIELON | native | 4 | 5 |
| Dryopteris carthusiana | spinulose woodfern | DRYCAR | native | 5 | -3 |
| Dryopteris intermedia | evergreen woodfern | DRYINT | native | 5 | 0 |
| Epipactis helleborine | helleborine | EPIHEL | non-native | 0 | 0 |
| Equisetum arvense | common horsetail | EQUARV | native | 0 | 0 |
| Equisetum scirpoides | dwarf scouring rush | EQUSCI | native | 7 | 0 |

**Appendix 2.2.** Harbor Island Boreal Forest FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Festuca occidentalis | western fescue | FESOCC | native | 6 | 5 |
| Fragaria virginiana | wild strawberry | FRAVIR | native | 2 | 3 |
| Fraxinus americana | white ash | FRAAME | native | 5 | 3 |
| Fraxinus nigra | black ash | FRANIG | native | 6 | -3 |
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Galium palustre | marsh bedstraw | GALPAL | native | 3 | -5 |
| Galium triflorum | fragrant bedstraw | GALTRR | native | 4 | 3 |
| Geranium robertianum | herb robert | GERROB | native | 3 | 3 |
| Goodyera oblongifolia | menzies rattlesnake plantain | GOOOBL | native | 8 | 3 |
| Gymnocarpium dryopteris | oak fern | GYMDRY | native | 5 | 3 |
| Gymnocarpium robertianum | limestone oak fern | GYMROB | native | 10 | 3 |
| Hackelia deflexa | stickseed | HACDEF | native | 2 | 5 |
| Hackelia virginiana | beggars lice | HACVIR | native | 1 | 3 |
| Hepatica americana | round-lobed hepatica | HEPAME | native | 6 | 5 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Lathyrus ochroleucus | pale vetchling | LATOCH | native | 8 | 5 |
| Linnaea borealis | twinflower | LINBOR | native | 6 | 0 |
| Maianthemum canadense | canada mayflower | MAICAN | native | 4 | 3 |
| Maianthemum racemosum | false spikenard | MAIRAC | native | 5 | 3 |
| Mitella nuda | naked miterwort | MITNUD | native | 8 | -3 |
| Mycelis muralis; lactuca m. | wall lettuce | MYCMUR | non-native | 0 | 5 |
| Myosotis arvensis | field scorpion-grass | MYOARV | non-native | 0 | 3 |
| Oryzopsis asperifolia | rough-leaved rice-grass | ORYASP | native | 6 | 5 |
| Phegopteris connectilis | northern beech-fern | PHECON | native | 5 | 3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Pinus strobus | white pine | PINSTR | native | 3 | 3 |
| Poa compressa | canada bluegrass | POACOM | non-native | 0 | 3 |
| Polygala paucifolia | gay-wings | POLPAU | native | 7 | 3 |
| Polygonatum pubescens | downy solomon seal | POLPUB | native | 5 | 5 |
| Polypodium virginianum | common polypody | POLVIR | native | 8 | 5 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Prunus pensylvanica | pin cherry | PRUPEN | native | 3 | 3 |
| Prunus virginiana | choke cherry | PRUVIR | native | 2 | 3 |
| Pteridium aquilinum | bracken fern | PTEAQU | native | 0 | 3 |
| Pyrola americana | round-leaved pyrola | PYRAME | native | 7 | 0 |
| Ranunculus acris | tall or common buttercup | RANACR | non-native | 0 | 0 |
| Ribes lacustre | swamp black currant | RIBLAC | native | 6 | -3 |
| Rosa rubiginosa | sweetbrier | ROSRUB | non-native | 0 | 3 |
| Rubus strigosus | wild red raspberry | RUBSTR | native | 2 | 0 |
| Sambucus racemosa | red-berried elder | SAMRAC | native | 3 | 3 |
| Schizachne purpurascens | false melic | SCHPUP | native | 5 | 3 |
| Scutellaria lateriflora | mad-dog skullcap | SCULAT | native | 5 | -5 |
| Solanum dulcamara | bittersweet nightshade | SOLDUL | non-native | 0 | 0 |
| Sorbus decora | mountain-ash | SORDEC | native | 4 | 3 |
| Spinulum annotinum | stiff clubmoss | SPIANN | native | 5 | 0 |

**Appendix 2.2.** Harbor Island Boreal Forest FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Taraxacum officinale | common dandelion | TAROFF | non-native | 0 | 3 |
| Taxus canadensis | yew | TAXCAN | native | 5 | 3 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |
| Tragopogon dubius | goats beard | TRADUB | non-native | 0 | 5 |
| Trientalis borealis | star-flower | TRIBOR | native | 5 | 0 |
| Urtica dioica | stinging nettle | URTDIO | native | 1 | 0 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Veronica officinalis | common speedwell | VEROOF | non-native | 0 | 3 |
| Viola labradorica | dog violet | VIOLAB | native | 3 | 0 |

**Appendix 2.3.** Harbor Island Dry-mesic Northern Forest FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 3.6 |
| Native Mean C: | 4.2 |
| Total FQI: | 22.8 |
| Native FQI: | 24.5 |
| Adjusted FQI: | 38.7 |
| % C value 0: | 17.5 |
| % C value 1-3: | 25 |
| % C value 4-6: | 50 |
| % C value 7-10: | 7.5 |
| Native Tree Mean C: | 3.4 |
| Native Shrub Mean C: | 4.3 |
| Native Herbaceous Mean C: | 4.7 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 40 | |
| Native Species: | 34 | 85% |
| Non-native Species: | 6 | 15% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | 2.1 |
| Native Mean Wetness: | 1.9 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 12 | 30% |
| Shrub: | 3 | 7.50% |
| Vine: | 0 | 0% |
| Forb: | 13 | 32.50% |
| Grass: | 6 | 15% |
| Sedge: | 4 | 10% |
| Rush: | 0 | 0% |
| Fern: | 2 | 5% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 1 | 2.50% |
| Perennial: | 37 | 92.50% |
| Biennial: | 2 | 5% |
| Native Annual: | 1 | 2.50% |
| Native Perennial: | 32 | 80% |
| Native Biennial: | 1 | 2.50% |

**Appendix 2.3.** Harbor Island Dry-mesic Northern Forest FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acer rubrum | red maple | ACERUB | native | 1 | 0 |
| Acer saccharum | sugar maple | ACESAU | native | 5 | 3 |
| Actaea rubra | red baneberry | ACTRUB | native | 7 | 3 |
| Betula papyrifera | paper birch | BETPAP | native | 2 | 3 |
| Cardamine pensylvanica | pennsylvania bitter cress | CARPEN | native | 1 | -3 |
| Carex arctata | sedge | CXARTT | native | 3 | 5 |
| Carex deweyana | sedge | CXDEWE | native | 3 | 3 |
| Carex pedunculata | sedge | CXPEDU | native | 5 | 3 |
| Carex pensylvanica | sedge | CXPENS | native | 4 | 5 |
| Conopholis americana | squaw-root | CONAME | native | 10 | 5 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Danthonia spicata | poverty grass; oatgrass | DANSPI | native | 4 | 5 |
| Epipactis helleborine | helleborine | EPIHEL | non-native | 0 | 0 |
| Festuca occidentalis | western fescue | FESOCC | native | 6 | 5 |
| Fraxinus nigra | black ash | FRANIG | native | 6 | -3 |
| Galium triflorum | fragrant bedstraw | GALTRR | native | 4 | 3 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Juniperus communis | common or ground juniper | JUNCOI | native | 4 | 3 |
| Maianthemum canadense | canada mayflower | MAICAN | native | 4 | 3 |
| Maianthemum stellatum | starry false solomon-seal | MAISTE | native | 5 | 0 |
| Melampyrum lineare | cow-wheat | MELLIN | native | 6 | 3 |
| Oryzopsis asperifolia | rough-leaved rice-grass | ORYASP | native | 6 | 5 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Pinus resinosa | red pine | PINRES | native | 6 | 3 |
| Pinus strobus | white pine | PINSTR | native | 3 | 3 |
| Poa nemoralis | bluegrass | POANEM | non-native | 0 | 3 |
| Poa pratensis | kentucky bluegrass | POAPRA | non-native | 0 | 3 |
| Polygala paucifolia | gay-wings | POLPAU | native | 7 | 3 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Pteridium aquilinum | bracken fern | PTEAQU | native | 0 | 3 |
| Quercus rubra | red oak | QUERUB | native | 5 | 3 |
| Rosa palustris | swamp rose | ROSPAL | native | 5 | -5 |
| Schizachne purpurascens | false melic | SCHPUP | native | 5 | 3 |
| Spinulum annotinum | stiff clubmoss | SPIANN | native | 5 | 0 |
| Taraxacum officinale | common dandelion | TAROFF | non-native | 0 | 3 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |
| Trientalis borealis | star-flower | TRIBOR | native | 5 | 0 |
| Vaccinium angustifolium | low sweet blueberry | VACANG | native | 4 | 3 |

**Appendix 2.4.** Harbor Island Great Lakes Marsh FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 4.6 |
| Native Mean C: | 5.2 |
| Total FQI: | 47.6 |
| Native FQI: | 50.7 |
| Adjusted FQI: | 49 |
| % C value 0: | 14 |
| % C value 1-3: | 23.4 |
| % C value 4-6: | 38.3 |
| % C value 7-10: | 24.3 |
| Native Tree Mean C: | 2.9 |
| Native Shrub Mean C: | 7.3 |
| Native Herbaceous Mean C: | 5.3 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 107 | |
| Native Species: | 95 | 88.80% |
| Non-native Species: | 12 | 11.20% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | -3.4 |
| Native Mean Wetness: | -3.9 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 7 | 6.50% |
| Shrub: | 4 | 3.70% |
| Vine: | 2 | 1.90% |
| Forb: | 56 | 52.30% |
| Grass: | 11 | 10.30% |
| Sedge: | 22 | 20.60% |
| Rush: | 3 | 2.80% |
| Fern: | 2 | 1.90% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 7 | 6.50% |
| Perennial: | 95 | 88.80% |
| Biennial: | 5 | 4.70% |
| Native Annual: | 4 | 3.70% |
| Native Perennial: | 89 | 83.20% |
| Native Biennial: | 2 | 1.90% |

**Appendix 2.4.** Harbor Island Great Lakes Marsh FQA., continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acer rubrum | red maple | ACERUB | native | 1 | 0 |
| Agrostis gigantea | redtop | AGRGIG | non-native | 0 | -3 |
| Agrostis scabra | ticklegrass | AGRSCA | native | 4 | 0 |
| Alnus incana | speckled alder | ALNINC | native | 5 | -3 |
| Asclepias incarnata | swamp milkweed | ASCINC | native | 6 | -5 |
| Betula papyrifera | paper birch | BETPAP | native | 2 | 3 |
| Bidens beckii | water-marigold | BIDBEC | native | 10 | -5 |
| Bromus ciliatus | fringed brome | BROCIL | native | 6 | -3 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Campanula aparinoides | marsh bellflower | CAMAPA | native | 7 | -5 |
| Capsella bursa-pastoris | shepherds-purse | CAPBUR | non-native | 0 | 3 |
| Cardamine pensylvanica | pennsylvania bitter cress | CARPEN | native | 1 | -3 |
| Carex buxbaumii | sedge | CXBUXB | native | 10 | -5 |
| Carex crawei | sedge | CXCRAE | native | 10 | -3 |
| Carex diandra | sedge | CXDIAN | native | 8 | -5 |
| Carex disperma | sedge | CXDISP | native | 10 | -5 |
| Carex flava | sedge | CXFLAV | native | 4 | -5 |
| Carex hystericina | sedge | CXHYST | native | 2 | -5 |
| Carex lacustris | sedge | CXLACU | native | 6 | -5 |
| Carex lasiocarpa | sedge | CXLASI | native | 8 | -5 |
| Carex pellita | sedge | CXPELL | native | 2 | -5 |
| Carex sterilis | sedge | CXSTER | native | 10 | -5 |
| Carex stipata | sedge | CXSTIP | native | 1 | -5 |
| Carex stricta | sedge | CXSTRI | native | 4 | -5 |
| Carex utriculata | sedge | CXUTRI | native | 5 | -5 |
| Carex vulpinoidea | sedge | CXVULP | native | 1 | -5 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium palustre | marsh thistle | CIRPAL | non-native | 0 | -3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Cladium mariscoides | twig-rush | CLAMAR | native | 10 | -5 |
| Comarum palustre | marsh cinquefoil | COMPAL | native | 7 | -5 |
| Dasiphora fruticosa | shrubby cinquefoil | DASFRU | native | 8 | -3 |
| Dichanthelium implicatum | panic grass | DICIMP | native | 3 | 0 |
| Dichanthelium lindheimeri | panic grass | DICLID | native | 8 | -5 |
| Eleocharis elliptica | golden-seeded spike rush | ELEELL | native | 6 | -5 |
| Eleocharis quinqueflora | spike-rush | ELEQUI | native | 10 | -5 |
| Elodea canadensis | common waterweed | ELOCAN | native | 1 | -5 |
| Erigeron annuus | daisy fleabane | ERIANN | native | 0 | 3 |
| Erucastrum gallicum | dog mustard | ERUGAL | non-native | 0 | 3 |
| Eupatorium perfoliatum | boneset | EUPPER | native | 4 | -3 |
| Fraxinus nigra | black ash | FRANIG | native | 6 | -3 |
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Galium asprellum | rough bedstraw | GALASP | native | 5 | -5 |
| Galium palustre | marsh bedstraw | GALPAL | native | 3 | -5 |
| Hydrocharis morsus-ranae | european frogs-bit | HYDMOR | non-native | 0 | -5 |

