

Michigan Natural Features Inventory

A Field Guide to Invasive Plants of Aquatic and Wetland Habitats for Michigan

Compiled by:

Suzan Campbell, Phyllis Higman, Brad Slaughter and Ed Schools

Designed to fit in your back pocket!

An invaluable resource for professionals and amateurs alike, *A Field Guide to Invasive Plants of Aquatic and Wetland Habitats for Michigan* includes photos and descriptions of 47 invasive plant species. Funded by DNRE - Water Bureau as part of a broader research project, the field guide is now available for download from MNFI's website. Aquatic and wetland species are included, along with a number of upland species that commonly venture into wetland habitats.

With the longest freshwater coastline in the United States, over 11,000 inland lakes, and extensive wetlands, Michigan is particularly vulnerable to the impacts of invasive plants. They pose a significant threat to Michigan's aquatic and wetland resources and their impacts are wide-ranging.

Invasive plants reduce overall plant and animal diversity, destroy critical biological resources such as fish nursery habitat, simplify natural communities, reduce property values, restrict fishing, boating and other recreational opportunities, and necessitate large public and private expenditures to mitigate their spread.



The guide is organized into two major sections:

- a pictorial key; and
- species accounts.

Species accounts include common and scientific names, photographs, legal

restrictions where applicable, a brief description of each plant's characteristics, habitat information, dispersal modes and the best times for survey. The guide also includes an introductory section with monitoring guidance. Appendices include info on which natural communities each species has invaded to date, a glossary, a listing of useful online resources, selected references and an index.

Paper, full color, 91 pages, 7" x 4.5"

Much more inside!

Key

A. Does the plant have floating leaves? go to page 5

A. The plant does NOT have floating leaves.

B. Is the plant submerged?

C. Are the leaves finely divided? go to page 6

C. The leaves are NOT finely divided.

D. Are the leaves opposite or alternate? go to page 7

D. Are the leaves whorled? go to page 8

B. The plant is NOT submerged - the plant is emergent or terrestrial.

E. Is the plant woody? go to page 9

E. The plant is NOT woody.

F. Is the plant a grass? go to page 10

F. The plant is NOT a grass.

G. Are all of the leaves basal - do they arise from the base? go to page 11

G. The leaves are NOT all basal - at least some of them arise from the stem.

H. Does the plant have opposite or whorled leaves? go to page 12

H. The plant does NOT have opposite or whorled leaves. Its leaves are alternate. go to page 13

Floating plants

Floating leaves:

- Pond water-starwort, p. 22 *Callitriche stagnalis*
- Water hyacinth, p. 26 *Eichhornia crassipes*
- European frog-bit, p. 34 *Hydrocharis morsus-ranae*
- European water-clover, p. 42 *Menyanthes triflorata*
- Water lettuce, p. 52 *Pistia stratiotes*
- Yellow floating heart, p. 48 *Nymphaeodes peltata*
- Giant salvinia, p. 59 *Salvinia molesta*
- Water chestnut, p. 61 *Tropaeolum natans*

Appendix III: Invasive species - by community

Common name	Scientific name	Submerged float. fr.	Emergent float. fr.	Emerg. Lakes/Str. P.	Wet Meadow	Wet Prairie	Fern	Shrub Swamp	Floodplain Forest	Deciduous Swamp	Coniferous Swamp	Boysenberry	Deciduous Forest
Gallic thistle	<i>Alnus petiolata</i>												
Black alder	<i>Alnus glutinosa</i>												
Giant reed	<i>Arundo donax</i>												
Japanese barberry	<i>Berberis thunbergii</i>												
Flowering rush	<i>Butorinus umbellatus</i>												
Cardinal flower	<i>Cardinalis canadensis</i>												
Pond water-starwort	<i>Callitriche stagnalis</i>												
Marsh thistle	<i>Cirsium palustre</i>												
Swamp stonecrop	<i>Cuscuta helmsii</i>												
Brazilian water-weed	<i>Egeria densa</i>												
Common water hyacinth	<i>Eichhornia crassipes</i>												
Autumn olive	<i>Elaeagnus umbellata</i>												
European fireweed	<i>Epilobium hirsutum</i>												
Glossy buckthorn	<i>Fraxinus alnus</i>												
Reed marngrass	<i>Glyceria maxima</i>												
Damier's rocket	<i>Hesperis matronalis</i>												
Japanese hops	<i>Humulus japonicus</i>												
Hydrilla	<i>Hydrilla verticillata</i>												
European frog bit	<i>Hydrocharis morsus-ranae</i>												
Inland swampweed	<i>Hygrophila polysperma</i>												
Ornamental jewelweed	<i>Impatiens glandulifera</i>												
Yellow iris	<i>Iris pseudacorus</i>												
African oxygen weed	<i>Lagotisphorum major</i>												
Moneywort	<i>Lysimachia nummularia</i>												

Glossary

acidic - having a pH of less than 7; increasing the concentration of H+ ions when dissolved in water; the opposite of basic or alkaline.

alkaline - having a pH of greater than 7; increasing the concentration of OH- ions when dissolved in water; the opposite of acidic.

alternate - arranged with one per node, as in leaves on a stem.

annual - a plant that germinates, flowers, sets seed and dies in one year.

anther - the pollen-bearing part of a stamen.

aquatic - growing in water.

axill - the position where a leaf or branch joins the stem.

backwater - a body of water that is out of the main current of a larger body of water, such as in inlet or bay.

ballast water - water held in a tank on a ship to improve stability; the source of many invasive species, as it is typically drawn directly from surrounding waters and discharged elsewhere.

basal - at the base or ground level.

bearded - with a clump of hairs.

berry - a fleshy fruit with several seeds, derived from a single ovary such as a blueberry or elderberry.

biennial - a plant that lives only two years; flowering, producing seed and dying in the second year.

brackish - salty as in water; a mixture of saltwater and freshwater.

bract - a specialized leaf-like structure from which a flower or flower stalk grows; some may be very small.

bulb - a small new bulb that grows around a parent bulb or a bulb-like structure that grows in the leaf axil.

calyx - the sepal, collectively.

Pictorial key

Reference tables

Glossary



The field guide is available online for download from MNFI's publications page at:

<http://web4.msue.msu.edu/mnfi/pub/publications.cfm>