**Appendix 2.4.** Harbor Island Great Lakes Marsh FQA., continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Hypericum majus | larger canada st. johns-wort | HYPMAJ | native | 4 | -3 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Impatiens capensis | spotted touch-me-not | IMPCAP | native | 2 | -3 |
| Iris versicolor | wild blue flag | IRIVER | native | 5 | -5 |
| Juncus balticus | rush | JUNBAL | native | 4 | -5 |
| Juncus canadensis | canadian rush | JUNCAN | native | 6 | -5 |
| Juncus effusus | soft-stemmed rush | JUNEFF | native | 3 | -5 |
| Lathyrus palustris | marsh pea | LATPAL | native | 7 | -3 |
| Lemna turionifera | red duckweed | LEMTUR | native | 5 | -5 |
| Lobelia kalmii | bog lobelia | LOBKAL | native | 10 | -5 |
| Lycopus americanus | common water horehound | LYCAME | native | 2 | -5 |
| Lycopus uniflorus | northern bugle weed | LYCUNI | native | 2 | -5 |
| Lysimachia thyrsiflora | tufted loosestrife | LYSTHY | native | 6 | -5 |
| Mentha canadensis | wild mint | MENCAS | native | 3 | -3 |
| Myrica gale | sweet gale | MYRGAL | native | 6 | -5 |
| Myriophyllum spicatum | eurasian water-milfoil | MYRSPI | non-native | 0 | -5 |
| Najas flexilis | slender naiad | NAJFLE | native | 5 | -5 |
| Nuphar variegata | yellow pond-lily | NUPVAR | native | 7 | -5 |
| Nymphaea odorata | sweet-scented waterlily | NYMODO | native | 6 | -5 |
| Onoclea sensibilis | sensitive fern | ONOSEN | native | 2 | -3 |
| Persicaria amphibia | water smartweed | PERAMP | native | 6 | -5 |
| Phalaris arundinacea | reed canary grass | PHAARU | native | 0 | -3 |
| Phragmites australis var. americanus | reed | PHRAUM | native | 5 | -3 |
| Platanthera aquilonis | northern green orchid | PLAAQU | native | 5 | -3 |
| Poa palustris | fowl meadow grass | POAPAS | native | 3 | -3 |
| Poa pratensis | kentucky bluegrass | POAPRA | non-native | 0 | 3 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Potamogeton foliosus | leafy pondweed | POTFOL | native | 4 | -5 |
| Potamogeton friesii | friess pondweed | POTFRI | native | 6 | -5 |
| Potamogeton gramineus | pondweed | POTGRM | native | 5 | -5 |
| Potamogeton natans | pondweed | POTNAT | native | 5 | -5 |
| Potamogeton richardsonii | richardsons pondweed | POTRIC | native | 5 | -5 |
| Potamogeton robbinsii | pondweed | POTROB | native | 10 | -5 |
| Potamogeton vaseyi | vaseys pondweed | POTVAS | native | 10 | -5 |
| Potamogeton zosteriformis | flat-stemmed pondweed | POTZOS | native | 5 | -5 |
| Potentilla anserina | silverweed | POTANS | native | 5 | -3 |
| Potentilla norvegica | rough cinquefoil | POTNOR | native | 0 | 0 |
| Primula mistassinica | birds-eye primrose | PRIMIS | native | 10 | -3 |
| Proserpinaca palustris | mermaid-weed | PROPAL | native | 6 | -5 |
| Ranunculus reptans | creeping buttercup | RANRET | native | 8 | -3 |
| Rorippa palustris | yellow cress | RORPAL | native | 1 | -5 |
| Sagittaria graminea | grass-leaved arrowhead | SAGGRA | native | 10 | -5 |
| Salix cordata | sand-dune willow | SALCOR | native | 10 | 0 |
| Schoenoplectus acutus | hardstem bulrush | SCHACU | native | 5 | -5 |
| Schoenoplectus pungens | threesquare | SCHPUN | native | 5 | -5 |
| Schoenoplectus tabernaemontani | softstem bulrush | SCHTAB | native | 4 | -5 |

**Appendix 2.4.** Harbor Island Great Lakes Marsh FQA., continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Scirpus atrovirens | bulrush | SCIATV | native | 3 | -5 |
| Scirpus cyperinus | wool-grass | SCICYP | native | 5 | -5 |
| Scutellaria galericulata | marsh skullcap | SCUGAL | native | 5 | -5 |
| Sparganium fluctuans | bur-reed | SPAFLU | native | 10 | -5 |
| Sphenopholis intermedia | slender wedgegrass | SPHINT | native | 4 | 0 |
| Thelypteris palustris | marsh fern | THEPAL | native | 2 | -3 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |
| Triadenum fraseri | marsh st. johns-wort | TRIFRA | native | 6 | -5 |
| Trifolium campestre | low hop clover | TRICAM | non-native | 0 | 5 |
| Typha latifolia | broad-leaved cat-tail | TYPLAT | native | 1 | -5 |
| Utricularia cornuta | horned bladderwort | UTRCOR | native | 10 | -5 |
| Vallisneria americana | eel-grass | VALAME | native | 7 | -5 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Verbena hastata | blue vervain | VERHAS | native | 4 | -3 |
| Viola nephrophylla | northern bog violet | VIONEP | native | 8 | -3 |

**Appendix 2.5.** Harbor Island Limestone Cobble Shore FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 3.5 |
| Native Mean C: | 4.1 |
| Total FQI: | 35.5 |
| Native FQI: | 38.5 |
| Adjusted FQI: | 37.9 |
| % C value 0: | 19.4 |
| % C value 1-3: | 34 |
| % C value 4-6: | 30.1 |
| % C value 7-10: | 16.5 |
| Native Tree Mean C: | 2.8 |
| Native Shrub Mean C: | 2 |
| Native Herbaceous Mean C: | 4.4 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 103 | |
| Native Species: | 88 | 85.40% |
| Non-native Species: | 15 | 14.60% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | -1.8 |
| Native Mean Wetness: | -2.4 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 12 | 11.70% |
| Shrub: | 2 | 1.90% |
| Vine: | 2 | 1.90% |
| Forb: | 43 | 41.70% |
| Grass: | 11 | 10.70% |
| Sedge: | 21 | 20.40% |
| Rush: | 7 | 6.80% |
| Fern: | 5 | 4.90% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 7 | 6.80% |
| Perennial: | 88 | 85.40% |
| Biennial: | 8 | 7.80% |
| Native Annual: | 6 | 5.80% |
| Native Perennial: | 79 | 76.70% |
| Native Biennial: | 3 | 2.90% |

**Appendix 2.5.** Harbor Island Limestone Cobble Shore FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acer rubrum | red maple | ACERUB | native | 1 | 0 |
| Acer saccharum | sugar maple | ACESAU | native | 5 | 3 |
| Agalinis purpurea | purple false foxglove | AGAPUR | native | 7 | -3 |
| Agrostis gigantea | redtop | AGRGIG | non-native | 0 | -3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Anemone canadensis | canada anemone | ANECAN | native | 4 | -3 |
| Arabis pycnocarpa | hairy rock cress | ARAPYC | native | 6 | 3 |
| Barbarea vulgaris | yellow rocket | BARVUL | non-native | 0 | 0 |
| Betula papyrifera | paper birch | BETPAP | native | 2 | 3 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Cardamine pensylvanica | pennsylvania bitter cress | CARPEN | native | 1 | -3 |
| Carex aquatilis | sedge | CXAQUA | native | 7 | -5 |
| Carex aurea | sedge | CXAURE | native | 3 | -3 |
| Carex bebbii | sedge | CXBEBB | native | 4 | -5 |
| Carex buxbaumii | sedge | CXBUXB | native | 10 | -5 |
| Carex crawei | sedge | CXCRAE | native | 10 | -3 |
| Carex flava | sedge | CXFLAV | native | 4 | -5 |
| Carex granularis | sedge | CXGRAN | native | 2 | -3 |
| Carex hystericina | sedge | CXHYST | native | 2 | -5 |
| Carex lasiocarpa | sedge | CXLASI | native | 8 | -5 |
| Carex pellita | sedge | CXPELL | native | 2 | -5 |
| Carex scoparia | sedge | CXSCOP | native | 4 | -3 |
| Carex stricta | sedge | CXSTRI | native | 4 | -5 |
| Carex tetanica | sedge | CXTETA | native | 9 | -3 |
| Carex viridula | sedge | CXVIRU | native | 4 | -5 |
| Carex vulpinoidea | sedge | CXVULP | native | 1 | -5 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium palustre | marsh thistle | CIRPAL | non-native | 0 | -3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Cladium mariscoides | twig-rush | CLAMAR | native | 10 | -5 |
| Conyza canadensis | horseweed | CONCAN | native | 0 | 3 |
| Cornus amomum | silky dogwood | CORAMO | native | 2 | -3 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Dichanthelium boreale | northern panic grass | DICBOR | native | 7 | 0 |
| Dichanthelium implicatum | panic grass | DICIMP | native | 3 | 0 |
| Dichanthelium lindheimeri | panic grass | DICLID | native | 8 | -5 |
| Eleocharis elliptica | golden-seeded spike rush | ELEELL | native | 6 | -5 |
| Eleocharis quinqueflora | spike-rush | ELEQUI | native | 10 | -5 |
| Elymus canadensis | canada wild rye | ELYCAN | native | 5 | 3 |
| Elymus trachycaulus | slender wheatgrass | ELYTRA | native | 8 | 3 |
| Epilobium coloratum | cinnamon willow-herb | EPICOL | native | 3 | -5 |
| Equisetum arvense | common horsetail | EQUARV | native | 0 | 0 |
| Equisetum sylvaticum | woodland horsetail | EQUSYL | native | 5 | -3 |
| Equisetum variegatum | variegated scouring rush | EQUVAR | native | 6 | -3 |
| Erigeron annuus | daisy fleabane | ERIANN | native | 0 | 3 |

**Appendix 2.5.** Harbor Island Limestone Cobble Shore FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Erigeron philadelphicus | philadelphia fleabane | ERIPHI | native | 2 | 0 |
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Halenia deflexa | spurred gentian | HALDEF | native | 7 | 0 |
| Hordeum jubatum | squirrel-tail grass | HORJUB | non-native | 0 | 0 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Impatiens capensis | spotted touch-me-not | IMPCAP | native | 2 | -3 |
| Iris versicolor | wild blue flag | IRIVER | native | 5 | -5 |
| Juncus articulatus | jointed rush | JUNART | native | 3 | -5 |
| Juncus balticus | rush | JUNBAL | native | 4 | -5 |
| Juncus brachycephalus | rush | JUNBRP | native | 7 | -5 |
| Juncus canadensis | canadian rush | JUNCAN | native | 6 | -5 |
| Juncus dudleyi | dudleys rush | JUNDUD | native | 1 | -3 |
| Juncus effusus | soft-stemmed rush | JUNEFF | native | 3 | -5 |
| Juncus tenuis | path rush | JUNTEN | native | 1 | 0 |
| Larix laricina | tamarack | LARLAR | native | 5 | -3 |
| Lathyrus palustris | marsh pea | LATPAL | native | 7 | -3 |
| Leucanthemum vulgare | ox-eye daisy | LEUVUL | non-native | 0 | 5 |
| Lobelia kalmii | bog lobelia | LOBKAL | native | 10 | -5 |
| Lycopus americanus | common water horehound | LYCAME | native | 2 | -5 |
| Medicago lupulina | black medick | MEDLUP | non-native | 0 | 3 |
| Ostrya virginiana | ironwood; hop-hornbeam | OSTVIR | native | 5 | 3 |
| Persicaria amphibia | water smartweed | PERAMP | native | 6 | -5 |
| Phalaris arundinacea | reed canary grass | PHAARU | native | 0 | -3 |
| Phragmites australis var. americanus | reed | PHRAUM | native | 5 | -3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Potentilla anserina | silverweed | POTANS | native | 5 | -3 |
| Potentilla norvegica | rough cinquefoil | POTNOR | native | 0 | 0 |
| Primula mistassinica | birds-eye primrose | PRIMIS | native | 10 | -3 |
| Rorippa palustris | yellow cress | RORPAL | native | 1 | -5 |
| Rubus strigosus | wild red raspberry | RUBSTR | native | 2 | 0 |
| Rumex crispus | curly dock | RUMCRI | non-native | 0 | 0 |
| Schizachyrium scoparium | little bluestem | SCHSCO | native | 5 | 3 |
| Schoenoplectus pungens | threesquare | SCHPUN | native | 5 | -5 |
| Schoenoplectus tabernaemontani | softstem bulrush | SCHTAB | native | 4 | -5 |
| Scirpus atrovirens | bulrush | SCIATV | native | 3 | -5 |
| Scutellaria galericulata | marsh skullcap | SCUGAL | native | 5 | -5 |
| Selaginella eclipes | selaginella | SELECL | native | 5 | -3 |
| Sisyrinchium montanum | mountain blue-eyed-grass | SISMON | native | 4 | 0 |
| Symphyotrichum puniceum | swamp aster | SYMPUN | native | 5 | -5 |
| Taraxacum officinale | common dandelion | TAROFF | non-native | 0 | 3 |
| Teucrium canadense | wood-sage | TEUCAN | native | 4 | -3 |
| Thelypteris palustris | marsh fern | THEPAL | native | 2 | -3 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |
| Trifolium repens | white clover | TRIREP | non-native | 0 | 3 |

**Appendix 2.5.** Harbor Island Limestone Cobble Shore FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Typha angustifolia | narrow-leaved cat-tail | TYPANG | non-native | 0 | -5 |
| Typha latifolia | broad-leaved cat-tail | TYPLAT | native | 1 | -5 |
| Ulmus americana | american elm | ULMAME | native | 1 | -3 |
| Urtica dioica | stinging nettle | URTDIO | native | 1 | 0 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Verbena hastata | blue vervain | VERHAS | native | 4 | -3 |
| Veronica anagallis-aquatica | water speedwell | VERANA | native | 4 | -5 |
| Viola labradorica | dog violet | VIOLAB | native | 3 | 0 |
| Viola nephrophylla | northern bog violet | VIONEP | native | 8 | -3 |
| Viola sororia | common blue violet | VIOSOR | native | 1 | 0 |
| Vitis riparia | river-bank grape | VITRIP | native | 3 | 0 |

**Appendix 2.6.** Harbor Island Mesic Northern Forest FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 3.6 |
| Native Mean C: | 4.2 |
| Total FQI: | 22.8 |
| Native FQI: | 24.5 |
| Adjusted FQI: | 38.7 |
| % C value 0: | 17.5 |
| % C value 1-3: | 25 |
| % C value 4-6: | 50 |
| % C value 7-10: | 7.5 |
| Native Tree Mean C: | 3.4 |
| Native Shrub Mean C: | 4.3 |
| Native Herbaceous Mean C: | 4.7 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 40 | |
| Native Species: | 34 | 85% |
| Non-native Species: | 6 | 15% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | 2.1 |
| Native Mean Wetness: | 1.9 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 12 | 30% |
| Shrub: | 3 | 7.50% |
| Vine: | 0 | 0% |
| Forb: | 13 | 32.50% |
| Grass: | 6 | 15% |
| Sedge: | 4 | 10% |
| Rush: | 0 | 0% |
| Fern: | 2 | 5% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 1 | 2.50% |
| Perennial: | 37 | 92.50% |
| Biennial: | 2 | 5% |
| Native Annual: | 1 | 2.50% |
| Native Perennial: | 32 | 80% |
| Native Biennial: | 1 | 2.50% |

**Appendix 2.6.** Harbor Island Mesic Northern Forest FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acer rubrum | red maple | ACERUB | native | 1 | 0 |
| Acer saccharum | sugar maple | ACESAU | native | 5 | 3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Asclepias syriaca | common milkweed | ASCSYR | native | 1 | 5 |
| Betula papyrifera | paper birch | BETPAP | native | 2 | 3 |
| Botrypus virginianus | rattlesnake fern | BOTVIR | native | 5 | 3 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Carex arctata | sedge | CXARTT | native | 3 | 5 |
| Carex aurea | sedge | CXAURE | native | 3 | -3 |
| Carex deweyana | sedge | CXDEWE | native | 3 | 3 |
| Carex gracillima | sedge | CXGRAA | native | 4 | 3 |
| Carex intumescens | sedge | CXINTU | native | 3 | -3 |
| Carex leptonervia | sedge | CXLEPO | native | 3 | 0 |
| Carex ormostachya | sedge | CXORMO | native | 5 | 5 |
| Carex pedunculata | sedge | CXPEDU | native | 5 | 3 |
| Carex pensylvanica | sedge | CXPENS | native | 4 | 5 |
| Carex retrorsa | sedge | CXRETS | native | 3 | -5 |
| Carex rosea | curly-styled wood sedge | CXROSE | native | 2 | 5 |
| Carex stipata | sedge | CXSTIP | native | 1 | -5 |
| Carex tuckermanii | sedge | CXTUCK | native | 8 | -5 |
| Cerastium fontanum | mouse-ear chickweed | CERFON | non-native | 0 | 3 |
| Cinna latifolia | wood reedgrass | CINLAT | native | 5 | -3 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium palustre | marsh thistle | CIRPAL | non-native | 0 | -3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Clinopodium vulgare | wild-basil | CLIVUL | native | 3 | 5 |
| Conopholis americana | squaw-root | CONAME | native | 10 | 5 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Danthonia spicata | poverty grass; oatgrass | DANSPI | native | 4 | 5 |
| Dendrolycopodium dendroideum | tree clubmoss | DENDEN | native | 5 | 3 |
| Dendrolycopodium obscurum | ground-pine | DENOBS | native | 5 | 3 |
| Dryopteris carthusiana | spinulose woodfern | DRYCAR | native | 5 | -3 |
| Dryopteris intermedia | evergreen woodfern | DRYINT | native | 5 | 0 |
| Elymus hystrix; hystrix patula | bottlebrush grass | ELYHYS | native | 5 | 3 |
| Epipactis helleborine | helleborine | EPIHEL | non-native | 0 | 0 |
| Eurybia macrophylla; aster m. | big-leaved aster | EURMAC | native | 4 | 5 |
| Fraxinus americana | white ash | FRAAME | native | 5 | 3 |
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Galeopsis tetrahit | hemp-nettle | GALTET | non-native | 0 | 3 |
| Galium palustre | marsh bedstraw | GALPAL | native | 3 | -5 |
| Galium triflorum | fragrant bedstraw | GALTRR | native | 4 | 3 |
| Glyceria striata | fowl manna grass | GLYSTR | native | 4 | -5 |
| Gymnocarpium dryopteris | oak fern | GYMDRY | native | 5 | 3 |
| Hackelia deflexa | stickseed | HACDEF | native | 2 | 5 |
| Hackelia virginiana | beggars lice | HACVIR | native | 1 | 3 |

**Appendix 2.6.** Harbor Island Mesic Northern Forest FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Halenia deflexa | spurred gentian | HALDEF | native | 7 | 0 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Juniperus communis | common or ground juniper | JUNCOI | native | 4 | 3 |
| Lathyrus ochroleucus | pale vetchling | LATOCH | native | 8 | 5 |
| Lithospermum officinale | gromwell | LITOFF | non-native | 0 | 5 |
| Maianthemum canadense | canada mayflower | MAICAN | native | 4 | 3 |
| Maianthemum racemosum | false spikenard | MAIRAC | native | 5 | 3 |
| Mitella nuda | naked miterwort | MITNUD | native | 8 | -3 |
| Muhlenbergia mexicana | leafy satin grass | MUHMEX | native | 3 | -3 |
| Mycelis muralis | wall lettuce | MYCMUR | non-native | 0 | 5 |
| Onoclea sensibilis | sensitive fern | ONOSEN | native | 2 | -3 |
| Oryzopsis asperifolia | rough-leaved rice-grass | ORYASP | native | 6 | 5 |
| Ostrya virginiana | ironwood; hop-hornbeam | OSTVIR | native | 5 | 3 |
| Packera glabella | yellowtop | PACGLA | non-native | 0 | -3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Pinus resinosa | red pine | PINRES | native | 6 | 3 |
| Pinus strobus | white pine | PINSTR | native | 3 | 3 |
| Poa alsodes | bluegrass | POAALS | native | 9 | 0 |
| Poa compressa | canada bluegrass | POACOM | non-native | 0 | 3 |
| Poa nemoralis | bluegrass | POANEM | non-native | 0 | 3 |
| Poa palustris | fowl meadow grass | POAPAS | native | 3 | -3 |
| Poa pratensis | kentucky bluegrass | POAPRA | non-native | 0 | 3 |
| Poa saltuensis | bluegrass | POASAL | native | 5 | 5 |
| Polygonatum pubescens | downy solomon seal | POLPUB | native | 5 | 5 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Prunus pensylvanica | pin cherry | PRUPEN | native | 3 | 3 |
| Pteridium aquilinum | bracken fern | PTEAQU | native | 0 | 3 |
| Quercus rubra | red oak | QUERUB | native | 5 | 3 |
| Ranunculus abortivus | small-flowered buttercup | RANABO | native | 0 | 0 |
| Ranunculus acris | tall or common buttercup | RANACR | non-native | 0 | 0 |
| Rosa acicularis | wild rose | ROSACI | native | 4 | 3 |
| Rosa rubiginosa | sweetbrier | ROSRUB | non-native | 0 | 3 |
| Rubus strigosus | wild red raspberry | RUBSTR | native | 2 | 0 |
| Sambucus racemosa | red-berried elder | SAMRAC | native | 3 | 3 |
| Schizachne purpurascens | false melic | SCHPUP | native | 5 | 3 |
| Scirpus atrovirens | bulrush | SCIATV | native | 3 | -5 |
| Scutellaria galericulata | marsh skullcap | SCUGAL | native | 5 | -5 |
| Scutellaria lateriflora | mad-dog skullcap | SCULAT | native | 5 | -5 |
| Sorbus decora | mountain-ash | SORDEC | native | 4 | 3 |
| Spinulum annotinum | stiff clubmoss | SPIANN | native | 5 | 0 |
| Symphyotrichum ciliolatum | northern heart-leaved aster | SYMCIO | native | 4 | 5 |
| Symphyotrichum lateriflorum | calico aster | SYMLAT | native | 2 | 0 |
| Taraxacum officinale | common dandelion | TAROFF | non-native | 0 | 3 |
| Thelypteris noveboracensis | new york fern | THENOV | native | 5 | 0 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |

**Appendix 2.6.** Harbor Island Mesic Northern Forest FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Trientalis borealis | star-flower | TRIBOR | native | 5 | 0 |
| Trifolium repens | white clover | TRIREP | non-native | 0 | 3 |
| Trillium grandiflorum | common trillium | TRIGRA | native | 5 | 3 |
| Urtica dioica | stinging nettle | URTDIO | native | 1 | 0 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Veronica officinalis | common speedwell | VEROOF | non-native | 0 | 3 |
| Veronica serpyllifolia | thyme-leaved speedwell | VERSER | non-native | 0 | 0 |
| Viola blanda | sweet white violet | VIOBLA | native | 5 | -3 |
| Viola labradorica | dog violet | VIOLAB | native | 3 | 0 |
| Vitis riparia | river-bank grape | VITRIP | native | 3 | 0 |

**Appendix 2.7.** Harbor Island Rich Conifer Swamp FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 4.4 |
| Native Mean C: | 4.8 |
| Total FQI: | 50.9 |
| Native FQI: | 53.2 |
| Adjusted FQI: | 46 |
| % C value 0: | 9.7 |
| % C value 1-3: | 24.6 |
| % C value 4-6: | 47.8 |
| % C value 7-10: | 17.9 |
| Native Tree Mean C: | 3.8 |
| Native Shrub Mean C: | 4.8 |
| Native Herbaceous Mean C: | 5 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 134 | |
| Native Species: | 123 | 91.80% |
| Non-native Species: | 11 | 8.20% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | -1.9 |
| Native Mean Wetness: | -2.1 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 17 | 12.70% |
| Shrub: | 12 | 9% |
| Vine: | 0 | 0% |
| Forb: | 52 | 38.80% |
| Grass: | 8 | 6% |
| Sedge: | 29 | 21.60% |
| Rush: | 0 | 0% |
| Fern: | 16 | 11.90% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 1 | 0.70% |
| Perennial: | 130 | 97% |
| Biennial: | 3 | 2.20% |
| Native Annual: | 1 | 0.70% |
| Native Perennial: | 121 | 90.30% |
| Native Biennial: | 1 | 0.70% |

**Appendix 2.7.** Harbor Island Rich Conifer Swamp FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acer pensylvanicum | striped maple | ACEPEN | native | 5 | 3 |
| Acer rubrum | red maple | ACERUB | native | 1 | 0 |
| Acer saccharum | sugar maple | ACESAU | native | 5 | 3 |
| Acer spicatum | mountain maple | ACESPI | native | 5 | 3 |
| Agrostis gigantea | redtop | AGRGIG | non-native | 0 | -3 |
| Agrostis scabra | ticklegrass | AGRSCA | native | 4 | 0 |
| Aralia nudicaulis | wild sarsaparilla | ARANUD | native | 5 | 3 |
| Betula alleghaniensis | yellow birch | BETALL | native | 7 | 0 |
| Betula papyrifera | paper birch | BETPAP | native | 2 | 3 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Caltha palustris | marsh-marigold | CALPAR | native | 6 | -5 |
| Campanula aparinoides | marsh bellflower | CAMAPA | native | 7 | -5 |
| Cardamine pensylvanica | pennsylvania bitter cress | CARPEN | native | 1 | -3 |
| Carex aquatilis | sedge | CXAQUA | native | 7 | -5 |
| Carex arctata | sedge | CXARTT | native | 3 | 5 |
| Carex aurea | sedge | CXAURE | native | 3 | -3 |
| Carex bebbii | sedge | CXBEBB | native | 4 | -5 |
| Carex canescens | sedge | CXCANE | native | 8 | -5 |
| Carex deweyana | sedge | CXDEWE | native | 3 | 3 |
| Carex diandra | sedge | CXDIAN | native | 8 | -5 |
| Carex disperma | sedge | CXDISP | native | 10 | -5 |
| Carex eburnea | sedge | CXEBUR | native | 7 | 3 |
| Carex gracillima | sedge | CXGRAA | native | 4 | 3 |
| Carex granularis | sedge | CXGRAN | native | 2 | -3 |
| Carex interior | sedge | CXINTE | native | 3 | -5 |
| Carex intumescens | sedge | CXINTU | native | 3 | -3 |
| Carex lacustris | sedge | CXLACU | native | 6 | -5 |
| Carex laxiflora | sedge | CXLAXF | native | 8 | 0 |
| Carex leptalea | sedge | CXLEPA | native | 5 | -5 |
| Carex pedunculata | sedge | CXPEDU | native | 5 | 3 |
| Carex prairea | sedge | CXPRAI | native | 10 | -3 |
| Carex pseudo-cyperus | sedge | CXPSEU | native | 5 | -5 |
| Carex retrorsa | sedge | CXRETS | native | 3 | -5 |
| Carex sterilis | sedge | CXSTER | native | 10 | -5 |
| Carex stipata | sedge | CXSTIP | native | 1 | -5 |
| Carex stricta | sedge | CXSTRI | native | 4 | -5 |
| Carex trisperma | sedge | CXTRIS | native | 9 | -5 |
| Carex tuckermanii | sedge | CXTUCK | native | 8 | -5 |
| Carex vesicaria | sedge | CXVESI | native | 7 | -5 |
| Cicuta bulbifera | water hemlock | CICBUL | native | 5 | -5 |
| Cinna latifolia | wood reedgrass | CINLAT | native | 5 | -3 |
| Circaea alpina | small enchanters-nightshade | CIRALP | native | 4 | -3 |
| Cirsium palustre | marsh thistle | CIRPAL | non-native | 0 | -3 |
| Clinopodium vulgare | wild-basil | CLIVUL | native | 3 | 5 |
| Coptis trifolia | goldthread | COPTRI | native | 5 | -3 |

**Appendix 2.7.** Harbor Island Rich Conifer Swamp FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Cornus canadensis | bunchberry | CORCAA | native | 6 | 0 |
| Cornus sericea | red-osier | CORSER | native | 2 | -3 |
| Cystopteris bulbifera | bulblet fern | CYSBUL | native | 5 | -3 |
| Diervilla lonicera | bush-honeysuckle | DIELON | native | 4 | 5 |
| Dryopteris carthusiana | spinulose woodfern | DRYCAR | native | 5 | -3 |
| Dryopteris cristata | crested shield fern | DRYCRI | native | 6 | -5 |
| Dryopteris intermedia | evergreen woodfern | DRYINT | native | 5 | 0 |
| Eleocharis palustris | spike-rush | ELEPAL | native | 5 | -5 |
| Epilobium hirsutum | great hairy willow-herb | EPIHIR | non-native | 0 | -3 |
| Epilobium leptophyllum | fen willow-herb | EPILEP | native | 6 | -5 |
| Epipactis helleborine | helleborine | EPIHEL | non-native | 0 | 0 |
| Equisetum arvense | common horsetail | EQUARV | native | 0 | 0 |
| Equisetum fluviatile | water horsetail | EQUFLU | native | 7 | -5 |
| Equisetum scirpoides | dwarf scouring rush | EQUSCI | native | 7 | 0 |
| Equisetum sylvaticum | woodland horsetail | EQUSYL | native | 5 | -3 |
| Fraxinus nigra | black ash | FRANIG | native | 6 | -3 |
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Galium palustre | marsh bedstraw | GALPAL | native | 3 | -5 |
| Galium tinctorium | stiff bedstraw | GALTIN | native | 5 | -5 |
| Galium trifidum | small bedstraw | GALTRD | native | 6 | -3 |
| Gaultheria hispidula | creeping-snowberry | GAUHIS | native | 8 | -3 |
| Glyceria striata | fowl manna grass | GLYSTR | native | 4 | -5 |
| Gymnocarpium dryopteris | oak fern | GYMDRY | native | 5 | 3 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Impatiens capensis | spotted touch-me-not | IMPCAP | native | 2 | -3 |
| Iris versicolor | wild blue flag | IRIVER | native | 5 | -5 |
| Larix laricina | tamarack | LARLAR | native | 5 | -3 |
| Lemna turionifera | red duckweed | LEMTUR | native | 5 | -5 |
| Linnaea borealis | twinflower | LINBOR | native | 6 | 0 |
| Lonicera canadensis | canadian fly honeysuckle | LONCAN | native | 5 | 3 |
| Lycopus uniflorus | northern bugle weed | LYCUNI | native | 2 | -5 |
| Lysimachia terrestris | swamp-candles | LYSTER | native | 6 | -5 |
| Lysimachia thyrsiflora | tufted loosestrife | LYSTHY | native | 6 | -5 |
| Maianthemum canadense | canada mayflower | MAICAN | native | 4 | 3 |
| Matteuccia struthiopteris | ostrich fern | MATSTR | native | 3 | 0 |
| Mitella nuda | naked miterwort | MITNUD | native | 8 | -3 |
| Moneses uniflora | one-flowered pyrola | MONEUN | native | 8 | 0 |
| Mycelis muralis | wall lettuce | MYCMUR | non-native | 0 | 5 |
| Nuphar advena | yellow pond-lily | NUPADV | native | 8 | -5 |
| Onoclea sensibilis | sensitive fern | ONOSEN | native | 2 | -3 |
| Orthilia secunda | one-sided pyrola | ORTSEC | native | 7 | 0 |
| Osmunda cinnamomea | cinnamon fern | OSMCIN | native | 5 | -3 |
| Osmunda regalis | royal fern | OSMREG | native | 5 | -5 |
| Persicaria amphibia | water smartweed | PERAMP | native | 6 | -5 |
| Phegopteris hexagonoptera | broad beech-fern | PHEHEX | native | 8 | 3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |

**Appendix 2.7.** Harbor Island Rich Conifer Swamp FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Picea mariana | black spruce | PICMAR | native | 6 | -3 |
| Poa palustris | fowl meadow grass | POAPAS | native | 3 | -3 |
| Poa pratensis | kentucky bluegrass | POAPRA | non-native | 0 | 3 |
| Polygala paucifolia | gay-wings | POLPAU | native | 7 | 3 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Potamogeton natans | pondweed | POTNAT | native | 5 | -5 |
| Ranunculus abortivus | small-flowered buttercup | RANABO | native | 0 | 0 |
| Ranunculus acris | tall or common buttercup | RANACR | non-native | 0 | 0 |
| Ranunculus recurvatus | hooked crowfoot | RANREC | native | 5 | -3 |
| Ribes hirtellum | swamp gooseberry | RIBHIR | native | 6 | -3 |
| Ribes lacustre | swamp black currant | RIBLAC | native | 6 | -3 |
| Rubus pubescens | dwarf raspberry | RUBPUB | native | 4 | -3 |
| Rubus strigosus | wild red raspberry | RUBSTR | native | 2 | 0 |
| Salix bebbiana | bebbs willow | SALBEB | native | 1 | -3 |
| Scirpus atrovirens | bulrush | SCIATV | native | 3 | -5 |
| Scirpus cyperinus | wool-grass | SCICYP | native | 5 | -5 |
| Scutellaria galericulata | marsh skullcap | SCUGAL | native | 5 | -5 |
| Scutellaria lateriflora | mad-dog skullcap | SCULAT | native | 5 | -5 |
| Sium suave | water-parsnip | SIUSUA | native | 5 | -5 |
| Sorbus americana | american mountain-ash | SORAME | native | 4 | 0 |
| Sorbus decora | mountain-ash | SORDEC | native | 4 | 3 |
| Sparganium fluctuans | bur-reed | SPAFLU | native | 10 | -5 |
| Sphenopholis intermedia | slender wedgegrass | SPHINT | native | 4 | 0 |
| Symphyotrichum lateriflorum | calico aster | SYMLAT | native | 2 | 0 |
| Symphyotrichum puniceum | swamp aster | SYMPUN | native | 5 | -5 |
| Taraxacum officinale | common dandelion | TAROFF | non-native | 0 | 3 |
| Taxus canadensis | yew | TAXCAN | native | 5 | 3 |
| Thelypteris noveboracensis | new york fern | THENOV | native | 5 | 0 |
| Thelypteris palustris | marsh fern | THEPAL | native | 2 | -3 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |
| Trientalis borealis | star-flower | TRIBOR | native | 5 | 0 |
| Trillium grandiflorum | common trillium | TRIGRA | native | 5 | 3 |
| Typha latifolia | broad-leaved cat-tail | TYPLAT | native | 1 | -5 |
| Urtica dioica | stinging nettle | URTDIO | native | 1 | 0 |
| Vaccinium macrocarpon | large cranberry | VACMAC | native | 8 | -5 |
| Veronica officinalis | common speedwell | VEROOF | non-native | 0 | 3 |
| Veronica serpyllifolia | thyme-leaved speedwell | VERSER | non-native | 0 | 0 |
| Viola blanda | sweet white violet | VIOBLA | native | 5 | -3 |
| Viola cucullata | marsh violet | VIOCUC | native | 5 | -5 |
| Viola labradorica | dog violet | VIOLAB | native | 3 | 0 |
| Viola renifolia | kidney-leaved violet | VIOREN | native | 6 | -3 |

**Appendix 2.8.** Harbor Island Interdunal Wetland FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 3 |
| Native Mean C: | 4.1 |
| Total FQI: | 19.7 |
| Native FQI: | 22.8 |
| Adjusted FQI: | 34.8 |
| % C value 0: | 27.9 |
| % C value 1-3: | 30.2 |
| % C value 4-6: | 32.6 |
| % C value 7-10: | 9.3 |
| Native Tree Mean C: | 3.5 |
| Native Shrub Mean C: | 6 |
| Native Herbaceous Mean C: | 4.1 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 43 | |
| Native Species: | 31 | 72.10% |
| Non-native Species: | 12 | 27.90% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | -0.4 |
| Native Mean Wetness: | -1.4 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 4 | 9.30% |
| Shrub: | 3 | 7% |
| Vine: | 1 | 2.30% |
| Forb: | 18 | 41.90% |
| Grass: | 8 | 18.60% |
| Sedge: | 4 | 9.30% |
| Rush: | 5 | 11.60% |
| Fern: | 0 | 0% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 0 | 0% |
| Perennial: | 38 | 88.40% |
| Biennial: | 5 | 11.60% |
| Native Annual: | 0 | 0% |
| Native Perennial: | 30 | 69.80% |
| Native Biennial: | 1 | 2.30% |

**Appendix 2.8.** Harbor Island Interdunal Wetland FQA., continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Agrostis gigantea | redtop | AGRGIG | non-native | 0 | -3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Antennaria howellii | small pussytoes | ANTHOW | native | 2 | 5 |
| Anthoxanthum odoratum | sweet vernal grass | ANTODO | non-native | 0 | 3 |
| Asclepias syriaca | common milkweed | ASCSYR | native | 1 | 5 |
| Barbarea vulgaris | yellow rocket | BARVUL | non-native | 0 | 0 |
| Boechera stricta | drummond rock cress | BOESTR | native | 6 | 3 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Carex hystericina | sedge | CXHYST | native | 2 | -5 |
| Carex stricta | sedge | CXSTRI | native | 4 | -5 |
| Carex viridula | sedge | CXVIRU | native | 4 | -5 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Dasiphora fruticosa | shrubby cinquefoil | DASFRU | native | 8 | -3 |
| Dichanthelium implicatum | panic grass | DICIMP | native | 3 | 0 |
| Dichanthelium lindheimeri | panic grass | DICLID | native | 8 | -5 |
| Eleocharis elliptica | golden-seeded spike rush | ELEELL | native | 6 | -5 |
| Elymus canadensis | canada wild rye | ELYCAN | native | 5 | 3 |
| Hieracium caespitosum | king devil | HIECAE | non-native | 0 | 5 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Iris versicolor | wild blue flag | IRIVER | native | 5 | -5 |
| Juncus balticus | rush | JUNBAL | native | 4 | -5 |
| Juncus brachycephalus | rush | JUNBRP | native | 7 | -5 |
| Juncus canadensis | canadian rush | JUNCAN | native | 6 | -5 |
| Juncus dudleyi | dudleys rush | JUNDUD | native | 1 | -3 |
| Juncus tenuis | path rush | JUNTEN | native | 1 | 0 |
| Juniperus communis | common or ground juniper | JUNCOI | native | 4 | 3 |
| Lathyrus palustris | marsh pea | LATPAL | native | 7 | -3 |
| Lycopus americanus | common water horehound | LYCAME | native | 2 | -5 |
| Phragmites australis var. americanus | reed | PHRAUM | native | 5 | -3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Pinus resinosa | red pine | PINRES | native | 6 | 3 |
| Pinus strobus | white pine | PINSTR | native | 3 | 3 |
| Poa pratensis | kentucky bluegrass | POAPRA | non-native | 0 | 3 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Potentilla anserina | silverweed | POTANS | native | 5 | -3 |
| Rosa rubiginosa | sweetbrier | ROSRUB | non-native | 0 | 3 |
| Scutellaria galericulata | marsh skullcap | SCUGAL | native | 5 | -5 |
| Solidago hispida | hairy goldenrod | SOLHIS | native | 3 | 5 |
| Taraxacum officinale | common dandelion | TAROFF | non-native | 0 | 3 |
| Typha Ã—glauca | hybrid cat-tail | TYPGLA | non-native | 0 | -5 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Verbena hastata | blue vervain | VERHAS | native | 4 | -3 |

**Appendix 2.9.** Harbor Island Sand and Gravel Beach FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 2.9 |
| Native Mean C: | 3.6 |
| Total FQI: | 17.6 |
| Native FQI: | 19.7 |
| Adjusted FQI: | 32.4 |
| % C value 0: | 27 |
| % C value 1-3: | 35.1 |
| % C value 4-6: | 32.4 |
| % C value 7-10: | 5.4 |
| Native Tree Mean C: | 3.5 |
| Native Shrub Mean C: | 5.3 |
| Native Herbaceous Mean C: | 3.3 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 37 | |
| Native Species: | 30 | 81.10% |
| Non-native Species: | 7 | 18.90% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | 0.5 |
| Native Mean Wetness: | -0.3 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 8 | 21.60% |
| Shrub: | 3 | 8.10% |
| Vine: | 0 | 0% |
| Forb: | 13 | 35.10% |
| Grass: | 6 | 16.20% |
| Sedge: | 4 | 10.80% |
| Rush: | 2 | 5.40% |
| Fern: | 1 | 2.70% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 1 | 2.70% |
| Perennial: | 31 | 83.80% |
| Biennial: | 5 | 13.50% |
| Native Annual: | 1 | 2.70% |
| Native Perennial: | 29 | 78.40% |
| Native Biennial: | 0 | 0% |

**Appendix 2.9.** Harbor Island Sand and Gravel Beach FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acer saccharum | sugar maple | ACESAU | native | 5 | 3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Asclepias syriaca | common milkweed | ASCSYR | native | 1 | 5 |
| Barbarea vulgaris | yellow rocket | BARVUL | non-native | 0 | 0 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Carex hystericina | sedge | CXHYST | native | 2 | -5 |
| Carex stricta | sedge | CXSTRI | native | 4 | -5 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Danthonia spicata | poverty grass; oatgrass | DANSPI | native | 4 | 5 |
| Dichanthelium implicatum | panic grass | DICIMP | native | 3 | 0 |
| Eleocharis elliptica | golden-seeded spike rush | ELEELL | native | 6 | -5 |
| Elymus canadensis | canada wild rye | ELYCAN | native | 5 | 3 |
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Impatiens capensis | spotted touch-me-not | IMPCAP | native | 2 | -3 |
| Juncus balticus | rush | JUNBAL | native | 4 | -5 |
| Juncus tenuis | path rush | JUNTEN | native | 1 | 0 |
| Juniperus communis | common or ground juniper | JUNCOI | native | 4 | 3 |
| Pastinaca sativa | wild parsnip | PASSAT | non-native | 0 | 5 |
| Phalaris arundinacea | reed canary grass | PHAARU | native | 0 | -3 |
| Phragmites australis var. americanus | reed | PHRAUM | native | 5 | -3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Pinus resinosa | red pine | PINRES | native | 6 | 3 |
| Pinus strobus | white pine | PINSTR | native | 3 | 3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Potentilla anserina | silverweed | POTANS | native | 5 | -3 |
| Primula mistassinica | birds-eye primrose | PRIMIS | native | 10 | -3 |
| Prunella vulgaris | self-heal | PRUVUL | native | 0 | 0 |
| Pteridium aquilinum | bracken fern | PTEAQU | native | 0 | 3 |
| Quercus rubra | red oak | QUERUB | native | 5 | 3 |
| Rubus strigosus | wild red raspberry | RUBSTR | native | 2 | 0 |
| Salix cordata | sand-dune willow | SALCOR | native | 10 | 0 |
| Schoenoplectus acutus | hardstem bulrush | SCHACU | native | 5 | -5 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |

**Appendix 2.10.** Harbor Island Anthropogenic Glade FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 1.9 |
| Native Mean C: | 3 |
| Total FQI: | 11.2 |
| Native FQI: | 14.1 |
| Adjusted FQI: | 23.8 |
| % C value 0: | 40 |
| % C value 1-3: | 40 |
| % C value 4-6: | 20 |
| % C value 7-10: | 0 |
| Native Tree Mean C: | 2.8 |
| Native Shrub Mean C: | 4 |
| Native Herbaceous Mean C: | 3.1 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 35 | |
| Native Species: | 22 | 62.90% |
| Non-native Species: | 13 | 37.10% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | 3.2 |
| Native Mean Wetness: | 2.9 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 5 | 14.30% |
| Shrub: | 2 | 5.70% |
| Vine: | 0 | 0% |
| Forb: | 19 | 54.30% |
| Grass: | 5 | 14.30% |
| Sedge: | 3 | 8.60% |
| Rush: | 0 | 0% |
| Fern: | 1 | 2.90% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 0 | 0% |
| Perennial: | 31 | 88.60% |
| Biennial: | 4 | 11.40% |
| Native Annual: | 0 | 0% |
| Native Perennial: | 21 | 60% |
| Native Biennial: | 1 | 2.90% |

**Appendix 2.10.** Harbor Island Anthropogenic Glade FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acer saccharum | sugar maple | ACESAU | native | 5 | 3 |
| Achillea millefolium | yarrow | ACHMIL | native | 1 | 3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Anemone cylindrica | thimbleweed | ANECYL | native | 6 | 5 |
| Antennaria howellii | small pussytoes | ANTHOW | native | 2 | 5 |
| Asclepias syriaca | common milkweed | ASCSYR | native | 1 | 5 |
| Carex arctata | sedge | CXARTT | native | 3 | 5 |
| Carex deweyana | sedge | CXDEWE | native | 3 | 3 |
| Carex pedunculata | sedge | CXPEDU | native | 5 | 3 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Clinopodium vulgare | wild-basil | CLIVUL | native | 3 | 5 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Danthonia spicata | poverty grass; oatgrass | DANSPI | native | 4 | 5 |
| Equisetum arvense | common horsetail | EQUARV | native | 0 | 0 |
| Fragaria virginiana | wild strawberry | FRAVIR | native | 2 | 3 |
| Hieracium caespitosum | king devil | HIECAE | non-native | 0 | 5 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Juniperus communis | common or ground juniper | JUNCOI | native | 4 | 3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Poa compressa | canada bluegrass | POACOM | non-native | 0 | 3 |
| Poa pratensis | kentucky bluegrass | POAPRA | non-native | 0 | 3 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Rosa rubiginosa | sweetbrier | ROSRUB | non-native | 0 | 3 |
| Rumex acetosella | sheep sorrel | RUMACL | non-native | 0 | 3 |
| Schizachne purpurascens | false melic | SCHPUP | native | 5 | 3 |
| Schizachyrium scoparium | little bluestem | SCHSCO | native | 5 | 3 |
| Taraxacum officinale | common dandelion | TAROFF | non-native | 0 | 3 |
| Trifolium repens | white clover | TRIREP | non-native | 0 | 3 |
| Turritis glabra; arabis g. | tower mustard | TURGLA | native | 3 | 5 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Veronica officinalis | common speedwell | VEROOF | non-native | 0 | 3 |
| Viola labradorica | dog violet | VIOLAB | native | 3 | 0 |

**Appendix 2.11.** Standerson Island FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 3.8 |
| Native Mean C: | 4.5 |
| Total FQI: | 39.3 |
| Native FQI: | 42.9 |
| Adjusted FQI: | 41.5 |
| % C value 0: | 17.8 |
| % C value 1-3: | 30.8 |
| % C value 4-6: | 35.5 |
| % C value 7-10: | 15.9 |
| Native Tree Mean C: | 3.1 |
| Native Shrub Mean C: | 5.4 |
| Native Herbaceous Mean C: | 4.6 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 107 | |
| Native Species: | 91 | 85% |
| Non-native Species: | 16 | 15% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | -1.8 |
| Native Mean Wetness: | -2.5 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 9 | 8.40% |
| Shrub: | 6 | 5.60% |
| Vine: | 3 | 2.80% |
| Forb: | 52 | 48.60% |
| Grass: | 8 | 7.50% |
| Sedge: | 20 | 18.70% |
| Rush: | 5 | 4.70% |
| Fern: | 4 | 3.70% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 4 | 3.70% |
| Perennial: | 97 | 90.70% |
| Biennial: | 6 | 5.60% |
| Native Annual: | 4 | 3.70% |
| Native Perennial: | 86 | 80.40% |
| Native Biennial: | 1 | 0.90% |

**Appendix 2.11.** Standerson Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Acorus americanus | sweet-flag | ACOAME | native | 6 | -5 |
| Agrostis scabra | ticklegrass | AGRSCA | native | 4 | 0 |
| Alnus incana | speckled alder | ALNINC | native | 5 | -3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Anemone canadensis | canada anemone | ANECAN | native | 4 | -3 |
| Apocynum cannabinum | indian-hemp | APOCAN | native | 3 | 0 |
| Asclepias incarnata | swamp milkweed | ASCINC | native | 6 | -5 |
| Asclepias syriaca | common milkweed | ASCSYR | native | 1 | 5 |
| Barbarea vulgaris | yellow rocket | BARVUL | non-native | 0 | 0 |
| Betula papyrifera | paper birch | BETPAP | native | 2 | 3 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Carex bebbii | sedge | CXBEBB | native | 4 | -5 |
| Carex deweyana | sedge | CXDEWE | native | 3 | 3 |
| Carex eburnea | sedge | CXEBUR | native | 7 | 3 |
| Carex garberi | sedge | CXGARB | native | 8 | -3 |
| Carex granularis | sedge | CXGRAN | native | 2 | -3 |
| Carex hystericina | sedge | CXHYST | native | 2 | -5 |
| Carex intumescens | sedge | CXINTU | native | 3 | -3 |
| Carex lacustris | sedge | CXLACU | native | 6 | -5 |
| Carex pedunculata | sedge | CXPEDU | native | 5 | 3 |
| Carex pseudo-cyperus | sedge | CXPSEU | native | 5 | -5 |
| Carex retrorsa | sedge | CXRETS | native | 3 | -5 |
| Carex sterilis | sedge | CXSTER | native | 10 | -5 |
| Carex stricta | sedge | CXSTRI | native | 4 | -5 |
| Carex trisperma | sedge | CXTRIS | native | 9 | -5 |
| Carex viridula | sedge | CXVIRU | native | 4 | -5 |
| Carex vulpinoidea | sedge | CXVULP | native | 1 | -5 |
| Celastrus orbiculatus | oriental bittersweet | CELORB | non-native | 0 | 5 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium palustre | marsh thistle | CIRPAL | non-native | 0 | -3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Clinopodium arkansanum | limestone calamint | CLIARK | native | 10 | -3 |
| Clinopodium vulgare | wild-basil | CLIVUL | native | 3 | 5 |
| Comarum palustre | marsh cinquefoil | COMPAL | native | 7 | -5 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Dichanthelium implicatum | panic grass | DICIMP | native | 3 | 0 |
| Dryopteris intermedia | evergreen woodfern | DRYINT | native | 5 | 0 |
| Eleocharis elliptica | golden-seeded spike rush | ELEELL | native | 6 | -5 |
| Eleocharis quinqueflora | spike-rush | ELEQUI | native | 10 | -5 |
| Epipactis helleborine | helleborine | EPIHEL | non-native | 0 | 0 |
| Equisetum scirpoides | dwarf scouring rush | EQUSCI | native | 7 | 0 |
| Erigeron philadelphicus | philadelphia fleabane | ERIPHI | native | 2 | 0 |
| Eupatorium perfoliatum | boneset | EUPPER | native | 4 | -3 |
| Euthamia graminifolia | grass-leaved goldenrod | EUTGRA | native | 3 | 0 |
| Fraxinus nigra | black ash | FRANIG | native | 6 | -3 |

**Appendix 2.11.** Standerson Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Galium palustre | marsh bedstraw | GALPAL | native | 3 | -5 |
| Gentianopsis virgata | small fringed gentian | GENVIR | native | 8 | -5 |
| Glechoma hederacea | ground-ivy | GLEHED | non-native | 0 | 3 |
| Glyceria striata | fowl manna grass | GLYSTR | native | 4 | -5 |
| Gymnocarpium dryopteris | oak fern | GYMDRY | native | 5 | 3 |
| Hackelia deflexa | stickseed | HACDEF | native | 2 | 5 |
| Hypericum kalmianum | kalms st. johns-wort | HYPKAL | native | 10 | -3 |
| Hypericum majus | larger canada st. johns-wort | HYPMAJ | native | 4 | -3 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Impatiens capensis | spotted touch-me-not | IMPCAP | native | 2 | -3 |
| Iris versicolor | wild blue flag | IRIVER | native | 5 | -5 |
| Juncus balticus | rush | JUNBAL | native | 4 | -5 |
| Juncus brachycephalus | rush | JUNBRP | native | 7 | -5 |
| Juncus canadensis | canadian rush | JUNCAN | native | 6 | -5 |
| Juncus dudleyi | dudleys rush | JUNDUD | native | 1 | -3 |
| Juncus tenuis | path rush | JUNTEN | native | 1 | 0 |
| Larix laricina | tamarack | LARLAR | native | 5 | -3 |
| Lathyrus palustris | marsh pea | LATPAL | native | 7 | -3 |
| Lobelia kalmii | bog lobelia | LOBKAL | native | 10 | -5 |
| Lycopus americanus | common water horehound | LYCAME | native | 2 | -5 |
| Lycopus uniflorus | northern bugle weed | LYCUNI | native | 2 | -5 |
| Lysimachia terrestris | swamp-candles | LYSTER | native | 6 | -5 |
| Lysimachia thyrsiflora | tufted loosestrife | LYSTHY | native | 6 | -5 |
| Menispermum canadense | moonseed | MENCAE | native | 5 | 0 |
| Mentha canadensis | wild mint | MENCAS | native | 3 | -3 |
| Myrica gale | sweet gale | MYRGAL | native | 6 | -5 |
| Persicaria amphibia | water smartweed | PERAMP | native | 6 | -5 |
| Phalaris arundinacea | reed canary grass | PHAARU | native | 0 | -3 |
| Phragmites australis var. americanus | reed | PHRAUM | native | 5 | -3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Poa compressa | canada bluegrass | POACOM | non-native | 0 | 3 |
| Poa pratensis | kentucky bluegrass | POAPRA | non-native | 0 | 3 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Potentilla anserina | silverweed | POTANS | native | 5 | -3 |
| Potentilla norvegica | rough cinquefoil | POTNOR | native | 0 | 0 |
| Primula mistassinica | birds-eye primrose | PRIMIS | native | 10 | -3 |
| Proserpinaca palustris | mermaid-weed | PROPAL | native | 6 | -5 |
| Prunella vulgaris | self-heal | PRUVUL | native | 0 | 0 |
| Ranunculus sceleratus | cursed crowfoot | RANSCE | native | 1 | -5 |
| Rosa rugosa | japanese rose | ROSRUG | non-native | 0 | 3 |
| Rubus pubescens | dwarf raspberry | RUBPUB | native | 4 | -3 |
| Rubus strigosus | wild red raspberry | RUBSTR | native | 2 | 0 |
| Rumex orbiculatus | great water dock | RUMORB | native | 9 | -5 |
| Schoenoplectus acutus | hardstem bulrush | SCHACU | native | 5 | -5 |

**Appendix 2.11.** Standerson Island FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Scirpus atrovirens | bulrush | SCIATV | native | 3 | -5 |
| Scutellaria galericulata | marsh skullcap | SCUGAL | native | 5 | -5 |
| Scutellaria lateriflora | mad-dog skullcap | SCULAT | native | 5 | -5 |
| Selaginella eclipes | selaginella | SELECL | native | 5 | -3 |
| Sisyrinchium montanum | mountain blue-eyed-grass | SISMON | native | 4 | 0 |
| Symphyotrichum lateriflorum | calico aster | SYMLAT | native | 2 | 0 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |
| Trifolium repens | white clover | TRIREP | non-native | 0 | 3 |
| Urtica dioica | stinging nettle | URTDIO | native | 1 | 0 |
| Utricularia cornuta | horned bladderwort | UTRCOR | native | 10 | -5 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Verbena hastata | blue vervain | VERHAS | native | 4 | -3 |
| Veronica officinalis | common speedwell | VEROOF | non-native | 0 | 3 |
| Veronica serpyllifolia | thyme-leaved speedwell | VERSER | non-native | 0 | 0 |
| Viola nephrophylla | northern bog violet | VIONEP | native | 8 | -3 |

**Appendix 2.12.** Standerson Island Boreal Forest FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 3.2 |
| Native Mean C: | 4 |
| Total FQI: | 24.6 |
| Native FQI: | 27.7 |
| Adjusted FQI: | 36.1 |
| % C value 0: | 20.3 |
| % C value 1-3: | 39 |
| % C value 4-6: | 30.5 |
| % C value 7-10: | 10.2 |
| Native Tree Mean C: | 3.1 |
| Native Shrub Mean C: | 3.7 |
| Native Herbaceous Mean C: | 4.2 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 59 | |
| Native Species: | 48 | 81.40% |
| Non-native Species: | 11 | 18.60% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | -1.1 |
| Native Mean Wetness: | -1.9 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 9 | 15.30% |
| Shrub: | 4 | 6.80% |
| Vine: | 2 | 3.40% |
| Forb: | 26 | 44.10% |
| Grass: | 3 | 5.10% |
| Sedge: | 11 | 18.60% |
| Rush: | 1 | 1.70% |
| Fern: | 3 | 5.10% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 2 | 3.40% |
| Perennial: | 52 | 88.10% |
| Biennial: | 5 | 8.50% |
| Native Annual: | 2 | 3.40% |
| Native Perennial: | 45 | 76.30% |
| Native Biennial: | 1 | 1.70% |

**Appendix 2.12.** Standerson Island Boreal Forest FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Abies balsamea | balsam fir | ABIBAL | native | 3 | 0 |
| Alnus incana | speckled alder | ALNINC | native | 5 | -3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Anemone canadensis | canada anemone | ANECAN | native | 4 | -3 |
| Asclepias incarnata | swamp milkweed | ASCINC | native | 6 | -5 |
| Betula papyrifera | paper birch | BETPAP | native | 2 | 3 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Carex deweyana | sedge | CXDEWE | native | 3 | 3 |
| Carex eburnea | sedge | CXEBUR | native | 7 | 3 |
| Carex hystericina | sedge | CXHYST | native | 2 | -5 |
| Carex intumescens | sedge | CXINTU | native | 3 | -3 |
| Carex lacustris | sedge | CXLACU | native | 6 | -5 |
| Carex pedunculata | sedge | CXPEDU | native | 5 | 3 |
| Carex pseudo-cyperus | sedge | CXPSEU | native | 5 | -5 |
| Carex retrorsa | sedge | CXRETS | native | 3 | -5 |
| Carex sterilis | sedge | CXSTER | native | 10 | -5 |
| Carex stricta | sedge | CXSTRI | native | 4 | -5 |
| Carex trisperma | sedge | CXTRIS | native | 9 | -5 |
| Celastrus orbiculatus | oriental bittersweet | CELORB | non-native | 0 | 5 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium palustre | marsh thistle | CIRPAL | non-native | 0 | -3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Clinopodium vulgare | wild-basil | CLIVUL | native | 3 | 5 |
| Comarum palustre | marsh cinquefoil | COMPAL | native | 7 | -5 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Dryopteris intermedia | evergreen woodfern | DRYINT | native | 5 | 0 |
| Epipactis helleborine | helleborine | EPIHEL | non-native | 0 | 0 |
| Equisetum scirpoides | dwarf scouring rush | EQUSCI | native | 7 | 0 |
| Euthamia graminifolia | grass-leaved goldenrod | EUTGRA | native | 3 | 0 |
| Fraxinus nigra | black ash | FRANIG | native | 6 | -3 |
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Galium palustre | marsh bedstraw | GALPAL | native | 3 | -5 |
| Glyceria striata | fowl manna grass | GLYSTR | native | 4 | -5 |
| Gymnocarpium dryopteris | oak fern | GYMDRY | native | 5 | 3 |
| Hackelia deflexa | stickseed | HACDEF | native | 2 | 5 |
| Impatiens capensis | spotted touch-me-not | IMPCAP | native | 2 | -3 |
| Iris versicolor | wild blue flag | IRIVER | native | 5 | -5 |
| Juncus tenuis | path rush | JUNTEN | native | 1 | 0 |
| Larix laricina | tamarack | LARLAR | native | 5 | -3 |
| Lathyrus palustris | marsh pea | LATPAL | native | 7 | -3 |
| Lycopus americanus | common water horehound | LYCAME | native | 2 | -5 |
| Lycopus uniflorus | northern bugle weed | LYCUNI | native | 2 | -5 |
| Lysimachia terrestris | swamp-candles | LYSTER | native | 6 | -5 |
| Mentha canadensis | wild mint | MENCAS | native | 3 | -3 |
| Picea glauca | white spruce | PICGLA | native | 3 | 3 |
| Poa compressa | canada bluegrass | POACOM | non-native | 0 | 3 |

**Appendix 2.12.** Standerson Island Boreal Forest FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Populus tremuloides | quaking aspen | POPTRE | native | 1 | 0 |
| Potentilla norvegica | rough cinquefoil | POTNOR | native | 0 | 0 |
| Rosa rugosa | japanese rose | ROSRUG | non-native | 0 | 3 |
| Rubus pubescens | dwarf raspberry | RUBPUB | native | 4 | -3 |
| Rubus strigosus | wild red raspberry | RUBSTR | native | 2 | 0 |
| Scutellaria galericulata | marsh skullcap | SCUGAL | native | 5 | -5 |
| Scutellaria lateriflora | mad-dog skullcap | SCULAT | native | 5 | -5 |
| Symphyotrichum lateriflorum | calico aster | SYMLAT | native | 2 | 0 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Veronica officinalis | common speedwell | VEROOF | non-native | 0 | 3 |
| Veronica serpyllifolia | thyme-leaved speedwell | VERSER | non-native | 0 | 0 |

**Appendix 2.12.** Standerson Island Limestone Cobble Shore FQA.

Conservatism-Based Metrics:

| | |
|---|---|
| Total Mean C: | 3.9 |
| Native Mean C: | 4.5 |
| Total FQI: | 33.8 |
| Native FQI: | 36.3 |
| Adjusted FQI: | 41.9 |
| % C value 0: | 17.3 |
| % C value 1-3: | 26.7 |
| % C value 4-6: | 40 |
| % C value 7-10: | 16 |
| Native Tree Mean C: | 3.3 |
| Native Shrub Mean C: | 7 |
| Native Herbaceous Mean C: | 4.5 |

Species Richness:

| | | |
|---|---|---|
| Total Species: | 75 | |
| Native Species: | 65 | 86.70% |
| Non-native Species: | 10 | 13.30% |

Species Wetness:

| | |
|---|---|
| Mean Wetness: | -2.4 |
| Native Mean Wetness: | -3.2 |

Physiognomy Metrics:

| | | |
|---|---|---|
| Tree: | 4 | 5.30% |
| Shrub: | 3 | 4% |
| Vine: | 2 | 2.70% |
| Forb: | 42 | 56% |
| Grass: | 7 | 9.30% |
| Sedge: | 12 | 16% |
| Rush: | 4 | 5.30% |
| Fern: | 1 | 1.30% |
| Bryophyte: | 0 | 0% |

Duration Metrics:

| | | |
|---|---|---|
| Annual: | 4 | 5.30% |
| Perennial: | 66 | 88% |
| Biennial: | 5 | 6.70% |
| Native Annual: | 4 | 5.30% |
| Native Perennial: | 61 | 81.30% |
| Native Biennial: | 0 | 0% |

**Appendix 2.13.** Standerson Isl3and Limestone Cobble Shore FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Acorus americanus | sweet-flag | ACOAME | native | 6 | -5 |
| Agrostis scabra | ticklegrass | AGRSCA | native | 4 | 0 |
| Alnus incana | speckled alder | ALNINC | native | 5 | -3 |
| Anaphalis margaritacea | pearly everlasting | ANAMAR | native | 3 | 5 |
| Anemone canadensis | canada anemone | ANECAN | native | 4 | -3 |
| Apocynum cannabinum | indian-hemp | APOCAN | native | 3 | 0 |
| Asclepias syriaca | common milkweed | ASCSYR | native | 1 | 5 |
| Barbarea vulgaris | yellow rocket | BARVUL | non-native | 0 | 0 |
| Calamagrostis canadensis | blue-joint | CALCAN | native | 3 | -5 |
| Carex bebbii | sedge | CXBEBB | native | 4 | -5 |
| Carex deweyana | sedge | CXDEWE | native | 3 | 3 |
| Carex garberi | sedge | CXGARB | native | 8 | -3 |
| Carex granularis | sedge | CXGRAN | native | 2 | -3 |
| Carex hystericina | sedge | CXHYST | native | 2 | -5 |
| Carex stricta | sedge | CXSTRI | native | 4 | -5 |
| Carex viridula | sedge | CXVIRU | native | 4 | -5 |
| Carex vulpinoidea | sedge | CXVULP | native | 1 | -5 |
| Cirsium arvense | canada thistle | CIRARV | non-native | 0 | 3 |
| Cirsium palustre | marsh thistle | CIRPAL | non-native | 0 | -3 |
| Cirsium vulgare | bull thistle | CIRVUL | non-native | 0 | 3 |
| Clinopodium arkansanum | limestone calamint | CLIARK | native | 10 | -3 |
| Cynoglossum officinale | hounds-tongue | CYNOFF | non-native | 0 | 5 |
| Dichanthelium implicatum | panic grass | DICIMP | native | 3 | 0 |
| Eleocharis elliptica | golden-seeded spike rush | ELEELL | native | 6 | -5 |
| Eleocharis quinqueflora | spike-rush | ELEQUI | native | 10 | -5 |
| Erigeron philadelphicus | philadelphia fleabane | ERIPHI | native | 2 | 0 |
| Eupatorium perfoliatum | boneset | EUPPER | native | 4 | -3 |
| Fraxinus pennsylvanica | red ash | FRAPEN | native | 2 | -3 |
| Galium palustre | marsh bedstraw | GALPAL | native | 3 | -5 |
| Gentianopsis virgata | small fringed gentian | GENVIR | native | 8 | -5 |
| Glechoma hederacea | ground-ivy | GLEHED | non-native | 0 | 3 |
| Glyceria striata | fowl manna grass | GLYSTR | native | 4 | -5 |
| Hypericum kalmianum | kalms st. johns-wort | HYPKAL | native | 10 | -3 |
| Hypericum majus | larger canada st. johns-wort | HYPMAJ | native | 4 | -3 |
| Hypericum perforatum | common st. johns-wort | HYPPER | non-native | 0 | 5 |
| Impatiens capensis | spotted touch-me-not | IMPCAP | native | 2 | -3 |
| Iris versicolor | wild blue flag | IRIVER | native | 5 | -5 |
| Juncus balticus | rush | JUNBAL | native | 4 | -5 |
| Juncus brachycephalus | rush | JUNBRP | native | 7 | -5 |
| Juncus canadensis | canadian rush | JUNCAN | native | 6 | -5 |
| Juncus dudleyi | dudleys rush | JUNDUD | native | 1 | -3 |
| Larix laricina | tamarack | LARLAR | native | 5 | -3 |
| Lathyrus palustris | marsh pea | LATPAL | native | 7 | -3 |
| Lobelia kalmii | bog lobelia | LOBKAL | native | 10 | -5 |
| Lycopus americanus | common water horehound | LYCAME | native | 2 | -5 |
| Lycopus uniflorus | northern bugle weed | LYCUNI | native | 2 | -5 |

**Appendix 2.13.** Standerson Isl3and Limestone Cobble Shore FQA, continued.

| Scientific Name | Common Name | Acronym | Native? | C | W |
|---|---|---|---|---|---|
| Lysimachia terrestris | swamp-candles | LYSTER | native | 6 | -5 |
| Lysimachia thyrsiflora | tufted loosestrife | LYSTHY | native | 6 | -5 |
| Menispermum canadense | moonseed | MENCAE | native | 5 | 0 |
| Myrica gale | sweet gale | MYRGAL | native | 6 | -5 |
| Persicaria amphibia | water smartweed | PERAMP | native | 6 | -5 |
| Phalaris arundinacea | reed canary grass | PHAARU | native | 0 | -3 |
| Phragmites australis var. americanus | reed | PHRAUM | native | 5 | -3 |
| Poa pratensis | kentucky bluegrass | POAPRA | non-native | 0 | 3 |
| Populus balsamifera | balsam poplar | POPBAL | native | 2 | -3 |
| Potentilla anserina | silverweed | POTANS | native | 5 | -3 |
| Potentilla norvegica | rough cinquefoil | POTNOR | native | 0 | 0 |
| Primula mistassinica | birds-eye primrose | PRIMIS | native | 10 | -3 |
| Proserpinaca palustris | mermaid-weed | PROPAL | native | 6 | -5 |
| Prunella vulgaris | self-heal | PRUVUL | native | 0 | 0 |
| Ranunculus sceleratus | cursed crowfoot | RANSCE | native | 1 | -5 |
| Rumex orbiculatus | great water dock | RUMORB | native | 9 | -5 |
| Schoenoplectus acutus | hardstem bulrush | SCHACU | native | 5 | -5 |
| Scirpus atrovirens | bulrush | SCIATV | native | 3 | -5 |
| Scutellaria galericulata | marsh skullcap | SCUGAL | native | 5 | -5 |
| Scutellaria lateriflora | mad-dog skullcap | SCULAT | native | 5 | -5 |
| Selaginella eclipes | selaginella | SELECL | native | 5 | -3 |
| Sisyrinchium montanum | mountain blue-eyed-grass | SISMON | native | 4 | 0 |
| Thuja occidentalis | arbor vitae | THUOCC | native | 4 | -3 |
| Trifolium repens | white clover | TRIREP | non-native | 0 | 3 |
| Urtica dioica | stinging nettle | URTDIO | native | 1 | 0 |
| Utricularia cornuta | horned bladderwort | UTRCOR | native | 10 | -5 |
| Verbascum thapsus | common mullein | VERTHA | non-native | 0 | 5 |
| Verbena hastata | blue vervain | VERHAS | native | 4 | -3 |
| Viola nephrophylla | northern bog violet | VIONEP | native | 8 | -3 |

# Appendix 3. Ojibwe names for plants observed on Harbor Island NWR

This appendix includes a crosswalk between Ojibwe names, scientific names, and common English names for all species observed on Gull Island that are listed in "Plants used by the Great Lakes Ojibwa" (Meeker et al. 1993). The crosswalk constitutes Appendix 3.1. In addition, in Appendix 3.2 we list the observed plants by their Ojibwe names indexed by the natural community types where they were recorded on Gull Island.

Within the crosswalk, when multiple Ojibwe names are known for the same plant, the Ojibwe names are separated by a semi-colon. Many names were originally documented by non-Ojibwe speakers and the spellings of some of the names were not restored by Ojibwe speakers so are reproduced here phonetically (29; 27%). We indicate whether or not a plant has been restored. Note that we do not reproduce accents (diacritical marks) for names included only under a phonetic name in Meeker et al. (1993) and this may affect pronunciation (for example, some "s" = "zh"). Multiple scientific names separated by semi-colons indicate closely related species we have crosswalked to a single Ojibwe name. The first scientific name listed is the species listed in Meeker et al. (1993). If Meeker et al. (1993) lists a synonym or only includes a closely related species, then the scientific name used in Meeker et al. (1993) is listed in parentheses (*different but closely related species). Page numbers within the crosswalk indicate the page in Meeker et al. (1993) where the plant is referenced.

**Appendix 3.1. Crosswalk between Ojibwe names and scientific and English names.**

| Ojibwe Name | Restored | Page | Scientific Name | English Name |
|---|---|---|---|---|
| (gi)chigamiiwashk, -oon | Yes | 112 | *Juncus tenuis* | path rush |
| (gi)chi-mazaanashk | Yes | 103 | *Cirsium vulgare* | bull thistle |
| ?bebaamaabiig; okaaadaak; waaboozojiibik | Yes | 235 | *Antennaria howellii (*A. neglecta)* | small pussytoes |
| aaboojigan | Yes | 145 | *Phragmites australis var. americanus* | reed |
| aagimaak | Yes | 358 | *Fraxinus pennsylvanica* | red ash |
| aagimaak; baapaagimaak | Yes | 288 | *Fragaria virginiana* | wild strawberry |
| aagimaak; wiisagaak | Yes | 380 | *Fraxinus nigra* | black ash |
| aandegobagoons; namepin; namewashkoons | Yes | 343 | *Mentha canadensis (M. arvensis)* | field mint |
| aandegopin | Yes | 174 | *Lycopus americanus; Lycopus uniflorus (*L. asper)* | common water horehound |
| agongosimin, -ag | Yes | 217 | *Maianthemum stellatum (Smilacina stellata)* | starry false solomons-seal |
| agongosimin, -an | Yes | 177 | *Persicaria amphibia (Polygonum amphibium)* | water smartweed |
| agongosimin, -an, -ag | Yes | 326 | *Linnaea borealis* | twinflower |
| agongosimizh (plant); agongosimin, -an (berry); agongosi(wi)jiibik; ginebigwashk | Yes | 260 | *Maianthemum canadense* | canada mayflower |
| ah-o-je-mahg (adjimag) | No | 333 | *Sorbus americana; Sorbus decora* | american mountain-ash |
| ajidamoowaanow | Yes | 111 | *Hepatica americana* | round-lobed hepatica |
| ajidamoowaanow; waabigwan | Yes | 93 | *Acer spicatum* | mountain maple |
| akandamoo | Yes | 143 | *Nuphar variegata* | yellow pond-lily |
| ana ' ganuck | No | 378 | *Diervilla lonicera* | bush-honeysuckle |
| anaakan; anaakanashk; (gi)chigamiiwashk, -oon | Yes | 151 | *Schoenoplectus tabernaemontani (Scirpus validus)* | softstem bulrush |
| aniib, -iig | Yes | 310 | *Ulmus americana* | american elm |
| aniibimin | Yes | 204 | *Vaccinium macrocarpon* | large cranberry |
| animozid | Yes | 323 | *Gaultheria hispidula* | creeping-snowberry |
| aninaandag, -oog; ininaandag, -oog; bigiwaandag, -oog; zhinbog, --g; zhingobaaandag, -oog; zhingob bigiwaandag | Yes | 313 | *Abies balsamea* | balsam fir |
| aninaatig, -oog | Yes | 270 | *Acer rubrum* | red maple |
| anungokauh | No | 56 | *Maianthemum racemosum (Smilacina racemosa)* | false spikenard |
| apakwanagemag; bapakwanagemag; zhingobiins; zhingwaak | Yes | 219 | *Picea mariana* | black spruce |
| apakway; apakweshk; apakweshkway; nabagashk | Yes | 152 | *Typha latifolia* | broad-leaved cat-tail |

**Appendix 3.1.** Crosswalk between Ojibwe names and scientific and English names (coninued).

| Ojibwe Name | Restored | Page | Scientific Name | English Name |
|---|---|---|---|---|
| asa/isaweminagaawanzh (plant); asa/isawemin (berry) | Yes | 256 | *Prunus virginiana* | choke cherry |
| azaadi(i); azaadiins | Yes | 253 | *Populus tremuloides* | quaking aspen |
| azaadi(i); maanazaadi(i) | Yes | 328 | *Populus balsamifera* | balsam poplar |
| baasibagak; nameswashk; namewashkoons | Yes | 120 | *Potentilla norvegica* | rough cinquefoil |
| bagizowin; zesab | Yes | 156 | *Asclepias incarnata* | swamp milkweed |
| bagwajipin, iig; baasibagak | Yes | 249 | *Juniperus communis* | common or ground juniper |
| bawa'iminaan; gozigwaakomin, -ag | Yes | 329 | *Prunus pensylvanica* | pin cherry |
| bebezhigooganshii-mashkiki | Yes | 172 | *Lathyrus palustris* | marsh pea |
| bima ' kwit wa 'bigons | No | 365 | *Menispermum canadense* | moonseed |
| bine(wi)bag | Yes | 223 | *Pyrola americana (P. rotundifolia)* | round-leaved pyrola |
| bine(wi)bag; gidagi-bineobag; mashkiigojiibik | Yes | 199 | *Comarum palustre (Potentilla palustris)* | marsh cinquefoil |
| cigona ' gan | No | 250 | *Cornus sericea* | red-osier |
| doodooshaaboojiibik; mindimooyenh | Yes | 134 | *Taraxacum officinale* | common dandelion |
| gaagaagiwanzh; zesegaandag; zhingob; zhingob gaawaandag | Yes | 382 | *Pastinaca sativa* | wild parsnip |
| gaagigebag | Yes | 15 | *Anemone cylindrica* | thimbleweed |
| gaanda'igwaasoning ezhinaagwak | Yes | 206 | *Amelanchier arborea; A. interior; A. sanguinea (*A. laevis)* | juneberry |
| gaawaandag; gaawaandagwaatig; mina'ig; wadab; zesegaandag | Yes | 327 | *Picea glauca* | white spruce |
| gaie 'wuckuk | No | 150 | *Scirpus cyperinus* | wool-grass |
| gichi-ode'iminijiibik | Yes | 49 | *Polygonatum pubescens* | downy solomon seal |
| gickensine ' namukuk | Yes | 240 | *Betula alleghaniensis* | yellow birch |
| giizhigaandagizi; ogaawa/inzh | Yes | 43 | *Juncus effusus* | soft-stemmed rush |
| giizhik, -ag; gizhikens, -ag; giizhikenh | Yes | 387 | *Scutellaria galericulata* | marsh skullcap |
| ginoozhewashk; ozawijiibik; zhiiwibag | Yes | 127 | *Rumex crispus* | curly dock |
| gozwgwaakominagaawanzh (plant); gozigwaakomin, -ag (berry); ozagadigom; zazigaakominagaawamzh | Yes | 231 | *Actaea rubra* | red baneberry |
| ini ' niwin ' dibige ' gun'; baushkindjibgwaun | No | 308 | *Trillium grandiflorum* | common trillium |
| ininiwa/inzh; zhaabozigan | Yes | 99 | *Asclepias syriaca* | common milkweed |
| ishkodewijiibik | Yes | 101 | *Caltha palustris* | marsh-marigold |
| jasibonskok; aiankosing; gezibnusk; giji ' binusk | No | 107 | *Dryopteris cristata* | crested shield fern |
| maananoons, -ag | Yes | 297 | *Nymphaea odorata* | sweet-scented waterlily |
| mashkiigwaatig | Yes | 381 | *Larix laricina* | tamarack |

**Appendix 3.1.** Crosswalk between Ojibwe names and scientific and English names (coninued).

| Ojibwe Name | Restored | Page | Scientific Name | English Name |
|---|---|---|---|---|
| mashkode-miizhimizh; mitigomizh; wiisagi-mitigomizh | Yes | 304 | *Quercus rubra* | red oak |
| mauwidaekwaegozeediwushk | No | 139 | *Lathyrus ochroleucus* | pale vetchling |
| mazaan; mazaanaatig | Yes | 373 | *Thuja occidentalis* | arbor vitae |
| mazaanashk | Yes | 102 | *Cirsium arvense* | canada thistle |
| midewijiibik | Yes | 155 | *Anemone canadensis* | canada anemone |
| midodjidamo ' anuk | No | 17 | *Turritis glabra (Arabis glabra)* | tower mustard |
| migiziibag; migiziwibag; naemgosibag | Yes | 237 | *Erigeron strigosus; E. annus* | daisy fleabane |
| miinagaawanzh (plant); miin, -an (berry) | Yes | 227 | *Vaccinium angustifolium* | low sweet blueberry |
| miskominagaawanzh; miskwiminagaawanzh; miskomin, -ag; miskimin, -ag | Yes | 125 | *Rubus pubescens* | dwarf raspberry |
| miskoobimizh; miskwaabiimizh | Yes | 340 | *Cornus canadensis* | bunchberry |
| moozomizh | Yes | 314 | *Verbena hastata* | blue vervain |
| naaniibide'oodegin | Yes | 303 | *Polygala paucifolia* | gay-wings |
| nabagashk; wiikenh; zhaabozigan | Yes | 170 | *Iris versicolor* | wild blue flag |
| naubishkaukoot | No | 129 | *Sisyrinchium montanum* | mountain blue-eyed-grass |
| nawo 'buguk; wunukibugauh | No | 336 | *Trientalis borealis* | star-flower |
| nbiish-waawaasgone; gauwaukmeesh | No | 142 | *Nuphar advena* | yellow pond-lily |
| ne 'bagandag '; pebamabid-singup | No | 335 | *Taxus canadensis* | yew |
| neezhodaeyun | No | 325 | *Lemna minor; L. turionifera* | common or red duckweed |
| niya 'wibukuk '; siabuksing, sasabwaksing; piskagamisag | No | 163 | *Eupatorium perfoliatum* | boneset |
| nookwezigan | Yes | 71 | *Erigeron philadelphicus* | philadelphia fleabane |
| nookwezigan | Yes | 161 | *Equisetum sylvaticum* | woodland horsetail |
| ode'imin, -an; ode'iminijiibik | Yes | 109 | *Eurybia macrophylla (Aster macrophyllus)* | big-leaved aster |
| ode'iminijiibik; zhakaagomin; zhaashaagomin; zhaashaagominens | Yes | 319 | *Coptis trifolia* | goldthread |
| oga ' da mun; odite 'abug | No | 141 | *Melampyrum lineare* | cow-wheat |
| oginiiminagaawanzh | Yes | 82 | *Rosa acicularis* | wild rose |
| ogitebag | Yes | 158 | *Botrypus virginianus (Botrychium virginianum)* | rattlesnake fern |
| ojiibikens; waashkobijiibikak; wiishkbobijiibik | Yes | 316 | *Achillea millefolium* | yarrow |
| ojiibwe ' owe ' cuwun | No | 165 | *Galium tinctorium* | stiff bedstraw |
| ozaawaajiibik; ozaawijiibik | Yes | 375 | *Conyza canadensis* | horseweed |
| ozaawashkojiibik | Yes | 360 | *Impatiens capensis* | spotted touch-me-not |
| papshkisiganak; papskatciksi ' gana 'tig | Yes | 305 | *Sambucus racemosa* | red-berried elder |

**Appendix 3.1.** Crosswalk between Ojibwe names and scientific and English names (coninued).

| Ojibwe Name | Restored | Page | Scientific Name | English Name |
|---|---|---|---|---|
| pigwe 'wunusk | No | 118 | *Ostrya virginiana* | ironwood; hop-hornbeam |
| pis-naknishkuns | No | 171 | *Hordeum jubatum* | squirrel-tail grass |
| siba ' muckun | Yes | 320 | *Equisetum arvense* | common horsetail |
| skizgu-min | No | 331 | *Ranunculus sceleratus* | cursed crowfoot |
| sus-sabu-min | No | 383 | *Ribes hirtellum* | swamp gooseberry |
| tcatcabonu ' ksik; zheebaunkudohnse | No | 182 | *Rubus strigosus (R. idaeus)* | wild red raspberry |
| tikizidgeebikohnse | Yes | 24 | *Pinus strobus* | white pine |
| wa 'sawasni 'mike | No | 175 | *Myrica gale* | sweet gale |
| waabigwan | Yes | 104 | *Capsella bursa-pastoris* | shepherds-purse |
| waabigwan; baasibagak | Yes | 14 | *Anaphalis margaritacea* | pearly everlasting |
| waabiziipin | Yes | 149 | *Sagittaria graminea (*S. latifolia)* | grass-leaved arrowhead |
| waaboozobagoons; waaboozobanzh | Yes | 42 | *Galium trifidum* | small bedstraw |
| waboskiki ' minun | No | 164 | *Fraxinus americana* | white ash |
| wadoop, -iin | Yes | 339 | *Alnus incana* | speckled alder |
| wewai ' bugug | Yes | 338 | *Viola labradorica (V. conspersa)* | dog violet |
| wezaawaaskoneg | Yes | 41 | *Euthamia graminifolia* | flat-topped goldenrod |
| wezauskwagmik; osawa ' skanet | No | 245 | *Dendrolycopodium obscurum; D. dendroideum (*Lycopodium o.)* | ground-pine |
| wiigwaas, -an, -ag; wiigwaasaatig; wiigwaasi-mitig; wiigwaasimizh | Yes | 239 | *Betula papyrifera* | paper birch |
| wiikenh; nabagashk, -oon; makshosii-zhaabozigan | Yes | 154 | *Acorus americanus (A. calamus)* | sweet-flag |
| wiiniziikens | Yes | 157 | *Symphyotrichum puniceum; S. firmum (Aster puniceus)* | swamp aster |
| wiinizik | Yes | 277 | *Aralia nudicaulis* | wild sarsaparilla |
| zesabiins | Yes | 64 | *Apocynum cannabinum* | indian-hemp |
| zhaashaagobiimag | Yes | 315 | *Acer saccharum* | sugar maple |
| zhawaseshkoohnse | No | 186 | *Urtica dioica* | stinging nettle |
| zhiishiiginewanzh, iig; zhiishiigimiiwanzh, -iig | Yes | 229 | *Acer pensylvanicum* | striped maple |
| zhingwaak | Yes | 220 | *Pinus resinosa* | red pine |
| No name given (*P. vulgaris* ) | No | 180 | *Prunella vulgaris* | self-heal |

**Appendix 3.2.** Ojibwe plant names indexed by natural community type and island (a = Harbor, b = Standerson).

| Ojibwe Name | Scientific Name | English Name | Boreal Forest | Dry-mesic Northern Forest | Great Lakes Marsh | Limestone Cobble Shore | Mesic Northern Forest | Rich Conifer Swamp | Other | Harbor | Stan-derson |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (gi)chigamiiwashk, -oon | *Juncus tenuis* | path rush | b | | | a | | | a | X | X |
| (gi)chi-mazaanashk | *Cirsium vulgare* | bull thistle | a | | a | a, b | a | | a | X | X |
| ?bebaamaabiig; okaaadaak; waaboozojiibik | *Antennaria howellii (*A. neglecta)* | small pussytoes | | | | | | | a | X | |
| aaboojigan | *Phragmites australis var. americanus* | reed | | | a | b | | | a | X | X |
| aagimaak | *Fraxinus pennsylvanica* | red ash | a, b | | a | a, b | a | a | a | X | X |
| aagimaak; baapaagimaak | *Fragaria virginiana* | wild strawberry | a | | | | | | a | X | |
| aagimaak; wiisagaak | *Fraxinus nigra* | black ash | a, b | a | a | | | a | | X | X |
| aandegobagoons; namepin; namewashkoons | *Mentha canadensis (M. arvensis)* | field mint | b | | a | | | | | X | X |
| aandegopin | *Lycopus americanus; Lycopus uniflorus (*L. asper)* | common water horehound | b | | a | a, b | | a | a | X | X |
| agongosimin, -ag | *Maianthemum stellatum (Smilacina stellata)* | starry false solomons-seal | | a | | | | | | X | |
| agongosimin, -an | *Persicaria amphibia (Polygonum amphibium)* | water smartweed | | | a | a, b | | | | X | X |
| agongosimin, -an, -ag | *Linnaea borealis* | twinflower | a | | | | | a | | X | |
| agongosimizh (plant); agongosimin, -an (berry); agongosi(wi)jiibik; ginebigwashk | *Maianthemum canadense* | canada mayflower | a | a | | | a | a | | X | |
| ah-o-je-mahg (adjimag) | *Sorbus americana; Sorbus decora* | american mountain-ash | a | | | | | a | | X | |
| ajidamoowaanow | *Hepatica americana* | round-lobed hepatica | a | | | | | | | X | |
| ajidamoowaanow; waabigwan | *Acer spicatum* | mountain maple | a | | | | | a | | X | |
| akandamoo | *Nuphar variegata* | yellow pond-lily | | | a | | | | | X | |
| ana ' ganuck | *Diervilla lonicera* | bush-honeysuckle | a | | | | | a | | X | |
| anaakan; anaakanashk; (gi)chigamiiwashk, -oon | *Schoenoplectus tabernaemontani (Scirpus validus)* | softstem bulrush | | | a | a | | | | X | |
| aniib, -iig | *Ulmus americana* | american elm | | | | a | | | | X | |
| aniibimin | *Vaccinium macrocarpon* | large cranberry | | | | | | a | | X | |
| animozid | *Gaultheria hispidula* | creeping-snowberry | | | | | | a | | X | |
| aninaandag, -oog; ininaandag, -oog; bigiwaandag, -oog; zhinbog, --g; zhingobaaandag, -oog; zhingob bigiwaandag | *Abies balsamea* | balsam fir | a, b | a | a | a | a | a | a | X | X |
| aninaatig, -oog | *Acer rubrum* | red maple | | a | a | a | a | a | | X | |
| anungokauh | *Maianthemum racemosum (Smilacina racemosa)* | false spikenard | a | | | | a | | | X | |
| apakwanagemag; bapakwanagemag; zhingobiins; zhingwaak | *Picea mariana* | black spruce | | | | | | a | | X | |
| apakway; apakweshk; apakweshkway; nabagashk | *Typha latifolia* | broad-leaved cat-tail | | | a | a | | a | | X | |
| asa/isaweminagaawanzh (plant); asa/isawemin (berry) | *Prunus virginiana* | choke cherry | a | | | | | | | X | |
| azaadi(i); azaadiins | *Populus tremuloides* | quaking aspen | a, b | a | | a, b | a | a | a | X | X |
| azaadi(i); maanazaadi(i) | *Populus balsamifera* | balsam poplar | a, b | a | a | a, b | a | | a | X | X |
| baasibagak; nameswashk; namewashkoons | *Potentilla norvegica* | rough cinquefoil | b | | a | a | | | | X | X |
| bagizowin; zesab | *Asclepias incarnata* | swamp milkweed | b | | a | | | | | X | X |

**Appendix 3.2.** Ojibwe plant names indexed by natural community type and island (a = Harbor, b = Standerson). (continued).

| Ojibwe Name | Scientific Name | English Name | Boreal Forest | Dry-mesic Northern Forest | Great Lakes Marsh | Limestone Cobble Shore | Mesic Northern Forest | Rich Conifer Swamp | Other | Harbor | Stan-derson |
|---|---|---|---|---|---|---|---|---|---|---|---|
| bagwajipin, iig; baasibagak | *Juniperus communis* | common or ground juniper | | a | | | a | | a | X | |
| bawa'iminaan; gozigwaakomin, -ag | *Prunus pensylvanica* | pin cherry | a | | | | a | | | X | |
| bebezhigooganshii-mashkiki | *Lathyrus palustris* | marsh pea | b | | a | a, b | | | a | X | X |
| bima ' kwit wa 'bigons | *Menispermum canadense* | moonseed | | | | a, b | | | | | X |
| bine(wi)bag | *Pyrola americana (P. rotundifolia)* | round-leaved pyrola | a | | | | | | | X | |
| bine(wi)bag; gidagi-bineobag; mashkiigojiibik | *Comarum palustre (Potentilla palustris)* | marsh cinquefoil | b | | a | | | | | X | X |
| cigona ' gan | *Cornus sericea* | red-osier | a | | | | | a | | X | |
| doodooshaaboojiibik; mindimooyenh | *Taraxacum officinale* | common dandelion | a | a | | a | a | a | a | X | |
| gaagaagiwanzh; zesegaandag; zhingob; zhingob gaawaandag | *Pastinaca sativa* | wild parsnip | | | | | | | a | X | |
| gaagigebag | *Anemone cylindrica* | thimbleweed | | | | | | | a | X | |
| gaanda'igwaasoning ezhinaagwak | *Amelanchier arborea; A. interior; A. sanguinea (*A. laevis)* | juneberry | a | | | | | | | X | |
| gaawaandag; gaawaandagwaatig; mina'ig; wadab; zesegaandag | *Picea glauca* | white spruce | a, b | a | | a | a | a | a | X | X |
| gaie 'wuckuk | *Scirpus cyperinus* | wool-grass | | | a | | | a | | X | |
| gichi-ode'iminijiibik | *Polygonatum pubescens* | downy solomon seal | a | | | | a | | | X | |
| gickensine ' namukuk | *Betula alleghaniensis* | yellow birch | a | | | | | a | | X | |
| giizhigaandagizi; ogaawa/inzh | *Juncus effusus* | soft-stemmed rush | | | a | a | | | | X | |
| giizhik, -ag; gizhikens, -ag; giizhikenh | *Scutellaria galericulata* | marsh skullcap | b | | a | a, b | a | a | a | X | X |
| ginoozhewashk; ozawijiibik; zhiiwibag | *Rumex crispus* | curly dock | | | | a | | | | X | |
| gozwgwaakominagaawanzh (plant); gozigwaakomin, -ag (berry); ozagadigom; zazigaakominagaawamzh | *Actaea rubra* | red baneberry | | a | | | | | | X | |
| ini ' niwin ' dibige ' gun'; baushkindjibgwaun | *Trillium grandiflorum* | common trillium | | | | | a | a | | X | |
| ininiwa/inzh; zhaabozigan | *Asclepias syriaca* | common milkweed | | | | b | a | | a | X | X |
| ishkodewijiibik | *Caltha palustris* | marsh-marigold | | | | | | a | | X | |
| jasibonskok; aiankosing; gezibnusk; giji ' binusk | *Dryopteris cristata* | crested shield fern | | | | | | a | | X | |
| maananoons, -ag | *Nymphaea odorata* | sweet-scented waterlily | | | a | | | | | X | |
| mashkiigwaatig | *Larix laricina* | tamarack | b | | | a, b | | | | X | X |
| mashkode-miizhimizh; mitigomizh; wiisagi-mitigomizh | *Quercus rubra* | red oak | | a | | | a | | a | X | |
| mauwidaekwaegozeediwush k | *Lathyrus ochroleucus* | pale vetchling | a | | | | a | | | X | |
| mazaan; mazaanaatig | *Thuja occidentalis* | arbor vitae | a, b | a | a | a, b | a | a | | X | X |
| mazaanashk | *Cirsium arvense* | canada thistle | a, b | | a | a, b | a | | a | X | X |
| midewijiibik | *Anemone canadensis* | canada anemone | b | | | a, b | | | | X | X |
| midodjidamo ' anuk | *Turritis glabra (Arabis glabra)* | tower mustard | | | | | | | a | X | |
| migiziibag; migiziwibag; naemgosibag | *Erigeron strigosus; E. annus* | daisy fleabane | | | a | a | | | | X | |
| miinagaawanzh (plant); miin, - an (berry) | *Vaccinium angustifolium* | low sweet blueberry | | a | | | | | | X | |

**Appendix 3.2.** Ojibwe plant names indexed by natural community type and island (a = Harbor, b = Standerson). (continued).

| Ojibwe Name | Scientific Name | English Name | Boreal Forest | Dry-mesic Northern Forest | Great Lakes Marsh | Limestone Cobble Shore | Mesic Northern Forest | Rich Conifer Swamp | Other | Harbor | Stan-derson |
|---|---|---|---|---|---|---|---|---|---|---|---|
| miskominagaawanzh; miskwiminagaawanzh; miskomin, -ag; miskimin, -ag | *Rubus pubescens* | dwarf raspberry | b | | | | | a | | X | X |
| miskoobimizh; miskwaabiimizh | *Cornus canadensis* | bunchberry | | | | | | a | | X | |
| moozomizh | *Verbena hastata* | blue vervain | | | a | a, b | | | a | X | X |
| naaniibide'oodegin | *Polygala paucifolia* | gay-wings | a | a | | | | a | | X | |
| nabagashk; wiikenh; zhaabozigan | *Iris versicolor* | wild blue flag | b | | a | a, b | | a | a | X | X |
| naubishkaukoot | *Sisyrinchium montanum* | mountain blue-eyed-grass | | | | a, b | | | | X | |
| nawo 'buguk; wunukibugauh | *Trientalis borealis* | star-flower | a | a | | | a | a | | X | |
| nbiish-waawaasgone; gauwaukmeesh | *Nuphar advena* | yellow pond-lily | | | | | | a | | X | |
| ne 'bagandag '; pebamabid-singup | *Taxus canadensis* | yew | a | | | | | a | | X | |
| neezhodaeyun | *Lemna minor; L. turionifera* | common or red duckweed | | | a | | | a | | X | |
| niya 'wibukuk '; siabuksing, sasabwaksing; piskagamisag | *Eupatorium perfoliatum* | boneset | | | a | b | | | | X | X |
| nookwezigan | *Erigeron philadelphicus* | philadelphia fleabane | | | | a, b | | | | X | X |
| nookwezigan | *Equisetum sylvaticum* | woodland horsetail | | | | | | a | | X | |
| ode'imin, -an; ode'iminijiibik | *Eurybia macrophylla (Aster macrophyllus)* | big-leaved aster | | | | | a | | | X | |
| ode'iminijiibik; zhakaagomin; zhaashaagomin; zhaashaagominens | *Coptis trifolia* | goldthread | | | | | | a | | X | |
| oga ' da mun; odite 'abug | *Melampyrum lineare* | cow-wheat | | a | | | | | | X | |
| oginiiminagaawanzh | *Rosa acicularis* | wild rose | | | | | a | | | X | |
| ogitebag | *Botrypus virginianus (Botrychium virginianum)* | rattlesnake fern | a | | | | a | | | X | |
| ojiibikens; waashkobijiibikak; wiishkbobijiibik | *Achillea millefolium* | yarrow | | | | | | | a | X | |
| ojiibwe ' owe ' cuwun | *Galium tinctorium* | stiff bedstraw | | | | | | | | X | |
| ozaawaajiibik; ozaawijiibik | *Conyza canadensis* | horseweed | | | | a | | | | X | |
| ozaawashkojiibik | *Impatiens capensis* | spotted touch-me-not | b | | a | a, b | | a | a | X | X |
| papshkisiganak; papskatciksi ' gana 'tig | *Sambucus racemosa* | red-berried elder | a | | | | a | | | X | |
| pigwe 'wunusk | *Ostrya virginiana* | ironwood; hop-hornbeam | | | | a | a | | | X | |
| pis-naknishkuns | *Hordeum jubatum* | squirrel-tail grass | | | | a | | a | | X | |
| siba ' muckun | *Equisetum arvense* | common horsetail | a | | | a | | a | a | X | |
| skizgu-min | *Ranunculus sceleratus* | cursed crowfoot | | | | b | | | | | X |
| sus-sabu-min | *Ribes hirtellum* | swamp gooseberry | | | | | | a | | X | |
| tcatcabonu ' ksik; zheebaunkudohnse | *Rubus strigosus (R. idaeus)* | wild red raspberry | a, b | | | a | a | a | a | X | X |
| tikizidgeebikohnse | *Pinus strobus* | white pine | a | a | | | a | | a | X | |
| wa 'sawasni 'mike | *Myrica gale* | sweet gale | | | a | a, b | | | | X | X |
| waabigwan | *Capsella bursa-pastoris* | shepherds-purse | | | a | | | | | X | |
| waabigwan; baasibagak | *Anaphalis margaritacea* | pearly everlasting | a | | | a, b | a | | a | X | X |
| waabiziipin | *Sagittaria graminea (*S. latifolia)* | grass-leaved arrowhead | | | a | | | | | X | |
| waaboozobagoons; waaboozobanzh | *Galium trifidum* | small bedstraw | | | | | | a | | X | |

**Appendix 3.2.** Ojibwe plant names indexed by natural community type and island (a = Harbor, b = Standerson). (continued).

| Ojibwe Name | Scientific Name | English Name | Boreal Forest | Dry-mesic Northern Forest | Great Lakes Marsh | Limestone Cobble Shore | Mesic Northern Forest | Rich Conifer Swamp | Other | Harbor | Stan-derson |
|---|---|---|---|---|---|---|---|---|---|---|---|
| waboskiki ' minun | *Fraxinus americana* | white ash | a | | | | a | | | X | |
| wadoop, -iin | *Alnus incana* | speckled alder | b | | a | b | | | | X | X |
| wewai ' bugug | *Viola labradorica (V. conspersa)* | dog violet | a | | | a | a | a | a | X | |
| wezaawaaskoneg | *Euthamia graminifolia* | flat-topped goldenrod | b | | | | | | | | X |
| wezauskwagmik; osawa ' skanet | *Dendrolycopodium obscurum; D. dendroideum (*Lycopodium o.)* | ground-pine | a | | | | a | | | X | |
| wiigwaas, -an, -ag; wiigwaasaatig; wiigwaasi-mitig; wiigwaasimizh | *Betula papyrifera* | paper birch | a, b | a | a | a | a | a | | X | X |
| wiikenh; nabagashk, -oon; makshosii-zhaabozigan | *Acorus americanus (A. calamus)* | sweet-flag | | | | b | | | | | X |
| wiiniziikens | *Symphyotrichum puniceum; S. firmum (Aster puniceus)* | swamp aster | | | | a | | | | X | |
| wiinizik | *Aralia nudicaulis* | wild sarsaparilla | a | | | | | a | | X | |
| zesabiins | *Apocynum cannabinum* | indian-hemp | | | | b | | | | | X |
| zhaashaagobiimag | *Acer saccharum* | sugar maple | a | a | | a | a | | a | X | |
| zhawaseshkoohnse | *Urtica dioica* | stinging nettle | a | | | a, b | a | a | | X | X |
| zhiishiiginewanzh, iig; zhiishiigimiiwanzh, -iig | *Acer pensylvanicum* | striped maple | a | | | | | a | | X | |
| zhingwaak | *Pinus resinosa* | red pine | | a | | | a | | a | X | |
| No name given (*P. vulgaris* ) | *Prunella vulgaris* | self-heal | | | | b | | | a | X | X |